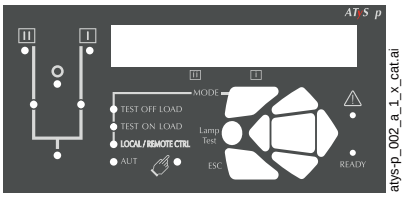
Spares

ATyS p front panel

This front panel is used, for the ATyS p only, if source 2 is connected to unit I and source 1 is connected to unit II. Positions I and II are reversed on the front panel.



atys-p_002_a_1_x_cat.ai

Product model	Reference
ATyS p	9599 **1008**

Electronic module - controler

The electrical components of the ATyS g and p are easy to replace in case there is a problem, even when on-load.


atys-p_001_b

Product model	Reference
ATyS g	9559 **2001**
ATyS p	9579 **2001**

Motorisation module

The motor units of the ATyS r, g and p are easy to replace in case there is a problem, even when on-load.


atys_871_a

Rating (A)	Reference
125 ... 200	9509 **5020**
250 ... 400	9509 **5040**
500 ... 630	9509 **5063**
800 ... 1250	9509 **5120**
1600	9509 **5160**
2000 ... 3200	9509 **5320**

Switching module

If you need to replace just the switching part on an ATyS r, g or p, order SIRCOVER items.
Please refer to “SIRCOVER” pages.


svr_151_a

Characteristics according to IEC 60947-3 and IEC 60947-6-1

125 to 630 A

Thermal current I_{th} to 40°C		**125 A**	**160 A**	**200 A**	**250 A**	**315 A**	**400 A**	**500 A**	**630 A**
Frame size		**B3**	**B3**	**B3**	**B4**	**B4**	**B4**	**B5**	**B5**
Rated insulation voltage U_i (V) (power circuit)		800	800	800	1000	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV) (power circuit)		8	8	8	12	12	12	12	12
Rated insulation voltage U_i (V) (control circuit)		300	300	300	300	300	300	300	300
Rated impulse withstand voltage U_{imp} (kV) (control circuit)		4	4	4	4	4	4	4	4
Rated operational currents I_e (A) according to IEC 60947-6-1									
Rated voltage	**Utilisation category**								
415 VAC	AC-31 B	125	160	200	250	315	400	500	630
415 VAC	AC-32 B				200	315	400	500	500
415 VAC	AC-33 B				200	200	200	400	400
Rated operational currents I_e (A) according to IEC 60947-3									
Rated voltage	**Utilisation category**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**
415 VAC	AC-21 A / AC-21 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630
415 VAC	AC-22 A / AC-22 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630
415 VAC	AC-23 A / AC-23 B	125/125	160/160	200/200	200/200	315/315	400/400	500/500	500 /630
500 VAC	AC-21 A / AC-21 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630
500 VAC	AC-22 A / AC-22 B	125/125	160/160	200/200	200/250	200/315	200/400	500/500	500/500
500 VAC	AC-23 A / AC-23 B	80/80	80/80	80/80	200/200	200/200	200/200	400/400	400/400
690 VAC(3)	AC-21 A / AC-21 B	125/125	160/160	200/200	200/200	200/200	200/200	500/500	500/500
690 VAC(3)	AC-22 A / AC-22 B	125/125	125/125	125/125	160/160	160/160	160/160	400/400	400/400
690 VAC(3)	AC-23 A / AC-23 B	63/80	63/80	63/80	125/125	125/125	125/125	400/400	400/400
220 VDC	DC-21 A / DC-21 B	125/125	160/160	200/200	250/250	250/250	250/250	500/500	630/630
220 VDC	DC-22 A / DC-22 B	125/125	160/160	200/200	250/250	250/250	250/250	500/500	630/630
220 VDC	DC-23 A / DC-23 B	125/125	125/125	125/125	200/200	200/200	200/200	500/500	630/630
440 VDC (2)	DC-21 A / DC-21 B	125/125	125/125	125/125	200/200	200/200	200/200	500/500	630/630
440 VDC (2)	DC-22 A / DC-22 B	125/125	125/125	125/125	200/200	200/200	200/200	500/500	630/630
440 VDC (2)	DC-23 A / DC-23 B	125/125	125/125	125/125	200/200	200/200	200/200	500/500	630/630
Current rated as conditional short-circuit with fuse gG DIN, according to IEC 60947-3									
Prospective fuse protected short-circuit withstand at 415 VAC(6)		100	100	50	50	50	50	50	50
Prospective fuse protected short-circuit withstand at 690 VAC(kA rms)					50	50	50	50	50
Associated fuse rating (A)		125	160	200	250	315	400	500	630
Short-circuit withstand without protection as per IEC 60947-3									
Rated short-time withstand current 0.3s I_{cw} at 415 VAC (kA rms)		12	12	12	15 (4)	15 (4)	15 (4)	17 (4)	17 (4)
Rated short-time withstand current 1s I_{cw} at 415 VAC (kA rms)		7	7	7	8 (4)	8 (4)	8 (4)	11 (4)	10 (4)
Rated peak withstand current at 415 VAC (kA peak)		20	20	20	30	30	30	45	45
Connection									
Minimum Cu cable cross-section as per IEC 60947-1 (mm^2)		35	35	50	95	120	185	2 x 95	2 x 120
Recommended Cu busbar cross-section (mm^2)								2 x 32 x 5	2 x 40 x 5
Maximum Cu cable cross-section (mm^2)		50	95	120	150	240	240	2 x 185	2 x 300
Maximum Cu busbar width (mm)		25	25	25	32	32	32	50	50
Min./max. tightening torque (Nm)		9/13	9/13	9/13	20/26	20/26	20/26	40/45	40/45
Switching time (rated voltage, after receiving command)									
Transfer time I-II or II-I (s)		0.85	0.85	0.85	0.9	0.9	0.9	0.95	0.95
I-0 or II-0 (s)		0.55	0.55	0.55	0.5	0.5	0.5	0.55	0.55
Contact transfer time ("black-out" I-II) minimum (s)		0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4
Power supply									
Min./max. auxiliary power supply (VAC)		166/332	166/332	166/332	166/332	166/332	166/332	166/332	166/332
Control supply power demand									
Inrush / nominal power (VA) - ATyS r		184/92	184/92	184/92	276/115	276/115	276/115	276/150	276/150
Inrush / nominal power (VA) - ATyS g , p		206/114	206/114	206/114	298/137	298/137	298/137	298/172	298/172
Mechanical specifications									
Durability (number of operating cycles)		10,000	10,000	10,000	8,000	8,000	8,000	5,000	5,000
Weight ATyS r 3 P / 4 P (kg)		5.7/ 6.9	5.7/ 6.9	5.7/ 6.9	6.6/ 7.4	6.7/ 7.8	6.7/ 7.8	11.4/ 13.3	11.9/ 14.0
Weight ATyS g, p 3 P / 4 P (kg)		6.8/ 8.0	6.8/ 8.0	6.8/ 8.0	7.7/ 8.5	7.8/ 8.9	7.8/ 8.9	12.5/ 14.4	13.0/ 15.1

(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) 3-pole device with 2 pole in series for the "+" an 1 pole for the "-".
4-pole device with 2 poles in series by polarity.
(3) Interphase barriers must be installed on the products.
(4) Values given at 690 VAC.

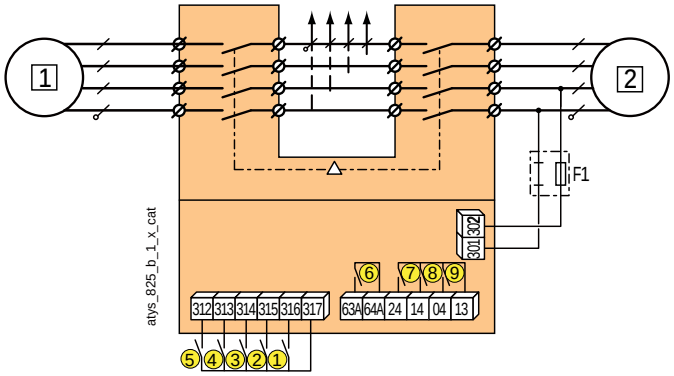
800 to 3200 A

Thermal current I_{th} at 40°C		**800 A**	**1000 A**	**1250 A**	**1600 A**	**2000 A**	**2500 A**	**3200 A**
Frame size		**B6**	**B6**	**B6**	**B7**	**B8**	**B8**	**B8**
Rated insulation voltage U_i (V) (power circuit)		1000	1000	1000	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV) (power circuit)		12	12	12	12	12	12	12
Rated insulation voltage U_i (V) (control circuit)		300	300	300	300	300	300	300
Rated impulse withstand voltage U_{imp} (kV) (control circuit)		4	4	4	4	4	4	4
Rated operational currents I_e (A) according to IEC 60947-6-1								
Rated voltage	**Utilisation category**							
415 VAC	AC-31 B	800	1000	1250	1600	2000	2500	3200
415 VAC	AC-32 B	800	1000	1250	1250	2000	2000	2000
415 VAC	AC-33 B	800	1000	1000	1000	1250	1250	1250
Rated operational currents I_e (A) according to IEC 60947-3								
Rated voltage	**Utilisation category**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**
415 VAC	AC-21 A / AC-21 B	800/800	1000/1000	1250/1250	1600/1600	-/2000	-/2500	-/3200
415 VAC	AC-22 A / AC-22 B	800/800	1000/1000	1250/1250	1600/1600	-/2000	-/2500	-/3200
415 VAC	AC-23 A / AC-23 B	800/800	1000/1000	1250/1250	1250/1250	-/1600	-/1600	-/1600
500 VAC	AC-21 A / AC-21 B	800/800	1000/1000	1250/1250	1600/1600	-/2000	-/2000	-/2000
500 VAC	AC-22 A / AC-22 B	630/630	800/800	1000/1000	1600/1600			
500 VAC	AC-23 A / AC-23 B	630/630	630/630	800/800	1000/1000			
690 VAC(3)	AC-21 A / AC-21 B	800/800	1000/1000	1250/1250	1600/1600	-/2000	-/2000	-/2000
690 VAC(3)	AC-22 A / AC-22 B	630/630	800/800	1000/1000	1000/1000			
690 VAC(3)	AC-23 A / AC-23 B	630/630	630/630	800/800	800/800			
220 VDC	DC-21 A / DC-21 B	800/800	1000/1000	1250/1250	1250/1250			
220 VDC	DC-22 A / DC-22 B	800/800	1000/1000	1250/1250	1250/1250			
220 VDC	DC-23 A / DC-23 B	800/800	1000/1000	1250/1250	1250/1250			
440 VDC (2)	DC-21 A / DC-21 B	800/800	1000/1000	1250/1250	1250/1250			
440 VDC (2)	DC-22 A / DC-22 B	800/800	1000/1000	1250/1250	1250/1250			
440 VDC (2)	DC-23 A / DC-23 B	800/800	1000/1000	1250/1250	1250/1250			
Current rated as conditional short-circuit with fuse gG DIN, according to IEC 60947-3								
Prospective fuse protected short-circuit withstand at 415 VAC(kA rms)		50	50	100	100			
Prospective fuse protected short-circuit withstand at 690 VAC(kA rms)		50	50	50				
Associated fuse rating (A)		800	1000	1250	2x800			
Short-circuit withstand without protection as per IEC 60947-3								
Rated short-time withstand current 0.3s I_{cw} at 415 VAC (kA rms)		64	64	64	78	78	78	78
Rated short-time withstand current 1s I_{cw} at 415 VAC (kA rms)		35	35	35	50	50	50	50
Rated peak withstand current at 415 VAC (kA peak)		55	55	80	110	120	120	120
Connection								
Minimum Cu cable cross-section as per IEC 60947-1 (mm^2)		2 x 185						
Recommended Cu busbar cross-section (mm^2)		2 x 50 x 5	2 x 63 x 5	2 x 60 x7	2 x 100 x 5	3 x 100 x 5	2 x 100 x 10	3 x 100 x 10
Maximum Cu cable cross-section (mm^2)		4 x 185	4 x 185	4 x 185	6 x 185			
Maximum Cu busbar width (mm)		63	63	63	100	100	100	100
Min./max. tightening torque (Nm)		9/13	9/13	20/26	40/45	40/45	40/45	40/45
Switching time (rated voltage, after receiving command)								
Transfer time I-II or II-I (s)		2.8	2.8	2.8	2.9	2.8	2.8	2.8
I-0 or II-0 (s)		1.4	1.4	1.4	1.4	1.8	1.8	1.8
Contact transfer time ("black-out" I-II) minimum (s)		1.4	1.4	1.4	1.5	1	1	1
Power supply								
Min./max. auxiliary power supply (VAC)		166/332	166/332	166/332	166/332	166/332	166/332	166/332
Control supply power demand								
Inrush / nominal power (VA) - ATyS r,		460/184	460/184	460/184	460/230	812/322	812/322	812/322
Inrush / nominal power (VA) - ATyS g , p		482/206	482/206	482/206	482/252	834/344	834/344	834/344
Mechanical specifications								
Durability (number of operating cycles)		4,000	4,000	4,000	3,000	3,000	3,000	3,000
Weight ATyS r 3 P / 4 P (kg)		27.9/ 32.2	28.4/ 32.9	28.9/ 33.6	33.1/ 39.4	50.7/ 61.6	50.7/ 61.6	61.0/ 75.3
Weight ATyS g, p 3 P / 4 P (kg)		29.0/ 33.3	29.5/ 34.0	30.0/ 34.7	34.2/ 40.5	51.8/ 62.7	51.8/ 62.7	62.1/ 76.4

(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) 3-pole device with 2 pole in series for the "+" an 1 pole for the "-".
4-pole device with 2 poles in series by polarity.
(3) Interphase barriers must be installed on the products.
(4) Values given at 690 VAC.

Connections and terminals

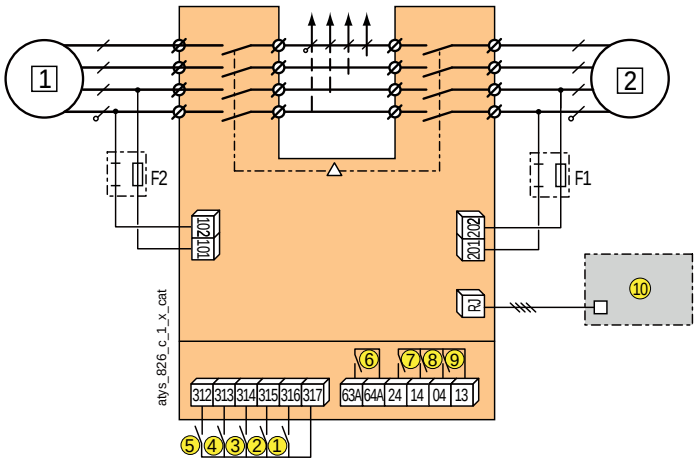
ATyS r



1 primary source (network or genset)
2 backup source (mains network or genset)

1: position 0 control (contact or logic if closed)
2: position I control
3: position II control
4: primary control position 0
5: closing this contact allows position control commands
6: product availability relay
7: auxiliary contact - closed when the switch is in position II
8: auxiliary contact - closed when ther switch is in position I
9: auxiliary contact - closed when the switch is in position 0

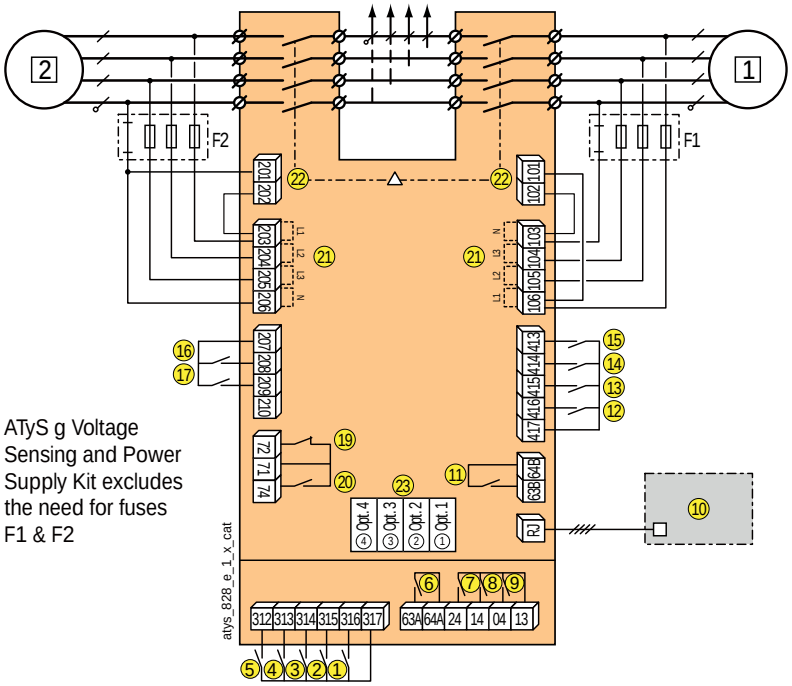
ATyS r with ATyS DPS



1 primary source (mains network or genset)
2 backup source (mains network or genset)

1: position 0 control (contact or logic if closed)
2: position I control
3: position II control
4: primary control position 0
5: closing this contact allows position control commands
6: product availability relay
7: auxiliary contact - closed when the switch is in position II
8: auxiliary contact - closed when the switch is in position I
9: auxiliary contact - closed when the switch is in position 0
10: D10 remote interface

ATyS g



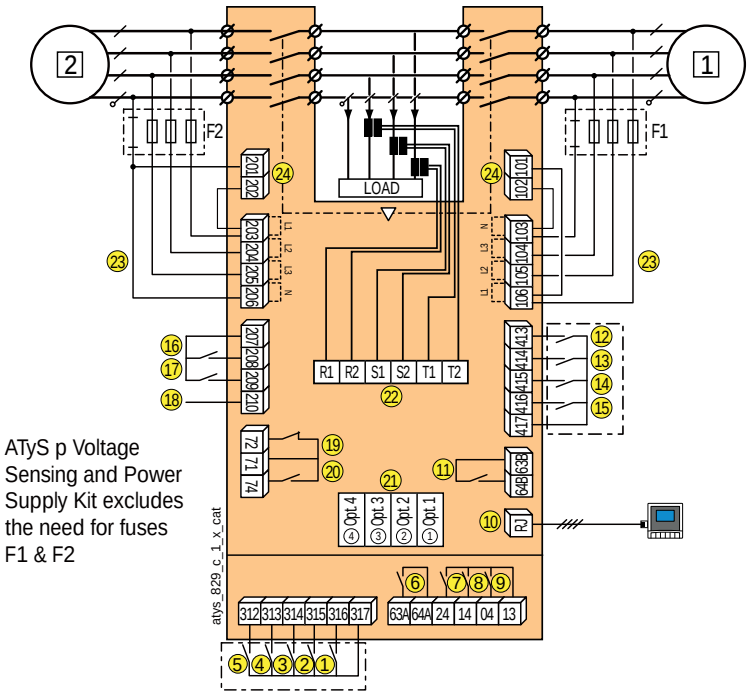
ATyS g Voltage Sensing and Power Supply Kit excludes the need for fuses F1 & F2

1 primary source (mains network)
2 backup source (genset or network)
1: position 0 control (contact or logic if closed)
2: position I control
3: position II control
4: primary control position 0
5: closing this contact allows position control commands
6: Motor unit availability relay
7: auxiliary contact - closed when the switch is in position II
8: auxiliary contact - closed when the switch is in position I
9: auxiliary contact - closed when the switch is in position 0
10: D10 remote interface
11: Electrical unit availability relay
12: automatic operation inhibited
13: confirm manual retransfer
14 : bypass for time delay 2AT
15 : M/G: priority test on load.
M/M: with or without priority.
16: remote test without load
17: M/G: test on load
M/M: preferred source selection
19-20: genset start and stop commands

Order	71/72 (19)	71/74 (20)
Genset start-up	Closed contact	Open contact
Genset stop	Open contact	Closed contact

21: voltage inputs
22: power inputs
23: 4 slots for optional RS485 communication module

ATyS p



ATyS p Voltage Sensing and Power Supply Kit excludes the need for fuses F1 & F2

1 primary source (network or genset)
2 backup source (network or genset)
1: position 0 control (contact or logic if closed)
2: position I control
3: control position II
4: primary control position 0
5: closing this contact allows position control commands
6: Motor unit availability relay
7: auxiliary contact - closed when the switch is in position II
8: auxiliary contact - closed when the switch is in position I
9: auxiliary contact - closed when the switch is in position 0
10: D20 remote interface
11: Electrical unit availability relay
12-17: programmable inputs
18: auxiliary power supply for optional modules
19-20: genset start and stop commands

Order	71/72 (19)	71/74 (20)
Genset start-up	Closed contact	Open contact
Genset stop	Open contact	Closed contact

21 : 4 slots for optional modules
22: TI measurement connection
23 : voltage inputs
24 : power inputs

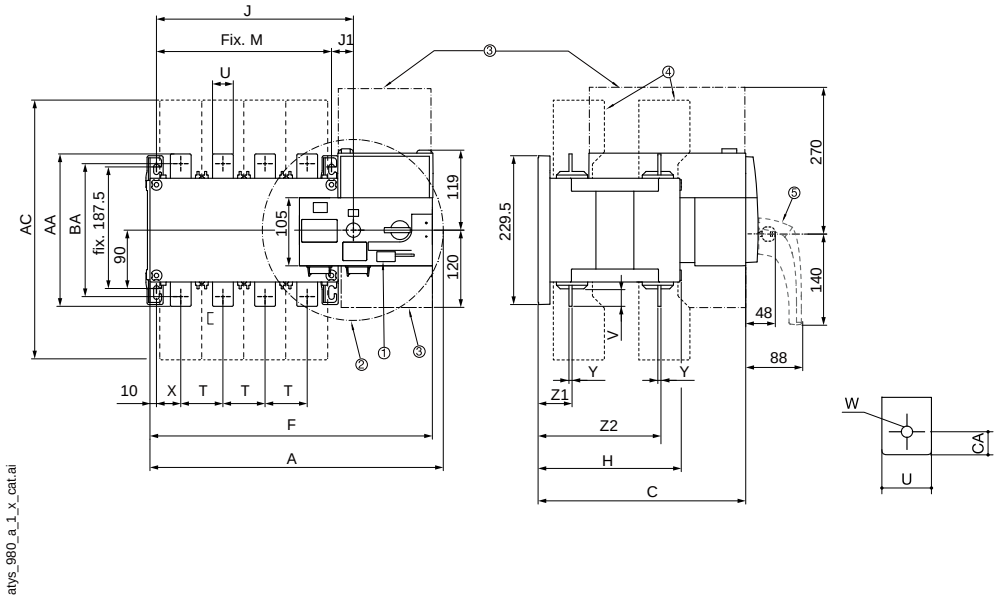
ATyS range

ATyS r, ATyS g, ATyS p

from 125 to 3200 A

Dimensions

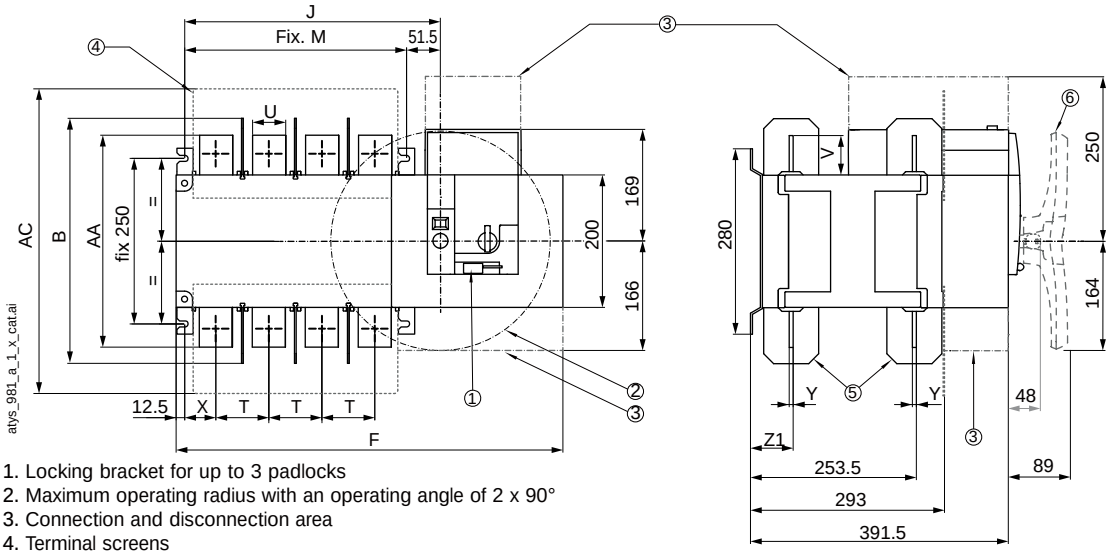
125 to 630 A / B3 to B5



1. Locking bracket for up to 3 padlocks
2. Maximum operating radius with an operating angle of 2 x 90°
3. Connection and disconnection area
4. Phase barriers
5. Emergency removable handle

Rating (A) / Frame size	Overall dimensions			Terminal shrouds	Switch body						Switch mounting		Connection										
	A 3p.	A 4p.	C	AC	F 3p.	F 4p.	H	J 3p.	J 4p.	J1	M 3p.	M 4p.	T	U	V	W	X 3p.	X 4p.	Y	Z1	Z2	AA	BA	CA
125 / B3	304	334	244	233	286.5	317	151	154	184	34	120	250	36	20	25	9	28	22	3.5	38	134	135	115	10
160 / B3	304	334	244	233	286.5	317	151	154	184	34	120	250	36	20	25	9	28	22	3.5	38	134	135	115	10
200 / B3	304	334	244	233	286.5	317	151	154	184	34	120	250	36	20	25	9	28	22	3.5	38	134	135	115	10
250 / B4	345	395	244	288	328	378	152	195	245	35	160	210	50	25	30	11	33	33	3.5	39.5	133.5	160	130	15
315 / B4	345	395	244	288	328	378	152	195	245	35	160	210	50	35	35	11	33	33	3.5	39.5	133.5	160	130	15
400 / B4	345	395	244	288	328	378	152	195	245	35	160	210	50	35	35	11	33	33	3.5	39.5	133.5	170	140	15
500 / B5	394	454	402	402	377	437	221	244	304	34	210	270	65	32	50	14	42.5	37.5	5	53	190	260	220	20
630 / B5	394	454	402	402	377	437	221	244	304	34	210	270	65	45	50	13	42.5	37.5	5	53	190	260	220	20

800 to 1600 A / B6 to B7

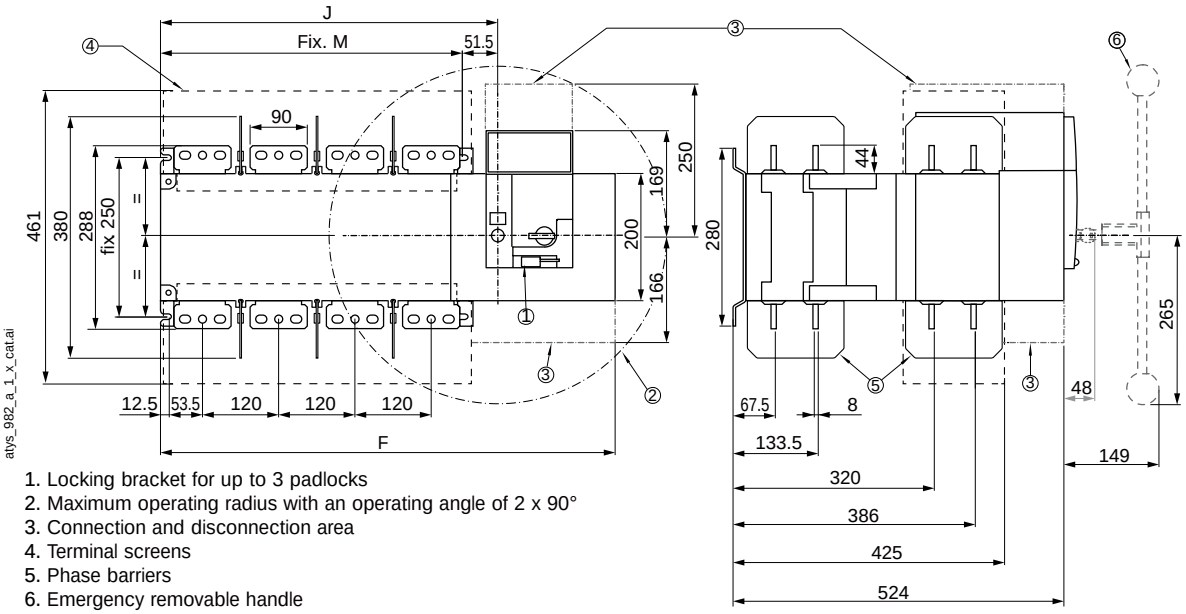


1. Locking bracket for up to 3 padlocks
2. Maximum operating radius with an operating angle of 2 x 90°
3. Connection and disconnection area
4. Terminal screens
5. Phase barriers
6. Emergency removable handle

Rating (A) / Frame size	Overall dimensions	Terminal shrouds	Switch body				Switch mounting		Connection						
	B	AC	F 3p.	F 4p.	J 3p.	J 4p.	M 3p.	M 4p.	T	U	V	X	Y	Z1	AA
800 / B6	370	461	504	584	307	387	255	335	80	50	60.5	47.5	7	66.5	321
1000 / B6	370	461	504	584	307	387	255	335	80	50	60.5	47.5	7	66.5	321
1250 / B6	370	461	504	584	307	387	255	335	80	60	65	47.5	7	66.5	330
1600/B7	380	531	596	716	399	519	347	467	120	90	44	53	8	67.5	288

socomec Innovative Power Solutions

2000 to 3200 A / B8



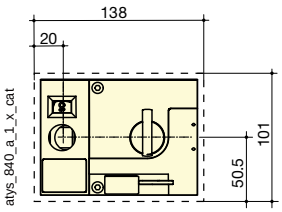
1. Locking bracket for up to 3 padlocks
2. Maximum operating radius with an operating angle of 2 x 90°
3. Connection and disconnection area
4. Terminal screens
5. Phase barriers
6. Emergency removable handle

Rating (A)	Switch body				Switch mounting	
	F 3p.	F 4p.	J 3p.	J 4p.	M 3p.	M 4p.
2000 ... 3200	596	716	398.5	518.5	347	467

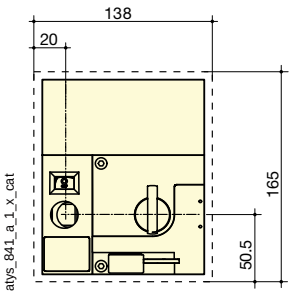
Door cutout

125 to 630 A / B3 to B5

ATyS r

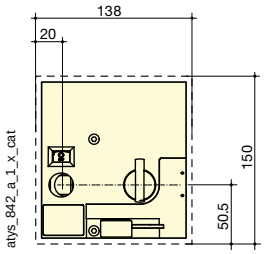


ATyS g, p

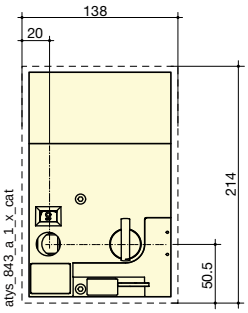


800 to 1600 A / B6 to B7

ATyS r

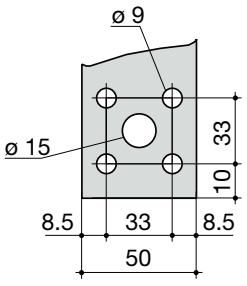


ATyS g, p

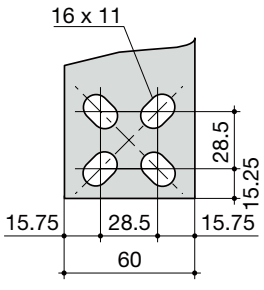


Connection terminals

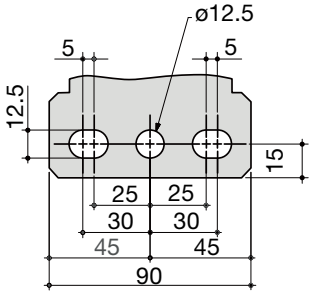
800 to 1000 A / B6



1250 A / B6



1600 to 3200 A / B7 to B8



ATyS d H

Remotely operated Transfer Switching Equipment
from 4000 to 6300 A

atys_865_a

The solution for
- Data centre
- Telecommunications
- Industries

Strong points
- Ready for installation in the enclosure of your choice
- High-performance switching
- Safe on-load transfer: I-0-II

Conformity to standards
- IEC 60947-6-1

Enclosed solution
- Please contact your SOCOMEC office

External automatic controller
- The ATyS d H is an RTSE which is compatible with most building management systems. It may also be supplied as an ATSE by including an ATyS C55 / C65 controller with a door mounted external display.

Function
The ATyS d H is a three-phase transfer switch, 3 and 4 poles, designed for low voltage high power applications that require high-performance and fast reliable switching. The open transition transfer is performed on-load in line with IEC 60947-6-1 standards (Class PC) with minimal power supply interruption to the load during transfer.
The ATyS d H is remote transfer switching equipment (RTSE) with an integrated dual power supply (DPS) that accepts remote orders through volt-free contacts.

Advantages

Ready for installation in the enclosure of your choice
The ATyS d H has been designed to facilitate installation. It is composed of two switches that are mounted one above the other with easily accessible power connections located at the rear. Furthermore the ATyS d H does not need any external bridging bars as the load side is connected within the product. This enables to save time during installation.

High-performance switching
The ATyS d H offers high withstand short circuit current ratings of 143 kA I_{cm} (making) and 65 kA for 0.1sec I_{cw} (withstand).
Further to its high short circuit withstand, the ATyS d H performance in terms of load switching capacity is AC-33iB (6 x I_n cos Ø 0.5) without derating.

Safe on-load transfer: I-0-II
The ATyS d H includes two mechanically interlocked switches to ensure fast switching whilst providing a neutral (Off - 0) position. This ensures that the main and alternative power supplies do not overlap.

References

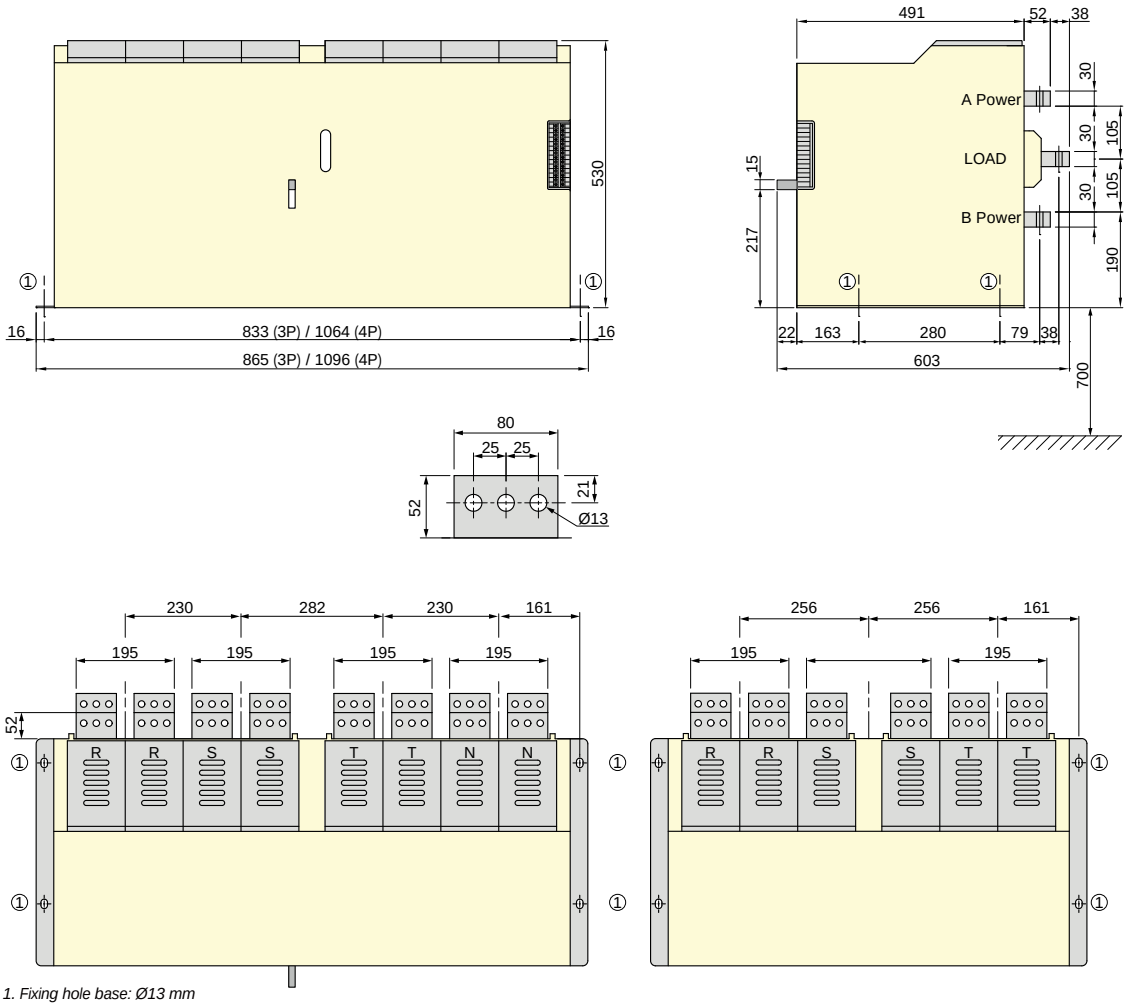
Rating (A)	Number of poles	ATyS d H Reference	Control relay Reference
4000 A	3P	9533 **3400**	ATyS C55 1600 **0055** ATYS C65 1600 **0065**
	4P	9533 **4400**	
5000 A	3P	9533 **3500**	
	4P	9533 **4500**	
6300 A	3P	9533 **3630**	
	4P	9533 **4630**	

Characteristics according to IEC 60947-6-1

Thermal current I_{th} at 40°C	**4000 A**	**5000 A**	**6300 A**
Rated operating voltage U_e (V)		660	
Rated insulation voltage U_i (V)		660	
Rated impulse withstand voltage U_{imp} (kV)		12	
Rated short-circuit withstand at 660 VAC			
Rated short-time withstand current 0.1s I_{cw} (kA rms)		65	
Rated peak withstand current (kA peak)		143	
Rated operational current I_e (A), at 660 VAC - AC32B	4000	5000	6300
Rated operational current I_e (A), at 660 VAC - AC33iB (6xIn cos Ø 0.5)	4000	5000	6300
Connection			
Rear connection with busbar	•	•	•
Switching time			
I to 0 (ms)		≤ 150	
0 to I and 0 to II (ms)		≤ 90	
II to 0 (ms)		≤ 200	
I-0-II / II-0-I (s)		1.2	
Operating frequency		10 operations per hour	
Power supply			
VAC power supply (powered directly on terminals S1 and S2)		230	
Main coil operating current (peak during transfers)		65 A(1)	
Mechanical characteristics			
Durability (number of operating cycles)		3000	
Weight (kg) - Fixed 3/4P model	200 / 250	200 / 250	200 / 250

(1) Instantaneous value. For a complete operation, power should be available during 0.5 s.

Dimensions



1. Fixing hole base: Ø13 mm

ATyS C25

ATS Controller

entry-level functionalities

new

atysc_015.eps

ATyS C25

The solution for

- ATS panels
- Compact transfer enclosures
- Basic ATS controls

Strong points

- Self-supplied from sensing circuit
- Integrated AC Double Power Supply
- RS485 Communications
- Multiple mounting options

Conformity to standards

- IEC 61010-2-201
- IEC 60947-6-1
- GB/T 14048.11 Annex C

Function

ATyS C25 is an entry level ATSE controller with communications. It can be used to pilot a remotely operated transfer switch, such as ATyS r, ATyS S and ATyS d M, as well as contactors type transfer switches, for circuit breaker type transfer switches see ATyS C55 and ATyS C65. ATyS C25 ensure the automatic or remotely controlled transfer from one source to another with fixed timers and thresholds.

Advantages

Flexible space saving

The ATyS C25 controller can be mounted on either a DIN rail or to the panel door, offering flexibility and optimising space.

Cost-effective

The ATyS C25 has an integrated DPS, for supplying the motorisation of the switch, and can be door mounted, therefore there's no need for an external DPS or display, reducing installation time and costs.

Fast commissioning & testing

- 8 dip-switches allow very fast commissioning, even offline.
- All main functions such as remote position control, mode selection, lamp test and genset test on load are available on the front of the product allowing quick and easy operation.
- Remote product information is available through RS485 Modbus communication.

General characteristics

- Self-powered from sensing.
- Voltage supply range (184 - 300 VAC).
- DC aux power supply (for optional use).
- Main/Main or Main/Genset networks.
- Fixed I/Os.
- RS485 Modbus communication.
- Voltage sensing on all phases.
- Three-phase + Neutral & Single-phase + Neutral networks.
- Phase rotation checking.
- Door or DIN rail mounting.

References

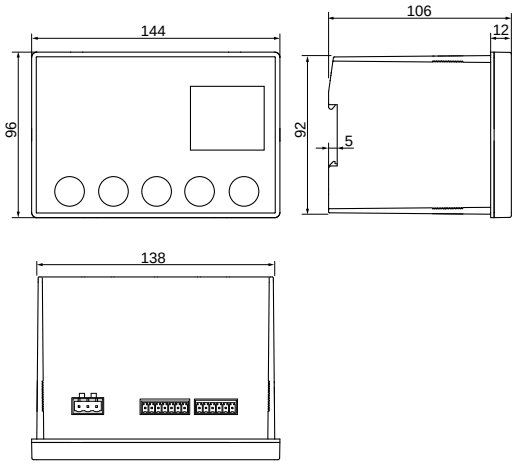
Description	Reference
ATyS C25 – ATS controller	1600 **0025**

Front panel

atysc_015x_a.ai

1. Controller status indication.
2. Configuration dip-switches.
3. Lamp test / Test on Load (3s).
4. Position orders (in Manual).
5. Auto/Manu mode selector.
6. Mimic panel.

Dimensions (mm)



atysc_001_b_1_x_cat.ai

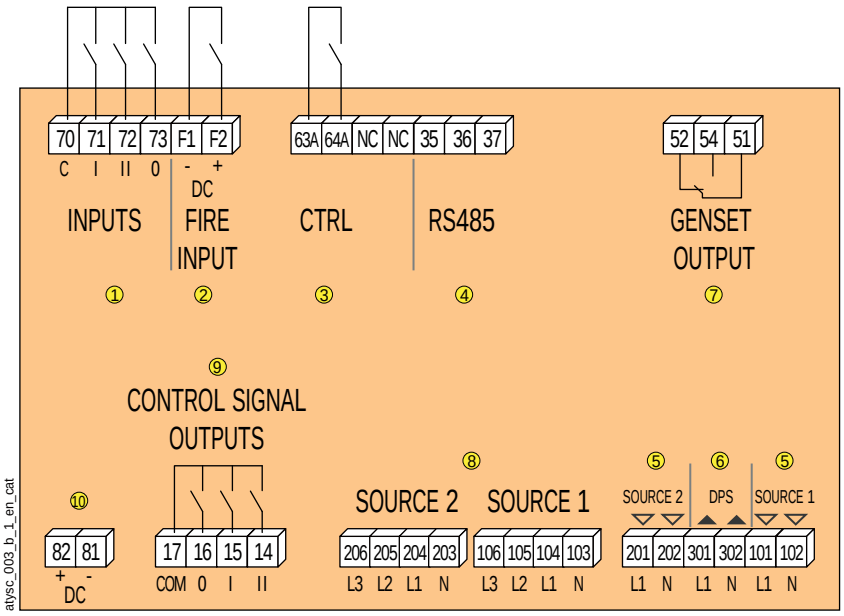
Characteristics

Electrical characteristics	
AC operating limits	184 (1) - 300 VAC
Optional DC supply	10-30 VDC
Frequency limits	45 - 65 Hz
Power consumption	< 10 W
Inputs	5 - fixed (auto inhibit & DC fire input, position indication I-0-II)
Outputs	4 - fixed (position control I-0-II & genset start)
Impulse withstand	6/4 kV(2)
Overvoltage category	CAT 3
Mechanical characteristics	
Weight	845 gr
Door cutout	138 x 92 mm
Operating temperature	-25 … +70°C
Communications	
Interface type	RS485. 2 to 3 half duplex wires
Protocol	MODBUS RTU
Baudrate	2400-38400

Measurement characteristics	
Nominal voltage DIP 1 (1PH+N / 3P+N)	230 / 400 VAC
Nominal frequency (fixed)	50 Hz
Voltage threshold settings DIP 4	10% / 20% of Nominal voltage
Frequency threshold settings DIP 4	5% / 10% of nominal frequency
Voltage and frequence Hysteresis (fixed)	20% of ΔU/ΔF
Other settings	
0DT dead-band timer DIP 5	0 / 2 s
FT Source 1 and 2 fail timer DIP 6	3 / 10s
RT Source 1 and 2 return timer DIP 7&8	0 (3s) / 3 / 10 / 30 min
Source priority DIP 2	Priority source 1 / No priority
Position Output signal DIP 3	Impulse / Maintained

(1) 200 VAC in contactor mode.
(2) 6 kV tested between phases of a different source and 4 kV tested between phases of a the same source.

Terminals



atysc_003_b_1_en_cat

1. Switch position inputs
2. DC fire input (forces 0 & inhibit)
3. Control inputs
4. RS485 communication
5. DPS input (source 1 and 2)
6. DPS output to motor
7. Genset NO/NC output
8. Voltage sensing S1 & S2
9. Control outputs to transfer device
10. DC aux power supply (for optional use)

ATyS C55

ATS Controller

mid-level functionalities

new

atysc_017_front.eps

ATyS C55

Function

ATyS C55 is a complete ATSE controller that can be used to pilot a remotely operated transfer switch of any technology: motorised switches (e.g. ATyS r, ATyS S or ATyS d M), circuit breakers or contactors. ATyS C55 ensure the automatic or remotely controlled transfer from one source to another, with configurable timers and thresholds, for any combination of sources: 2 transformers, 1 transformer and 1 genset or 2 gensets.

Advantages

Fast commissioning

On initial power up, the ATyS C55's smart wizard will guide the operator through the commissioning process.

Versatile

The ATyS C55 is compatible with contactors, breakers and switches. It can also work for all type of 2-source applications combining mains and gensets.

Clear visualisation and operation

- High-resolution LCD screen with clear defined messages.
- Real-time pop-ups to show timers, alarms, faults and information alerts.
- Quick and easy access to main functions through the front face with direct key input.
- Complete configuration can be achieved through the front face or via software (EasyConfig).

General characteristics

- Self-powered from sensing.
- Wide voltage range (88-576VAC).
- 24 VDC aux power supply (for optional use).
- 2 latching relays.
- Smart commissioning wizard.
- IP65 degree of protection with gasket (accessory).
- 1000 Alarms and Events.
- 6 fully configurable I/O.
- Genset scheduler.
- Door or back plate mounting.
- Main/Main, Main/Genset and Genset/Genset applications.
- Easyconfig configuration software.
- RS485 Modbus communication.
- Ethernet, SNMP, BACnet using DIRIS M-70 gateways. Includes Webserver.
- A DIRIS Digiware D-70 gateway can be utilised as a remote display for multiple ATyS C55/C65 controllers; the D-70 also provides Ethernet, SNMP & BACnet connectivity.

The solution for

> Commercial buildings
> Applications:
- Genset/Genset
- Network/Genset
- Network/Network
- External/portable systems

Strong points

> Smart commissioning
> Intuitive use
> Hi-resolution LCD screen

Conformity to standards

> IEC 61010-2-201
> IEC 60947-6-1
> GB/T 14048.11 Annex C

Communication gateways

DIRIS Digiware M-70 & D-70

Double power supply - DPS*

** Optional for use with ATyS r, breakers and contactors without integrated DPS*

References

Description	Reference
ATyS C55 – ATS controller (includes mounting kits)	1600 **0055**
IP65 gasket for door cut-out (1)	1609 **0001**
DIRIS Digiware M-50 multi-protocol Ethernet gateway	4829 **0221**
DIRIS Digiware D-50 multipoint display, Ethernet output	4829 **0204**
DIRIS Digiware M-70 communication gateway for Ethernet & Webserver	4829 **0222**
DIRIS Digiware D-70 communication gateway for Ethernet & Webserver and multi-product display	4829 **0203**
Double power supply - DPS	1599 **4001**

(1) The gasket provides an IP65 seal between the controller and the panel door; the front face (display & keys) is IP65 as standard.

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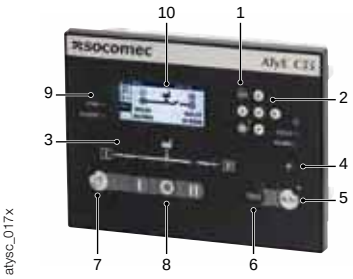
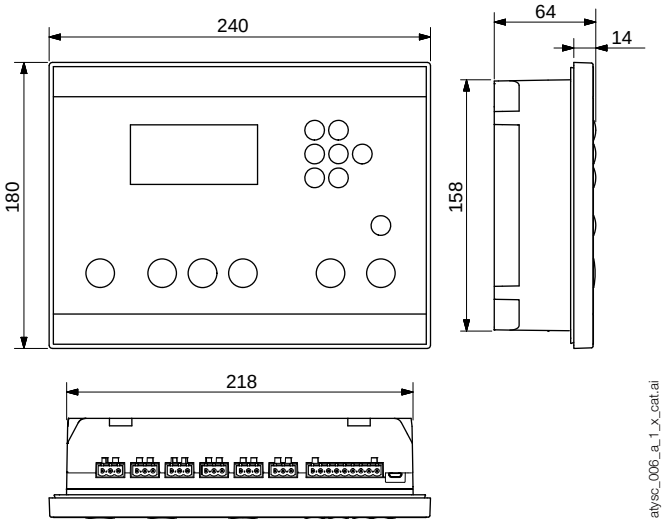
Front panel



atysc_017x

1. Dashboard displays.
2. Navigation keypad.
3. Mimic LED indication.
4. Lamp test button / LED info.
5. AUTO mode select.
6. TEST button.
7. CONTROL mode select.
8. Position orders (only in CONTROL mode).
9. Inhibit and communication indication.
10. Hi-res LCD screen.

Dimensions (mm)



atysc_006_a_1_x_cat.ai

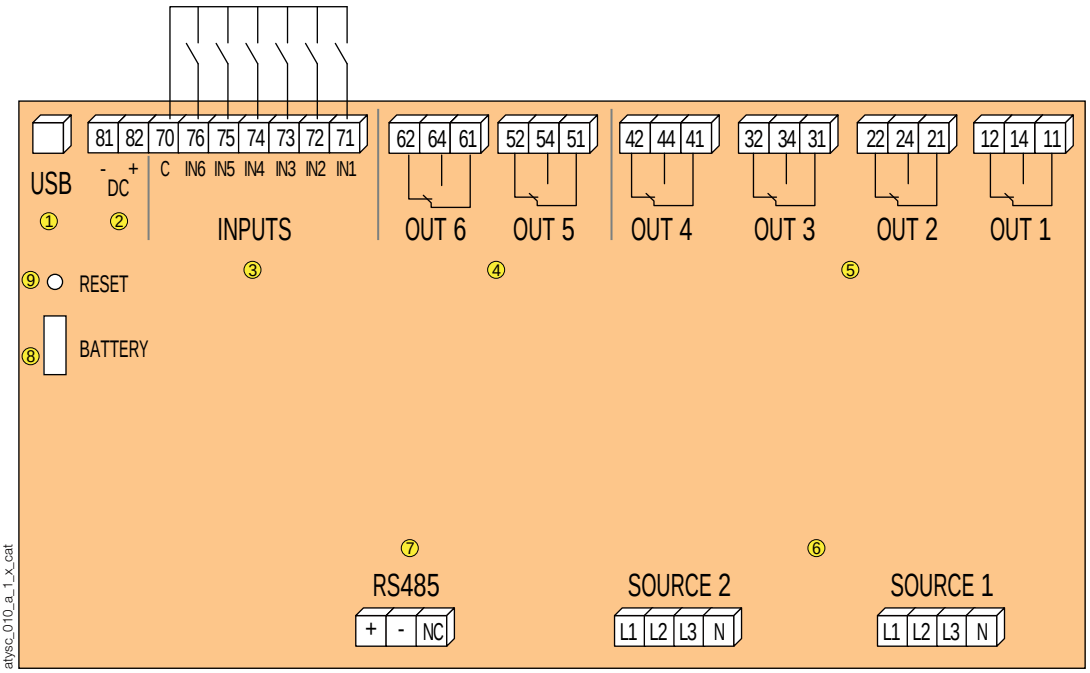
Characteristics

Electrical characteristics	
AC operating limits	110 - 480 VAC ±20%
Optional DC supply	24 VDC
Frequency limits	45 - 65 Hz
Power consumption	< 10 W
Inputs	6, fully programmable
Outputs	6, fully programmable
Output relays	8 A AC15
EMC classification	Class A and B
Impulse withstand	8/6 kV (1)
Overvoltage category	CAT 3

(1) 8 kV tested between phases of a different source and 6 kV tested between phases of a the same source.

Mechanical characteristics	
Weight	1080 gr
Door cutout	220 x 160 mm
Protection degree	IP65 with optional gasket
Operating temperature	-30 … +70 °C
Communications	
Interface type	RS485. 2 to 3 half duplex wires
Protocol	MODBUS RTU
Baudrate	programmable 1200 - 115200 bps
Display	
Screen resolution	350 x 160 pixels
Event recorder	1000 events

Terminals



atysc_010_a_1_x_cat

1. Configuration USB
2. 24 VDC aux power supply (for optional use)
3. 6 x inputs
4. 2 x latching relay outputs
5. 4 x relay outputs
6. Source sensing (110-480 ±20%)
7. RS485 communication
8. Replaceable RTC battery
9. Hard reset button

ATyS C65

ATS Controller

advanced functionalities

new

ATyS C65

Function

ATyS C65 is an advanced ATSE controller offering all the functions of the ATyS C55 with the addition of current, power & energy monitoring, increased I/O capacity and functions, load shedding, lift control function, energy backup, increased number of events and alarms (measurement and combination alarms) and DIRIS Digiware module compatibility.

Advantages

Fast commissioning

On initial power up, the ATyS C65's smart wizard will guide the operator through the commissioning process.

User customisable

Front face LEDs, Load shedding, Genset schedulers and the lift control signal are just a few of the many customisable features available on ATyS C65.

Intuitive operation

- The high-resolution LCD screen provides several dashboards enabling easy monitoring of all parameters, including power and energy consumption of the loads.
- The integrated energy backup provides transitional power to the product enabling status indication (switch position, timer status, fault notifications) and communication to remain active with no supply present.
- Quick and easy access to main functions through the front face with direct key input.
- Complete configuration can be achieved through the front face or via software (EasyConfig).

General characteristics

- Self-powered from sensing.
- Wide voltage range (88 - 576 VAC).
- 24 VDC aux power supply (for optional use).
- 2 latching relays.
- Digiware IO-10: I/O extension up to 30 inputs and 18 outputs.
- Power & Energy metering with /1 A or /5 A current transformers.
- Energy backup.
- IP65 degree of protection (panel gasket included).
- 3000 Alarms and Events.
- Multiple fully configurable timers, thresholds and I/O.
- Easyconfig configuration software.
- Shock resistant IK08+.
- Digiware compatible (replaces U module).
- Ethernet, SNMP, BACnet using DIRIS M-70 gateway. Includes Webserver.
- A DIRIS Digiware D-70 gateway can be used as a remote display for multiple ATyS C55/C65 controllers; the D-70 also provides Ethernet, SNMP & BACnet connectivity.

The solution for

- Life safety
- Critical applications
- Transfer panels with ACB

Strong points

- Advanced I/O functions
- Power monitoring
- Energy backup

Conformity to standards

- IEC 61010-2-201
- IEC 60947-6-1
- GB/T 14048.11 Annex C

Communication gateways

DIRIS Digiware M-70 & D-70

Double power supply - DPS*

** Optional for use with ATyS r, breakers and contactors without integrated DPS*

References

Description	Reference
ATyS C65 – ATS controller (includes mounting kits) and IP65 gasket	1600 **0065**
DIRIS Digiware M-50 multi-protocol Ethernet gateway	4829 **0221**
DIRIS Digiware D-50 multipoint display, Ethernet output	4829 **0204**
DIRIS Digiware M-70 communication gateway for Ethernet & Webserver	4829 **0222**
DIRIS Digiware D-70 communication gateway for Ethernet & Webserver and multi-product display	4829 **0203**
Double power supply - DPS	1599 **4001**

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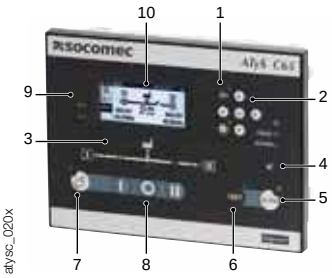
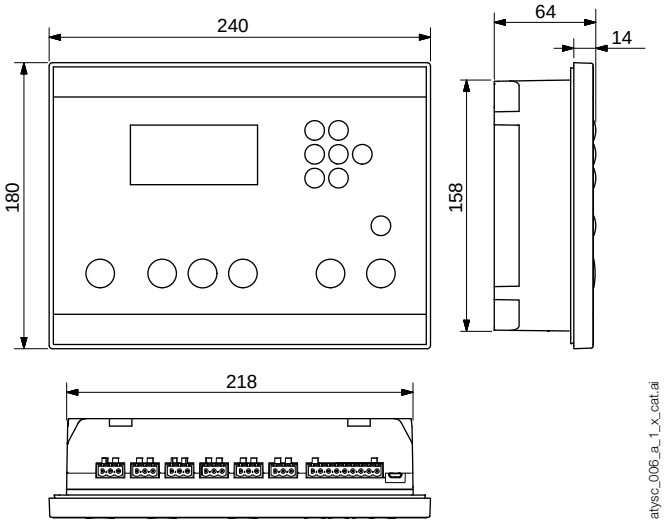
Front panel



atysc_020x

1. Dashboard displays.
2. Navigation keypad.
3. Mimic LED indication.
4. Lamp test button / LED info.
5. AUTO mode select.
6. TEST button.
7. CONTROL mode select.
8. Position orders (only in CONTROL mode).
9. Customisable LED.
10. Hi-res LCD screen.

Dimensions (mm)



atysc_006_a_1_x_cat.ai

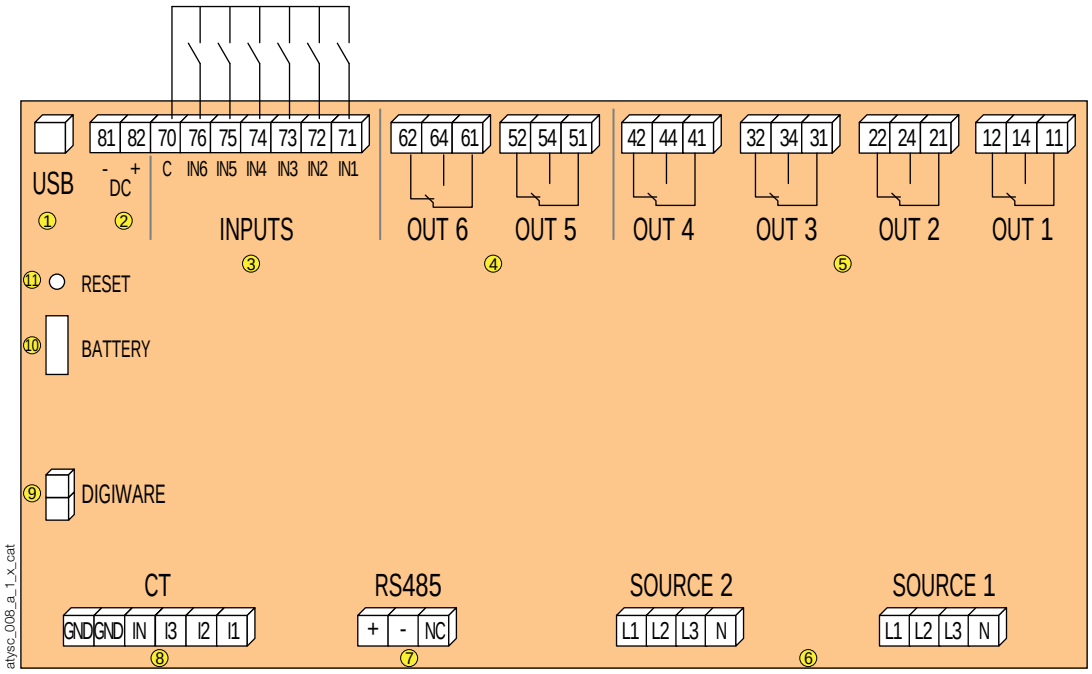
Characteristics

Electrical characteristics	
AC operating limits	110 - 480 VAC ±20%
Optional DC supply	24 VDC
Frequency limits	45 - 65 Hz
Power consumption	< 10 W
Current transformers	1 or 5A
Measurement type	true RMS (TRMS)
Inputs	6, fully programmable
Outputs	6, fully programmable
Output relays	8 A AC15
I/O Extension (IO10)	up to 30 inputs and 18 outputs
EMC classification	class A and B
Impulse withstand	8/6 kV (1)
Overvoltage category	CAT 3

Mechanical characteristics	
Weight	1080 gr
Door cutout	220 x 160 mm
Protection degree	IP65
Operating temperature	-30 … +70 ºC
Communications	
Interface type	RS485. 2 to 3 half duplex wires
Protocol	MODBUS RTU
Baudrate	programmable 1200 - 115200 bps
Digiware bus	RJ45 cable
Display	
Screen resolution	350 x 160 pixels
Event recorder	3000 events
Energy backup	up to 30 seconds

(1) 8 kV tested between phases of a different source and 6 kV tested between phases of a the same source.

Terminals



atysc_008_a_1_x_cat

1. Configuration USB
2. 24 VDC aux power supply (for optional use)
3. 6 x inputs
4. 2 x latching relay outputs
5. 4 x relay outputs
6. Source sensing (110 - 480 ±20%)
7. RS485 communication
8. Current transformers (1 or 5 A)
9. Digiware RJ45 connectors
10. Replaceable RTC battery
11. Hard reset button

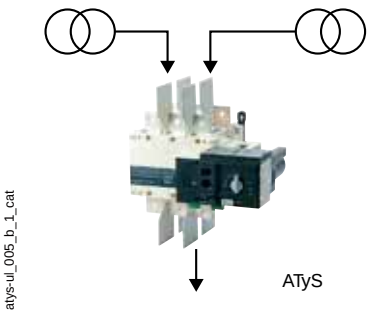
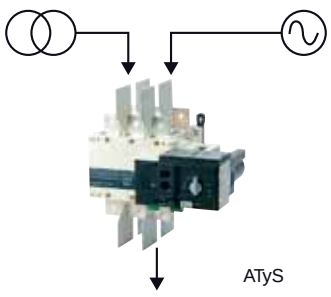
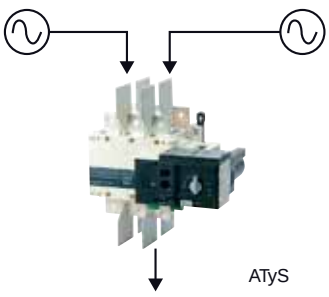
The UL product range

A range of manual or remotely operated transfer switches up to 1200 A

MTSE (Manual)	**RTSE** (Remotely operated)
	
SIRCOVER UL1008 Manual Transfer Switching Equipment	***ATyS*** UL1008 Motorised Transfer Switching Equipment

Typical applications

The ATyS UL 1008 range provides safe transfer for mains/genset and genset/genset applications.

Mains/Mains	Mains/Genset	Genset/Genset
		
atys-ul_005_b_1_cat	atys-ul_006_b_1_cat	atys-ul_007_b_1_cat

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Function

ATYS and SIRCOVER UL 1008 transfer switching equipment ensure:

- Maintenance free transfer switching equipment with a robust and reliable design.
- Power control and safety between a normal and an alternate source.
- Integrated and robust switch disconnection.
- A stable OFF position with integrated padlocking to facilitate safe downstream maintenance.
- Positive break indication with clear visible position indication I - 0 - II.
- An inherent failsafe mechanical interlock prevents asynchronous paralleling of the two sources.
- Stable positions (I – 0 – II) non-affected by typical vibration and shock.
- Constant pressure on the contacts non affected by network voltage perturbation.
- Quick, easy and extremely safe manual operation.

Further to the above the ATyS also includes:

- A simple and secure motorisation remote controls interface.
- Integrated switch position auxiliary contacts.
- An active “product availability” status feedback.
- Compatibility with virtually any make of ATS, AMF and Genset controller provided with volt-free contacts.

Power supply continuity for most electrically controlled total system optional standby power applications.

SOCOMEC UL products

The ATYS UL is a full load break transfer switch where the main switching components are from proven technology devices (SIRCOVER - Manual Transfer Switches) also fulfilling requirements in UL 98 and IEC 60947-3 standards. The transfer is done in open transition with a minimum supply interruption during transfer ensuring full compliance with UL 1008 and IEC 60947-6-1 international TSE standards.

As a stand-alone product, the ATyS is a non-automatic power transfer switch (an electrically operated transfer switch that is not self-acting), generally used in applications where the load is non-emergency, does not require automatic transfer and where operating persons can be made available to initiate the transfer.
The electrical control of the ATyS UL may be direct through push-buttons and dry contacts fitted onto the enclosure door or through a dedicated local or remote ATS controller.

Your preferred brand of ATS controller, genset / AMF controller or power / building management system, may easily be paired with the ATyS to provide a complete automatic transfer switch to suit your needs.

ATyS have three stable positions (I-0-II) which can be selected remotely, via volt-free contacts, or directly, through use of the emergency operation handle; emergency operation requires no supply to be present. The OFF position provides disconnection of both supplies ensuring downstream isolation for safe maintenance.

UL Applications

ATYS UL 1008 transfer switches are rated from 100 to 1200 A and designed for use in total system optional standby power applications for the safe transfer of a load supply between a normal and an alternate source.

Optional standby systems are those systems installed to provide an alternate source of power for structures for which a power outage could cause discomfort or interruption or damage to products or processes.


socomec
WEBVIEW
DIRIS Digiware D-70
ALARM COM ON
+FREQUENCY
CLIM BAT ID:6CAB0B
INST
AVG MAX
U 1-2 398.5v
05.03.2014 11:10:00
U 2-3 398.4v
05.03.2014 11:10:00
U 3-1 398.5v
05.03.2014 11:10:00
F 50.01 HZ
05.03.2014 11:10:00
IP
E
OK
DIRIS Digiware U-30
ON
ALARM
COM
V1
V2
V3
VN
socomec S-130
ID : DA9C99
P1
P2
I01
I02
I03

Energy measurement & management

Multi-circuit metering & measurement

DIRIS Digiware AC

DIRIS Digiware D** et **C
p. 228

DIRIS Digiware M
p. 234

DIRIS Digiware U
p. 240

DIRIS Digiware S
p. 242

DIRIS Digiware I
p. 246

DIRIS Digiware DC

DIRIS Digiware IO
p. 262

Single-circuit metering, measurement & analysis

COUNTIS E
p. 280

MULTIS L50
p. 266

DIRIS A
p. 286

DIRIS B
p. 308

Software suite

Embedded web server
WEBVIEW

p. 338

Configuration software
Easy Config System

p. 340

Current sensors

AC current sensors
TE, TR, iTR, TF
p. 250

Quality analyser

DIRIS Q800
p. 316

Measurement devices

Current transformers
5 to 6000 A
p. 322

Integrated technologies

Groundbreaking technologies for greater simplicity and performance

PreciSense

Products that are setting new standards in measurement accuracy

The PreciSense technology ensures 100% reliable accuracy across the global measurement chain.

Be guaranteed of the accuracy of your measurements:
- for the global measurement chain,
- for reliable measurements,
- for relevant corrective actions.

PreciSense offers the best accuracy on the market regardless of the type of current sensors used (solid core, split core, flexible or embedded in the DIRIS Digiware S module).

Discover the video

VirtualMonitor

The simple and cost-saving solution for monitoring your protective devices

The VirtualMonitor technology enables an advanced monitoring of protective devices at all levels within the electrical installation.

Virtual Monitor:
- detects the position and status of the protective device,
- detects if the breaker has tripped,
- dounts the number of operations and trips.

VirtualMonitor technology monitors the status of protective devices:
- On your entire electrical installation (without additional space).
- Remotely and in real-time.
- Without additional hardware or wiring (without adding auxiliary contacts).

Discover the video

AutoCorrect

Software elimination of wiring errors

The AutoCorrect technology ensures that the measurement is properly wired at all times, thus avoiding on-site interventions.

AutoCorrect ensures the operation of the proper measuring system thanks to simple and rapid detection of wiring errors:
- automatic wiring control (voltage/current phase association),
- correction of errors with a single click,
- feature available off-load.

Error correction's are carried out without any physical modification to the wiring.

Discover the video

SYDW_419_A

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PreciSense, VirtualMonitor and AutoCorrect technologies are embedded in Socomec's power monitoring solutions.

Power metering and monitoring system for AC electrical installations

- DIRIS Digiware S with its 3 integrated sensors and DIRIS Digiware I associated with iTR sensors.

DIRIS-DW_184_A.PSD

Multifunction meters

- DIRIS A-40 and DIRIS B with iTR sensors.

DIRIS_989.PSD TORE_078.EPS TORE_080.EPS TORE_074.PSD

Selection guide

Power monitoring system AC

DIRIS Digiware AC

Build your own AC system

System interface, displays and gateways (24 VDC)

DIRIS Digiware D
display

or

DIRIS Digiware M
gateway

or

DIRIS Digiware C
RS485 interface

+

Voltage acquisition module

DIRIS Digiware U

+

Current acquisition module with integrated sensors

DIRIS Digiware S

+

Current acquisition modules

DIRIS Digiware I-3x
3 inputs

DIRIS Digiware I-4x
4 inputs

DIRIS Digiware I-6x
6 inputs

+

Current sensors

TE
Solid

TR/iTR
Split-core

TF
Flexible

+

Digital and analogue input/output modules

DIRIS Digiware IO

Find the best DIRIS Digiware configuration!

The Socomec Meter Selector is your digital assistant, helping you find the best DIRIS Digiware configuration for your power monitoring projects, and all in just a few clicks!

- Fill in information regarding your project.
- Download the system diagram and bill of material.
- All your projects are archived in your personal account.

socomec
Innovative Power Solutions

Control and power supply interface

Application	Centralisation and display of data				Data centralisation	Repeater
						
DIRIS Digiware	***D-50*** *p. 234*	***D-70*** *p. 234*	***M-50*** *p. 228*	***M-70*** *p. 228*	***C-31*** *p. 228*	***C-32*** *p. 228*
Function						
Centralising measurement points	•	•	•	•	•	
High-resolution LCD display (configuration, selection and visualisation display of circuits)	•	•				
Repeater						•
Power supply						
24 VDC	•	•	•	•	•	•
Communication						
RS485 Modbus	Input/Output	Input/Output	Input/Output	Input/Output	Output	
Digiware bus	•	•	•	•	•	•
Ethernet	Modbus TCP BACnet IP SNMP	Modbus TCP BACnet IP SNMP	Modbus TCP BACnet IP SNMP	Modbus TCP BACnet IP SNMP		
Embedded web server	WEB-CONFIG	WEBVIEW-M	WEB-CONFIG	WEBVIEW-M		

Voltage acquisition module

Application	Metering	Monitoring	Analysis
			
DIRIS Digiware U	***U-10*** *p. 240*	***U-20*** *p. 240*	***U-30*** *p. 240*
Multi-measurement			
U12, U23, U31, V1, V2, V3, f	•	•	•
U system, V system			•
Ph/N unbalance			•
Ph/Ph unbalance			•
Quality analysis			
THDv1, THDv2, THDv3, THDu12, THDu23, THDu31		•	•
Crest factors V1, V2, V3, U12, U23, U31			•
Individual harmonics U & V (up to 63rd)			•
Voltage dips, interruptions and swells (EN50160)			•
Alarms			
On threshold			•
History			
Average values			•
Format			
Width/number of modules	18 mm / 1	18 mm / 1	18 mm / 1

Selection guide

Power monitoring system AC

DIRIS Digiware AC

Current acquisition modules

Application	Metering		Monitoring	Analysis	Monitoring	Analysis	Metering	
								
DIRIS Digiware I	***I-30*** p. 246	***I-31*** p. 246	***I-33*** p. 246	***I-35*** p. 246	***I-43*** p. 246	***I-45*** p. 246	***I-60*** p. 246	***I-61*** p. 246
Number of current inputs	3	3	3	3	4	4	6	6
Metering								
± kWh, ± kvarh, kVAh	•	•	•	•	•	•	•	•
Load curves		•		•		•		•
Multi-tariff		•		•		•		•
Multi-measurement								
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•	•	•	•	•	•	•
P, Q, S, PF per phase			•	•	•	•		
Predictive power				•		•		
Current unbalance (Inba, Idir, Iinv, Ihom, Inb)				•		•		
Phi, cos Phi, tan Phi				•		•		
Quality								
THDi1, THDi2, THDi3, THDin			•	•	•	•		
Individual harmonics I (up to 63rd)				•		•		
Crest factors I1, I2, I3, In				•		•		
Overcurrents				•		•		
Alarms								
On threshold				•		•		
Inputs/outputs					2/2	2/2		
History								
Average values				•		•		
Format								
Width/number of modules	18 mm / 1	18 mm / 1	18 mm / 1	18 mm / 1	27 mm / 1.5	27 mm / 1.5	36 mm / 2	36 mm / 2

Current acquisition module with integrated sensors

Application	Metering	Analysis	Monitoring
			
DIRIS Digiware S	***S-130*** *p. 242*	***S-135*** *p. 242*	***S-Datacenter*** *p. 242*
Number of current inputs	3	3	3
Basic current I_b	10 A	10 A	10 A
Maximum current I_{max}	63 A	63 A	63 A
Load type accepted	1P + N 2P / 2P + N 3P / 3P + N	1P + N 2P / 2P + N 3P / 3P + N	1P + N
Metering			
± kWh, ± kvarh, kVAh	•	•	•
Multi-tariff (max 8)		•	
Load curves		•	•
Multi-measurement			
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•	•
P, Q, S, PF per phase		•	•
Predictive power		•	
Current unbalance (Inba, Inb, Idir, Iinv, Ihom)		•	
Phi, cos Phi, tan Phi		•	•
Quality			
THDi1, THDi2, THDi3, THDin		•	•
Individual harmonics I (up to 63rd)		•	
Crest factors U, V, I		•	
K factor		•	
Overcurrents		•	
Alarms			
Thresholds and combinations		•	•
Load level			•
Wiring errors		•	•
Protective device		•	•
Trends			
Average values		•	•
Format			
Width	54 mm	54 mm	54 mm

Current sensors

Suitable for new installations match the pitch of protective devices

	Solid-core current sensors						
							
	TE-18 *p. 250*		***TE-25*** *p. 250*	***TE-35*** *p. 250*	***TE-45*** *p. 250*	***TE-55*** *p. 250*	***TE-90*** *p. 250*
Nominal current I_n (A) 5 … 2000	5 … 20	25 … 63	40 … 160	63 … 250	160 … 630	400 … 1000	600 … 2000
Real range covered (A) 0.1 … 2400	0.1 … 24	0.5 … 75.6	0.8 … 192	1.26 … 300	3.2 … 756	8 … 1200	12 … 2400
Aperture (mm)	Ø 8.4	Ø 8.4	13.5 x 13.5	21 x 21	31 x 31	41 x 41	64 x 64
Dimensions (mm)	28 x 20 x 45	28 x 20 x 45	25 x 32.5 x 65	35 x 32.5 x 71	45 x 32.5 x 86	55 x 32.5 x 100	90 x 126 x 24.6
Connection	RJ12	RJ12	RJ12	RJ12	RJ12	RJ12	RJ12

For currents above 2000 A, the 5A / RJ12 adapter provides compatibility with 1A or 5A secondary CTs.

Suitable for existing installations

	Split-core current sensors			
				
	TR/iTR-10 *p. 254*	***TR/iTR-14*** *p. 254*	***TR/iTR-21*** *p. 254*	***TR/iTR-32*** *p. 254*
Nominal current I_n (A) 25 … 600	25 … 63	40 … 160	63 … 250	160 … 600
Real range covered (A) 0.5 … 720	0.5 ... 90	0.64 ... 120	1.26 ... 200	4 ... 720
Aperture (mm)	Ø 10	Ø 14	Ø 21	Ø 32
Dimensions (mm)	26 x 44 x 28	29 x 67 x 28	37 x 65 x 43	53 x 86 x 47
Connection	RJ12	RJ12	RJ12	RJ12

For currents above 600 A, the 5A / RJ12 adapter provides compatibility with 1A or 5A secondary CTs.

Suitable for existing installations with space constraints or with high currents

			Flexible current sensors				
							
	TF-40 *p. 256*	***TF-55*** *p. 256*	***TF-80*** *p. 256*	***TF-120*** *p. 256*	***TF-200*** *p. 256*	***TF-300*** *p. 256*	***TF-600*** *p. 256*
Nominal current I_n (A) 100 … 6000	140 … 400	150 ... 600	150 … 600	400 ... 2000	600 … 4000	1600 … 6000	1600 … 6000
Real range covered (A) 2 … 7200	2 … 480	3 ... 720	3 … 720	8 ... 2400	12 ... 4800	32 … 7200	32 … 7200
Aperture (mm)	Ø 40	Ø 55	Ø 80	Ø 120	Ø 200	Ø 300	Ø 600
Connection	RJ12	RJ12	RJ12	RJ12	RJ12	RJ12	RJ12

Input/output modules

Application	Metering / monitoring / control	
		
DIRIS Digiware IO	***IO-10*** *p. 262*	***IO-20*** *p. 262*
Number of digital inputs/outputs	4 / 2	
Number of analogue inputs		2
Format		
Width/number of modules	18 mm / 1	18 mm / 1

DIRIS Digiware D and *C*

Display and system interface

DIRIS Digiware D-50/D-70
Centralisation and display of data

DIRIS Digiware C-31
Centralisation

Configuration with Easy Config System.

Function

DIRIS Digiware D-50 and D-70

DIRIS Digiware D remote displays allow:

- local visualisation the data from DIRIS Digiware modules
- a power supply to the DIRIS Digiware modules,
- access to measurements over RS485 or Ethernet.

DIRIS Digiware D-50 and D-70 displays also act as a gateway, centralising measurements from DIRIS Digiware, DIRIS A, DIRIS B and COUNTIS E devices and making them available over Ethernet.

With the DIRIS Digiware D-70 display, data can be visualised on WEBVIEW-M, the "Power & Energy monitoring" embedded web server.

DIRIS Digiware displays are 24 VDC powered.

DIRIS Digiware C-31

For applications without a local display

DIRIS Digiware C-31 interfaces centralise all measurements and communicate data over RS485 to an external software or PLC.

DIRIS Digiware C-31 interfaces and C-32 repeaters are 24 VDC powered.

Advantages

DIRIS Digiware D

- High-resolution graphic screen
- Embedded web server (DIRIS Digiware D-70)
- Multi-protocols (Modbus, BACnet, SNMP)
- 24 VDC SELV (Safety Extra Low Voltage) power supply eliminating hazardous voltage on panel doors.
- Ergonomic and easy to use with 10 direct access buttons for:
  - device configuration,
  - circuit selection,
  - display of measurements.

Cyber security

Dedicated cyber security features referring to IEC 62443 to guarantee the confidentiality, integrity and availability of data and reduce the risk of cyber attacks:

- secured HTTPS navigation,
- secured data push (FTPS, SMTPS),
- restriction of certain protocols or services,
- firewall to prevent denial-of-service attacks.

DIRIS Digiware C-31

Compact: Centralise your measurement data on 1 module without a local screen, for a complete system:

- single 24 V power supply (no dangerous voltage on DIRIS Digiware modules for a connection with no interruption),
- a single RS485 communication.

The solution for

> Industry
> Building
> Infrastructure
> Data centers

Strong points

> Centralising and displaying measurement data
> A single power supply for the entire system
> A single RS485 or Ethernet output for the entire system
> WEBVIEW-M embedded web server

Compliance with standards

> IEC 61557-12
> IEC 62443
> ISO 14025
> UL

Create your project

> Find the best DIRIS Digiware configuration: www.meter-selector.com

METER SELECTOR DIGITAL TOOL AVAILABLE

socomec Innovative Power Solutions

Application	Control and power supply interface		
			
DIRIS Digiware	***C-31***	***D-50***	***D-70***
Digiware input	•	•	•
RS485 input		•	•
RS485 output	•	•	•
Ethernet output		Modbus BACnet IP SNMP v1, v2, v3	Modbus BACnet IP SNMP v1, v2, v3
Webserver		WEB-CONFIG	WEBVIEW-M

Functions

soft_073_b

WEBVIEW-M

Embedded web server in the DIRIS Digiware D-70 display

WEBVIEW-M allows the display and remote monitoring of all the electric parameters measured by up to 32 devices. They are displayed in the form of overview screens, graphs or tables for clear and user-friendly analysis.

Access to WEBVIEW is made by a web browser on a PC or tablet and offers multiple features such as the automatic export of data via FTPS or e-mail notification in the presence of alarms (SMTPS).

The Photoview application is available via the WEBVIEW interface embedded in the DIRIS Digiware D-70 display. It allows the display of electrical quantities on a customised background picture such as a cabinet, a wiring diagram or the map of a site.

Accessories

DIN rail mounting kit

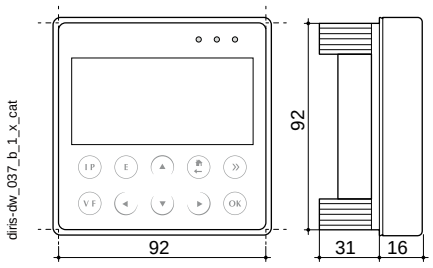
The accessory allows you to install the DIRIS Digiware D-50/D-70 display on a DIN rail.

This kit is not included with the displays and must be ordered separately.

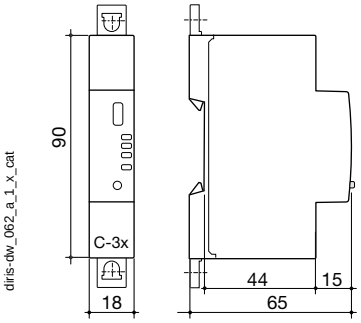
diris-dw_162_a.psd

Dimensions (mm)

DIRIS Digiware D-50 / D-70



DIRIS Digiware C-31



Configuration

Equipment consumption

Product	Power delivered (W)	Power consumed (W)
Power supply		
P15 100-240 VAC / 24 VDC	15	
P30 100-240 VAC / 24 VDC	20	
Cables		
50 metre package		1.5
System interfaces		
DIRIS Digiware D-50 / D-70		2.5
DIRIS Digiware C-31		0.8
Module voltage		
DIRIS Digiware U-xx		0.72
DIRIS Digiware U-3xdc		0.6
Current modules		
DIRIS Digiware I-3x		0.52
DIRIS Digiware I-4x		1.125
DIRIS Digiware I-6x		0.7
DIRIS Digiware I-3xdc (+ 3 DC current sensors)		2
DIRIS Digiware S-xx		0.35
Input/output modules		
DIRIS Digiware IO-10/IO-20		0.5
Repeater		
DIRIS Digiware C-32		1.5

Calculation rules for the max. number of products on the Digiware Bus

The total power consumed by the equipment connected to the Digiware Bus must not exceed the power from the 24 VDC supply.

The power supply must not exceed 20 W/70°C or 27 W/40°C.

Size with P15 power supply (ref: 4829 0120) delivering 15 W

For example, it is possible to use

- 1 DIRIS Digiware D-50 display (2.5 W)
- 1 DIRIS Digiware voltage module U-xx (0.72 W)
- 50 metres of cable (1.5 W)

and

- 19 DIRIS Digiware current modules I-3x (19 x 0.52 = 9.9 W)
  ⇨ Total power = 14.845 W

or

- 9 DIRIS Digiware current modules I-4x (9 x 1.125 = 10.125 W)
  ⇨ Total power = 14.345 W.

Size with a 24 VDC power supply delivering a maximum of 20 W

(Power supply P30 ref: 4729 0603)

For example, it is possible to use

- 1 DIRIS Digiware D-50 display (2.5 W)
- 1 DIRIS Digiware voltage module U-xx (0.72 W)
- 50 metres of cable (1.5 W)

and

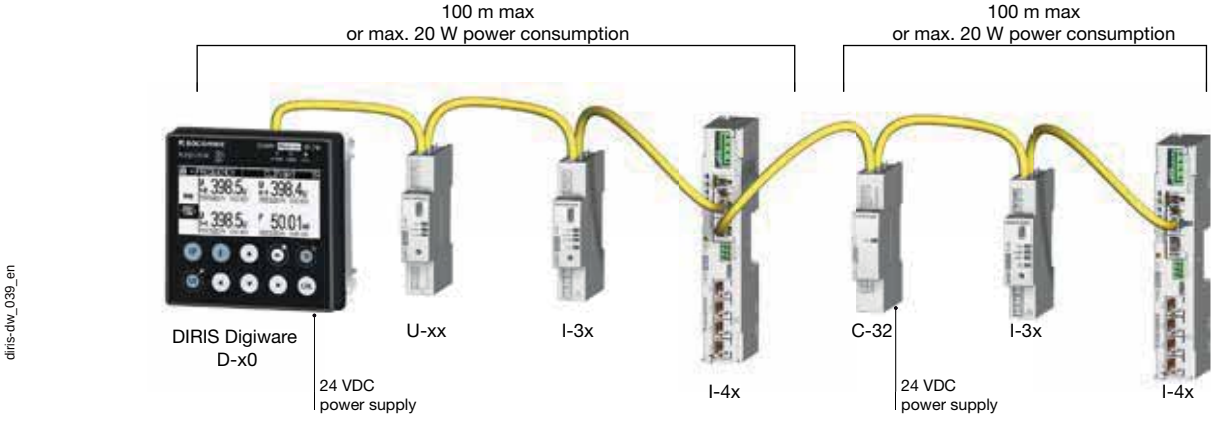
- 29 DIRIS Digiware current modules I-3x (29 x 0.52 = 15.1 W)
  ⇨ Total power = 19.82 W

or

- 13 DIRIS Digiware current modules I-4x (13 x 1.125 = 14.625)
  ⇨ Total power = 19.345 W.

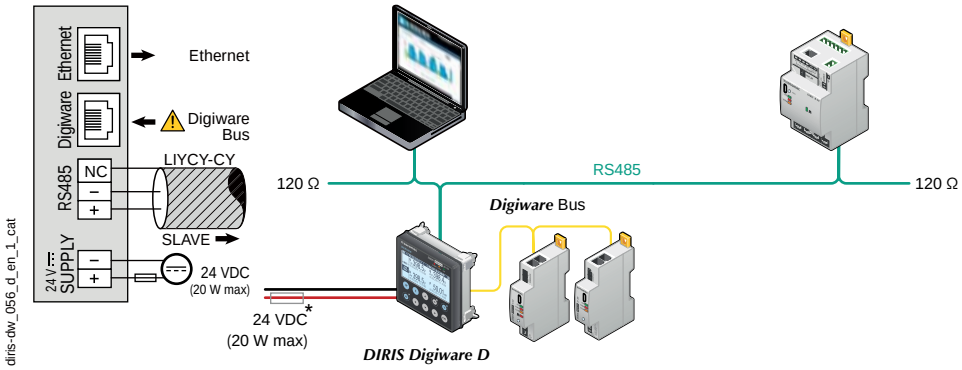
Repeater

Whenever the power consumption is higher than 20 W or the distance is greater than 100 m, a DIRIS Digiware C-32 repeater is required.
In a DIRIS Digiware system, a maximum of 2 repeaters may be used.



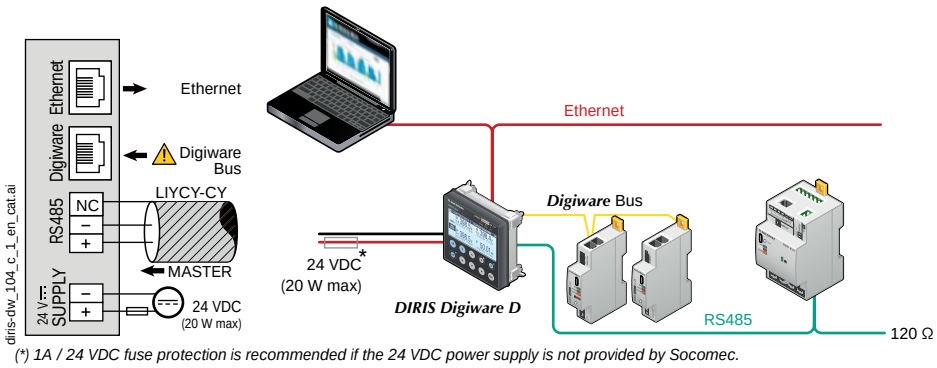
Connections

RS485 slave mode



(*) 1A / 24 VDC fuse protection is recommended if the 24 VDC power supply is not provided by Socomec.

RS485 master mode

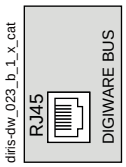


(*) 1A / 24 VDC fuse protection is recommended if the 24 VDC power supply is not provided by Socomec.

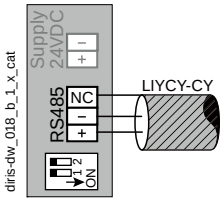
DIRIS Digiware C-31

Power supply

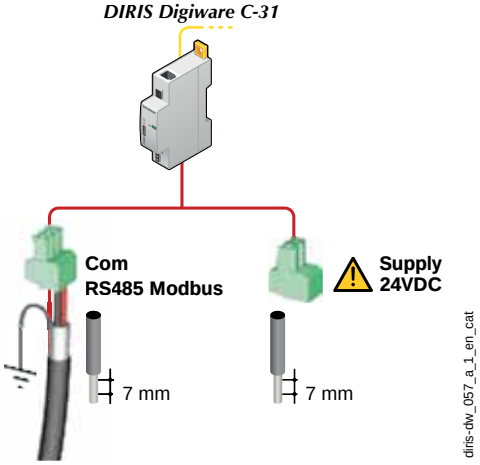
Digiware bus



Communication

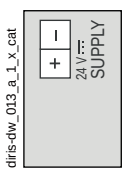


DIRIS Digiware C-31

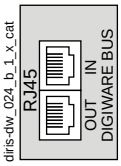


DIRIS Digiware C-32

Power supply



Digiware bus



Technical characteristics

Electrical characteristics

DIRIS Digiware C-31	
Input voltage	24 VDC ± 20 % - 20 W max
Connection	Removable screw terminal block, 2 positions, stranded or solid 0.2-2.5 mm² cable
P15 power supply	Characteristics: 100-240 VAC/ 24 VDC - 0.63 A - 15 W Modular format - Dimensions (H x L): 90 x 36 mm

Communication specifications

Digiware Bus	
Function	Connection between DIRIS Digiware modules
Cable type	Specific Socomec cable with RJ45 connections
RS485	
Connection type	2 to 3 half duplex wires
Protocol	Modbus RTU
Baudrate	9600 to 115 200 bauds
Function	Data configuration and reading
Location	Single-point on DIRIS Digiware C

Mechanical features

Casing type	DIN-rail mounting module and base
Casing protection index	IP20 / IK06
Front panel protection index	IP40 on the nose in modular assembly / IK06

Environmental specifications

Ambient operating temperature	-10 to +70°C
Storage temperature	-25 to +70°C
Operating humidity	55 °C / 97% HR
Operating altitude	< 2000 m

DIRIS Digiware D-50/D-70 features

Mechanical characteristics	
Type of screen	Capacitive touch-screen technology, 10 keys
Screen resolution	350 x 160 pixels
Front panel protection index	IP65
Communication	
Ethernet RJ45 10/100 Mbs	Gateway function (D-50/D-70): Modbus TCP BACnet IP SNMP v1, v2, v3
RJ45 Digiware	Control and power supply interface function
RS485 2-3 wires	Modbus RTU communication function Configurable as input or output
USB	Upgrade and configuration via type B micro USB connector
Electrical characteristics	
Power supply	24 VDC ±15 %
Power consumption	2.5 VA
Battery lifetime	10 years

Environmental specifications	
Storage temperature	-20 to +70°C
Operating temperature	-10 to +55°C
Humidity	95% at 40°C
Installation category, degree of pollution	CAT III, 2
Ports	
Digiware	Input
RS485	Input/Output
Ethernet	Output

References

DIRIS Digiware		Reference
D-50	Multipoint display, Ethernet & RS485 output + WEB-CONFIG	4829 **0204**
D-70	Multipoint display, Ethernet & RS485 output + WEBVIEW-M	4829 **0203**
C-31	System interface - no display, RS485 output	4829 **0101**
C-32	Repeater	4829 **0103**
Power supply		**Reference**
P15	Power supply 100-240 VAC/ 24 VDC 15 W	4829 **0120**
P30	Power supply 100-240 VAC/ 24 VDC 20 W	4729 **0603**
Digiware connection cables		**Reference**
RJ45 cables for Digiware Bus	Length 0.06 m	4829 **0189**
	Length 0.10 m	4829 **0181**
	Length 0.20 m	4829 **0188**
	Length 0.50 m	4829 **0182**
	Length 1 m	4829 **0183**
	Length 2 m	4829 **0184**
	Length 3 m	4829 **0190**
	Length 5 m	4829 **0186**
	Length 10 m	4829 **0187**
	50 m reel + 100 connectors	4829 **0185**
Termination for Digiware Bus (supplied with interfaces C and D)		4829 **0180**
USB configuration cable		4829 **0050**
Single-point display		**Reference**
DIRIS D-30(1)	Single-point display for DIRIS Digiware I-4x and DIRIS B	4829 **0200**

Accessories	To be ordered in multiples of	Reference
Fuse holder to protect voltage inputs (type RM) 1 pole + neutral	4	5701 **0017**
gG 10x38 0.5 A fuses	10	6012 **0000**
DIN rail mounting kit for D-50 and D-70 displays	1	4829 **0230**
Door mounting kit DIN 144 x 96 mm		4729 **0290**
IP 65 flexible cover for 144 x 96 mm door mounting frame		4729 **0291**

(1) DIRIS D-30 display characteristics, see page "DIRIS B".

Expert Services

Require integration onto your network?
No problem for our "Expert Services" team. They will fully integrate all your SOCOMEC devices, **audit your system, commission** selected equipment and **train your staff on its use.**
For further information, please contact your nearest SOCOMEC branch.

DIRIS Digiware M

Multi-protocol communication gateways

new

DIRIS Digiware M-50 - M-70 gateway

The solution for

> Building
> Industry
> Infrastructure

Strong points

> Plug & Play
> Advanced connectivity
> Embedded web server
> Cyber security

RJ45 (Digiware bus) cables are available.

Compliance with standards

> IEC 62974-1 (Energy Server standard)

> IEC 62443 (Cyber security)

> UL

Create your project

> Find the best DIRIS Digiware configuration: www.meter-selector.com

METER SELECTOR DIGITAL TOOL AVAILABLE

Function

The DIRIS Digiware M-50 and M-70 communication gateways are the access point for the DIRIS Digiware system, centralising the 24 VDC power supply and communication in one single point.

The M-50 and M-70 act as the Ethernet gateway for all the devices connected on the Digiware or RS485 bus, and integrate a web server to configure the network parameters and to remotely display measurement data.

The M-50 and M-70 gateways offer a wide range of functionalities, including:

- memory extension for connected devices,
- automatic export of logged consumption and data to an FTP(S) server,
- notification emails if there is an alarm on one of the connected devices (SMTPS),
- automatic time synchronisation of all connected devices via SNTP.

Advantages

Plug & Play

- Direct Digiware and RS485 to Ethernet gateway.
- Automatic detection of connected devices.
- Easy setup using the embedded web server.
- Safety Extra Low Voltage 24 VDC power supply.

Advanced connectivity

- Ethernet output for communication using multiple protocols: Modbus TCP, BACnet IP and SNMP v1, v2, v3 (encrypted) to suit any metering and power monitoring application.
- Possible to configure as RS485 slave to communicate measurement data to a second PLC, for example.

Embedded web server

WEBVIEW-M embedded in the M-70 and available without licence fees, allows users to visualise and analyse real-time and logged data thanks to graphical tools that are user-friendly and easily accessible to all.

Cyber security

The M-50 and M-70 gateways allow users to secure the transmission of data and reduce the risk of cyber attacks with special IEC 62443-compliant cyber security features:

- secured HTTPS navigation by uploading TLS/SSL certificates,
- secured data push (FTPS, SMTPS),
- possible to block or restrict certain protocols or services to reduce attack potential,
- implementation of a firewall to guard against denial-of-service attacks.

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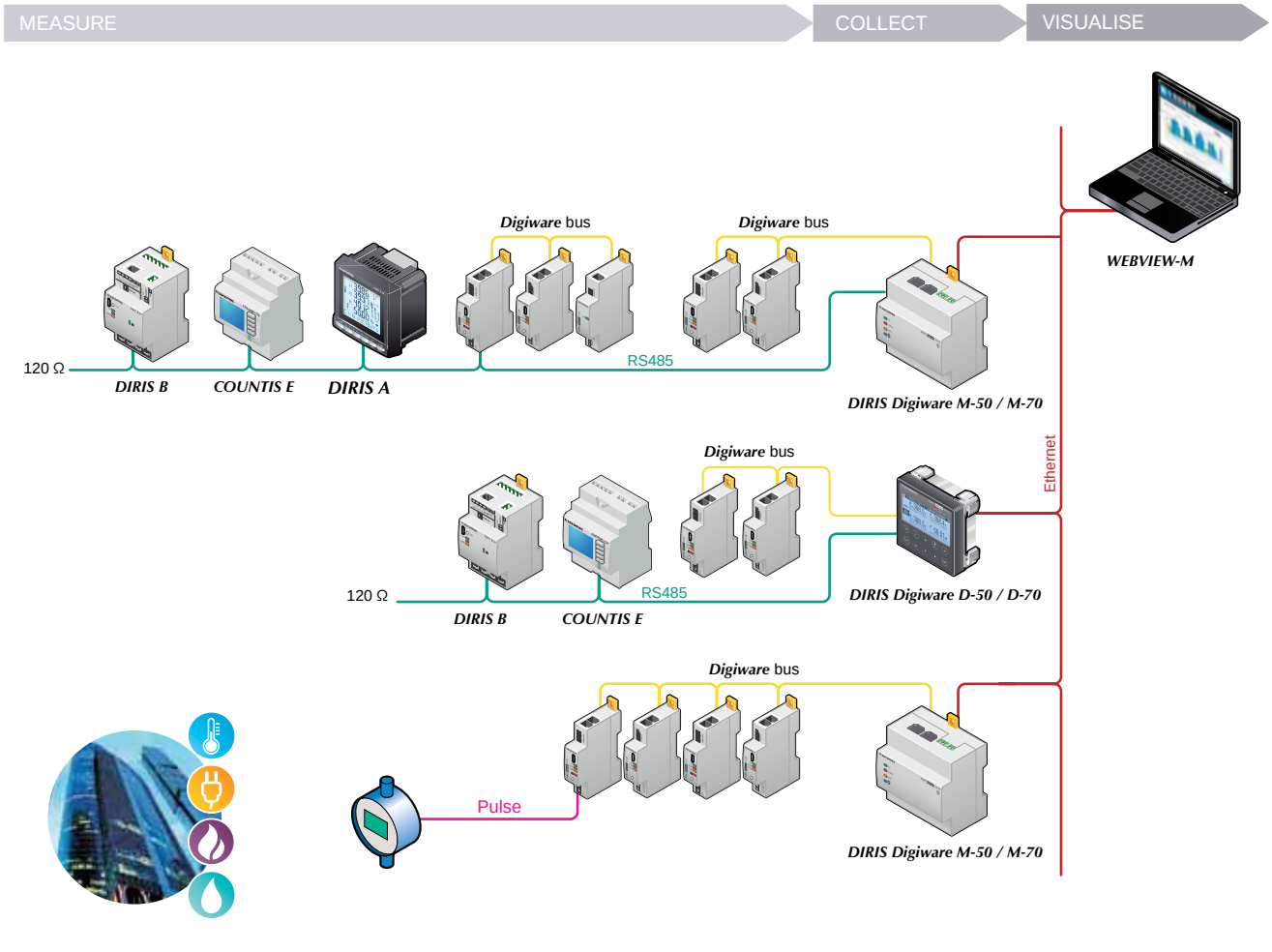
Application	Multi-protocol communication gateway	
		
DIRIS Digiware M	***M-50***	***M-70***
Digiware bus input	•	•
RS485	Input/output (1)	Input/output (1)
Ethernet output	•	•
Compatible protocols	Modbus RTU Modbus TCP BACnet IP SNMP v1, v2, v3, Traps	Modbus RTU Modbus TCP BACnet IP SNMP v1, v2, v3, Traps
FTP(S) (automatic data export)	•	•
SMTP(S) (email notifications in case of alarm)	•	•
SNTP (time synchronisation)	•	•
Web Server	WEB-CONFIG	WEBVIEW-M

(1) The gateways can be configured as Modbus master (RS485 input) or slave (RS485 output).

Architecture



Embedded webserver

WEB-CONFIG (M-50)

The M-50 gateway includes a WEB-CONFIG allowing you to:

- configure the device hierarchy and data access,
- block or restrict access to certain peripherals, protocols or services.

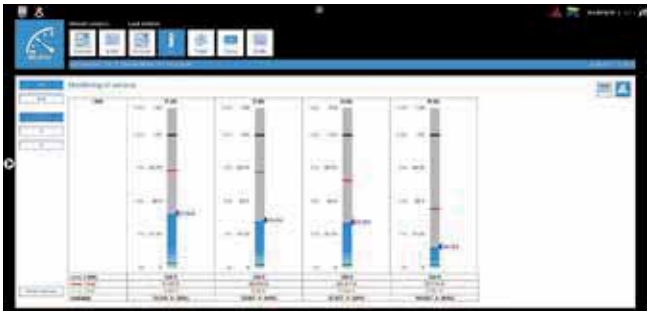
WEBVIEW-M (M-70)

In addition to the WEB-CONFIG, the M-70 gateway allows a remote visualisation of data on the embedded WEBVIEW-M software, available without licence fees.

- Real-time measurements.
- On-going and terminated alarms.
- Consumption curves and load curves per load or usage.
- Photoview: displays electrical parameters on a customised background such as a site map, an electrical diagram or a panel picture to provide an overview of your electrical installation.

Data storage

These gateways extend the memory of connected devices so you can log a year's worth of measurements, load curves and consumption curves.



Configuration

Device consumption

Device	Power supplied (W)
Power supply	
P15 100-240 VAC / 24 VDC	15
P30 100-240 VAC / 24 VDC	20
Device	**Power consumed (W)**
Cables	
50-metre package	1.5
System interfaces	
DIRIS Digiware C-31	0.8
DIRIS Digiware D-50/D-70	2.5
DIRIS Digiware M-50/M-70	2.5
Voltage module	
DIRIS Digiware U-xx	0.72
DIRIS Digiware U-3xdc	0.6
Current modules	
DIRIS Digiware I-3x	0.52
DIRIS Digiware I-4x	1.125
DIRIS Digiware I-6x	0.7
DIRIS Digiware I-3xdc (+ 3 DC current sensors)	2
DIRIS Digiware S-xx	0.35
Input/output modules	
DIRIS Digiware IO-10/IO-20	0.5
Repeater	
DIRIS Digiware C-32	1.5

Calculation rules for the max. number of devices on the Digiware bus

The total power consumed by the devices connected to the Digiware bus must not exceed the power from the 24 VDC supply.
The power supply must not exceed 20 W / 70°C or 27 W / 40°C.

Size with P15 power supply (ref: 4829 0120) delivering 15 W
For example, it is possible to use
- 1 DIRIS Digiware M-50 gateway (2.5 W)
- 1 DIRIS Digiware voltage module U-xx (0.72 W)
- 50 metres of cable (1.5 W)

and
- 29 DIRIS Digiware current modules S-xx (29x 0.35 = 10.15 W)
  ⇨ Total power = 14.87 W

or
- 9 DIRIS Digiware current modules I-4x (9 x 1.125 = 10.125 W)
  ⇨ Total power = 14.845 W.

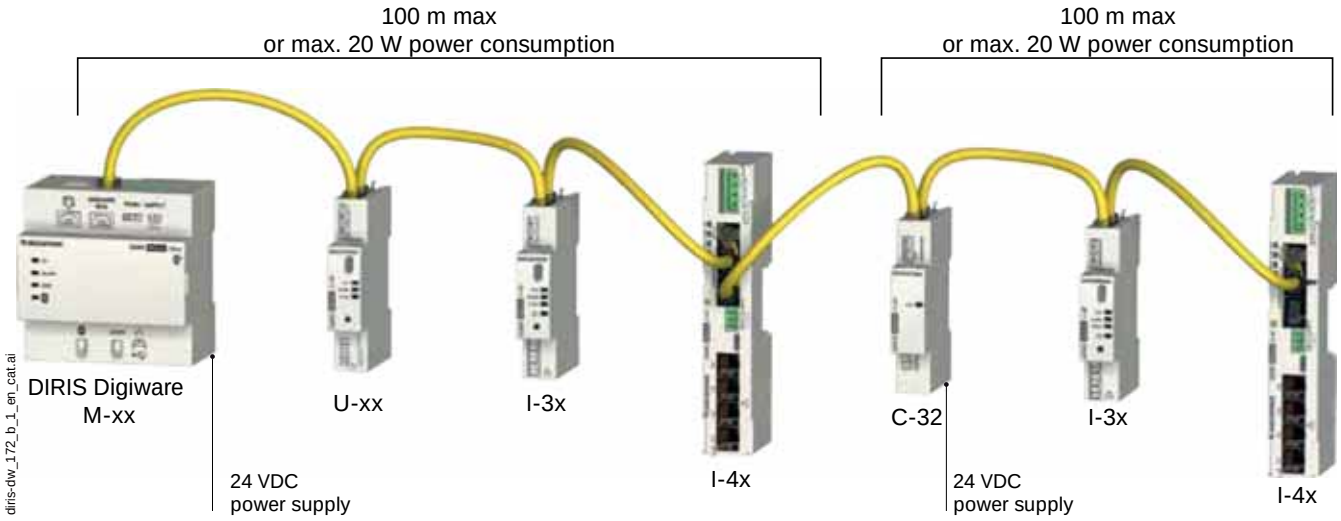
Size with a 24 VDC power supply delivering a maximum of 20 W (P30 ref. 4729 0603)
Possible options include:
- 1 DIRIS Digiware M-50 gateway (2.5 W)
- 1 DIRIS Digiware voltage module U-xx (0.72 W)
- 50 metres of cable (1.5 W)

and
- 29 DIRIS Digiware current modules I-3x (30 x 0.52 = 15.08 W)
  ⇨ Total power = 19.8 W

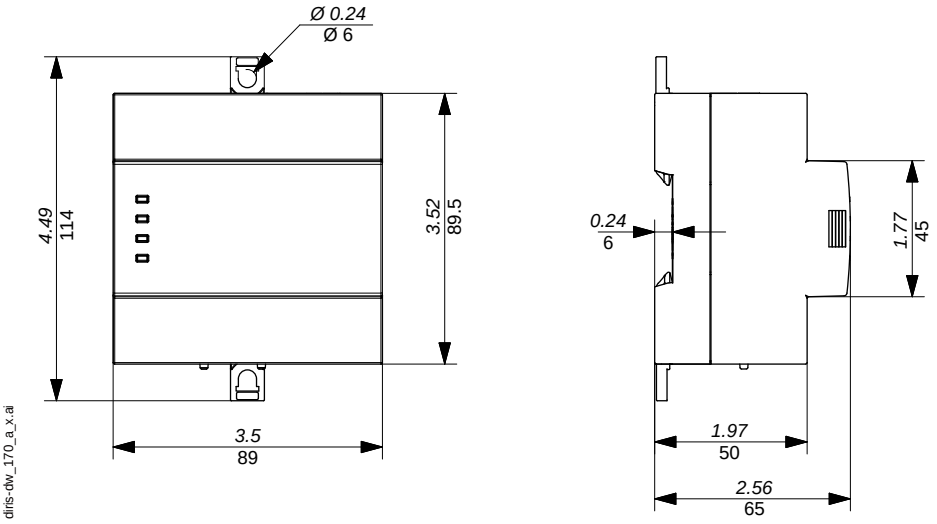
or
- 14 DIRIS Digiware current modules I-4x (13 x 1.125 = 15.72)
  ⇨ Total power = 19.345 W.

Repeater

With power consumptions higher than 20 W or distances greater than 100 m, a DIRIS Digiware C-32 repeater is required.
In a DIRIS Digiware system, a maximum of 2 repeaters may be used.



Dimensions (in/mm)



Technical characteristics

Electrical characteristics	
Power supply	24 VDC ± 10 % - 20 W max
Power consumption	2.5 W
Battery life	10 years

Mechanical characteristics	
Casing type	DIN-rail or back plate mounting
Weight	166 g
Protection degree	IP40 on the nose in modular assembly

Environmental characteristics	
Ambient operating temperature	-10 … +55°C
Storage temperature	-25 … +70°C
Operating humidity	95% at 40°C
Operating altitude	< 2000 m

Communication characteristics	
Ethernet RJ45 10/100 Mbs	Gateway function (M-50/M-70): Modbus TCP BACnet IP SNMP v1, v2, v3, Traps
Digiware bus	
Function	2 to 3 half duplex wires
Cable type	Specific Socomec cable with RJ45 connection
RS485	
Connection type	24 VDC +10 % / -20%
Protocol	Modbus RTU
Baudrate	9600 bds (max. 10 devices) 38400 bds - 115200 bds (max. 32 devices)
Function	Communication with PMD and meters or energy management systems (in RS485 slave mode)
USB	
Protocol	Modbus RTU over USB
Function	Configuration of gateway and connected PMDs/meters

References

DIRIS Digiware		Reference
M-50	Multi-protocol Ethernet gateway	4829 **0221**
M-70	Multi-protocol Ethernet gateway with embedded WEBVIEW-M web server	4829 **0222**
Power supply		**Reference**
P15	Power supply 100-240 VAC/ 24 VDC 15 W	4829 **0120**
P30	Power supply 100-240 VAC/ 24 VDC 20 W	4729 **0603**
Digiware connection cables		**Reference**
RJ45 cables for Digiware bus	Length 0.06 m	4829 **0189**
	Length 0.10 m	4829 **0181**
	Length 0.20 m	4829 **0188**
	Length 0.50 m	4829 **0182**
	Length 1 m	4829 **0183**
	Length 2 m	4829 **0184**
	Length 3 m	4829 **0190**
	Length 5 m	4829 **0186**
	Length 10 m	4829 **0187**
	50 m reel + 100 connectors	4829 **0185**
Terminal for Digiware bus (spare part ref. only as already supplied with M-50 and M-70 gateways)		4829 **0180**
USB configuration cable		4829 **0050**

Accessories	Available for order in multiples of	Reference
Fuse circuit breakers to protect voltage inputs (type RM) 1 pole + neutral	4	5701 **0017**
gG 10x38 0.5 A fuses	10	6012 **0000**

Expert Services

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For further information, please contact your nearest SOCOMEC branch.

DIRIS Digiware Uac

Voltage acquisition module

DIRIS Digiware U-10ac/U-20ac/ U-30ac

Configuration with Easy Config System.

Function

The DIRIS Digiware Uac module measures voltage for the entire system. This pools together all voltage measurements.

The Digiware RJ45 Bus allows you to pass voltage measurements as well as power supply and communication to all connected products.

Advantages

- 1 single voltage measurement point for the entire system.
- Single point of protection for voltage measuring.
- A complete, dedicated solution:
  - metering,
  - monitoring voltage,
  - quality analysis of the supplied voltage.
- No hazardous voltage on cabinet doors.
- Adapted to all types of network: single-phase, three-phase.

The solution for

> Industry
> Building
> Infrastructure
> Data center

Strong points

> 1 single voltage measurement point for the entire system
> Plug & Play
> Compact

RJ45 (Digiware Bus) cables are available.

Conformity to standards

> IEC 61557-12

> ISO 14025

> UL

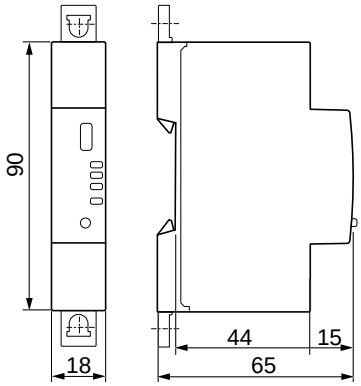
Create your project

> Find the best DIRIS Digiware configuration: www.meter-selector.com

Application	Voltage measurement module		
	Metering	Monitoring	Analysis
			
DIRIS Digiware Uac	***U-10ac***	***U-20ac***	***U-30ac***
Multi-measurement			
U12, U23, U31, V1, V2, V3, f	•	•	•
U system, V system			•
Ph/N unbalance			•
Ph/Ph unbalance			•
Quality analysis			
THDv1, THDv2, THDv3, THDu12, THDu23, THDu31		•	•
Individual harmonics U & V (up to 63rd)			•
Voltage dips, swells and interruptions (EN 50160)			•
Alarms			
On threshold			•
History of average values			
45 days (max)			•
Format			
Width/number of modules	18 mm / 1	18 mm / 1	18 mm / 1

Dimensions (mm)

DIRIS Digiware Uac



diris-dw_059_b_1_x_cat

Specifications

Measuring characteristics

Voltage measurement - DIRIS Digiware Uac	
Characteristics of the network measured	50-300 VAC (Ph/N) - 87-520 VAC (Ph/Ph) - CAT III
Frequency range	45 … 65 Hz
Frequency accuracy	Class 0.02
Network type	Single-phase/ Two-phase / Two-phase with neutral / Three-phase / Three-phase with neutral
Measurement by voltage transformer	Primary: 400 000 VAC Secondary: 60, 100, 110, 173, 190 VAC
Input consumption	≤ 0.1 VA
Permanent overload	300 VAC Ph/N
Accuracy of voltage measurement	Class 0.2
Connection	Removable screw terminal block, 4 positions, stranded or solid 0.2 … 2.5 mm² cable

Communication specifications

USB	
Protocol	Modbus RTU on USB
Function	Configuration of DIRIS Digiware U and I modules
Location	On each DIRIS Digiware U and I measurement module
Connection	Type B micro USB connector

References

Digiware connection cables		Reference
RJ45 cables for Digiware Bus	Length 0.06 m	4829 **0189**
	Length 0.10 m	4829 **0181**
	Length 0.20 m	4829 **0188**
	Length 0.50 m	4829 **0182**
	Length 1 m	4829 **0183**
	Length 2 m	4829 **0184**
	Length 3 m	4829 **0190**
	Length 5 m	4829 **0186**
	Length 10 m	4829 **0187**
	Reel 50 m + 100 connectors	4829 **0185**
Replacement reference: Digiware bus terminating resistor (supplied with C and D devices)		4829 **0180**
USB configuration cable		4829 **0050**

DIRIS Digiware		Reference
U-10ac	Metering	4829 **0105**
U-20ac	Monitoring	4829 **0106**
U-30ac	Analysis	4829 **0102**

Accessories	To be ordered in multiples of	Reference
Fuse holder to protect voltage inputs (type RM) 3 pole + neutral	3	5701 **0019**
gG 10x38 0.5 A fuses	10	6012 **0000**

DIRIS Digiware S

Current acquisition module with integrated sensors

DIRIS Digiware S

Configuration with Easy Config System.

Function

DIRIS Digiware S current acquisition modules have 3 integrated current sensors for the measurement of electrical circuits up to 63 A.

Positioned directly above or below the protective devices, they are associated with the DIRIS Digiware U voltage measurement module to measure consumption, and to monitor the electrical installation and the quality of the power supply.

Advantages

Plug & Play

- Save wiring time: the current sensors are integrated in the module.
- Quick RJ45 connection between modules.
- Positioning possible upstream or downstream of the protective device.

Multi-circuit

Multiple DIRIS Digiware S modules can be used within the measurement system enabling the monitoring of a large number of loads.

Compact

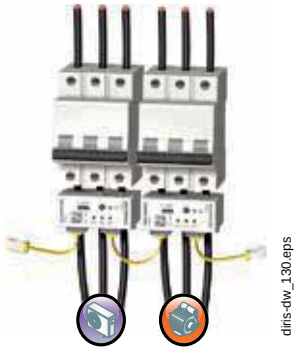
- A measurement module offering the best compactness/performance ratio of the market.
- Matches the pitch of the protective device.

Accurate

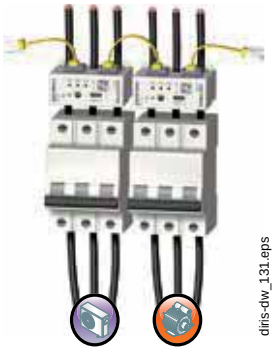
- Class 0.5 for active energy in accordance with the IEC 61557-12 standard, allowing accurate measurements over a wide range of currents.

Functional diagram

Downstream



Upstream



The DIRIS Digiware S measurement module can be mounted upstream or downstream of the protective device solving issues of space constraints.

The solution for

Distribution boards in:

> Data center
> Building
> Industry

Strong points

> Plug & Play
> Multi-circuit
> Compact

RJ45 (Digiware Bus) cables are available.

Integrated technologies

PreciSense AutoCorrect VirtualMonitor

For more information see our website www.socomec.com

Compliance with standards

> IEC 61557-12

> ISO 14025

> UL 257746

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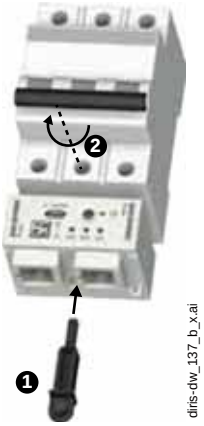
Application	Current measurement module with integrated sensors		
	Metering	Analysis	Monitoring
			
DIRIS Digiware S	*S-130*	*S-135*	*S-Datacenter*
Number of current inputs	3	3	3
Basic current I_b	10 A	10 A	10 A
Maximum current I_{max}	63 A	63 A	63 A
Load type accepted	1P + N 2P / 2P + N 3P / 3P + N	1P + N 2P / 2P + N 3P / 3P + N	1P + N
Metering			
± kWh, ± kvarh, kVAh	•	•	•
Multi-tariff (max 8)		•	
Load curves		•	•
Multi-measurement			
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•	•
P, Q, S, PF per phase		•	•
Predictive power		•	
Current unbalance (Inba, Inb, Idir, Iinv, Ihom)		•	
Phi, cos Phi, tan Phi		•	•
Quality			
THDi1, THDi2, THDi3, THDin		•	•
Individual harmonics I (up to 63rd)		•	
Crest factors U, V, I		•	
K factor		•	
Overcurrents		•	
Alarms			
Thresholds and combinations		•	•
Load level			•
Wiring errors		•	•
Protective device		•	•
Trends			
Average values		•	•
Format			
Width	54 mm	54 mm	54 mm

Mounting accessories

Temporary MCB insert
(for use during panel assembly)



diris-dw_137_b_x.ai

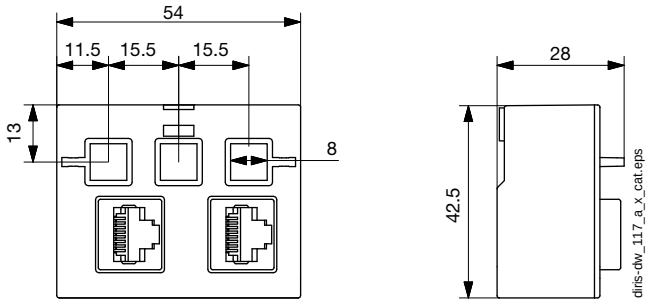
DIN rail and back plate mounting


diris-dw_138_b_x.ai

Cable tie tether


diris-dw_139_b_x.ai

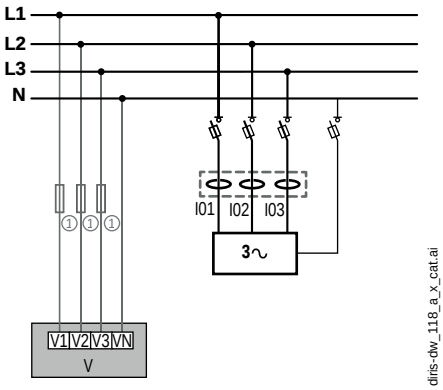
Dimensions (mm)



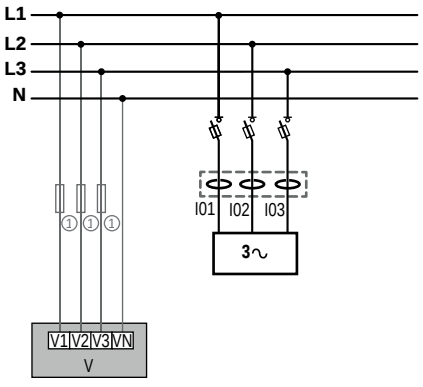
Connections

Current is measured by the integrated inputs I01, I02 and I03 on the DIRIS Digiware S module.

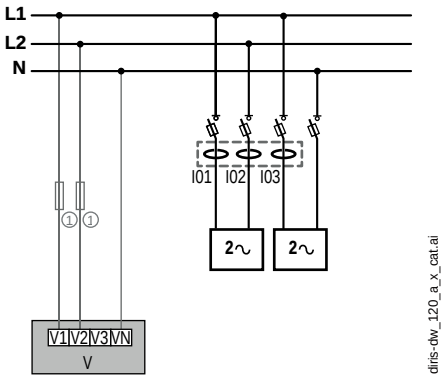
3P+N - 3CT



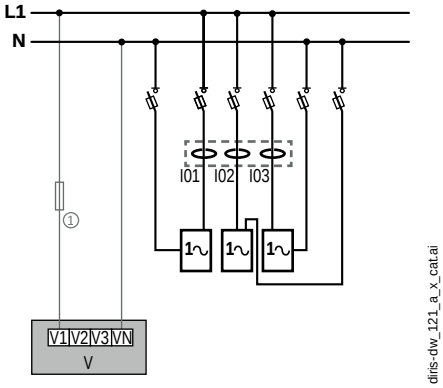
3P - 3 CT



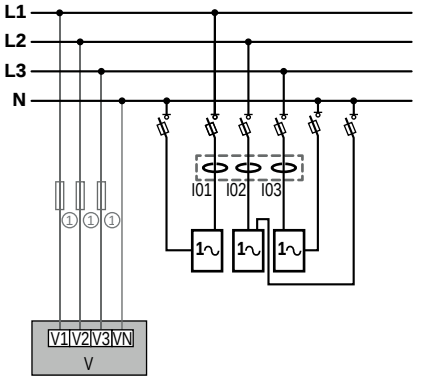
2P+N - 2CT & 2P+N - 1CT



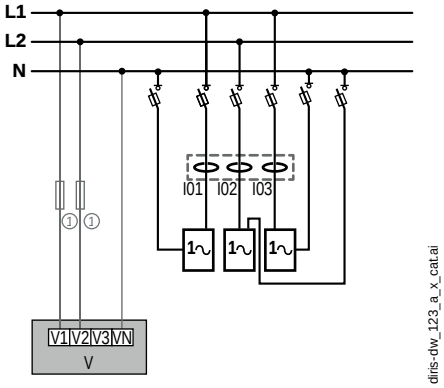
1P+N - 1 CT (3x)



3P+N - 1CT (3x)



2P+N - 1CT (3x)



DIRIS Digiware S | 3 Load | Fuses : 0.5 A gG / BS 88 2 A gG / 0.5 A class CC

Technical characteristics

Measurement characteristics

Measurement of current	
Number of current inputs	3
Associated current sensors	Integrated in the product
Basic current Ib	10 A
Maximum current I_{max}	63 A
Current measurement accuracy	Class 0.5 IEC 61557-12
Measurement of energy	
Accuracy of active energy	Class 0.5 IEC 61557-12
Accuracy of reactive energy	Class 1 IEC 61557-12

Mechanical characteristics

Casing type	DIN rail or back plate mounting
Casing protection index	IP20 / IK08
Weight	63 g
Module power consumption	0.35 VA

Communication specifications

Digiware BUS	
Function	Connection between DIRIS Digiware S, U, I modules and system interfaces
Cable type	Specific Socomec cable with RJ45 connections
USB	
Protocol	MODBUS RTU on USB
Function	Configuration of DIRIS Digiware modules
Location	On each DIRIS Digiware module
Connection	Type B micro USB connector

Environmental specifications

Ambient operating temperature	-10 … +55°C
Storage temperature	-25 … +70°C
Operating humidity	40°C / 95% RH
Operating altitude	< 2000 m

References

DIRIS Digiware S		Reference
S-130	Metering - 3 integrated current inputs	4829 **0160**
S-135	Analysis - 3 integrated current inputs	4829 **0161**
S-Datacenter	Single-phase monitoring - 3 integrated current inputs	4829 **0162**
Accessories		**Reference**
DIN rail and back plate mounting clip (x10)		4829 **0195**
Temporary MCB insert (x10)		4829 **0196**

Digiware connection cables		Reference
RJ45 cables for Digiware Bus	Length 0.06 m(1)	4829 **0189**
	Length 0.10 m	4829 **0181**
	Length 0.20 m	4829 **0188**
	Length 0.50 m	4829 **0182**
	Length 1 m	4829 **0183**
	Length 2 m	4829 **0184**
	Length 3 m	4829 **0190**
	Length 5 m	4829 **0186**
	Length 10 m	4829 **0187**
	50 m reel + 100 connectors	4829 **0185**
Termination for Digiware Bus (supplied with interfaces C and D)		4829 **0180**
USB configuration cable		4829 **0050**

(1) The RJ45 6 cm cables can be used on 3-pole or 4-pole protective devices.

Expert Services

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DIRIS Digiware Iac

Current acquisition modules

DIRIS Digiware I-3x

DIRIS Digiware I-4x

DIRIS Digiware I-6x

Configuration with Easy Config System.

Function

DIRIS Digiware Iac modules measure consumption and monitor the system at the closest point to the loads. The flexibility of these modules allows you to allocate the loads to be measured or monitored through independent current inputs.

For example:

- 1 three-phase load,
- 3 single-phase loads.

The RJ45 and RJ12 connections allow you to connect modules very quickly and to automatically configure connected current sensors:

- communication address,
- load type,
- sensor type and ratio,
- automatic rating and verification of current travel direction.

Wiring errors are also prevented and installation is simplified.

Advantages

- RJ45 and RJ12 rapid connection.
- Available with 3, 4 or 6 inputs.
- Single-output or multi-output for maximum optimisation of the number of products.
- Compact format: 1 or 2 modules sized for integration at the closest point to the loads.
- A complete, dedicated solution:
  - metering,
  - monitoring,
  - quality analysis.
- Compliant with standard IEC 61557-12, guaranteeing the quality and accuracy of the system:
  - class 0.5 for the 2 - 120% rated current global measurement chain I_n (with TE/ iTR/TF current sensors).

The solution for

> Industry
> Building
> Infrastructure
> Data center

Strong points

> Multi-circuit
> Plug and Play
> Compact
> High-precision measurement chain

Integrated technologies

PreciSense AutoCorrect VirtualMonitor

For more information see our website www.socomec.com

Conformity to standards

> IEC 61557-12

> ISO 14025

> UL

Create your project

> Find the best DIRIS Digiware configuration: www.meter-selector.com

METER SELECTOR DIGITAL TOOL AVAILABLE

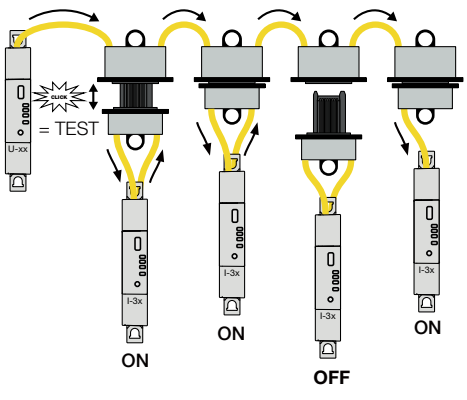
socomec Innovative Power Solutions

Application	Current measurement modules							
	Metering		Monitoring	Analysis	Monitoring	Analysis	Metering	
								
DIRIS Digiware Iac	***I-30***	***I-31***	***I-33***	***I-35***	***I-43***	***I-45***	***I-60***	***I-61***
Number of current inputs								
	3	3	3	3	4	4	6	6
Metering								
± kWh, ± kvarh, kVAh	•	•	•	•	•	•	•	•
Load curves		•		•		•		•
Multi-tariff		•		•		•		•
Multi-measurement								
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•	•	•	•	•	•	•
P, Q, S, PF per phase			•	•	•	•		
Predictive power				•		•		
Current unbalance (Inba, Idir, Iinv, Ihom, Inb)				•		•		
Phi, cos Phi, tan Phi				•		•		
Quality								
THDi1, THDi2, THDi3, THDin			•	•	•	•		
Individual harmonics I (up to 63rd)				•		•		
Overcurrents				•		•		
Alarms								
On threshold				•		•		
Inputs/outputs					2/2	2/2		
History of average values								
45 days (max)				•		•		
Format								
Width/number of modules	18 mm / 1	18 mm / 1	18 mm / 1	18 mm / 1	27 mm / 1.5	27 mm / 1.5	36 mm / 2	36 mm / 2

Accessories

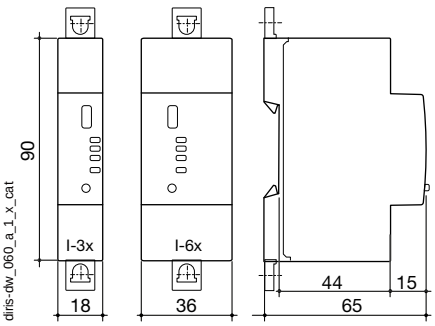
Digiware plug-in connector

With the Digiware plug-in connector you can disconnect a DIRIS Digiware module form the Bus while ensuring the DIRIS Digiware system continues to run downstream.
This accessory is particularly useful in applications with retractable drawers or critical applications such as in data centres.

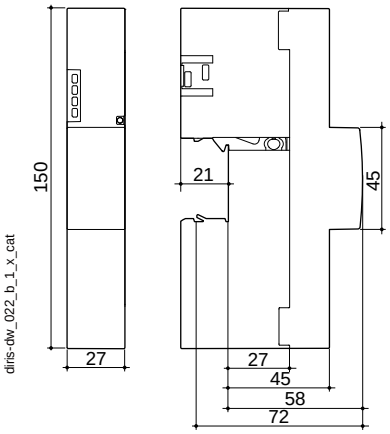


Dimensions (mm)

DIRIS Digiware I-3xac / I-6xac



DIRIS Digiware I-4xac



Connections

Associated current sensors

Various types of current sensors are connected to the DIRIS Digiware: closed (TE), split core (TR/iTR) or flexible (TF). This range of sensors can be adapted to all types of new or existing installations. A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. The DIRIS Digiware system automatically recognises the sensor size and type. This guarantees the overall accuracy of the DIRIS Digiware + current sensor measurement chain.

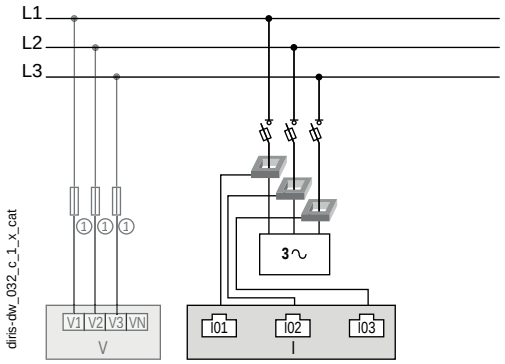
For more information see "TE, TR and TF sensors" pages.

Network and connection examples

I-3x

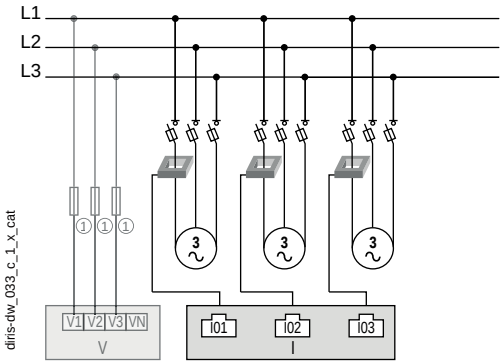
Three-phase

3P - 3CT (1 three-phase load)



Three-phase

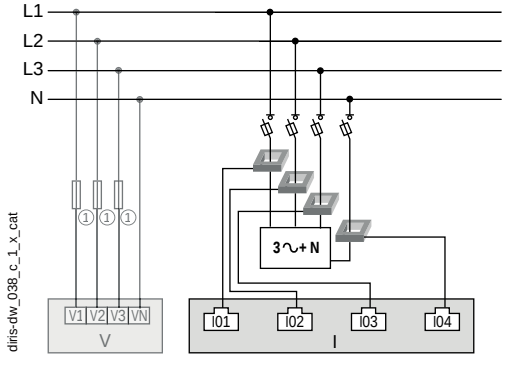
3P - 1CT (3 balanced, three-phase loads)



I-4x

Three phase + neutral

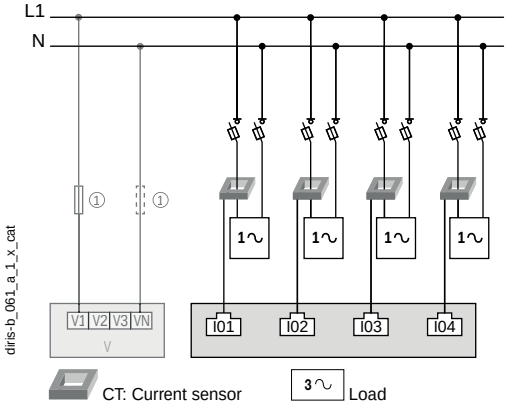
3P+N - 4CT (1 three-phase load + Neutral measured)



1. 0.5 A gG / 0.5 A class CC fuses.

Single-phase

1P+N-1CT (4 single-phase loads)



Specifications

Measuring characteristics

Current measurement - DIRIS Digiware Iac	
Number of current inputs	I-3x: 3 / I-45: 4 / I-6x: 6
Associated current sensors	Solid TE, split-core TR / iTR, flexible TF current sensors
Accuracy of current measurement	0.2 DIRIS Digiware class only Class 0.5 with TE, iTR or TF sensors Class 1 with TR sensors
Connection	Specific Socomec cable with RJ12 connectors

Inputs - DIRIS Digiware I-45ac	
Number of inputs	2
Type / Power supply	Non-insulated input, internal polarisation 12 VDC max, 1mA
Input functions	Logic status, pulse meter, multi-tariff
Connection	Removable screw terminal block, stranded or solid 0.14-1.5 mm² cable

Outputs - DIRIS Digiware I-45ac	
Number of outputs	2
Relay type	230 VAC ±15 % - 1 A 30 VDC - 3 A
Function	Configurable alarm (current, power, etc.) when threshold is exceeded or remote controlled status
Connection	Removable screw terminal block, stranded or solid 0.2-2.5 mm² cable

Communication specifications

USB	
Protocol	Modbus RTU on USB
Function	Configuration of DIRIS Digiware U and I modules
Location	On each DIRIS Digiware U and I measurement module
Connection	Type B micro USB connector

References

DIRIS Digiware		Reference
I-30	Metering - 3 current inputs	4829 **0110**
I-31	Metering + load curve - 3 current inputs	4829 **0111**
I-33	Monitoring - 3 current inputs	4829 **0128**
I-35	Analysis - 3 current inputs	4829 **0130**
I-43	Monitoring - 2 inputs/ 2 outputs - 4 current inputs	4829 **0129**
I-45	Analysis - 2 inputs/ 2 outputs - 4 current inputs	4829 **0131**
I-60	Metering - 6 current inputs	4829 **0112**
I-61	Metering + load curve - 6 current inputs	4829 **0113**

Accessories	Reference
Digiware x 5 plug-in connector	4829 **0605**

Digiware connection cables		Reference
RJ45 cables for Digiware Bus	Length 0.06 m	4829 **0189**
	Length 0.10 m	4829 **0181**
	Length 0.20 m	4829 **0188**
	Length 0.50 m	4829 **0182**
	Length 1 m	4829 **0183**
	Length 2 m	4829 **0184**
	Length 3 m	4829 **0190**
	Length 5 m	4829 **0186**
	Length 10 m	4829 **0187**
	Reel 50 m + 100 connectors	4829 **0185**
Digiware bus terminating resistor (supplied with C and D devices)		4829 **0180**
USB configuration cable		4829 **0050**

(1) DIRIS D-30 display characteristics see "DIRIS B" pages.

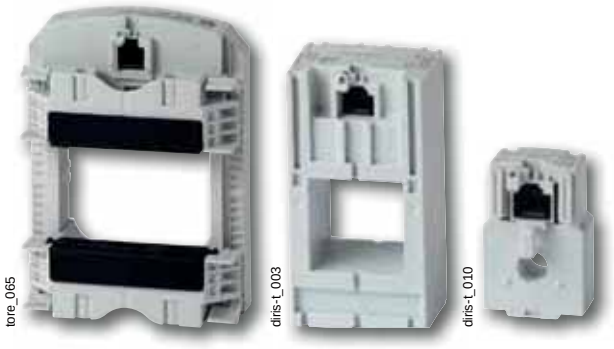
Expert Services

Require integration onto your network?
No problem for our "Expert Services" team. They will fully integrate all your SOCOMEC devices, audit your system, commission selected equipment and train your staff on its use.
For further information, please contact your nearest SOCOMEC branch.

TE sensors

Solid current sensors

used with DIRIS Digiware, DIRIS A-40 and DIRIS B



***TE** solid sensors*

Function

TE smart current sensors measure the load currents of an electrical system and send the data to meters and measurement hubs via an RJ12 plug-and-play output. Thanks to a wide measurement range, TE current sensors cover the full current range of 5 to 2000 A, with 7 references. TE solid current sensors can be connected to DIRIS Digiware, DIRIS A-40 and DIRIS B via a rapid RJ12 connection.

Numerous accessories are available to aid the installation of sensors in any type of cabinet.

Advantages

Plug & Play

- A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. This also allows automatic detection of the sensor type and size/transformation ratio.
- The sensors can be installed in both directions.

Accuracy as per standard IEC 61557-12

- Class 0.5 for the global measuring chain (measurement hub + TE current sensors) from 2 to 120% of the nominal current In.

Installation

- The TE solid sensor range is specially designed for new installations, and has the same pitch as the most common protective devices.

The solution for

> Industry
> Building
> Infrastructure
> Data center

Strong points

> Plug & Play
> Accuracy as per standard IEC 61557-12
> Installation

Conformity to standards

> IEC 61557-12
> ISO 14025
> UL

Create your project

> Find the best DIRIS Digiware configuration: www.meter-selector.com

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Mounting

Linear assembly with the protective devices
TE-25 / TE-35 / TE-45 / TE-55 / TE-90


diris-t_006

Staggered assembly
TE-18 / TE-35 / TE-45 / TE-55


diris-t_005

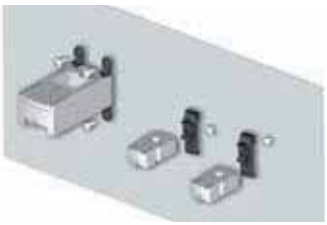
Cable mounting


diris-t_035

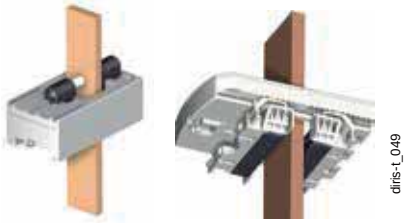
DIN rail mounted


diris-t_033

Back-plate mounting


diris-t_034

Bar mounting


diris-t_036_ diris-t_049

TE-90 clamps


diris-t_048

Connections

TE / TR / iTR / TF current sensors

diris-b_033

TE sensors

Solid current sensors

used with DIRIS Digiware, DIRIS A-40 and DIRIS B

Mounting accessories

Mounting accessories delivered with TE sensors:

Switch mounting		TE-18	TE-25	TE-35 TE-45 TE-55	TE-90
	DIN rail and back-plate	1 pc			2 pcs
	DIN rail		2 pcs	2 pcs	
	Back-plate		4 pcs	4 pcs	6 pcs
	Busbar			2 pcs	

diris-t_042_a - 043_a - 044_a - 045_a

Compatible accessories

Adapter for CT with 5A secondary

diris-t_041_a_1_cat

- With this adapter you can use a current transformer with a 1 A or 5 A output on DIRIS Digiware I, DIRIS B and DIRIS A-40.
  For use with 5 A CTs (measurement up to 10 000 A) or 1 A CTs (measurement up to 2000 A). The dimensions are the same as the TE-18.

Coupling link

- Associated with the TE range, this accessory is for inter-connecting the sensors when linear or staggered mounted.

diris-t_020_a_1_cat

Sealable cover

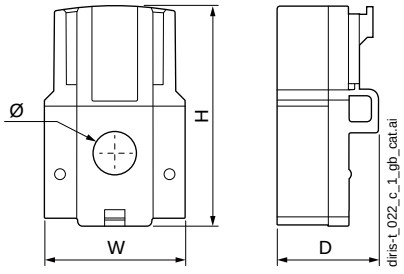
- Using a sealable cover guarantees the immunity of the sensor connection on TE / TR / iTR / TF current sensors.

diris-t_046_a_1_cat

Dimensions (mm)

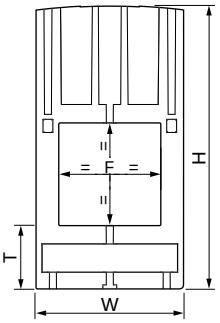
TE - Solid current sensors

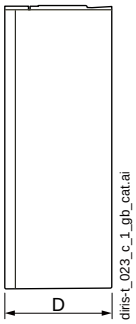
TE-18



diris-t_022_c_1_gb_cat.ai

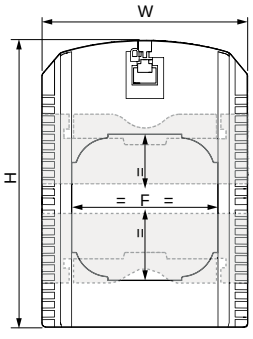
TE-25 / TE-35 / TE-45 / TE-55



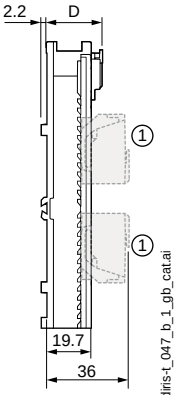


diris-t_023_c_1_gb_cat.ai

TE-90



1. Switch mounting



diris-t_047_b_1_gb_cat.ai

Model	Nominal current range (A)	Real range covered (A)	Pitch (mm)	H x W x D (mm)	F (mm)	T (mm)
TE-18	5 ... 20 / 25 ... 63	0.1 ... 24 / 0.5 ... 75	18	45 x 28 x 20	8.6	-
TE-25	40 ... 160	0.8 ... 192	25	65 x 25 x 32.5	13.5 x 13.5	17.5
TE-35	63 ... 250	1.26 ... 300	35	71 x 35 x 32.5	21 x 21	17.5
TE-45	160 ... 630	3.2 ... 756	45	86 x 45 x 32.5	31 x 31	19.5
TE-55	400 ... 1000	8 ... 1200	55	100 x 55 x 32.5	41 x 41	21.5
TE-90	600 ... 2000	12 ... 2400	90	126 x 90 x 24.6	64 x 64	-

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Specifications

TE - Solid current sensors							
Model	**TE-18**	**TE-18**	**TE-25**	**TE-35**	**TE-45**	**TE-55**	**TE-90**
Nominal current range I_n (A)	5 ... 20	25 ... 63	40 ... 160	63 ... 250	160 ... 630	400 ... 1000	600 ... 2000
Real range covered (A)	0.1 ... 24	0.5 ... 75	0.8 ... 192	1.26 ... 300	3.2 ... 756	8 ... 1200	12 ... 2400
Max. current (A)	24	75.6	192	300	756	1200	2400
Weight (g)	24	24	69	89	140	187	163
Max. voltage (phase/neutral)	300 V						
Rated withstand voltage	3 kV						
Frequency	50/60 Hz						
Intermittent overload	10 x I_n over 1 sec						
Measurement category	CAT III						
Protection degree	IP30 / IK06						
Operating temperature	-10 ... +70°C						
Storage temperature	-25 ... +85°C						
Relative humidity	95% RH non-condensing						
Altitude	< 2000 m						
Connection	Socomec RJ12 cable						

References

Model	**Nominal current range (A)**	**Real range covered (A)**	**Pitch (mm)**	**Reference**
TE-18	5 ... 20	0.1 ... 24	18	4829 **0500**
TE-18	25 ... 63	0.5 ... 75	18	4829 **0501**
TE-25	40 ... 160	0.8 ... 192	25	4829 **0502**
TE-35	63 ... 250	1.26 ... 300	35	4829 **0503**
TE-45	160 ... 630	3.2 ... 756	45	4829 **0504**
TE-55	400 ... 1000	8 ... 1200	55	4829 **0505**
TE-90	600 ... 2000	12 ... 2400	90	4829 **0506**

Accessories	**Reference**
Coupling link (20 linear assembly parts and 10 for staggered assembly)	4829 **0598**
5 A CT adapter (max primary current 2000 A /1 A or 10 000 A /5 A)	4829 **0599**
Sealable caps (20 pieces)	4829 **0600**

RJ12 connection cables	**Cable length (m)**									
	0.1	**0.2**	**0.3**	**0.5**	**1**	**2**	**3**	**5**	**10**	**50 m reel + 100 connectors**
Number of cables	**Reference**	**Reference**	**Reference**	**Reference**	**Reference**	**Reference**	**Reference**	**Reference**	**Reference**	**Reference**
1	-	-	-	-	-	-	-	4829 **0602**	4829 **0603**	4829 **0601**
3	4829 **0580**	4829 **0581**	4829 **0582**	4829 **0595**	4829 **0583**	4829 **0584**	4829 **0606**	-	-	-
4	-	-	-	4829 **0596**	4829 **0588**	4829 **0589**	-	-	-	-
6	4829 **0590**	4829 **0591**	4829 **0592**	4829 **0597**	4829 **0593**	4829 **0594**	-	-	-	-

TR/iTR sensors

Split-core AC current sensors

used with DIRIS Digiware, DIRIS A-40 and DIRIS B

***TR** Split-core current sensors*

Function

The **split-core current sensors** in the **TR** and **iTR** ranges enable the current of an electrical installation to be measured. Used with power monitoring device DIRIS Digiware, DIRIS A-40, DIRIS B, they make it possible to perform measurements between 25 and 600 A, with guaranteed accuracy. The RJ12 connection provides quick connections, and the integrated intelligence prevents any configuration errors.

The sensors in the iTR range revolutionise the world of measurement and provide access to VirtualMonitor status monitoring technologies and to AutoCorrect automatic configuration.

Advantages of the TR and iTR ranges

Smart sensors

- Sensors with an extended operational range.
- Automatic detection of rating.
- Secured disconnection of load.
- Quick connection via RJ12 and identification of cable by colour code.

Accurate

- Measurement precision guaranteed in acc. with standard IEC 61557-12 : class 0.5 (iTR) or 1 (TR) for the global measuring chain from 2 to 120% of In.

Unique advantages of the iTR range

VirtualMonitor technology

VirtualMonitor provides monitoring of protective devices:

- Across the entire electrical installation.
- Remotely and in real-time.
- Without additional hardware or wiring (no auxiliary contacts needed).

AutoCorrect technology

AutoCorrect guarantees that your measurement system is working correctly:

- Automatic wiring control (current voltage phase association).
- Correction of errors.
- Feature available off load.

The solution for

> Retrofit applications
> Industry
> Building
> Infrastructure
> Data centers

Strong points

> Smart sensors
> PreciSense technology: Accurate
> Easy installation and configuration

Integrated technologies(1)

PreciSense AutoCorrect VirtualMonitor

(1) AutoCorrect and VirtualMonitor are only available with iTR sensors.

For more information see our website www.socomec.com

Compliance with standards

> IEC 61557-12
> ISO 14025
> UL

Create your project

> Find the best DIRIS Digiware configuration: www.meter-selector.com

METER SELECTOR DIGITAL TOOL AVAILABLE

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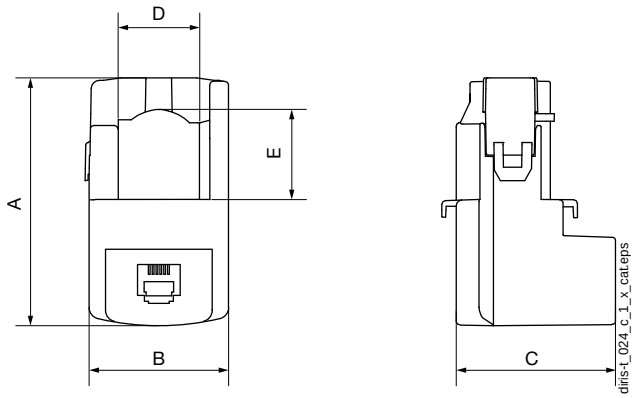
Installation

Cable mounting

Dimensions (mm)

TR-10 / TR-14 / TR-21 / TR-32



Model	Nominal current range (A)	Real range covered (A)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Ø (mm)
TR/iTR-10	25 ... 63	0.5 ... 75.6	44	26	28	-	-	10
TR/iTR-14	40 ... 160	0.8 ... 192	67	29	28	14	15	14
TR/iTR-21	63 ... 250	1.26 ... 300	65	37	43	21	23	21
TR/iTR-32	160 ... 600	3.2 ... 720	86	53	47	32	33	32

Technical characteristics

Model	TR-10	iTR-10	TR-14	iTR-14	TR-21	iTR-21	TR-32	iTR-32
Nominal current range I_n (A)	25 ... 63		40 ... 160		63 ... 250		160 ... 600	
Real range covered (A)	0.5 ... 75.6		0.8 ... 192		1.26 ... 300		3.2 ... 720	
Max. current (A)	75.6		192		300		720	
Weight (g)	74		117		211		311	
Max. voltage (phase/neutral)	300 V							
Rated withstand voltage	3 kV							
Frequency	50/60 Hz							
Intermittent overload	10 x I_n for 1 s							
Measurement category	CAT III							
Global class used with Diris Digiware/A-40/B-10/B-30	Class 1	Class 0.5	Class 1	Class 0.5	Class 1	Class 0.5	Class 1	Class 0.5
Protection degree	IP20 / IK07							
Operating temperature range	-10 to +70°C						-10°...+55°C	
Storage temperature range	-25 to +85°C							
Relative humidity	95% RH non-condensing							
Altitude	< 2000 m							
Connection	Socomec RJ12 cable							

References

Model	Nominal current range (A)	Real range covered (A)	Ø (mm)	Reference
TR-10	25 ... 63	0.5 ... 75	10	4829 **0555**
TR-14	40 ... 160	0.8 ... 192	14	4829 **0556**
TR-21	63 ... 250	1.26 ... 300	21	4829 **0557**
TR-32	160 ... 600	3.2 ... 720	32	4829 **0558**

Model	Nominal current range (A)	Real range covered (A)	Ø (mm)	Reference
iTR-10	25 ... 63	0.5 ... 75	10	4829 **0655**
iTR-14	40 ... 160	0.8 ... 192	14	4829 **0656**
iTR-21	63 ... 250	1.26 ... 300	21	4829 **0657**
iTR-32	160 ... 600	3.2 ... 720	32	4829 **0658**

RJ12 connection cables	Cable length (m)									
	0.1	0.2	0.3	0.5	1	2	3	5	10	50 m reel + 100 connectors
Number of cables	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
1	-	-	-	-	-	-	-	4829 **0602**	4829 **0603**	4829 **0601**
3	4829 **0580**	4829 **0581**	4829 **0582**	4829 **0595**	4829 **0583**	4829 **0584**	4829 **0606**	-	-	-
4	-	-	-	4829 **0596**	4829 **0588**	4829 **0589**	-	-	-	-
6	4829 **0590**	4829 **0591**	4829 **0592**	4829 **0597**	4829 **0593**	4829 **0594**	-	-	-	-

TF sensors

Flexible TF current sensors

used with DIRIS Digiware, DIRIS A-40 and DIRIS B

TF *Flexible current sensors*

Function

TF flexible current sensors measure the load currents of an electrical circuit and send the data to meters and Power Monitoring Devices or current modules via an RJ12 plug-and-play connection. Thanks to a wide measurement range, TF current sensors cover a wide current range from 100 to 6000 A, with only 7 references. TF flexible current sensors can be used with DIRIS Digiware I modules, DIRIS A-40 and DIRIS B.

Advantages

Plug & Play

- A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. This also allows automatic detection of the sensor type and rating.
- The sensors can be installed in both directions.

Accuracy according to IEC 61557-12

- Class 0.5 for the global measuring chain (PMD + TF current sensors) from 2 to 120% of the nominal current I_n.
- Accuracy is guaranteed regardless of the position of the conductor in the loop.

Safe locking mechanism(1)

- The locking system prevents the loop from opening, guaranteeing continuous functioning and accuracy even under harsh conditions.

Installation

- The TF flexible sensor range is specially designed for existing installations with strict integration constraints or with high-intensity currents.

Simplified installation

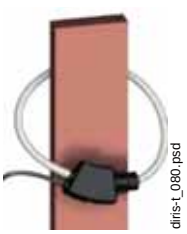
- The Rogowski integrator is directly integrated to the RJ12(1) cable enabling a quick and compact integration (no DIN rail assembly required) inside electrical panels.
- The integrator is self supplied by the PMD through the RJ12 cable and does not need any external power supply.

(1) Except for TF-55.

Installation

Cable mounting

Bar mounting



The solution for

- > Industry
- > Building
- > Infrastructure
- > Data centers

Strong points

- > Plug & Play
- > Accuracy according to IEC 61557-12
- > Safe locking mechanism
- > Installation
- > Simplified installation

Integrated technologies

PreciSense

For more information see our website www.socomec.com

Compliance with standards

- > IEC 61557-12
- > ISO 14025
- > UL

Create your project

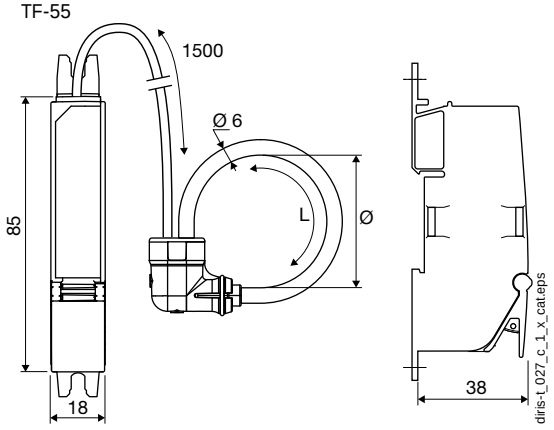
> Find the best DIRIS Digiware configuration: www.meter-selector.com

METER SELECTOR DIGITAL TOOL AVAILABLE

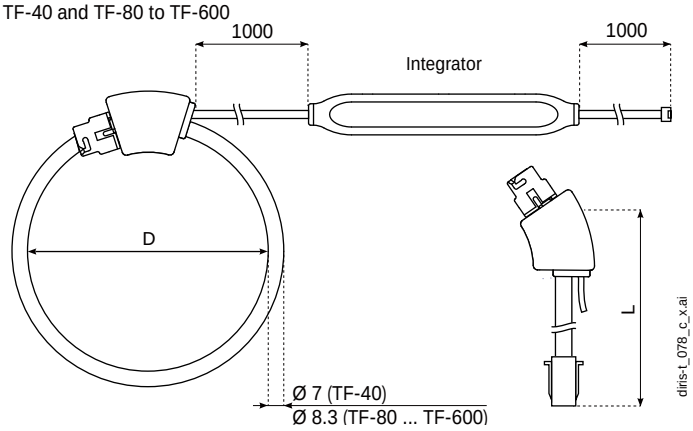
socomec Innovative Power Solutions

Dimensions (mm)

TF-55



TF-40 and TF-80 to TF-600



Model	Nominal current range (A)	Real range covered (A)	D = Ø loop (mm)	L = Loop length (mm)
TF-40	100 ... 400	2 ... 480	40	126
TF-55	150 ... 600	3 ... 720	55	173
TF-80	150 ... 600	3 ... 720	80	251
TF-120	400 ... 2000	8 ... 2400	120	377
TF-200	600 ... 4000	12 ... 4800	200	628
TF-300	1600 ... 6000	32 ... 7200	300	942
TF-600	1600 ... 6000	32 ... 7200	600	1885
Integrator dimensions: 128 x 19 x 15 mm				

Technical characteristics

Model	TF-40	TF-55	TF-80	TF-120	TF-200	TF-300	TF-600
Nominal current range I_n (A)	100 ... 400	150 ... 600	150 ... 600	400 ... 2000	600 ... 4000	1600 ... 6000	1600 ... 6000
Real range covered (A)	2 ... 480	3 ... 720	3 ... 720	8 ... 2400	12 ... 4800	32 ... 7200	32 ... 7200
Weight (g)	114	114	130	142	164	193	274
Max. voltage (phase/neutral)	600 V						
Rated withstand voltage	3.6 kV						
Accuracy class	0.5 in association with DIRIS Digiware I, DIRIS A-40, DIRIS B based on IEC 61557-12						
Frequency	50 / 60 Hz						
Intermittent overload	10 x In for 1 s						
Measurement category	CAT III						
Protection degree	IP30 / IK07						
Operating temperature	-10 to +70°C						
Storage temperature	-25 to +85°C						
Relative humidity	95% RH non-condensing						
Altitude	< 2000 m						
Connection	Socomec cable or equivalent RJ12 straight, twisted pair, unshielded, 600 V, -10 ... +70 °C						

References

Model	Nominal current range (A)	Real range covered (A)	D = Ø loop (mm)	L = Loop length (mm)	Reference
TF-40	100 ... 400	2 ... 480	40	126	4829 **0573**
TF-55	150 ... 600	3 ... 720	55	173	4829 **0570**
TF-80	150 ... 600	3 ... 720	80	251	4829 **0574**
TF-120	400 ... 2000	8 ... 2400	120	377	4829 **0575**
TF-200	600 ... 4000	12 ... 4800	200	628	4829 **0576**
TF-300	1600 ... 6000	32 ... 7200	300	942	4829 **0577**
TF-600	1600 ... 6000	32 ... 7200	600	1885	4829 **0578**
Accessories					**Reference**
Female/female connector for extension of the RJ12 connection between PMD and TF sensor					4829 **0670**

RJ12 connection cables	Cable length (m)									
	0.1	0.2	0.3	0.5	1	2	3	5	10	50 m reel + 100 connectors
Number of cables	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
1	-	-	-	-	-	-	-	4829 **0602**	4829 **0603**	4829 **0601**
3	4829 **0580**	4829 **0581**	4829 **0582**	4829 **0595**	4829 **0583**	4829 **0584**	4829 **0606**	-	-	-
4	-	-	-	4829 **0596**	4829 **0588**	4829 **0589**	-	-	-	-
6	4829 **0590**	4829 **0591**	4829 **0592**	4829 **0597**	4829 **0593**	4829 **0594**	-	-	-	-

DIRIS Digiware R-60

Residual Current Monitoring module

new

DIRIS Digiware R-60

Configuration with Easy Config System software.

The solution for

> Industries
> Data centres

Strong points

> 2 in 1
> Multi-circuit
> Plug & play solution
> Smart alarming
> Patented innovation

Compliance with standards

> IEC 62020
> IEC 61557-12
> ISO 14025

Create your project

> Find the best DIRIS Digiware configuration: www.meter-selector.com

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Function

DIRIS Digiware R-60 modules combine residual current monitoring (RCM) with power metering and monitoring functions, for any combination of 1-phase, 2-phase or 3-phase circuits used in TN-S and TT earthing systems.

With six RJ12 channels, they can be connected to a mix of ΔIC residual CTs and TE/TR/iTR/TF current sensors via RJ12 cables enabling quick connection and avoiding wiring errors.

Advantages

2 in 1

One DIRIS Digiware R-60 module can be connected to residual CTs and traditional TE/TR/iTR/TF current sensors to pool residual current and power monitoring.

Multi-circuit

One DIRIS Digiware R-60 module can monitor the residual current on up to 6 circuits.

The Digiware modular concept allows several R-60 modules to be added within a single system, making it easy to implement RCM for a large number of outgoing circuits instead of the main incomer only.

Plug & Play solution

The Digiware concept and the RJ45 bus allow:

- easy connection of R-60 modules to an existing DIRIS Digiware system,
- optimal scalability by adding additional modules when needed.

The connection to current sensors is quick and error-free thanks to colour coded RJ12 cables.

Smart alarming

DIRIS Digiware R-60 provides the most advanced RCM alarm features for preventive notifications:

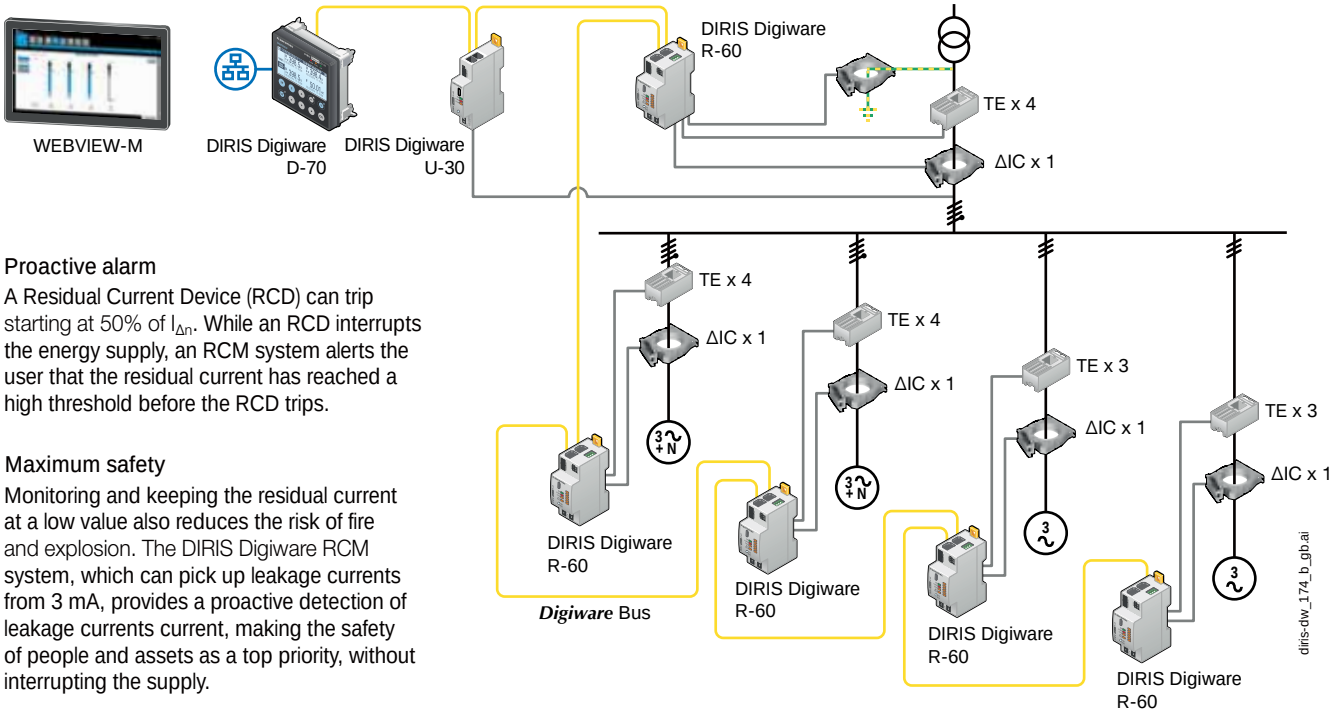
- before the residual current device (RCD) trips,
- before leakage currents become hazardous for people and assets,
- if the RCD is defective.

The combination with Virtual Monitor technology specifies if the RCD has tripped on an overload or a high residual current.

Patented innovation

Thanks to an automatic learning sequence, launched for a chosen duration representative of the normal operation of the electrical installation, 6 dynamic residual current (I_{Δ}) thresholds are automatically set. This facilitates the determination of the maximum residual current not to be exceeded for each outgoing circuit.

Applications



Proactive alarm

A Residual Current Device (RCD) can trip starting at 50% of $I_{\Delta n}$. While an RCD interrupts the energy supply, an RCM system alerts the user that the residual current has reached a high threshold before the RCD trips.

Maximum safety

Monitoring and keeping the residual current at a low value also reduces the risk of fire and explosion. The DIRIS Digiware RCM system, which can pick up leakage currents from 3 mA, provides a proactive detection of leakage currents current, making the safety of people and assets as a top priority, without interrupting the supply.

Protective earthing (PE) conductor

Adding a residual CT on the upstream PE conductor is essential to ensure the proper connection to earth.

It is also the easiest and cheapest way to measure the upstream residual current reliably.

Compliance with installation standards

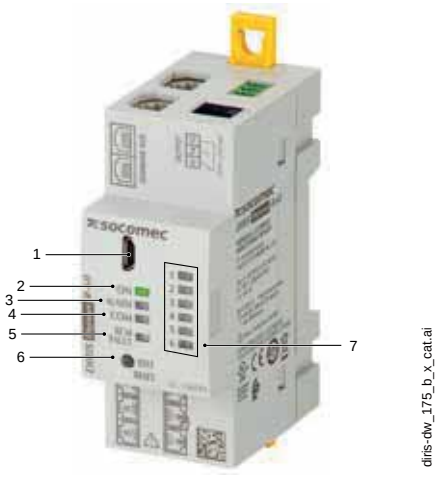
Many local electrical codes require an insulation resistance measurement as part of the Periodic Inspection and Testing. This operation is costly as it must be done on all outgoing circuits and intrusive as the main protective device must be opened.

According to IEC 60364-6 installation standards and many national transpositions, periodic insulation resistance testing is not necessary if permanently monitored by an RCM solution such as the DIRIS Digiware RCM system.

Measurements

DIRIS Digiware R-60	
Residual Current Monitoring	
I_{Δ}	•
I_{PE}	•
Metering	
+/- kWh, +/- kvarh, kVAh	•
Multi-tariff (max 8)	•
Load curves	•
Multi-measurement	
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•
P, Q, S, PF per phase	•
Alarms	
Dynamic I_{Δ} and I_{PE} thresholds	•
Overloaded neutral conductor	•
Protective device (opening, Trip, defective RCD)	•
I_{Δ} and I_{PE} comparisons	•
Trends	
I_{Δ}	•
I_{PE}	•
Load curves	•

Front face



1. USB port for configuration.
2. ON LED. Lights when the device is active.
3. ALARM LED for system alarms (CT disconnected, etc.)
4. COM LED. Flashes when the communication bus is active.
5. RCM FAULT. Lights if there is an RCM alarm on any of the channel 1 through 6.
6. TEST / RESET button. Starts the auto test (long press) and resets alarms (short press). Used during auto-discovery process for the resolution of address conflicts.
7. Individual LED alarm signals for each channel 1 to 6.

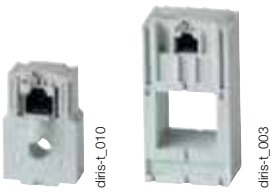
Connections

Associated sensors

Various types of residual CTs and current sensors can be connected to the DIRIS Digiware R-60 module: ΔIC solid-core, ΔIP-R split-core residual CTs, and solid-core TE, split-core TR/iTR, flexible TF current sensors. This range of sensors can be adapted to all types of new or existing installations. A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors.

For more information: refer to the residual CTs and current sensors catalogue pages

TE solid current sensors



ΔIC solid-core residual CTs

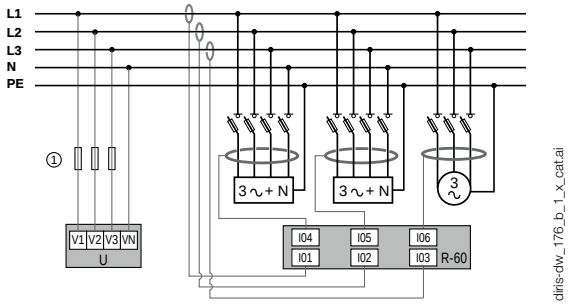
TR/iTR split-core current sensors

TF Flexible current sensors

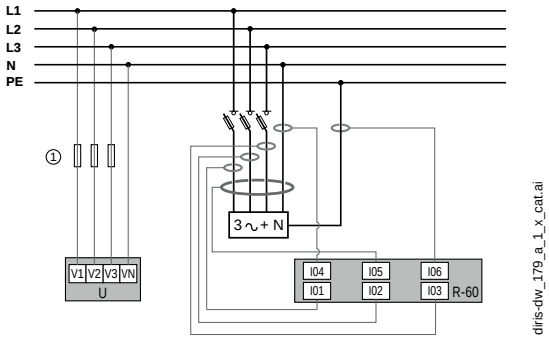
ΔIP-R split-core residual CTs

Connection examples

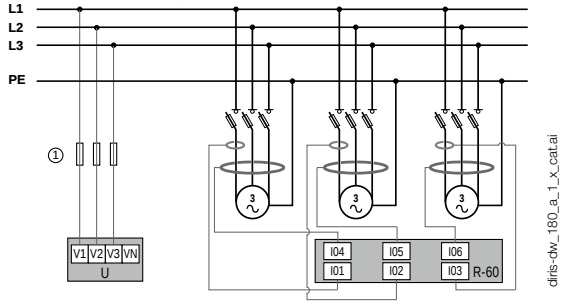
RCM (I_Δ)– 3 x 3-Ph load
Load current monitoring – L1, L2, L3, upstream



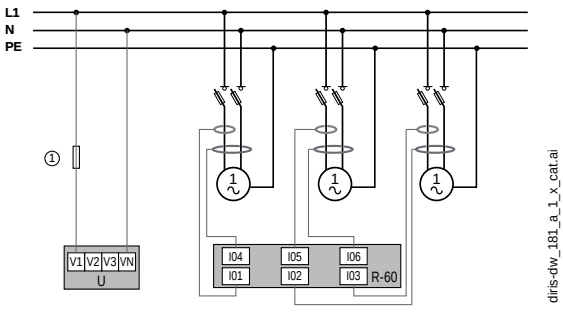
RCM (I_Δ + I_{PE}) – 1 x 3-Ph load
Load current monitoring – 1 x 3-Ph load (L1, L2, L3, N)



RCM (I_Δ)– 3 x 3-Ph load
Load current monitoring – 3 x 3-Ph balanced loads

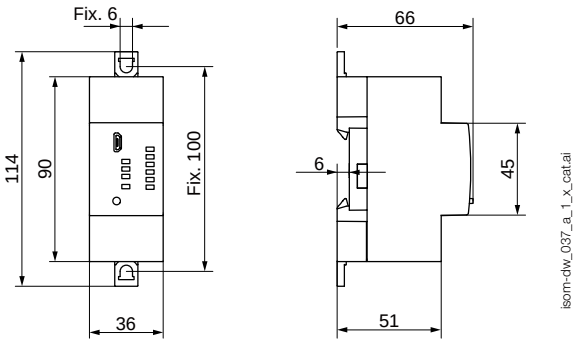


RCM (I_Δ) – 3 x 1-Ph load
Load current monitoring – 3 x 1-Ph loads

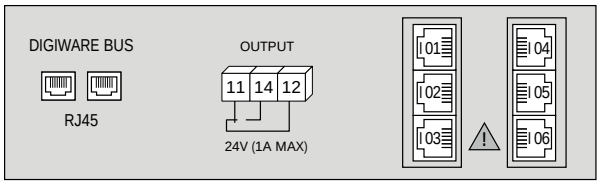


3 Balanced load | 3 ~ + N Unbalanced load | Current sensor | ① 2 A gG | Residual CT

Dimensions (mm)



Terminals and wiring



DIGIWARE BUS: RJ45 bus to connect to other Digiware modules

11 - 12 - 14: alarm relay output
I01 - I02 - I03 - I04 - I05 - I06: RJ12 connection of residual CTs (via the T-10 adaptor) and current sensors

Technical characteristics

Measurement characteristics	
RCM type	Type A according to IEC 62020
Number of RJ12 channels	6
Residual CTs connection	RJ12 cables via Digiware T-10 adaptor
Current sensors connection	RJ12 cables
Current measurement accuracy	Class 0.5 according to IEC 61557-12
Active energy accuracy	Class 0.5 according to IEC 61557-12
Reactive energy accuracy	Class 1 according to IEC 61557-12
Digital output characteristics	
Number of contacts	1
Contact type	Changeover switch
Nominal voltage	24 VAC / 24 VDC
Max current	1 A
Default mode	Normally open
Mechanical characteristics	
Mounting type	DIN rail or back plate
Casing protection index	IP20
Weight	103 g

Electrical characteristics	
Auxiliary power supply	24 VDC with Digiware bus
R-60 consumption	0.5 W
Communication characteristics	
Digiware bus	
Function	Connection between Digiware modules
Cable type	Specific Socomec RJ45 cable
USB	
Protocol	Modbus RTU on USB
Function	Configuration of DIRIS Digiware modules
Cable type	Type B micro USB connector
Environmental characteristics	
Operating temperature	-10 ... +55°C
Storage temperature	-25 ... +70°C
Operating humidity	55°C / 97% RH
Operating altitude	< 2000 m

References

Module	Reference
DIRIS Digiware R-60	4829 **0114**
Accesories	**Reference**
DIRIS Digiware T-10 RJ12 adaptor	4829 **0620**

RJ12 connection cables	Cable length (m)									
	0.1	0.2	0.3	0.5	1	2	3	5	10	50 m reel + 100 connectors
Number of cables	**Reference**	**Reference**	**Reference**	**Reference**	**Reference**	**Reference**	**Reference**	**Reference**	**Reference**	**Reference**
1	-	-	-	-	-	-	-	4829 **0602**	4829 **0603**	4829 **0601**
3	4829 **0580**	4829 **0581**	4829 **0582**	4829 **0595**	4829 **0583**	4829 **0584**	4829 **0606**	-	-	-
4	-	-	-	4829 **0596**	4829 **0588**	4829 **0589**	-	-	-	-
6	4829 **0590**	4829 **0591**	4829 **0592**	4829 **0597**	4829 **0593**	4829 **0594**	-	-	-	-

Expert Services

Require integration onto your network?
No problem for our "Expert Services" team. They will fully integrate all your SOCOMEC devices, audit your system, commission selected equipment and train your staff on its use.
For further information, please contact your nearest SOCOMEC branch.

DIRIS Digiware IO

Digital and analogue input/output modules

DIRIS Digiware IO-10
4 digital inputs/2 digital outputs

DIRIS Digiware IO-20
2 analogue inputs

Configuration with Easy Config System.

Function

DIRIS Digiware IO modules enrich the measurement system with multiple features:

- DIRIS Digiware IO-10 modules have 4 digital inputs and 2 digital outputs.
  The 4 digital inputs can be used to monitor the status of third-party devices (position of protective devices, trip counter) or to collect pulses from multi-fluid meters.
  The 2 digital outputs allow the remote control of third-party equipment signal.
  Alarms can be configured and assigned to the digital outputs.
- Thanks to their 2 analogue inputs, DIRIS Digiware IO-20 modules can collect data from analogue sensors (pressure, humidity, temperature...).

All the information reported by the IO-10 and IO-20 modules can be viewed on DIRIS Digiware D-xx displays and on Webview, the web server embedded in DIRIS G gateways and in the DIRIS Digiware D-70 display unit.

Advantages

Plug & Play
The IO modules can be easily added anywhere within the measurement system thanks to a quick RJ45 connection.

Multifunction
The combination of voltage measuring modules, current measuring modules, and input/output modules makes DIRIS Digiware a complete and versatile system.

Integrated
All the reported information is accessible from the displays, from WEBVIEW or any other centralised management software.

Compact
The modular format allows the quick connection of a large number of IO-10 and IO-20 modules.

The solution for

> Industry
> Building
> Data center

Strong points

> Plug & Play
> Multifunction
> Integrated
> Compact

Compliance with standards

> IEC 61557-12
> IEC 61010
> ISO 14025
> UL

Create your project

> Find the best DIRIS Digiware configuration:
www.meter-selector.com

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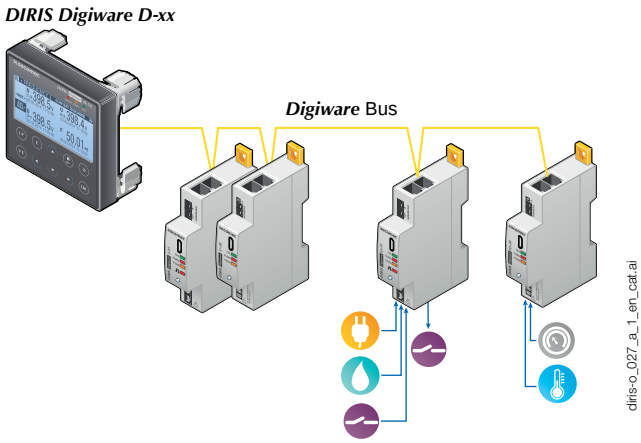
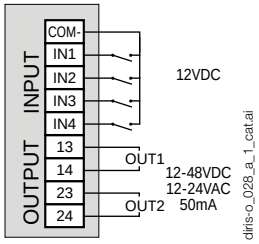
Application diagram



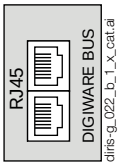
Connections

DIRIS Digiware IO-10

Digital inputs/outputs

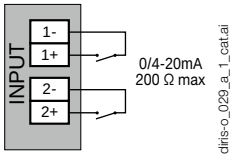


Digiware Bus

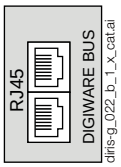


DIRIS Digiware IO-20

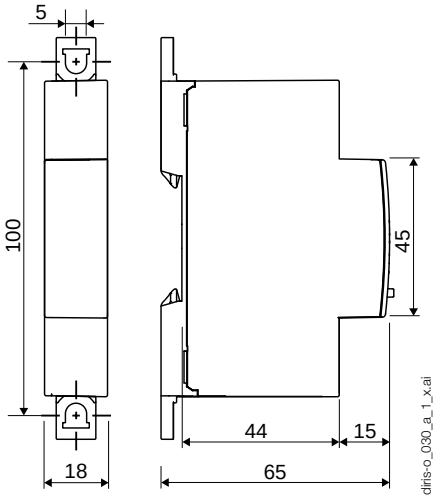
Analogue inputs



Digiware Bus



Dimensions (mm)



Technical characteristics

Measuring characteristics

Digital inputs/outputs- DIRIS Digiware IO-10	
Number of inputs	4
Type/power supply	Insulated input, internal polarisation 12 VDC max., 3 mA
Input function	- Status of third-party devices - Monitoring of protective devices (ON/OFF, Trip) - Pulse counter
Number of outputs	2
Type	Insulated output, 48 VDC max., 50 mA and 24 VAC max.
Output function	- Remote control of devices - Alarm signal linked to the inputs (exceeding threshold, status...)
Input/output connection	Removable screw terminal block, 9 positions (5 dedicated to inputs, 4 dedicated to outputs) Stranded or solid 0.14 to 1.5 mm² cable
Analogue inputs - DIRIS Digiware IO-20	
Number of inputs	2
Type/power supply	0/4-20 mA, 200 Ω max
Accuracy	0.5% full scale
Function	Connection of analogue sensors (pressure, humidity, temperature...) with choice of interpolation (linear or quadratic)
Input connection	Removable screw terminal block 2x2 positions, Stranded or solid 0.14 to 1.5 mm² cable

References

Digiware connection cables		**Reference**
RJ45 cables for Digiware Bus	Length 0.06 m	4829 **0189**
	Length 0.10 m	4829 **0181**
	Length 0.20 m	4829 **0188**
	Length 0.50 m	4829 **0182**
	Length 1 m	4829 **0183**
	Length 2 m	4829 **0184**
	Length 3 m	4829 **0190**
	Length 5 m	4829 **0186**
	Length 10 m	4829 **0187**
	Reel 50 m + 100 connectors	4829 **0185**
Termination for Digiware Bus (supplied with interfaces C and D)		4829 **0180**
USB configuration cable		4829 **0050**

DIRIS Digiware input/output modules		**Reference**
IO-10	4 digital inputs/2 outputs module	4829 **0140**
IO-20	2 analogue input module	4829 **0145**

Selection guide

Active energy meters and pulse concentrators

COUNTIS E

Which type of network? ▶ Which load current?

Network - Input current	Single-phase Direct up to 40 A			Single-phase Direct up to 80 A				Three-phase Direct up to 80 A	
									
Active energy meters: *COUNTIS E*	***E00/E02*** *p. 274*	***E03/E04*** *p. 274*	***E05/E06*** *p. 274*	***E11/E12*** *p. 268*	***E13/E14*** *p. 268*	***E15/E16*** *p. 268*	***E17/E18*** *p. 268*	***E21/E22*** *p. 270*	***E23/E24*** *p. 270*
Main specifications									
MID: EN 50470 module B + D certification	• (E02)	• (E04)	• (E06)	• (E12)	• (E14)	• (E16)	• (E18)	• (E22)	• (E24)
RS485 Modbus		•			•				•
M-Bus			•			•			
Ethernet Modbus TCP/RTU							•		
Width	1 module	1 module	1 module	2 modules	2 modules	2 modules	2 modules	4 modules	4 modules
Input voltage	230 VAC	230 VAC	230 VAC	230 VAC	230 VAC	230 VAC	230 VAC	230 … 400 VAC	230 … 400 VAC
Functions									
Total/partial energy kWh	•/•	•/•	•/•	•/•	•/•	•/•	•/•	•/•	•/•
Active power / Reactive power	•/•	•/•	•/•	•/•	•/•	•/•	•/•	•/•	•/•
Dual tariff for kWh		•	•	•	•	•	•	•	•
Total/partial energy kvarh	•/•	•/•	•/•	•/•	•/•	•/•	•/•	•/•	•/•
kVA		via COM	via COM		•	•	•	•	•
Load curve									
Measurement (I, V, P, Q, S, F and PF)	•	•	•	•	•	•	•	•	•
CT connection indication									
Birectional (energy consumption and production)	•	•	•	•	•	•	•	•	•
Integrated web server							•		
Compatibility with Webview		•			•		•		•
Accuracy									
Active energy (IEC 62053-21)	class 1	class 1	class 1	class 1	class 1	class 1	class 1	class 1	class 1
Reactive energy (according to IEC 62053-23)	class 2	class 2	class 2	class 2	class 2	class 2	class 2	class 2	class 2
Active energy (EN 50470)	class B (E02)	class B (E04)	class B (E06)	class B (E12)	class B (E14)	class B (E16)	class B (E18)	class B (E22)	class B (E24)
Characteristics									
Metrological LED	•	•	•	•	•	•	•	•	•
Pulse output	100 Wh	100 Wh	100 Wh	100 Wh	100 Wh	100 Wh		100 Wh	100 Wh
Sealing cover (MID version only)	• (E02)	• (E04)	• (E06)	• (E12)	• (E14)	• (E16)	• (E18)	• (E22)	• (E24)
Phase/neutral inversion protection									

		
Pulse concentrator	***COUNTIS ECi2*** *p. 278*	***COUNTIS ECi3*** *p. 278*
Case	**4 modules**	**4 modules**
Logical inputs	**7**	**7**
Analogue inputs		**2**
ON/OFF output (alarm)	1	1
Partial, total, daily, weekly or monthly kWh or other types of data (liters, m^3…)	•	•
Load curve from 8 to 30 minutes	•	•
RS485 Modbus	•	•

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Which accuracy? → MID certification? → Communication or pulse output? → View data on the web server?

	Three-phase Direct up to 80 A		Three-phase Direct up to 100 A			Three-phase CT 1/5 A				Three-phase CT/5 A	
											
	E25/E26 *p. 270*	***E27/E28*** *p. 270*	***E30/E31/E32*** *p. 272*	***E33/E34*** *p. 272*	***E35/E36*** *p. 272*	***E41/E42*** *p. 274*	***E43/E44*** *p. 274*	***E45/E46*** *p. 274*	***E47/E48*** *p. 274*	***E50*** *p. 276*	***E53*** *p. 276*
	• (E26)	• (E28)	• (E32)	• (E34)	• (E36)	• (E42)	• (E44)	• (E46)	• (E48)		
				•			•				•
	•				•			•			
		•							•		
	4 modules	4 modules	7 modules	7 modules	7 modules	4 modules	4 modules	4 modules	4 modules	96x96	96x96
	230 … 400 VAC	230 … 400 VAC	230 … 400 VAC	230 … 400 VAC	230 … 400 VAC	230 … 400 VAC	230 … 400 VAC	230 … 400 VAC	230 … 400 VAC	86 … 520 VAC	86 … 520 VAC
	•/•	•/•	•/• (E31)	•/ via COM (E34)	•/ via COM (E36)	•/•	•/•	•/•	•/•	•/•	•/•
	•/•	•/•	•/-	•/ via COM	•/ via COM	•/•	•/•	•/•	•/•	•/•	•/•
	•	•	• (E31 / E32)	up to 4 via com	up to 4 via com	•	up to 4 via com	up to 4 via com	up to 4 via com	•	•
	•/•	•/•		via COM	via COM	•/•	•/•	•/•	•/•	•	•
	•	•		via COM	via COM	•	•	•	•	•	•
				via COM	via COM		via COM	via COM	via COM		
	•	•		via COM	via COM	•	•	•	•	•	•
						•	•	•	•	•	•
	•	•		• (E33)	• (E35)	•	•	•	•		
		•							•		
		•		•			•		•		•
	class 1	class 1	class 1	class 1	class 1	class 1	class 1	class 1	class 1	class 1	class 1
	class 2	class 2				class 2	class 2	class 2	class 2	class 2	class 2
	class B (E26)	class B (E28)	class B (E32)	class B (E34)	class B (E36)	class C (E42)	class C (E44)	class C (E46)	class C (E48)		
	•	•	•	•	•	•	•	•	•		
	100 Wh	100 Wh				configurable	configurable	configurable	configurable		
	• (E26)	• (E28)	• (E32)	• (E34)	• (E36)	• (E42)	• (E44)	• (E46)	• (E428		
			•	•	•				•	•	•

COUNTIS E0x

Active energy meters

single-phase - direct 40 A

COUNTIS E04 - MID

Function

The COUNTIS E0x is a modular energy meter displaying energies (kWh and kVArh) and other measurements directly on its backlit LCD display, allowing direct connection up to 40 A. COUNTIS E02, E04 and E06 are also MID-certified.

Advantages

Compactness

Only 1 module wide.

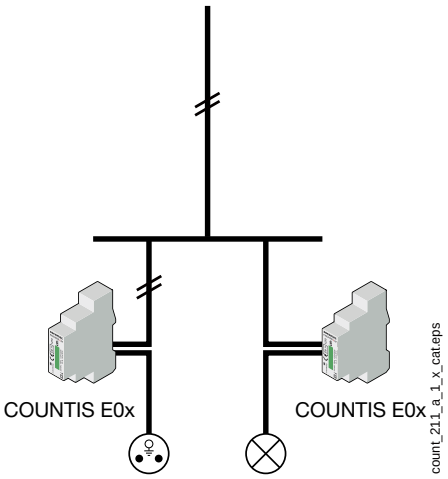
Output (pulses)

The pulse output enables the kWh consumption to be reported to a remote system (PC/BMS) so that it can be analysed for billing, energy saving or energy cost management purposes.

MID certified B+D module

COUNTIS E units comply with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications. “Module B+D” certification guarantees that the design and manufacturing process of products are approved by an accredited laboratory.

Functional diagram



Common characteristics

- Compact dimensions.
- Measurement accuracy: 1%.
- Displayed on backlit screen.
- Multi-measurement available on display.

Models	Model-related specifications
E00	Pulse output
E02	Pulse output + MID
E03	Dual tariff + Pulse output + RS485 MODBUS communication
E04	Dual tariff + Pulse output + RS485 MODBUS communication + MID
E05	Dual tariff + Pulse output + M-Bus communication
E06	Dual tariff + Pulse output + M-Bus communication + MID

The solution for

> Industry
> Marinas
> Shopping centers
> Data center
> Camping
> EV Chargers

Strong points

> Compactness
> Output (pulses)
> MID certified B+D module
> RS485 (MODBUS) and M-Bus communication
> Multi-measurement
> Bi-directional metering

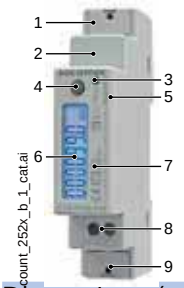
MID certification

> COUNTIS E units comply with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications.
> COUNTIS E MID feature tamper-proof components to prevent fraud.

Conformity to standards

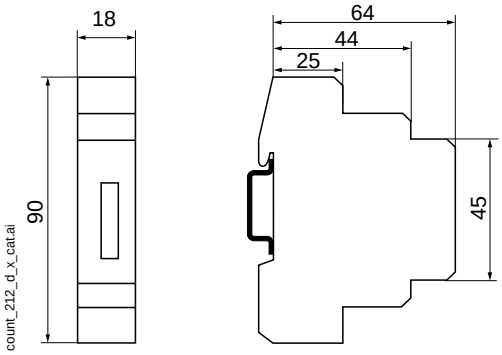
> IEC 62053-21 class 1
> IEC 62053-23 class 2
> IEC 62053-31
> IEC 62052-11
> EN 50470-1
> EN 50470-3

Front panel



1. Neutral terminal and terminal shrouds (COUNTIS E02/E04/E06).
2. M-Bus/MODBUS connection.
3. Metrological LED.
4. Navigation button.
5. Serial number.
6. Backlit LCD display.
7. MID marking (COUNTIS E02/E04/E06).
8. Pulse output.
9. Current and voltage terminals.

Dimensions (mm)



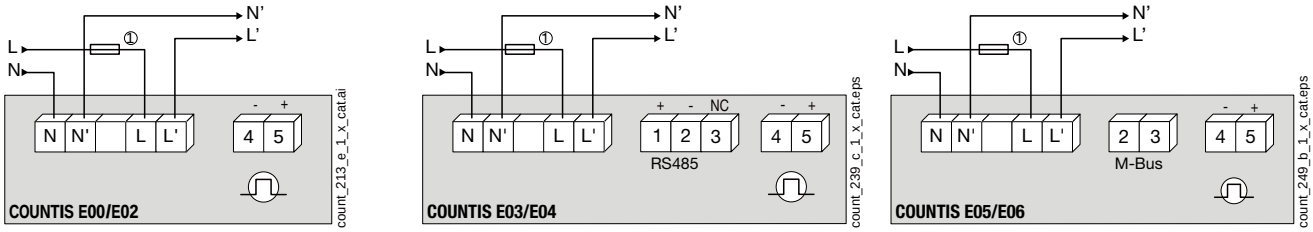
Type	modular
Number of modules	1
Dimensions W x H x D	18 x 90 x 64 (mm)
Case degree of protection	IP 20
Front degree of protection	IP 51(1)
Display type	7 digit LCD with backlighting
Rigid cable cross-section	1.5 … 6 mm²
Flexible cable cross-section	1.5 … 6 mm²
Weight	100 g E03/E04 80 g E00/E02/E05/E06

(1) For the installation in a cabinet at least with IP51 protection.

Electrical characteristics

Current measurement (TRMS)		
Type	single-phase - direct 40 A	
Input consumption	max 0.5 VA	
Permanent overload	40 A	
Intermittent overload	30 I_{max} over 10 ms	
Startup current (I_{st})	20 mA	
Minimum current (I_{min})	0.25 A	
Transition current (I_{tr})	0.5 A	
Reference current (I_{ref})	5 A	
Voltage measurements (TRMS)		
Range of measurement	184 … 276 VAC	
Input consumption	Max. 1.5 VA for E00/E02/E03/E04 Max. 1 VA for E05/E06	
Permanent overload	280 VAC	
Energy accuracy		
Active (according to IEC 62053-21)	Class 1	
Active (according to EN 50470)	Class B	
Reactive (according to IEC 62053-22)	Class 2	
Power supply		
Self-powered	yes	
Frequency	50/60 Hz	
Output (pulses)		
Number	1	
Type of optocoupler	27 VDC - 27 mA (IEC 62053-31)	
Fixed pulse weight	100 Wh	
Pulse duration	100 ms	
Operating conditions		
Operating temperature	-25 … +55°C	
Storage temperature	-40 … +75°C	
Relative humidity	80%	
Communication	**COUNTIS E03/E04**	**COUNTIS E05/E06**
Link	RS485	Wired
Type	2 … 3 half duplex wires	2 half duplex
Protocol	MODBUS in RTU mode	M-Bus
Speed	2400 … 38400 bauds	300, 2400, 9600 bps

Terminals and connections



N - L: network input. N' - L': network output.

References

Type	COUNTIS E00 Reference	COUNTIS E02 Reference	COUNTIS E03 Reference	COUNTIS E04 Reference	COUNTIS E05 Reference	COUNTIS E06 Reference
Direct 40 A	4850 **3058**					
Direct 40 A - MID		4850 **3059**				
Direct 40 A - Dual tariff + RS485 MODBUS communication			4850 **3039**			
Direct 40 A - Dual tariff + RS485 MODBUS communication + MID				4850 **3040**		
Direct 40 A - Dual tariff + M-Bus communication					4850 **3041**	
Direct 40 A - Dual tariff + M-Bus communication + MID						4850 **3042**

Accessories	To be ordered in multiples of	Reference
10x 1U sealing kits		4850 **305U**
Fuse disconnect switches to protect 1-pole voltage inputs (RM type)	6	5702 **5001**
gG 14x51 40 A fuses	10	6022 **0040**

COUNTIS E1x

Active-energy meters

single-phase - direct 80 A

count_253.psd

COUNTIS E14 - MID

Function

The COUNTIS E1x is a modular energy meter displaying the energies (kWh, kVArh and kVA) and other measurements directly on its backlit LCD display. It is designed for single-phase load metering and is used for direct connections of up to 80 A.

Advantages

RS485 (MODBUS), M-Bus communication, Ethernet or pulse outputs

To easily centralise your consumption, COUNTIS E1x devices have either one pulse output, one RS485 output (MODBUS), M-Bus or Ethernet Modbus TCP communication. With RS485 and Ethernet communication models, you can configure your meters remotely.

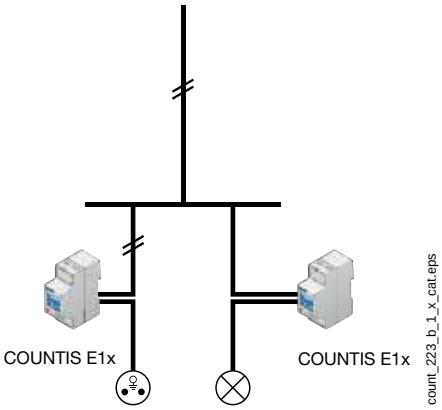
Multi-tariff

Lets you assign different time slots (every hour, dip times) or different sources (normal, back-up) to your energy readings to monitor your energy consumption in more detail.

MID certified B+D module

COUNTIS E units comply with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications. “Module B+D” certification guarantees that the design and manufacturing process of products are approved by an accredited laboratory.

Functional diagram



count_223_b_1_x_cat.eps

Common characteristics

- Measurement accuracy: 1%.
- Displayed on backlit screen.
- Multi-measurement available on display.
- Compact dimensions.

Models	Model-related specifications
E11	Dual tariff + pulse output
E12	Dual tariff + pulse output + MID
E13	Dual tariff + pulse output + MODBUS RS485 communication
E14	Dual tariff + pulse output + MODBUS RS485 communication + MID
E15	Dual tariff + pulse output + M-BUS communication
E16	Dual tariff+ pulse output + M-BUS communication + MID
E17	Dual tariff + Ethernet
E18	Dual tariff + Ethernet + MID

The solution for

- > Marinas
- > Shopping centers
- > Data centers
- > Industry
- > EV Chargers
- > Camping

Strong points

- > Compactness
- > Multi-measurement
- > Bi-directional metering
- > RS485 (MODBUS), M-Bus communication, Ethernet or pulse outputs
- > Multi-tariff
- > MID certified B+D module

MID certification

- > COUNTIS E units comply with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications.
- > COUNTIS E MID feature tamper-proof components to prevent fraud.

Conformity to standards

- > IEC 62053-21 class 1
- > IEC 62053-23 class 2
- > IEC 62053-31
- > IEC 62052-11
- > EN 50470-1
- > EN 50470-3

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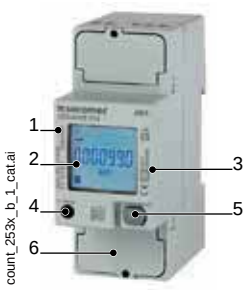
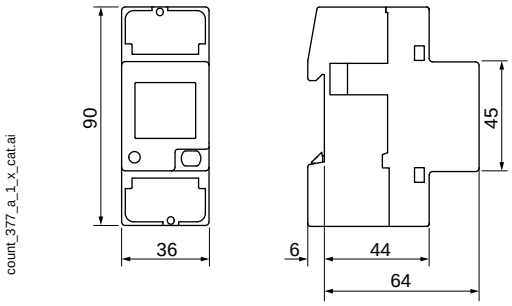
Front panel



1. Serial number.
2. Backlit LCD display.
3. MID marking (COUNTIS E12/E14/E16/E18).
4. Metrological LED.
5. Navigation button.
6. Voltage, current, neutral terminals and terminal shrouds (COUNTIS E12/E14/E16/E18).

Dimensions (mm)



Type	modular
Number of modules	2
Dimensions W x H x D	36 x 90 x 64 mm
Case degree of protection	IP 20
Front degree of protection	IP 51(1)
Display type	backlit LCD
Rigid cable cross-section	1.5 … 35 mm²
Flexible cable cross-section	1.5 … 35 mm²
Weight	215 g E13/E14/E17/E18 205 g E11/E12/E15/E16

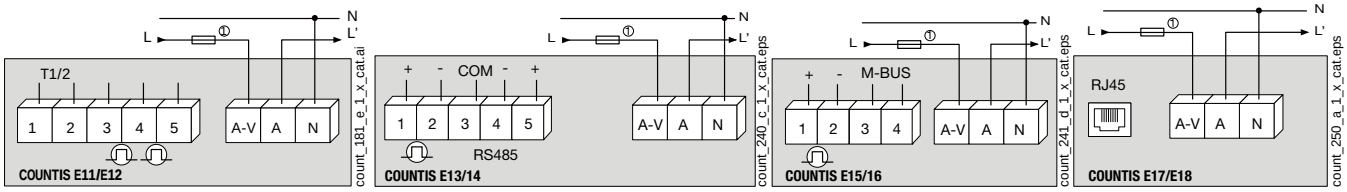
(1) For the installation in a cabinet at least with IP51 protection.

Electrical characteristics

Measurement of currents	
Type	single-phase - direct 80 A
Input consumption	max. 0.5 VA
Startup current (I_{st})	20 mA
Minimum current (I_{min})	0.25 A
Transition current (I_{tr})	0.5 A
Reference current (I_{ref})	5 A
Permanent overload (I_{max})	80 A
Intermittent overload	30 I_{max} over 10 ms
Voltage measurement	
Range of measurement	230 … 240 V ± 20%
Consumption (VA)	3.5 VA max E13/E14/E17/E18 7.5 VA max E11/E12/E15/E16
Permanent overload	290 V phase-neutral
Energy accuracy	
Active (according to IEC 62053-21)	Class 1
Active (according to EN 50470)	Class B
Reactive (according to IEC 62053-22)	Class 2
Power supply	
Self-powered	Yes
Frequency	50/60 Hz
Output (pulses)	
Optocoupler type (IEC 62053-31)	250 VAC/DC - 100 mA (E11/E12) 27 VDC - 27 mA (E13/E14/E15/E16)
Number	1
Fixed pulse weight	100 Wh
Pulse duration	50 ± 2 ms ON time 30 ± 2 ms OFF time
Operating conditions	
Operating temperature	-25 … 55°C
Storage temperature	-25 … 75°C
Relative humidity	80%

Communication	**COUNTIS E13/14**	**COUNTIS E15/E16**	**COUNTIS E17/E18**
Link	RS485	Wired	RJ45
Type	2 half duplex 2-3 half duplex (E13/E14)		Full duplex
Protocol	MODBUS® RTU	M-BUS	MODBUS TCP, HTTP, NTP, DHCP
Baudrate	1200 … 115200 bauds	300 … 9600 bauds	10/100 Mbps

Connection



References

Type	**COUNTIS E11** **Reference**	**COUNTIS E12** **Reference**	**COUNTIS E13** **Reference**	**COUNTIS E14** **Reference**	**COUNTIS E15** **Reference**	**COUNTIS E16** **Reference**	**COUNTIS E17** **Reference**	**COUNTIS E18** **Reference**
Direct 80 A - Dual tariff	4850 **3060**							
Direct 80 A - Dual tariff + MID		4850 **3061**						
Direct 80 A - Dual tariff + MODBUS communication via RS485			4850 **3043**					
Direct 80 A - Dual tariff + MODBUS communication via RS485 + MID				4850 **3044**				
Direct 80 A - Dual tariff + M-Bus communication					4850 **3045**			
Direct 80 A - Dual tariff + M-Bus communication + MID						4850 **3046**		
Direct 80 A - Dual tariff + Ethernet Modbus TCP communication							4850 **3047**	
Direct 80 A - Dual tariff + Ethernet Modbus TCP communication + MID								4850 **3048**

Accessories	**To be ordered in multiples of**	**Reference**
10x 1U sealing kits		4850 **305U**
Fuse disconnect switches to protect 1-pole voltage inputs (RM type)	6	5702 **5001**
gG 22x58 80 A fuses	10	6022 **0040**

COUNTIS E2x

Active-energy meters

three-phase - direct 80 A

COUNTIS E24 - MID

Function

The COUNTIS E2x is a modular energy meter displaying the energies (kWh, kVArh and kVA) and other measurements directly on its backlit LCD display. It is designed for three-phase networks and allows a direct connection of up to 80 A.

Advantages

RS485 (MODBUS), M-BUS, Ethernet communication or pulse outputs

To easily centralise your consumption, COUNTIS E2x devices have either one pulse output, one RS485 (MODBUS), M-BUS or an Ethernet Modbus TCP communication output. With RS485 and Ethernet communication models, you can configure your meters remotely.

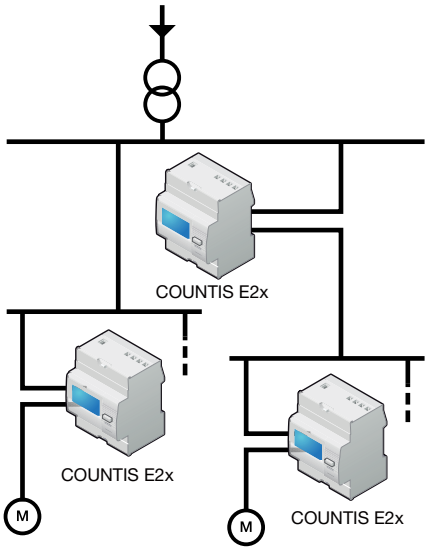
Multi-tariff

Lets you assign different time slots (every hour, dip times) or different sources (normal, back-up) to your energy readings to monitor your energy consumption in more detail.

MID certified B+D module

COUNTIS E units comply with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications. “Module B+D” certification guarantees that the design and manufacturing process of products are approved by an accredited laboratory.

Functional diagram



Common characteristics

- Measurement accuracy: 1%.
- Displayed on backlit screen.
- Multi-measurement available on display.

Models	Model-related specifications
E21	Dual tariff + pulse output
E22	Dual tariff + pulse output + MID
E23	Dual tariff + pulse output + MODBUS RS485 communication
E24	Dual tariff + pulse output + MODBUS RS485 communication + MID
E25	Dual tariff + pulse output + M-BUS communication
E26	Dual tariff+ pulse output + M-BUS communication + MID
E27	Dual tariff + pulse output + Ethernet
E28	Dual tariff + pulse output + Ethernet + MID

The solution for

- > Industry
- > Infrastructure
- > Data center
- > EV Chargers
- > Shopping centers

Strong points

- > RS485 (MODBUS), M-BUS, Ethernet or pulse outputs
- > Multi-tariff
- > MID certified B+D module
- > Multi-measurement on display
- > Bi-directional metering

MID certification

- > COUNTIS E units comply with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications.
- > COUNTIS E MID feature tamper-proof components to prevent fraud.

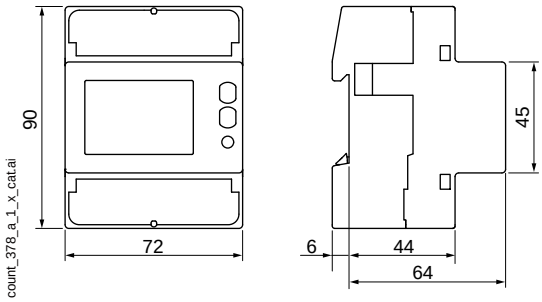
Conformity to standards

- > IEC 62053-21 class 1
- > IEC 62053-23 class 2
- > IEC 62053-31
- > IEC 62052-11
- > EN 50470-1
- > EN 50470-3

Front panel

1. Neutral terminal
2. Backlit LCD display
3. Navigation button.
4. ENTER key
5. Metrological LED
6. Current, voltage terminals and terminal shrouds (COUNTIS E02/E04/E06).

Dimensions (mm)



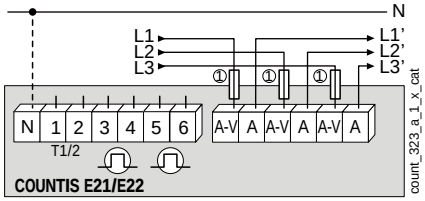
Type	modular
Number of modules	4
Dimensions W x H x D	72 x 90 x 64 mm
Case degree of protection	IP 20
Front degree of protection	IP 51(1)
Display type	8-digit backlit LCD
Rigid cable cross-section	1.5 … 35 mm²
Flexible cable cross-section	1.5 … 35 mm²
Weight	440 g

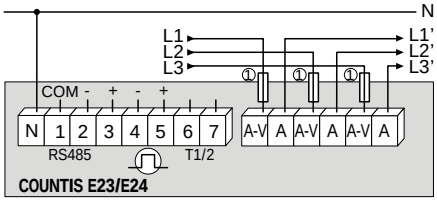
(1) For the installation in a cabinet at least with IP51 protection.

Electrical characteristics

Measurement of currents			
Type	three-phase - direct 80 A		
Input consumption	0.5 VA max. per phase		
Startup current (I_{st})	20 mA		
Minimum current (I_{min})	0.25 A		
Transition current (I_{tr})	0.5 A		
Reference current (I_{ref})	5 A		
Permanent overload (I_{max})	80 A		
Intermittent overload	30 I_{max} over 10 ms		
Voltage measurement			
Range of measurement	230 ... 240 V ±20%		
Consumption (VA)	7.5 VA max (0,5 W) per phase E21/E22/E25/E26 3.5 VA max (1 W) per phase E23/E24/E27/E28		
Permanent overload	290 V phase-neutral / 500 V phase-phase		
Energy accuracy			
Active (according to IEC 62053-21)	Class 1		
Active (according to EN 50470)	Class B		
Reactive (according to IEC 62053-22)	Class 2		
Power supply			
Self-powered	Yes		
Frequency	50/60 Hz		
Output (pulses)			
Optoisolated type (IEC 62053-31)	250 VAC/DC - 100 mA (E21/E22) 27 VDC - 27 mA (E23 … E28)		
Number	2 (E21/E22) 1 (E23 ... E28)		
Fixed pulse weight	100 Wh		
Pulse duration	50 ± 2 ms ON time 30 ± 2 ms OFF time		
Operating conditions			
Operating temperature	-25 … 55°C		
Storage temperature	-25 … 75°C		
Relative humidity	80%		
Communication	**COUNTIS E23/24**	**COUNTIS E25/E26**	**COUNTIS E27/E28**
Link	RS485	Wired	RJ45
Type	2 half duplex 2 to 3 half duplex (E23/E24)		Full duplex
Protocol	MODBUS RTU	M-BUS	MODBUS TCP, HTTP, NTP, DHCP
Baudrate	1200 … 115200 bauds	300 … 9600 bauds	10/100 Mbps

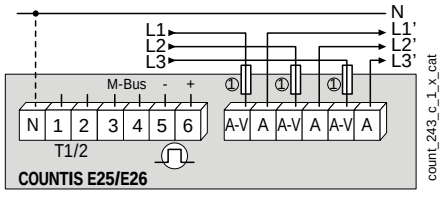
Connection

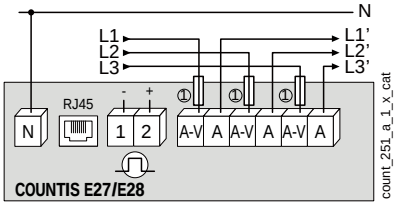




WARNING: The neutral conductor must be connected on models COUNTIS E23 / E24 / E27 / E28 (the neutral conductor is represented by the solid line in the image opposite).

The neutral conductor is optional on models COUNTIS E21 / E22 / E25 / E26 (the neutral conductor is represented by the dashed line in the image opposite).





References

Type	COUNTIS E21 Reference	COUNTIS E22 Reference	COUNTIS E23 Reference	COUNTIS E24 Reference	COUNTIS E25 Reference	COUNTIS E26 Reference	COUNTIS E27 Reference	COUNTIS E28 Reference
Direct 80 A - Dual tariff	4850 **3062**							
Direct 80 A - Dual tariff + MID		4850 **3049**						
Direct 80 A - Dual tariff + MODBUS communication via RS485			4850 **3050**					
Direct 80 A - Dual tariff + MODBUS communication via RS485 + MID				4850 **3051**				
Direct 80 A - Dual tariff + M-Bus communication					4850 **3052**			
Direct 80 A - Dual tariff + M-Bus communication + MID						4850 **3053**		
Direct 80 A - Dual tariff + Ethernet Modbus TCP communication							4850 **3054**	
Direct 80 A - Dual tariff + Ethernet Modbus TCP + MID								4850 **3055**

Accessories	To be ordered in multiples of	Reference
Panel mounting kit 4 modules		192J **8015**
10x 1U sealing kits		4850 **309U**
Fuse disconnect switches to protect 3-pole voltage inputs (RM type)	2	5703 **5003**
gG 22x58 80 A fuses	10	6032 **0080**

Single-circuit metering, measurement & analysis

COUNTIS E3x

Active energy meters

three-phase - direct 100 A

COUNTIS E32 - MID

Function

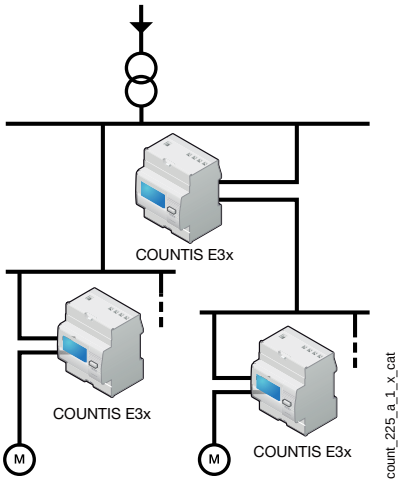
The COUNTIS E3x is a modular energy meter displaying the energy and power consumed (kWh and kW) directly on its backlit LCD display. It is designed for three-phase load metering and is used for direct connections of up to 100 A.

COUNTIS E32, E34 and E36 are MID certified.

Common characteristics

- Measurement accuracy: 1 %
- Backlit LCD display.
- Detects connection errors.

Principle diagram



Advantages

RS485 communication (MODBUS or M-BUS) or pulse output

To enable the remote reporting of energy consumption, COUNTIS E3x are provided with either a pulse output or an RS485 communication output, with MODBUS or M-BUS protocol.

In addition to their reporting functions, COUNTIS E3x with RS485 can be configured remotely and enable access to multi-measurement values.

Detection of connection errors

The product is protected against phase/neutral inversion and detects wiring errors. This simplifies the installation and commissioning, thereby reducing associated costs, and ensures that the device operates correctly.

MID certified B+D module

COUNTIS E products with MID certification provide the guaranteed accuracy required for applications in which sub-billing of the electrical energy consumed is necessary. “Module B+D” certification guarantees that the design and manufacturing process of products are approved by an accredited laboratory.

Bi-directional metering (available only on the E33 and E35)

This function is for metering energy production or energy consumption.

Multi-measurement and load curve

Display of electrical values (I, U, V, P, Q, S, PF) and load curve over a 7 day period via communication.

Models	Key characteristics
E30	Pulse output
E31	Dual tariff (2 partial counters) + Pulse output
E32	Dual tariff + MID + Pulse output
E33	Dual tariff + RS485 MODBUS communication
E34	Dual tariff + RS485 MODBUS communication + MID
E35	Dual tariff + M-BUS communication
E36	Dual tariff + M-BUS communication + MID

The solution for

- > Industry
- > Infrastructure
- > Data centre

Strong points

- > RS485 communication (MODBUS or M-BUS) or pulse output
- > Detection of connection errors
- > MID certified B+D module
- > Bi-directional metering
- > Multi-measurement and load curve

MID certification

- > COUNTIS E comply with the MID directive, guaranteeing accuracy and reliability when metering, an indispensable function for energy billing applications.
- > COUNTIS E MID feature tamper-proof components to prevent fraud.

Conformity to standards

- > IEC 62053-21 class 1
- > IEC 62053-31
- > IEC 62053-11
- > EN 50470-1
- > EN 50470-3

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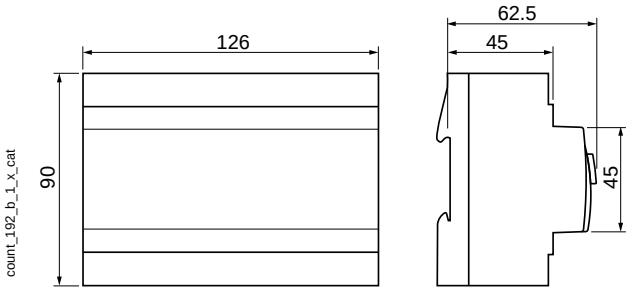
Front panel

1. Terminal shrouds (COUNTIS E32, E34 and E36).
2. Backlit LCD display.
3. MID marking (COUNTIS E32, E34 and E36).
4. Serial number (COUNTIS E32, E34 and E36).
5. Navigation key.
6. Reset key.
7. Metrological LED.

Dimensions (mm)



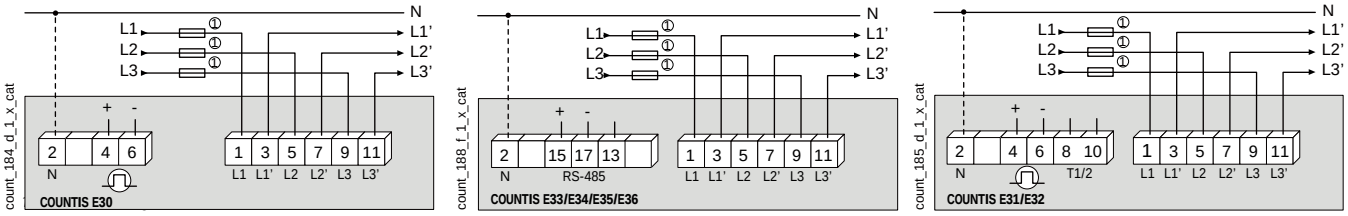
Type	modular
Number of modules	7
Dimensions W x H x D	126 x 90 x 62.5 mm
Case degree of protection	IP20
Front degree of protection	IP51
Display type	backlit LCD display
Rigid cable cross-section	2.5 … 35 mm²
Flexible cable cross-section	2.5 … 35 mm²
Weight	490 g

Electrical characteristics

Current measurement		
Type	three-phase - direct 100 A	
Input consumption	0.5 VA max. per phase	
Startup current (I_{st})	80 mA	
Minimum current (I_{min})	0.5 A(1)	
Transition current (I_{tr})	2 A(2)	
Reference current (I_{ref})	20 A(3)	
Permanent overload (I_{max})	100 A	
Intermittent overload	3000 A max for 10 ms	
Voltage measurement		
Range of measurement	230 ... 400 V ± 20 %	
Consumption (VA)	2	
Permanent overload	280 V phase-neutral / 480 V phase-phase	
Energy accuracy		
Active (according to IEC 62053-21)	Class 1	
Active (according to EN 50470)	Class B	
Power supply		
Self-supplied	yes	
Frequency	50 / 60 Hz	
Output (pulsed) (COUNTIS E30/E31/E32)		
Number	1	
Type of optocoupler	IEC 62053-31 class A (20 ... 30 VDC)	
Fixed pulse weight	100 Wh	
Pulse duration	100 ms	
Operating conditions		
Operating temperature	-10 … 55 °C	
Storage temperature	-20 … 70 °C	
Relative humidity	85 %	
Communication	**COUNTIS E33/34**	**COUNTIS E35/E36**
Link	RS485	Connection
Type	2 half duplex wires	2 half duplex wires
Protocol	MODBUS RTU	M-BUS
Speed	4800 … 38 400 bauds	300 … 9600 bauds

(1) $I_{(min)} \leq 0.5 * Itr$
(2) The accuracy class is guaranteed between I_{tr} and I_{max}.
*(3) $I_{(ref)} = I_{(b)}$ (base current) = 10 * $I_{(tr)}$ for direct connection COUNTIS.*

Connection



1. 100 A gG / Am fuses max.

ATTENTION : The neutral conductor is optional on models COUNTIS E3x (the neutral conductor is represented by the dashed line in the image opposite).

References

Type	COUNTIS E30 Reference	COUNTIS E31 Reference	COUNTIS E32 Reference	COUNTIS E33 Reference	COUNTIS E34 Reference	COUNTIS E35 Reference	COUNTIS E36 Reference
100 A direct	4850 **3005**						
100 A direct - Dual tariff		4850 **3006**					
100 A direct - Dual tariff + MID			4850 **3007**				
100 A direct - Dual tariff + MODBUS communication via RS485 (1)				4850 **3012**			
100 A direct - Dual tariff + MODBUS communication via RS485 + MID(1)					4850 **3013**		
100 A direct - Dual tariff + M-Bus communication (1)						4850 **3025**	
100 A direct - Dual tariff + M-Bus communication + MID(1)							4850 **3026**

(1) 4 tariffs through RS485 communication.

Accessories	To be ordered in multiples of	Reference
10x 4U sealing kits		4850 **307U**
Fuse disconnect switches to protect 3-pole voltage inputs (RM type)	2	5703 **5003**
gG 22x58 100 A fuses	10	6032 **0100**

COUNTIS E4x

Active energy meters

three-phase - connection to current transformers up to 12000 A

COUNTIS E44 - MID

Function

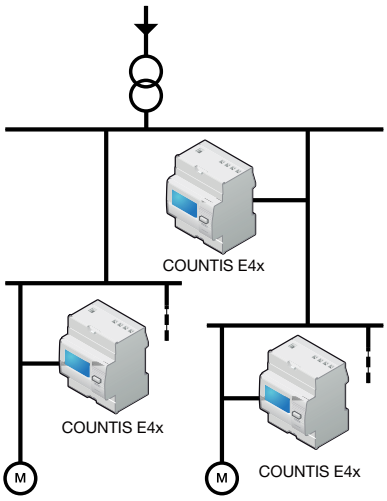
The COUNTIS E4x is a modular electrical energy meter displaying the energies (kWh, kVArh and kVA) and other measurements directly on its backlit LCD display. It is designed for three-phase load metering with connection via CT and is suitable for applications of up to 12000 A.

COUNTIS E42, E44, E46 and E48 are MID certified.

Common characteristics

- Measurement accuracy: 1 % / 0,5%(MID).
- Backlit LCD display.
- Multi-measurement available on display.

Principle diagram



Advantages

RS485 (MODBUS), M-BUS, Ethernet communication or pulse outputs

To enable the remote reporting of energy consumption, COUNTIS E4x devices have either one pulse output, one RS485 (MODBUS), M-BUS or an Ethernet Modbus TCP communication output.

In addition to their reporting functions, COUNTIS E4x with RS485 and Ethernet can be configured remotely and enable access to multi-measurement values.

MID certified B+D module

COUNTIS E products with MID certification provide the guaranteed accuracy required for applications in which sub-billing of the electrical energy consumed is necessary. “Module B+D” certification guarantees that the design and manufacturing process of products are approved by an accredited laboratory.

Bi-directional metering

This function is for metering energy production or energy consumption.

Multi-measurement and load curve

Display of electrical values (I, U, V, P, Q, S, PF) and load curve over a 3 day period via communication.

Models	Key functions
E41	Dual tariff + Pulse output
E42	Dual tariff + Pulse output + MID
E43	4 tariffs + Pulse output + RS485 MODBUS communication
E44	4 tariffs + Pulse output + RS485 MODBUS communication + MID
E45	4 tariffs + Pulse output + M-BUS communication
E46	4 tariffs + Pulse output + M-BUS communication + MID
E47	4 tariffs + Pulse output + Ethernet
E48	4 tariffs + Pulse output + Ethernet + MID

The solution for

- Industry
- Infrastructure
- Data centre
- EV Chargers

Strong points

- RS485 (MODBUS), M-BUS, Ethernet or pulse outputs
- Multi-tariff
- MID certified B+D module
- Bi-directional metering
- Multi-measurement and load curve

MID certification

- COUNTIS E comply with the MID directive, guaranteeing accuracy and reliability when metering, an indispensable function for energy billing applications.
- COUNTIS E MID feature tamper-proof components to prevent fraud.

Conformity to standards

- IEC 62053-21 class 1
- IEC 62053-23 class 2
- IEC 62053-31
- IEC 62053-11
- EN 50470-1
- EN 50470-3

Associated with current transformers

See “Current transformers”.

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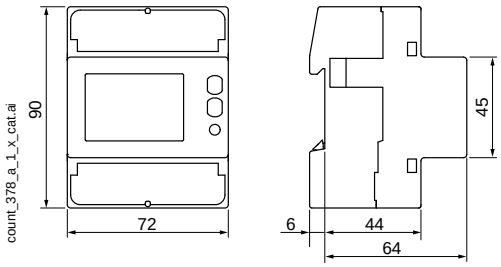
Front panel

1. Terminal shrouds (COUNTIS E42, E44, E46 and E48).
2. Backlit LCD display.
3. Navigation button.
4. ENTER key.
5. Metrological LED.
6. Current, voltage terminals and terminal shrouds (COUNTIS E42/E44/E46/E48).

Dimensions (mm)

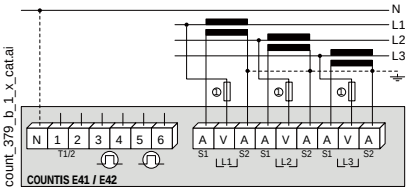


Type	modular
Number of modules	4
Dimensions W x H x D	72 x 90 x 64 mm
Case degree of protection	IP20
Front degree of protection	IP51
Display type	8-digit backlit LCD
Rigid cable cross-section	1.5 … 6 mm²
Flexible cable cross-section	1.5 … 6 mm²
Weight	322 g

Connection

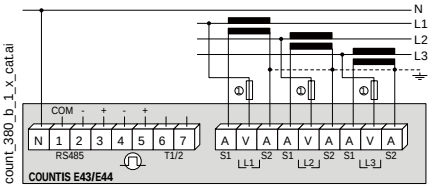
Recommendation:

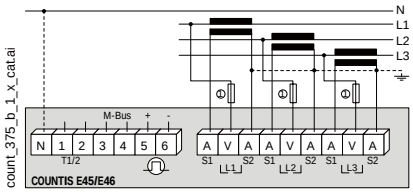
- Connecting the CT secondaries is strictly prohibited in IT earthing systems; it is however optional in TT/TN earthing arrangements.
- When disconnecting the COUNTIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI, an accessory which is included in this catalogue. Please consult us.

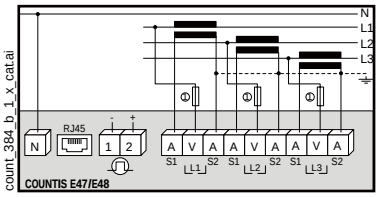


WARNING: The neutral conductor must be connected on models COUNTIS E43/E44/E47/E48 (the neutral conductor is represented by the solid line in the image opposite).

The neutral conductor is optional on models COUNTIS E21 / E22 / E25 / E26 (the neutral conductor is represented by the dashed line in the image opposite).







1. Fuses 0.5 A gG / 0.5 A class CC.

Electrical characteristics

Current measurement	
Type	three-phase on CT1 and 5A up to 12000 A
Input consumption	0.5 VA max. per phase
Startup current (I_{st})	1 mA - Class C 2 mA - Class 1
Minimum current (I_{min})	10 mA
Transition current (I_{tr})	50 mA
Reference current (I_{ref})	1 A
Permanent overload (I_{max})	6 A
Intermittent overload	120 A for 0.5 s
Voltage measurement	
Range of measurement	230 … 240 V ± 20 %
Consumption (VA)	7.5 VA max (0,5 W) per phase E41/E42/E45/E46 3.5 VA max (1 W) per phase E43/E44/E47/E48
Permanent overload	290 V phase-neutral / 500 V phase-phase
Energy accuracy	
Active (according to IEC 62053-21)	Class 1
Active (according to EN 50470)	Class C
Reactive (according to IEC 62053-22)	Class 2
Power supply	
Self-supplied	yes
Frequency	50 / 60 Hz
Output (pulse)	
Number	2 (E41/E42) 1 (E43 ... E48)
Type of optoisolated	250 VAC/DC - 100 mA (E41/E42) 27 VDC - 27 mA (E43 ... E48)
Pulse weight	1 Wh ⇨ CT = 1 ... 4 5 Wh ⇨ CT = 5 ... 24 25 Wh ⇨ CT = 25 ... 124 125 Wh ⇨ CT = 125 ... 624 1000 Wh ⇨ CT = 625 ... 3124 10000 Wh ⇨ CT = 3125 ... 12000
Pulse duration	50 ± 2 ms ON time 30 ± 2 ms OFF time
Operating conditions	
Operating temperature	-25 … +55 °C
Storage temperature	-25 … +75 °C
Relative humidity	80 %

Communication	COUNTIS E43/E44	COUNTIS E45/E46	COUNTIS E47/E48
Link	RS485	Wired	RJ45
Type	2 to 3 half duplex	2 half duplex	Full duplex
Protocol	MODBUS RTU	M-BUS	MODBUS TCP, HTTP, NTP, DHCP
Speed	1200 … 115200 bauds	300 … 9600 bauds	10/100 Mbps

References

Type	COUNTIS E41 Reference	COUNTIS E42 Reference	COUNTIS E43 Reference	COUNTIS E44 Reference	COUNTIS E45 Reference	COUNTIS E46 Reference	COUNTIS E47 Reference	COUNTIS E48 Reference
Via CT - Dual tariff	4850 **3063**							
Via CT - Dual tariff + MID		4850 **3064**						
Via CT - Dual tariff + MODBUS communication via RS485[1]			4850 **3065**					
Via CT - Dual tariff + MODBUS communication via RS485 + MID[1]				4850 **3066**				
Via CT - Dual tariff + M-Bus communication[1]					4850 **3067**			
Via CT - Dual tariff + M-Bus communication + MID[1]						4850 **3068**		
Via CT - Dual tariff + Ethernet Modbus TCP communication[1]							4850 **3056**	
Via CT - Dual tariff + Ethernet Modbus TCP communication + MID[1]								4850 **3057**

(1) 4 tariffs through RS485 communication.

Accessories	To be ordered in multiples of	Reference
Panel mounting kit 4 modules		192J **8015**
10x 4U sealing kits		4850 **309U**
Fuse disconnect switches to protect 3-pole voltage inputs (RM type)	2	5701 **0018**
gG 10x38 0,5 A fuses	10	6012 **0000**

COUNTIS E5x

Active energy meters

three-phase - connection to current transformers
up to 6000 A - door mounting

COUNTIS E53 up to 6000 A via CT

Function

The COUNTIS E5x is a panel mounted active and reactive electrical energy meter displaying energy and multi-measurement values directly on its large backlit LCD display. It is designed for utilisation on three-phase or single-phase networks with connection via CT and is suitable for applications of up to 6000 A. The CT ratio can be configured by the user via the keypad and the display, or via RS485 MODBUS communication (E53).

Common characteristics

- Measurement accuracy: 0.5%.
- Large backlit LCD display.
- Direct access to multi-measurement and metering values.
- Detects connection errors.

Advantages

RS485 MODBUS communication or pulse output

To enable the remote reporting of energy consumption, COUNTIS E5x are provided with either a pulse output (E50) or an RS485 MODBUS communication output (E53).

Remote configuration of the Countis E53 is possible via RS485 MODBUS communication.

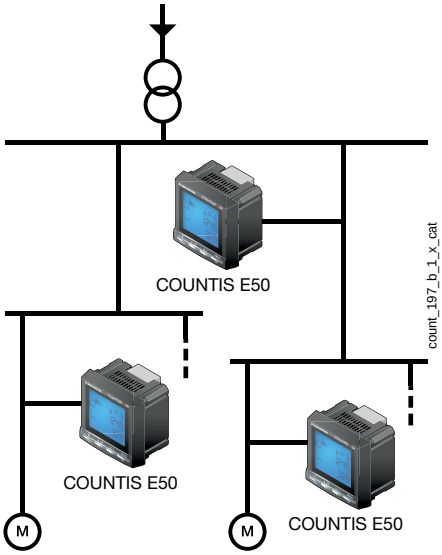
Detection of connection errors

The COUNTIS E5x is protected against phase/neutral inversion and has an integrated test function which can be utilised to detect wiring errors. This function enables CT installation errors to be corrected without having to remake connections. This simplifies the installation and commissioning, thereby reducing associated costs, and ensures that the device operates correctly.

Large backlit LCD display

Thanks to its large backlit LCD display and its multiple viewing screens with direct pushbutton access, COUNTIS E5x provide clear readings and are easy to use.

Principle diagram



They directly display a number of total/partial metering and multi-measurement values : ± kWh, ± kvarh, kVAh, I, U, V, S, PF, etc.

Direct display of multi-measurement and metering values

Multi-measurement

- Currents: instantaneous: I1, I2, I3
- Voltages: instantaneous: V1, V2, V3, U12, U23, U31
- Power:
  - instantaneous: 3P, 3Q, 3S
  - maximum average: 3P
- Power factor:
  - instantaneous: 3PF

Metering

- Active energy: ± kWh
- Reactive energy: ± kvarh
- Apparent energy: kVAh

models	Key characteristics
E50	Pulse output
E53	RS485 MODBUS communication

The solution for

- Industry
- Infrastructure
- Data centres

Strong points

- RS485 MODBUS communication or pulse output
- Large backlit LCD display
- Detection of connection errors
- Direct display of multi-measurement and metering values

Conformity to standards

- IEC 62053-23 class 2
- IEC 62053-22 class 0.5S
- IEC 61557-12

Management software

- To get the most effective use from your Socomec measurement and metering devices, we offer a range of dedicated software tools.

Associated with current transformers

See "Current transformers".

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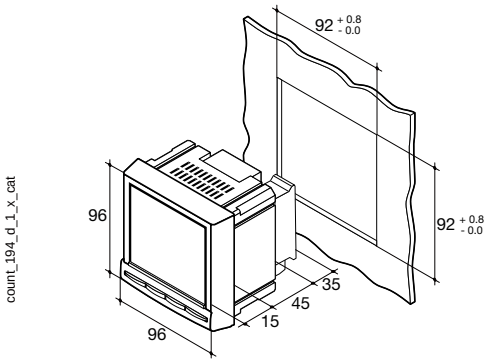
Front panel

1. Backlit LCD display
2. Energy display and test function key
3. Power and power factor display key
4. Current and voltage display key
5. Programming mode access key

Dimensions (mm)



Type	Panel mounting
Dimensions W x H x D	96 x 96 x 60 mm
Case degree of protection	IP30
Front degree of protection	IP52
Display type	backlit LCD display
Voltage and current connection cross-section	0.5 … 2.5 mm²
Current connection cross-section	1.5 … 6 mm²
Weight	370 g

(1) $I_{(min)} \leq 0.5 * I_{tr}$
(2) The accuracy class is guaranteed between I_{tr} and I_{max}.
*(3) $I_{(ref)} = I_{(b)}$ (base current) = 10 * $I_{(tr)}$ for direct connection COUNTIS.*

Electrical characteristics

Current measurement	
Type	three-phase on CT/5A up to 6000 A
Input consumption	< 0.6 VA
Startup current (I_{st})	40 mA
Minimum current (I_{min})	50 mA(1)
Transition current (I_{tr})	250 mA(2)
Reference current (I_{ref})	5 A(3)
Permanent overload (I_{max})	6 A
Intermittent overload	50 A for 1 s
Voltage measurement	
Range of measurement	86 … 520 VAC
Input consumption	< 0.1 VA
Permanent overload	800 VAC
Energy accuracy	
Reactive (according to IEC 62053-23)	Class 2
Active (according to IEC 62053-22)	Class 0.5S
Power supply	
Self-supplied	no
Auxiliary power supply U_s	110 … 400 VAC / 125… 350 VDC ±10 %
Frequency	45 … 65 Hz
Output (pulsed)	
Number	1
Type	100 VDC - 0.5 A - 10 VA
Max. number of operations	≤ 10^8
Operating conditions	
Operating temperature	-10 … 55 °C
Storage temperature	-20 … 85 °C
Relative humidity	95 %
Communication	
Link	RS485
Type	2 … 3 half duplex wires
Protocol	MODBUS RTU
MODBUS® speed	1400 … 38400 bauds

References

Type	COUNTIS E50 Reference	COUNTIS E53 Reference
Pulse output	4850 **3010**	
RS485 MODBUS communication (1)		4850 **3011**
Management software for COUNTIS		

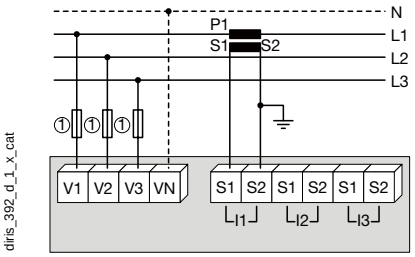
(1) 4 tariffs through RS485 communication.

Accessories	To be ordered in multiples of	Reference
Fuse disconnect switches to protect 3-pole voltage inputs (RM type)	4	5701 **0018**
Fuse disconnect switches to protect the 1-pole + neutral auxiliary power supply (RM type)	6	5701 **0017**
gG 10x38 0,5 A fuses	10	6012 **0000**

Connection

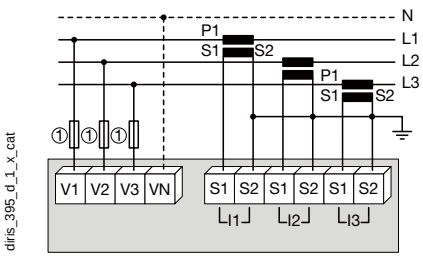
Recommendation:
- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the COUNTIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI, an accessory which is included in this catalogue. Please consult us.

Low voltage balanced network
3/4 wires with 1 CT

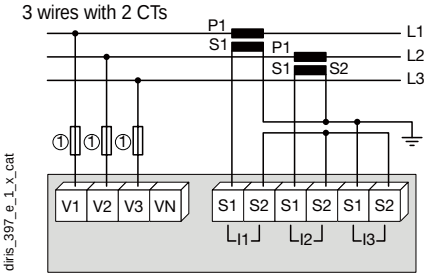


Use of 1 CT reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

Low voltage unbalanced network
3/4 wires with 3 CTs



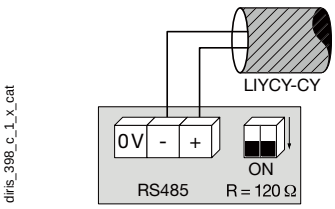
3 wires with 2 CTs



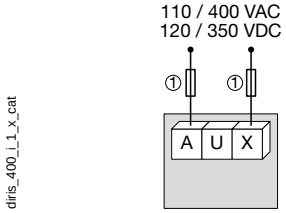
Use of 2 CT reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

Additional information

Communication via RS485 link



AC & DC auxiliary power supply



1. Fuses 0.5 A gG / 0.5 A class CC.

COUNTIS ECix

multifluid pulse concentrator

Single-circuit metering, measurement & analysis

count_207.psd

COUNTIS ECi3

The solution for

> Data centres
> Industry
> Infrastructure

Strong points

> Up to 7 multifluid meters and 2 analogue sensors
> Load curves
> RS485 MODBUS communication
> Improved customisation

Management software

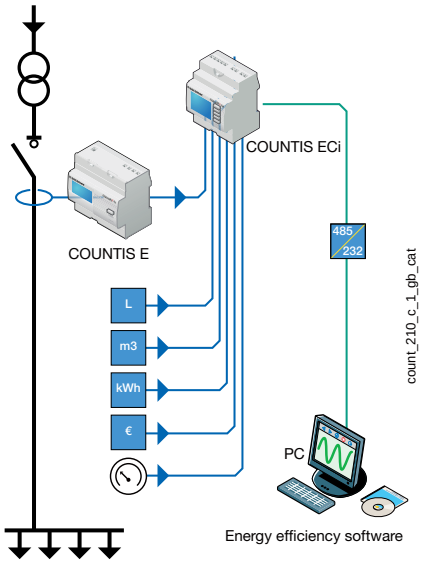
> To get the most effective use from your Socomec measurement and metering devices, we offer a range of dedicated software tools.

Function

The COUNTIS ECix is a multifluid pulse concentrator which communicates via an RS485 link using MODBUS protocol.

It enables pulses from water, gas, compressed air, electricity meters and, for the COUNTIS ECi3, the output of analogue sensors (light, temperature, wind etc.) to be registered and stored. All data, ie. total and partial meters and load curves (available for all logical and analogue inputs) can be centralised via RS485 communication using MODBUS protocol.

Principle diagram



count_210_c_1_gb_cat

Advantages

Up to 7 multifluid meters and 2 analogue sensors

- 7 digital inputs + 2 analogue inputs.
- Total, partial and programmable metering (day, week, month, year).

Load curves

Load curves are available for each of the 7 logical inputs.

A history of average values are available for the 2 analogue inputs (ECi3).

RS485 MODBUS communication

- Centralisation and transmission of pulse and analogue data to a supervision station.
- Remote configuration of COUNTIS ECi device.

Improved customisation

- Selection of the measuring unit: kWh, m^3, liters.
- Selection of the currency unit: €, K€, £, $.

Values can be displayed in the unit of your choice and energy costs can be directly calculated.

Models	Key characteristics
ECi2	7 insulated inputs
ECi3	7 insulated inputs + 2 analogue inputs.

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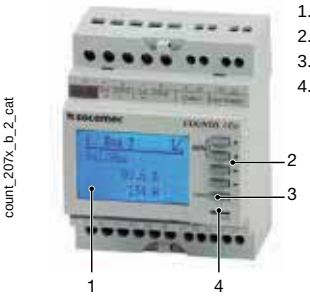
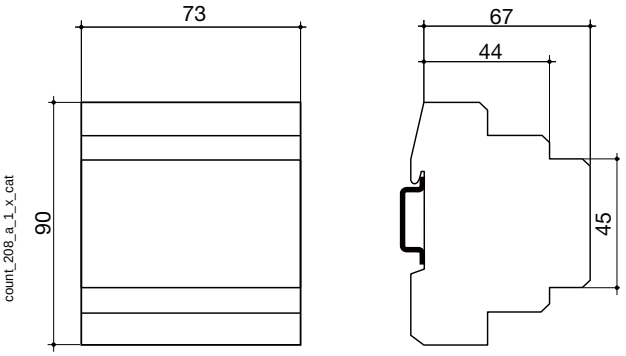
Front panel



1. Backlit LCD display.
2. Navigation keys.
3. Validation pushbutton in programming mode.
4. Communication status indicator (COM).

Dimensions (mm)

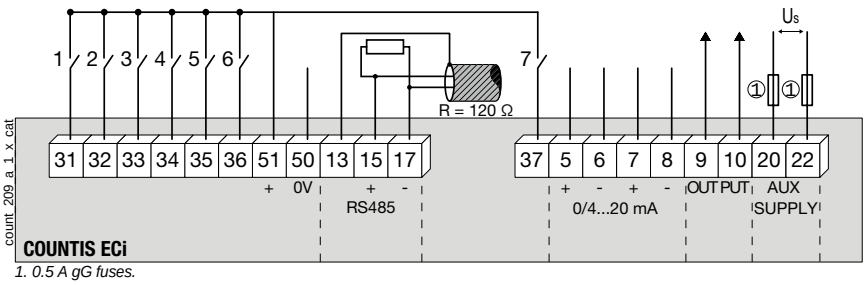


Type	modular
Number of modules	4
Dimensions W x H x D	73 x 90 x 67 mm
Case degree of protection	IP20
Front degree of protection	IP51
Display type	backlit LCD display
Terminal blocks type	fixed
Rigid cable cross-section	1 … 10 mm²
Flexible cable cross-section	0.5 … 6 mm²
Weight	215 g

Characteristics

Auxiliary power supply	
Self-supplied	no
Alternating voltage	110 / 400 VAC
Direct voltage	120 / 300 VDC
Tolerance	± 10 %
Frequency	45 / 65 Hz
Consumption	5 VA
Insulation voltage	3.5 kV
Communication	
Link	RS485
Type	2 … 3 half duplex wires
Protocol	MODBUS RTU
MODBUS® speed	9600 … 38400 bauds
Inputs	
Number	7
Control voltage (integrated)	10…30 VDC
Minimum signal width	10 ms
Maximum signal width	2 s
Minimum duration between 2 pulses	30 ms
Edge triggering	rising
Analogue inputs (ECi3)	
Number	2
Current	25 mA
Accuracy	0.5 %
Response time	500 ms
Input resistance	200 Ω
Consumption	0.1 VA
Operating conditions	
Operating temperature	-10 … +55 °C
Storage temperature	-20 … +70 °C
Relative humidity	95 %

Connection



1. 0.5 A gG fuses.

31: logical input n°1.
32: logical input n°2.
33: logical input n°3.
34: logical input n°4.
35: logical input n°5.
36: logical input n°6.
37: logical input n°7.

51-50: Inputs internal/ external power supply.

13-15-17: RS485 link.

5-6: Analogue input n°1.
7-8: Analogue input n°2.
9-10: output.
20-22: power supply U=110...400 VAC ± 10 %.

References

Auxiliary power supply U_s	COUNTIS ECi2 Reference	COUNTIS ECi3 Reference
230 / 400 VAC	4853 **0000**	
230 / 400 VAC + 2 analogue inputs		4853 **0001**
Description of accessories	**Reference**	**Reference**
Panel mounting kit	192J **8015**	192J **8015**

Accessories	To be ordered in multiples of	Reference
Door mounting kit		192J **8015**
Fuse disconnect switches to protect the 1-pole + neutral auxiliary power supply (RM type)	6	5701 **0017**
gG 10x38 0,5 A fuses	10	6012 **0000**

MULTIS L50

Digital panel meter

three-phases - via CT up to 6000 A dimensions 96 x 96 mm

multi_076.eps

MULTIS L50

The solution for

> Industry
> Infrastructure

Strong points

> Large backlit LCD display
> Direct display of multimeasurement and metering values
> RS485 MODBUS communication
> Inputs/Output for control/ command or pulses

Conformity to standards

> IEC 62053-21 class 1
> IEC 62053-23 class 2

Function

The MULTIS L50 is a panel mounted digital meter displaying multi-measurement and energy values directly on its large backlit LCD display. It is designed for utilisation on three-phase or single-phase networks with connection via CT and is suitable for applications of up to 6000 A. The product can be configured by the user via the keypad and the display.

Advantages

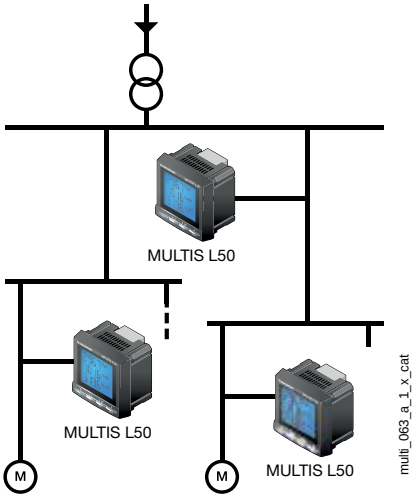
Easy to use

Thanks to its large backlit LCD display and its multiple viewing screens with direct pushbutton access, MULTIS L50 provide clear readings and are easy to use.
They directly display a number of multi-measurement and metering values.

Advanced functionalities

The MULTIS L50 offers input/output functions as standard and has a pulse output or RS485 MODBUS communication output.

Principle diagram



multi_063_a_1_x_cat

Functions

Multi-measurement
- Currents
  - instantaneous: I1, I2, I3, In
  - maximum average: I1, I2, I3, In
- Voltages & frequency
  - instantaneous: V1, V2, V3, U12, U23, U31, F
- Power
  - instantaneous: 3P, ΣP, 3Q, ΣQ, 3S, ΣS
  - maximum average: ΣP, ΣQ, ΣS
  - unbalance: U unb
- Power factors
  - instantaneous: 3PF, Σ

Metering
- Active energy: ± kWh
- Reactive energy: ± kvarh
- Hours:

Harmonic analysis
- Total harmonic distortion (level 51)
  - Currents: thd I1, thd I2, thd I3
  - Phase-to-neutral voltage: thd V1, thd V2, thd V3
  - Phase-to-phase voltage: thd U12, thd U23, thd U31

Communications(1)
RS485 with MODBUS protocol

Output
- Remote command of device
- Pulse report

Inputs
- Remote status device

(1) Available as an option (see the following pages).

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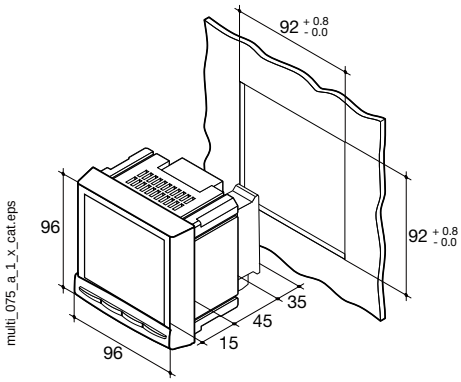
Front panel

1. Backlit LCD display.
2. Direct access key for currents (instantaneous and max. values), current THD.
3. Direct access key for voltages, frequency and voltage THD.
4. Pushbutton for active, reactive, and apparent power (instantaneous and max. values) and power factor.
5. Direct access key for energies, hour meter and programming menu.

Case



Type	panel mounting
Dimensions W x H x D	96 x 96 x 60 mm
Case degree of protection	IP30
Front degree of protection	IP52
Display type	backlit LCD display
Terminal block type	fixed or plug-in
Voltage and other connection cross-section	0.2 … 2.5 mm^2
Current connection cross-section	0.5 … 6 mm^2
Weight	400 g

Plug-in modules

MULTIS L50

1 Output

1 output assignable to:
- Pulses: configurable (type, weight, duration) in kWh or kvarh.
- Remote command of device.

Communication

RS485 link with JBUS / MODBUS protocol
(speed up to 38400 bauds)

3 inputs, 1 output

3 inputs assignable to:
- Remote status device.

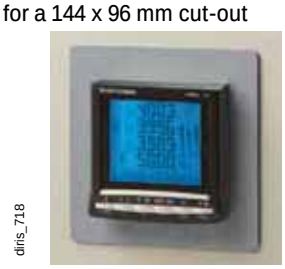
1 output assignable to:
- Pulses: configurable (type, weight, duration) in kWh or kvarh.
- Remote command of device.

Accessories

Current transformers

IP65 protection

Panel mounting kit for a 144 x 96 mm cut-out



MULTIS L50

Digital panel meter

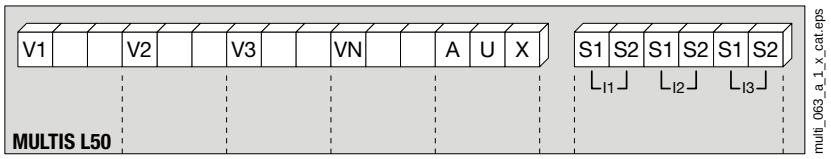
three-phases - via CT up to 6000 A dimensions 96 x 96 mm

Electrical characteristics

Current measurement (TRMS)	
Via CT primary	9 999 A
Via CT secondary	5 A
Measurement range	0 … 11 kA
Input consumption	0.6 VA
Measurement updating period	1 s
Accuracy	1%
Permanent overload	6 A
Intermittent overload	10 I_n for 1 s
Voltage measurements (TRMS)	
Direct measurement between phases	50 … 500 VAC
Direct measurement between phase and neutral	28 … 289 VAC
Input consumption	≤ 0.1 VA
Measurement updating period	1 s
Accuracy	1%
Permanent overload	800 VAC
Power measurement	
Measurement updating period	1 s
Accuracy	1%
Power factor measurement	
Measurement updating period	1 s
Accuracy	1%
Frequency measurement	
Measurement range	45 … 65 Hz
Measurement updating period	1 s
Accuracy	0.1 %

Energy accuracy	
Active (according to IEC 62053-21)	Class 1
Reactive (according to IEC 62053-23)	Class 2
Auxiliary power supply	
Alternating voltage	110 … 250 VAC
AC tolerance	± 10 %
Direct voltage	120 … 250 VDC
DC tolerance	± 10%
Frequency	50 / 60 Hz
Consumption	10 VA
Pulse or alarm output	
Number	1
Type	100 VDC - 0.5 A - 10 VA
Max. number of operations	≤ 10^8
Inputs	
Number	3
Power supply	10 … 30 VDC
Minimum signal width	10 ms
Minimum duration between 2 pulses	18 ms
Type	Phototransistors
Communication	
Link	RS485
Type	2 … 3 half duplex wires
Protocol	MODBUS RTU
MODBUS® speed	1400 … 38400 bauds
Operating conditions	
Operating temperature	- 10 … + 55 °C
Storage temperature	- 20 … + 85 °C
Relative humidity	95 %

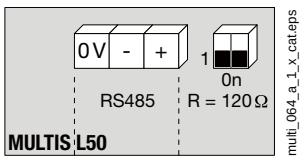
Terminals



S1 - S2: current inputs.

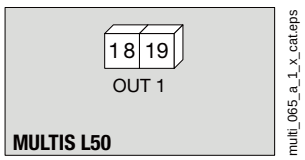
AUX: auxiliary power supply U_s.
V1, V2, V3 & VN: voltage inputs.

Communication module



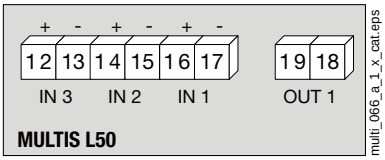
RS485 link.
R = 120 Ω: selectable internal resistance for RS485 end of line termination.

Output or alarm module



18 - 19 : output n°1

3 inputs, 1 output module

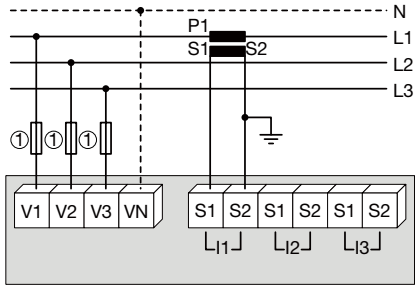


Connection

Recommendation:
- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI, an accessory which is included in this catalogue. Please consult us.

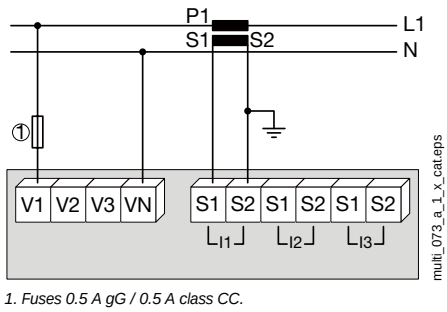
Low voltage balanced network

3/4 wires with 1 CT



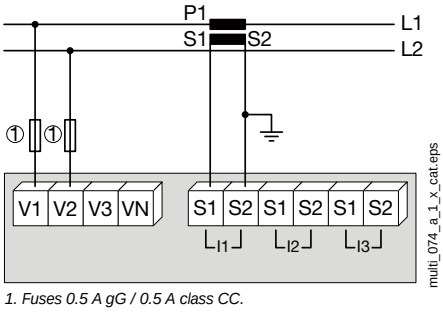
Use of 1 CT reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.
1. Fuses 0.5 A gG / 0.5 A class CC.

Single-phase



1. Fuses 0.5 A gG / 0.5 A class CC.

Two-phase



1. Fuses 0.5 A gG / 0.5 A class CC.

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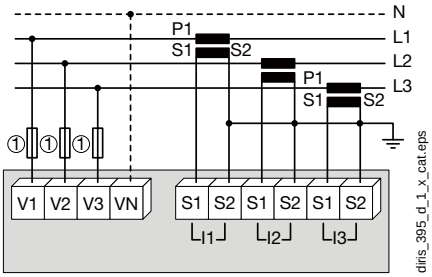
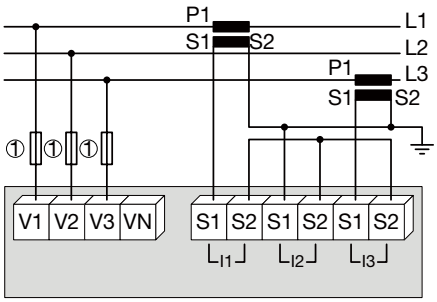
Low voltage unbalanced network

3/4 wires with 3 CTs



1. Fuses 0.5 A gG / 0.5 A class CC.

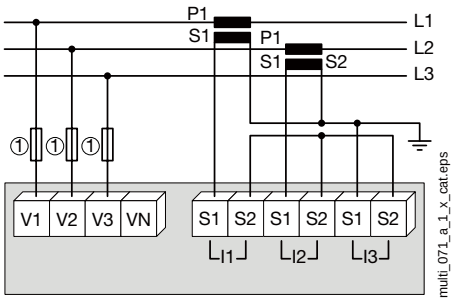
3 wires with 2 CTs



Use of 2 CTs reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

1. Fuses 0.5 A gG / 0.5 A class CC.

3 wires with 2 CTs

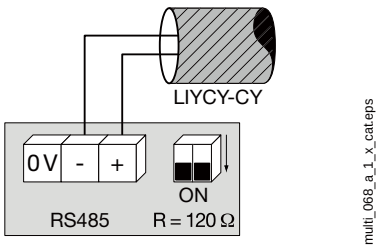


Use of 2 CTs reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

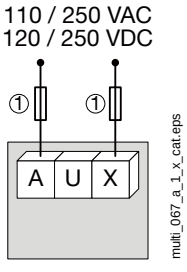
1. Fuses 0.5 A gG / 0.5 A class CC.

Additional information

Communication via RS485 link



AC & DC auxiliary power supply



1. Fuses 0.5 A gG / 0.5 A class CC.

References

Basic device		**MULTIS L50 Reference**
MULTIS L50		192J **9120**
Optional plug-in modules		**Reference**
1 output		4825 **0080**
RS485 MODBUS® communication		4825 **0082**
3 inputs, 1 output		4825 **0083**
Accessories		
Description of accessories	**To be ordered in multiples of**	**Reference**
IP65 protection	1	4825 **0089**
Panel mounting kit for a 144 x 96 mm cut-out	1	4825 **0088**
Fuse holder for the protection of voltage inputs (type RM) 3 poles	4	5601 **0018**
Fuse holder for the protection of the auxiliary supply (type RM) 1 pole + neutral	6	5601 **0017**
Fuse type gG 10x38 0.5 A	10	6012 **0000**
Ferrite to be associated with communication modules	1	4899 **0011**
Current transformer range	1	See “TE sensors” pages

Expert Services

> Study, definition, advice, implementation, maintenance and training…
Our experts “Expert Services” offer complete support for the success of your project.

Selection guide

Multifunction meters

DIRIS

Which application? ▶ Which functions?

					
		DIRIS A-10 *p. 286*	**DIRIS A-14 DIN** *p. 290*	**DIRIS A-14 96 x 96** *p. 290*	
	Functions	**CURRENT TRANSFORMERS**			
General characteristics	Remote display				
	Number of loads	1	1	1	
	Mounting	DIN	DIN or 96*96	DIN or 96*96	
	Power supply	AC	AC	AC	
	All In One	•	•	•	
	Optional modules				
	Ethernet (Modbus TCP / Bacnet IP)	o / -	o / -	o / -	
	RS485 (Modbus / Bacnet MSTP)	• / -	• / -	• / -	
	Profibus DPV1				
	Webserver / File export	o / -	o / o	o / o	
	Max. number of inputs (digital / analogue)	1 / -			
	Max. number of outputs (digital / analogue)	1 / -			
Manage energy consumptions	4-quadrant energy metering	•	•	•	
	Load curves (local memory)		•	•	
	Rebilling of energy (MID approved)		•	•	
	Multi-tariff management	2	4	4	
Monitor the electrical installation	Instantaneous, average, min and max values	•	•	•	
	Voltage unbalance measurement				
	Neutral current (measured / calculated)	- / •	- / •	- / •	
Check the power quality	Harmonic analysis (THD / Individual)	• / -	• / -	• / -	
	Dip and swell detection				
	Overcurrent detection				
	1/2 cycle RMS curves on events				
Manage the loads	Operating hours	•			
	Number of operations (info / alarm)				
	Protective device monitoring (on / off / tripped)	•			
	Predictive power analysis and load shedding				

•: integrated in the product. *o: optional via DIRIS Digiware M-50/M-70 or modules.*

Which dimensions? → Which communication protocol? → Which options?

							
	DIRIS A-20 *p. 294*	**DIRIS A-30/A-41** *p. 298*	**DIRIS B-10** *p. 308*	**DIRIS B-30** *p. 308*	**DIRIS A-40** Modbus *p. 304*	**DIRIS A-40** Modbus + Profibus *p. 304*	**DIRIS A-40** Modbus + Ethernet *p. 304*
	CURRENT TRANSFORMERS		**SMART SENSORS**				
			•	•			
	1	1	1 to 4	1 to 4	1		
	96 x 96	96 x 96	DIN	DIN	96 x 96		
	AC	AC/DC	AC	AC	AC/DC		
					•		
	•	•	•	•			
	o/-	o/-	•/o	•/o	-/-	-/-	•/•
	•/-	•/-	•/o	•/o	•/-	•/-	•/-
		o	o	o	-	•	-
	o/o	Via DIRIS G	o/o	o/o	o/o	o/o	•/•
	3/-	6/4	2/2		3/-		
	1/-	6/4	2/2		2/-		
	•	•	•	•	•		
		o		•	•		
			8	8	4		
	•	•	•	•	•		
		•	•	•	•		
	-/•	• (with A-41)	•/•	•/•	-/•		
	•/-	•/•	•/-	•/•	•/•		
				•	•		
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	•	•	•	•	•		
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	•	•	•	•	•		
		•		•	•		

DIRIS A-10

Multifunction meters - PMD

measuring and monitoring - modular format

Single-circuit metering, measurement & analysis

diris_978_front.psd

DIRIS A-10

Function

The DIRIS A-10 is a modular multifunction meter for measuring electrical values in low voltage networks with connection to current transformers.

It allows all electrical parameters to be displayed and utilised for communication and/or output functions.

Advantages

Easy to use

Five direct access pushbuttons enable all measurements to be clearly viewed on its backlit LCD display.

Integrated temperature sensor

It allows variations in temperature to be detected.

Detects wiring errors

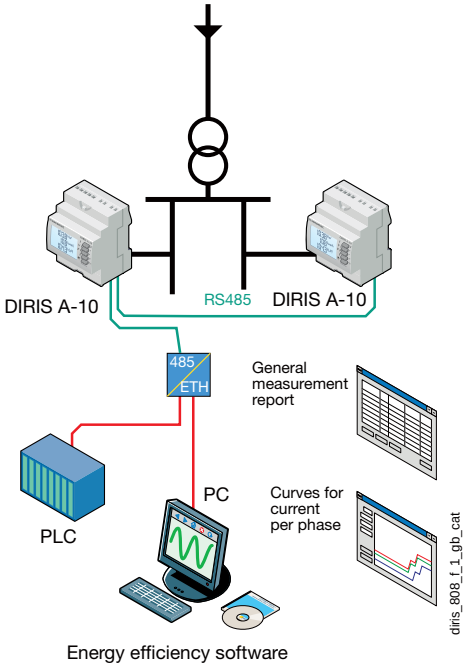
An integrated test function can be utilised to detect incorrect wiring and to automatically correct CT installation errors.

Compliant with IEC 61557-12

IEC 61557-12 is a high-level standard for all PMDs (Performance Monitoring Devices) that are designed to measure and monitor electrical parameters in distribution networks.

Compliance with IEC 61557-12 ensures a high level of equipment performance, in terms of metrology, and the mechanical and environmental aspects (EMC, temperature, etc.).

Principle diagram



diris_808_f_1_gb_cat

Functions

Multi-measurement
- Currents
  - instantaneous: I1, I2, I3, In
  - maximum average: I1, I2, I3, In
- Voltages & frequency
  - instantaneous: V1, V2, V3, U12, U23, U31, F
- Power
  - instantaneous: 3P, ΣP, 3Q, ΣQ, 3S, ΣS
  - maximum average: ΣP, ΣQ, ΣS
- Power factors
  - instantaneous: 3PF, ΣPF

Metering
- Active energy: +/- kWh
- Reactive energy: +/- kVarh
- Hours:

Harmonic analysis
- Total harmonic distortion (level 51)
  - Currents: thd I1, thd I2, thd I3
  - Phase-to-neutral voltage: thd V1, thd V2, thd V3
  - Phase-to-phase voltage: thd U12, thd U23, thd U31

Dual tariff function

Selection of one out of 2 billing tariffs

Events

Alarms on all electrical values

Communications(1)

RS485 with MODBUS protocol

Input
- Tariff selection
- Remote device status

Output
- Remote command of device
- Alarm report
- Pulse report

(1) Available on specific version (see the following pages).

The solution for

> Industry
> Infrastructures
> Tertiary

Strong points

> Easy to use
> Integrated temperature sensor
> Detects wiring errors
> Compliant with IEC 61557-12

Conformity to standards

> IEC 61557-12
> IEC 62053-22 class 0.5S
> IEC 62053-23 class 2
> UL

Associated with current transformers

See "Current transformers".

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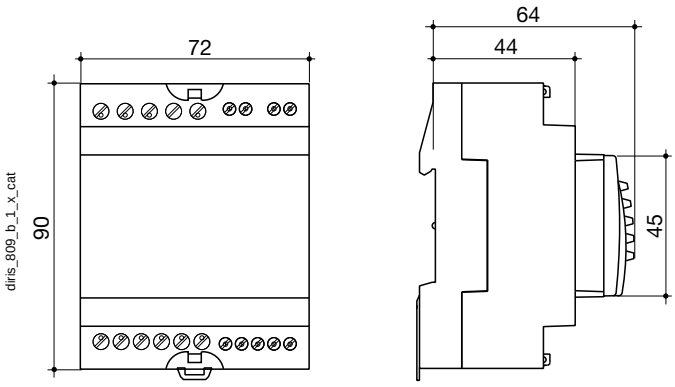
Front panel

1. Backlit LCD display.
2. Direct access key for currents (instant and maximum), current THD and test function.
3. Direct access key for voltages, frequency and voltage THD.
4. Direct access key for active, reactive and apparent power (instantaneous and max. values) and power factor.
5. Direct access key for energies.
6. Pushbutton for hour meter, temperature and programming menu access.
7. Metrological LED.

Case



Type	modular
Number of modules	4
Dimensions W x H x D	72 x 90 x 64 mm
Case degree of protection	IP 30
Front degree of protection	IP 52
Display type	backlit LCD display
Voltage and current connection cross-section	4 mm^2
Connection cross-section for AUX supply, input, output and comms.	2.5 mm^2
Weight	205 g (4825 0010) - 215 g (4825 0011)

Electrical characteristics

Current measurement (TRMS)	
Via CT primary	9 999 A
Via CT secondary	5 A
Measurement range	0 … 11 kA
Input consumption	0.6 VA
Measurement updating period	1 s
Accuracy	0.2 %
Permanent overload	6 A
Intermittent overload	10 I_n for 1 s
Voltage measurements (TRMS)	
Direct measurement between phases	50 … 500 VAC
Direct measurement between phase and neutral	28 … 289 VAC
Input consumption	≤ 0.1 VA
Measurement updating period	1 s
Accuracy	0.2 %
Power measurement	
Measurement updating period	1 s
Accuracy	0.5 %
Power factor measurement	
Measurement updating period	1 s
Accuracy	0.5 %
Frequency measurement	
Measurement range	45 … 65 Hz
Measurement updating period	1 s
Accuracy	0.1 %

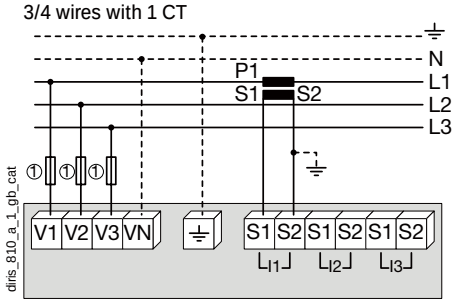
Energy accuracy	
Active (according to IEC 62053-22)	Class 0.5 S
Reactive (according to IEC 62053-23)	Class 2
Auxiliary power supply	
Alternating voltage	110 … 277 VAC
AC tolerance	± 15 %
Frequency	50 / 60 Hz
Consumption	< 3 VA
Digital output (pulses)	
Number	1
Optocoupler type (IEC 62053-31)	Class A and B (10 ... 30 VDC, 27mA)
Input (tariff)	
Number	1
Type	0 VAC: T1 / 200-277 VAC: T2
Communication	
Link	RS485
Type	2 … 3 half duplex wires
Protocol	MODBUS RTU
MODBUS® speed	2400 … 38400 bauds
Operating conditions	
Operating temperature	- 10 … + 55 °C
Storage temperature	- 20 … + 70 °C
Relative humidity	85 %

Connection

Recommendation:
- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI, an accessory which is included in this catalogue. Please consult us.
- It is recommended that the earthing point for the DIRIS A-10 and the current transformer secondaries are not earthed at the same time.

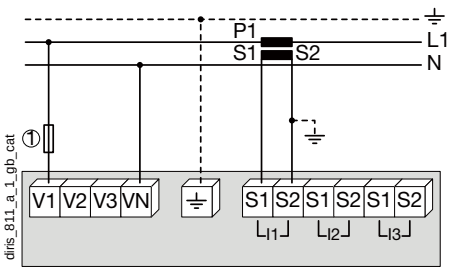
Low voltage balanced network

3/4 wires with 1 CT



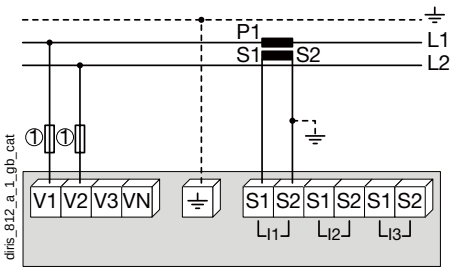
1. Fuses 0.5 A gG / 0.5 A class CC.

Single-phase



1. Fuses 0.5 A gG / 0.5 A class CC.

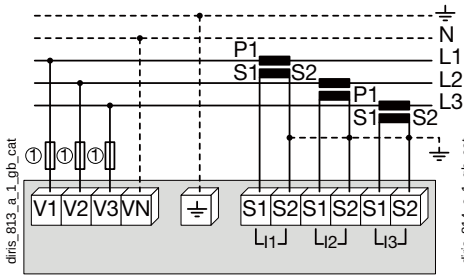
Two-phase



1. Fuses 0.5 A gG / 0.5 A class CC.

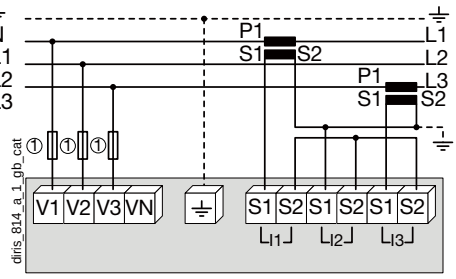
Low voltage unbalanced network

3/4 wires with 3 CTs



1. Fuses 0.5 A gG / 0.5 A class CC.

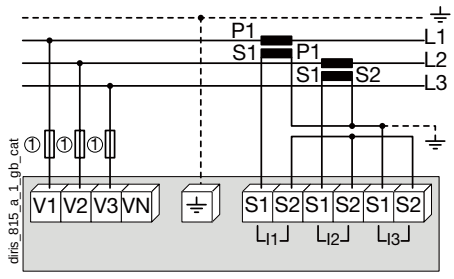
3 wires with 2 CTs



Use of 2 CTs reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

1. Fuses 0.5 A gG / 0.5 A class CC.

3 wires with 2 CTs

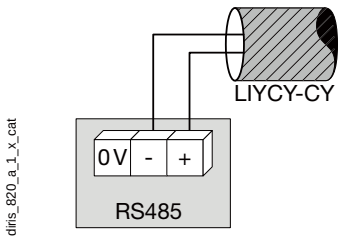


Use of 2 CTs reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

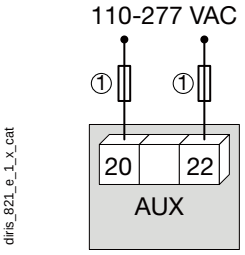
1. Fuses 0.5 A gG / 0.5 A class CC.

Additional information

Communication via RS485 link

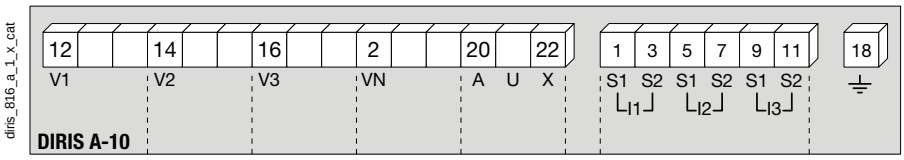


AC auxiliary power supply



1. Fuses 0.5 A gG / 0.5 A class CC.

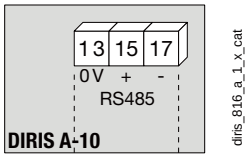
Terminals



AUX: auxiliary power supply U_s.
V1, V2, V3 & VN: voltage inputs.

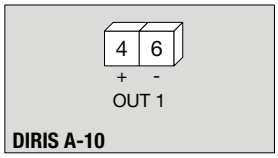
S1 - S2: current inputs.

Communication terminals



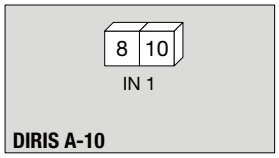
RS485 link.

Pulse or alarm output terminals



4 - 6: output n°1

Input terminals



8 - 10: input n°1

References

Basic device **Description**		**DIRIS A-10** **Reference**
DIRIS A-10		4825 **0400**
DIRIS A-10 with RS485 MODBUS communication		4825 **0401**
Accessories	**To be ordered in multiples of**	**Reference**
Fuse disconnect switches for the protection of voltage inputs (type RM) 3 poles	4	5701 **0018**
Fuse disconnect switches for the protection of the auxiliary supply (type RM) 1 pole + neutral	6	5701 **0017**
Fuses type gG 10x38 0.5 A	10	6012 **0000**
Current transformer range	1	See “Current transformers” pages
Management software for DIRIS	See “Easy Config System” pages	
Door mounting kit		4825 **0088**
Automatic CT short-circuiting device	See “Current transformers” pages	

Expert Services

> Study, definition, advice, implementation, maintenance and training… Our experts “Expert Services” offer complete support for the success of your project.

DIRIS A14

PMD - MID multifunction measuring unit

measuring and monitoring - modular format

DIRIS A14 panel mounted

DIRIS A14 DIN rail mounted

Function

The DIRIS A14 is an MID approved multifunction meter - for measuring electrical values in low voltage networks.

It allows all electrical parameters to be displayed and utilised for communication and/or output functions.

Advantages

Single-phase and three-phases MID certified

DIRIS A14 products with MID certification provide the guaranteed accuracy required for applications in which sub-billing of the electrical energy consumed is necessary, whether on a three-phase or single-phase network. “Module B+D” certification guarantees that the design and manufacturing process of products are approved by an accredited laboratory.

Bi-directional metering (four quadrants)

This function is for metering energy production or energy consumption.

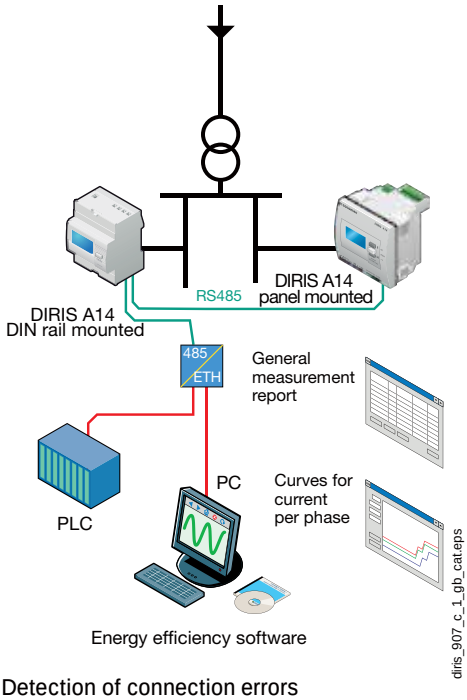
Multi-measurement and load curve

Display of electrical values (I, U, V, ΣP, ΣQ, ΣS, PF) and P+ load curve over a 7 day period via communication.

IEC 61557-12 measuring method

IEC 61557-12 is a high-level standard covering all PMDs (Performance Monitoring Devices). By using the measuring method of IEC 61557-12 ensures a high level of equipment performance, in terms of metrology.

Functional diagram



Detection of connection errors

The product is protected against phase/neutral inversion and detects wiring errors. The power supply internally derived from the voltage connections ensures realtime MID counting as soon as the mains voltage is present.

The solution for

- > Industry
- > Infrastructures
- > Data centers

Strong points

- > Single-phase and three-phases MID certified
- > Bi-directional metering
- > Multi-measurement and load curves
- > IEC 61557-12 measuring method
- > Detection of connection errors

Compliance with standards

- > IEC 61557-12
- > IEC 62053-23 class 2
- > EN50470-1
- > EN50470-3 class C

Associated with current transformers

See “Current transformers”.

Functions

Multi-measurement
- Currents
  - instantaneous: I1, I2, I3, In
  - maximum average: I1, I2, I3, In
- Frequency
- Voltages
  - instantaneous: V1, V2, V3, U12, U23, U31, F
- Powers
  - instantaneous: ΣP, ΣQ, ΣS
  - maximum average: ΣP, ΣQ, ΣS
- Power factor (cos φ)
  - instantaneous: Σ cos φ
  - maximum average: Σ cos φ

Total and partial metering
- Active energy: + kWh, - kWh
- Reactive energy: + kvarh, - kvarh

Harmonic analysis (via communication)
- Total harmonic distortion (rank 63)
  - Currents: thd I1, thd I2, thd I3
  - Phase-to-neutral voltage: thd V1, thd V2, thd V3
  - Phase-to-phase voltage: thd U12, thd U23, thd U31

Multi tariff function (via communication)
- Selection of one out of 4 billing tariffs

Events (via communication)
- Active energy consumption: day n-1 / week n-1 / month n-1
- Active power load curves: P 10 minutes over 7 days with time-log

Communications
- RS485 with MODBUS protocol

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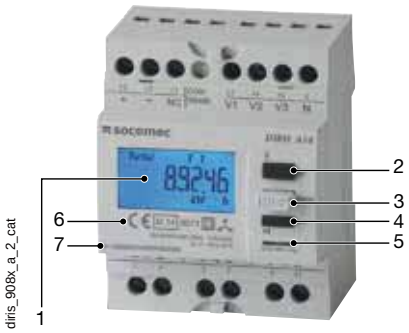
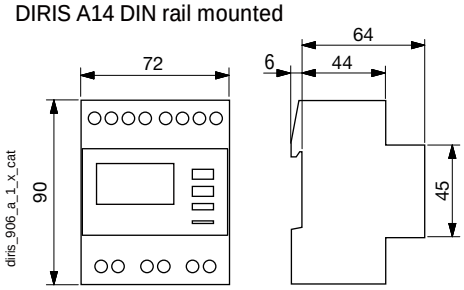
Front panel



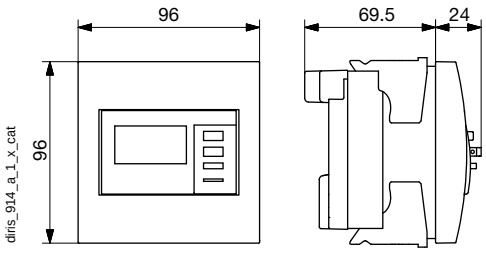
1. Backlit LCD display
2. Direct access for energies and validation key
3. Programming key
4. Navigation key for measurements
5. Metrological LED
6. MID marking
7. Serial Number

Case

DIRIS A14 DIN rail mounted



DIRIS A14 door mounted



	DIRIS A14 DIN rail mounted	DIRIS A14 door mounted
Type	modular	Recessed
Number of modules	4	-
Dimensions W x H x D	72 x 90 x 64 mm	96 x 96 x 69.5 mm
Case degree of protection	IP20	
Front degree of protection	IP51	
Display type	Backlit LCD	
Rigid cable cross-section	1.5 … 10 mm²	
Flexible cable cross-section	1 … 6 mm²	
Weight	240 g	450 g

Electrical characteristics

Current measurement (TRMS)	
Via CT primary	10 … 2500 A
Via CT secondary	5 A
Input consumption	0.6 VA
Startup current (Ist)	5 mA
Minimum current (Imin)	50 mA
Transmission current (Itr)	250 mA
Reference current (Iref)	5 A
Measurement updating period	1 s
Accuracy	0.5%
Permanent overload	6 A
Intermittent overload	120 A for 0.5 s
Voltage measurements (TRMS)	
Direct measurement (four phases)	50 …460 VAC
Input consumption	2 VA
Measurement updating period	1 s
Accuracy	0.2%
Permanent overload	480 V (phase-to-phase measurement)
Power measurement	
Measurement updating period	1 s
Accuracy	0.5%
Power factor measurement (cos φ)	
Measurement updating period	1 s
Accuracy	0.01

Energy accuracy	
Active (according to IEC 62053-22)	Class 0.5 S
Reactive (according to IEC 62053-23)	Class 2
Active (according to EN 50470)	Class C
Metrological LED (EA^+,EA^-)	
Pulse weight	10000 pulses/kWh
Colour	Red
Auxiliary power supply	
Self-powered	Yes
Frequency	50 / 60 Hz
Communication	
Link	RS485
Type	2 to 3 half duplex wires
Protocol	MODBUS® RTU
MODBUS® speed	4800 … 38400 bauds
Operating conditions	
Operating temperature	-10 … +55°C
Storage temperature	-20 … +70°C
Relative humidity	95% non-condensing

Connection

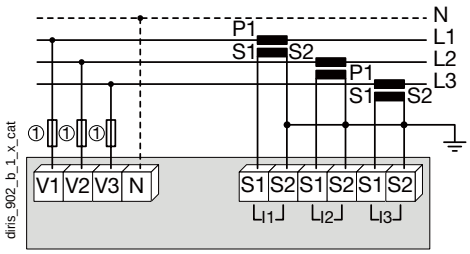
Low voltage balanced network

Recommendation:
- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited.

This operation can be carried out automatically by a SOCOMEC PTI, which can be found in the SOCOMEC catalogue: please consult us.

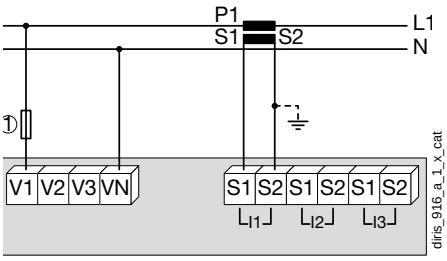
Low voltage unbalanced network

3/4 wires with 3 CTs



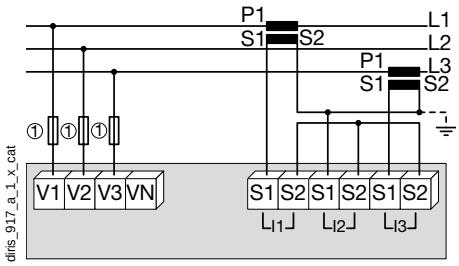
1. 0.5 A gG / 0.5 A class CC fuses.

Single-phase



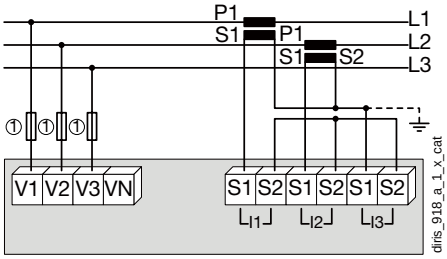
1. 0.5 A gG / 0.5 A class CC fuses.

3 wires with 2 CTs



1. 0.5 A gG / 0.5 A class CC fuses.

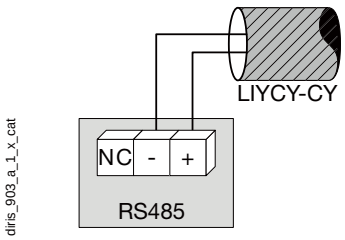
3 wires with 2 CTs



1. 0.5 A gG / 0.5 A class CC fuses.

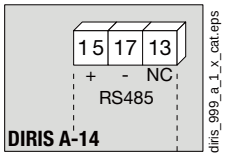
Additional information

Communication via RS485 link

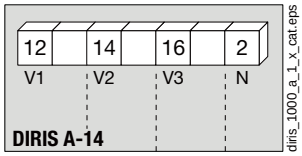


Terminals

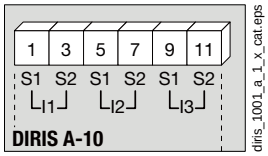
Communication Module



RS485 link.



V1, V2, V3 & N : voltage inputs.



S1 - S2 : current inputs.

References

Basic device **Description**		**DIRIS A14** **Reference**
DIRIS A14 MID DIN rail mounted		4825 **0020**
DIRIS A14 MID door mounted		4825 **0021**
Accessories	**To be ordered in multiples of**	**Reference**
Fuse disconnect switches for the protection of voltage inputs (type RM)	4	5601 **0018**
Fuse disconnect switches to protect the 1-pole + neutral auxiliary power supply (RM type)	6	5601 **0017**
gG 10x38 0,5 A fuses type	10	6012 **0000**
Automatic CT short-circuiting device	See “Current transformers” pages	

Expert Services

> Study, definition, advice, implementation, maintenance and training… Our experts “Expert Services” offer complete support for the success of your project.

DIRIS A-20

Multifunction measuring unit - PMD

measurement and monitoring - door mounting

diris_981_front.eps

DIRIS A-20

The solution for

> Industry
> Infrastructure
> Building

Strong points

> User-friendly operation
> Compliant with IEC 61557-12
> Detects wiring errors
> Customisable

Compliance with standards

> IEC 61557-12
> IEC 62053-22 class 0.5S
> IEC 62053-23 class 2
> UL

Related software

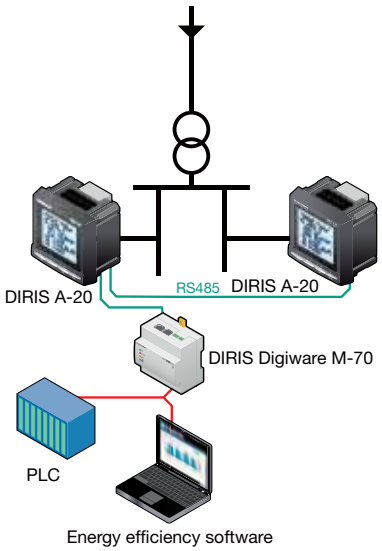
> To use Socomec PMDs effectively, we can offer you several dedicated software tools.
See “Easy Config System” pages.

Function

DIRIS A-20 units are performance metering and monitoring devices that provide the user with all of the measurements needed to complete energy efficient projects successfully and to provide assured monitoring of electrical distribution.

All of this information can be used and analysed remotely with the help of energy efficiency software programs.

Functional diagram



DIRIS_576_i_1_en_cat

Advantages

User-friendly operation

With its large backlit multiple-display screen with 4 hot keys, the DIRIS A-20 is easy to use.

Compliant with IEC 61557-12

Reference standard for PMDs (Performance metering & monitoring devices), IEC 61557-12 guarantees performance levels and satisfactory performance from the PMDs under the environmental conditions typical of industrial and tertiary applications.

Detects wiring errors

The DIRIS A-20 is equipped with an error correction function for CT connection.

Customisable

Additional communication and input/output modules can extend the basic functional scope of this product. Equipped with additional modules, the DIRIS A-20 can provide the user with flexibility and expandability throughout the service life of the product.

Functions

Multi-measurement
- Currents
  - instantaneous: I1, I2, I3, In
  - maximum average: I1, I2, I3, In
- Voltages & frequency
  - instantaneous: V1, V2, V3, U12, U23, U31, F
- Powers
  - instantaneous: 3P, ΣP, 3Q, ΣQ, 3S, ΣS
  - maximum average: ΣP, ΣQ, ΣS
- Power factors
  - instantaneous: 3PF, ΣPF

Metering
- Active energy: +/- kWh
- Reactive energy: +/- kvarh
- Hours:

Harmonic analysis
- Total harmonic distortion (rank 51)
  - Currents: thd I1, thd I2, thd I3
  - Phase-to-neutral voltage: thd V1, thd V2, thd V3

Phase-to-phase voltage: thd U12, thd U23, thd U31

Events

Alarms on all electrical parameters

Communications (1)

RS485 with MODBUS protocol

Output
- Equipment control
- Alarm report
- Pulse report

Input
- Information report from a dry external contact

(1) Available as an option (see the following pages).

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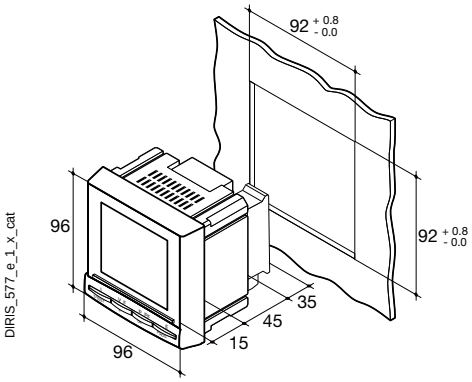
Front panel

1. Backlit LCD display
2. Pushbutton for currents (instantaneous and maximum), THD currents and the connection correction function.
3. Pushbutton for voltages, frequency and THD voltages.
4. Pushbutton for power (instantaneous and maximum), active, reactive and effective, power factor.
5. Pushbutton for energy sources and timer counter.

Case



Type	Plug-in
Dimensions W x H x D	96 x 96 x 60 mm
Case degree of protection	IP30
Front degree of protection	IP52
Display type	Backlit LCD
Type of terminal strips	Fixed or removable
Section for connection of voltages and other terminals	0.2 … 2.5 mm^2
Section for connection of currents	0.5 … 6 mm^2
Weight	400 g

Plug-in optional modules

DIRIS® A-20

1 output

1 output that can be configured for:
- pulses: configurable (type, weight, duration) to kWh or kVarh.
- Monitoring: 3I, In, 3V, 3U, F, ΣP, ΣQ, ΣS, ΣPFL/C, THD 3I, THD 3V, THD 3U and timer meter.
- Equipment control

Communication

RS485 link with MODBUS protocol (speed up to 38 400 baud).

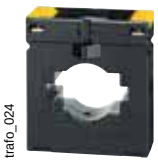
3 inputs , 1 output

3 inputs can be configured into:
- Information report from an external contact.

1 output that can be configured for:
- pulses: configurable (type, weight, duration) to kWh or kVarh.
- Monitoring: 3I, In, 3V, 3U, F, ΣP, ΣQ, ΣS, ΣPFL/C, THD 3I, THD 3V, THD 3U and timer meter.
- Equipment control

Accessories

Current transformer
See “Current transformers” pages.



IP65 protection

DIRIS A-20

Multifunction measuring unit - PMD

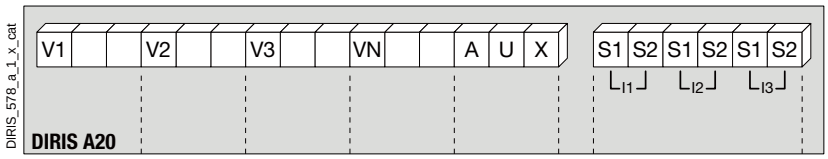
measurement and monitoring - door mounting

Electrical characteristics

Current measurement (TRMS)	
Via CT primary	9 999 A
Via CT secondary	5 A
Measurement range	0 … 11 kA
Input consumption	0.6 VA
Measurement updating period	1 s
Accuracy	0.2%
Permanent overload	6 A
Intermittent overload	10 I_n over 1 sec
Voltage measurements (TRMS)	
Direct measurement between phases	50 … 500 VAC
Direct measurement between phase and neutral	28 … 289 VAC
Input consumption	≤ 0.1 VA
Measurement updating period	1 s
Accuracy	0.2%
Power measurement	
Measurement updating period	1 s
Accuracy	0.5%
Power factor measurement	
Measurement updating period	1 s
Accuracy	0.5%
Frequency measurement	
Measurement range	45 … 65 Hz
Measurement updating period	1 s
Accuracy	0.1%

Energy accuracy	
Active (according to IEC 62053-22)	Class 0.5 S
Reactive (in acc. with CEI 62053-23)	Class 2
Auxiliary power supply	
Alternative voltage	110 … 400 VAC
AC tolerance	± 10%
DC voltage	120 … 289 VDC
DC tolerance	± 20%
Frequency	50 / 60 Hz
Power consumption	10 VA
Pulse or alarm output	
Number	1
Type	100 VDC - 0,5 A - 10 VA
Max. number of manoeuvres	≤ 10^8
Inputs	
Number	3
Power supply	10 … 30 VDC
Minimum width of signal	10 ms
Minimum length between 2 pulses	18 ms
Type	Optical couplers
Communication	
Link	RS485
Type	2 to 3 half duplex wires
Protocol	MODBUS® in RTU mode
MODBUS® speed	1400 … 38400 baud
Operating conditions	
Operating temperature range	- 10 … + 55°C
Storage temperature	- 20 … + 85°C
Relative humidity	95%

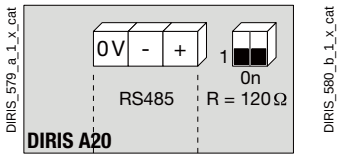
Terminals



S1 - S2 : current inputs.

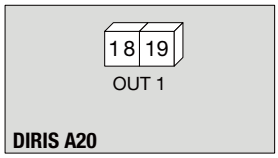
AUX : auxiliary power supply U_s.
V1, V2, V3 & VN : voltage inputs.

Module communication



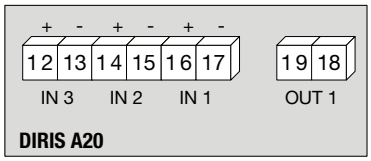
RS485 link.
R = 120 Ω : internal resistance for the RS485 link.

Output or alarm module



18 - 19 : output n°1

Module with 3 inputs, 1 output



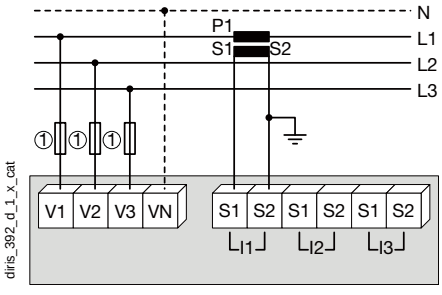
Connection

Low voltage balanced network

Recommendation

- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI, which can be found in the SOCOMEC catalogue: please consult us.

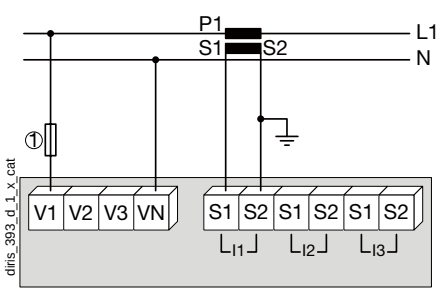
3/4 wires with 1 CT



The 1CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.

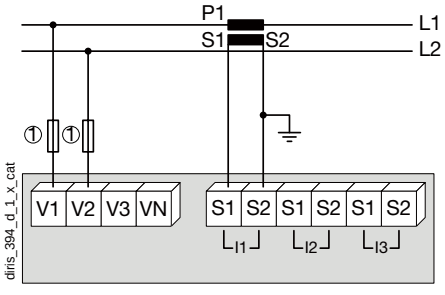
1. 0.5 A gG / 0.5 A class CC fuses.

Single-phase



1. 0.5 A gG / 0.5 A class CC fuses.

Two-phase



1. 0.5 A gG / 0.5 A class CC fuses.

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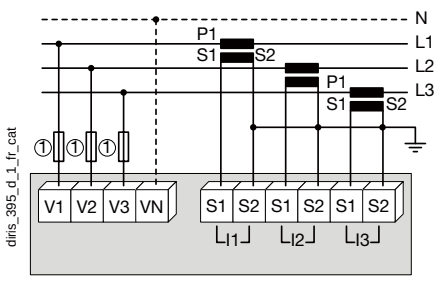
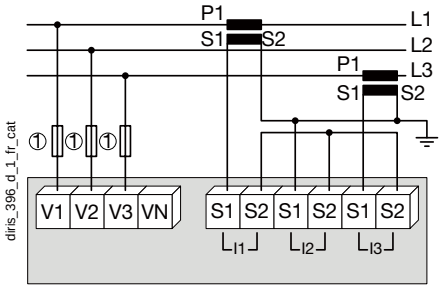
Low voltage unbalanced network

3/4 wires with 3 CTs



1. 0.5 A gG / 0.5 A class CC fuses.

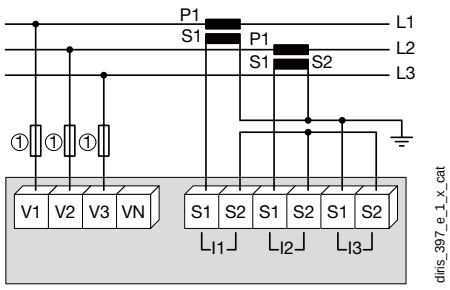
3 wires with 2 CTs



The 2CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.

1. 0.5 A gG / 0.5 A class CC fuses.

3 wires with 2 CTs

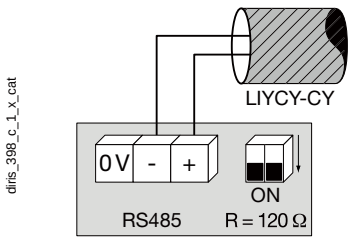


The 2CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.

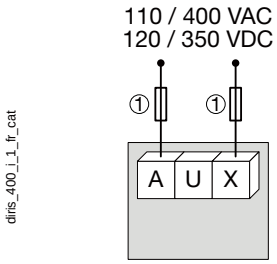
1. 0.5 A gG / 0.5 A class CC fuses.

Additional information

Communication via RS485 link



AC and DC auxiliary power supply



1. 0.5 A gG / 0.5 A class CC fuses.

References

Basic device **Auxiliary power supply U_s**		**DIRIS A-20** **Reference**
110 … 400 VAC / 120 … 350 VDC		4825 **0402**
Options **Plug-in modules**		 **Reference**
On/Off output.		4825 **0080**
RS485 MODBUS® communication		4825 **0082**
3 inputs, 1 output		4825 **0083**
Accessoires	**To be ordered in multiples of**	**Reference**
Protection IP65	1	4825 **0089**
Plug-in kit for cutout 144 x 96 mm	1	4825 **0088**
3-pole fuse disconnect switches to protect input voltages (RM type)	4	5601 **0018**
1-pole + neutral fuse disconnect switches to protect the auxiliary supply (RM type)	6	5601 **0017**
gG 10x38 0.5 A fuses	10	6012 **0000**
Ferrite for use with communication modules	1	4899 **0011**
Current transformer range	1	See “Current transformers” pages.
Software associated with DIRIS	See “Easy Config System” pages	
Automatic CT short-circuiting device	See “Current transformers” pages.	

Expert Services

> Study, definition, advice, implementation, maintenance and training… Our experts "Expert Services" offer complete support for the success of your project.

DIRIS A-30/A-41

Multifunction measuring unit - PMD

measurement and advanced monitoring - door mounting

DIRIS A-30

The solution for

> Industry
> Building
> Infrastructures

Strong points

> User-friendly operation
> Detects wiring errors.
> Customisable
> Compliant with IEC 61557-12

Compliance with standards

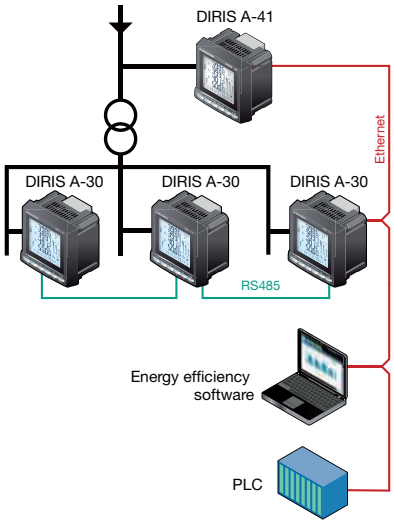
> IEC 61557-12
> IEC 62053-22 class 0.5 S
> IEC 62053-23 class 2
> UL

Function

The DIRIS A-30 and A-41 are power monitoring devices that provide the user with all of the measurements needed to complete energy efficiency projects and to assure the monitoring of electrical distribution.

All the information can be used and analysed remotely using energy efficiency software packages.

Functional diagram



Advantages

User-friendly operation

With its large backlit multiple-display screen with 6 hot keys, the DIRIS A-30 is easy to use.

Detects wiring errors

The DIRIS A-30 is provided with a correction function for TC wiring errors.

Customisable

The DIRIS A-30 can be equipped with additional modules that give the user flexibility throughout the service life of the product. Communication modules and additional digital or analogue inputs/outputs can be used to increase its range of functionality.

Compliant with IEC 61557-12

Reference standard for PMDs (Performance metering & monitoring devices), IEC 61557-12 guarantees performance levels and satisfactory performance from the PMDs under the environmental conditions typical of industrial and tertiary applications.

Functions

Multi-measurement
- Currents
  - instantaneous: I1, I2, I3, In, Isystem
  - average/max average: I1, I2, I3, In
- Voltages & frequency
  - instantaneous: V1, V2, V3, U12, U23, U31, F, Vsystem, Usystem
  - average/max average: V1, V2, V3, U12, U23, U31, F
- Powers
  - instantaneous: 3P, ΣP, 3Q, ΣQ, 3S, ΣS
  - max average: ΣP, ΣQ, ΣS
  - predictive: (ΣP), (ΣQ), (ΣS)
- Power factors
  - instantaneous: 3PF, ΣPF
  - average/max average: ΣPF
- Kfactor
- Temperatures (1)
  - internal
  - external via 3 PT100 probes

Metering
- Active energy: +/- kWh
- Reactive energy: +/- kvarh
- Effective power: kVAh
- Hours:

Harmonic analysis
- Level of harmonic distortion
  - Currents: thd I1, thd I2, thd I3, thd In
  - Phase-to-neutral voltage: thd V1, thd V2, thd V3
  - Phase-to-phase voltage: thd U12, thd U23, thd U31
- Individual harmonics up to 63rd
  - Currents: HI1, HI2, HI3, HIn
  - Phase-to-neutral voltage: HV1, HV2, HV3,
  - Phase-to-phase voltages: HU12, HU23, HU31

Load curve (1)
- Active & reactive power: ΣP+/- ; ΣQ+/-
- Voltages & frequency: V1, V2, V3, U12, U23, U31, F

Events (1)
- Alarms on all electrical parameters.

Communications (1)
- RS485 (Modbus)
- Ethernet (Modbus/TCP or Modbus RTU)
- Ethernet with RS485 Modbus RTU gateway over TCP
- Profibus DP Sub-D9

Inputs/ Outputs (1)
- Pulse counting
- Checking / control of equipment
- Alarm report
- Pulse report

Analogue output
- Analogue 0/4- 20 mA

(1) Available as an option (see following pages).

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Front panel

1. Backlit LCD display
2. Pushbutton for currents and for connection correction function
3. Pushbutton for voltages and frequency..
4. Pushbutton for active, reactive and effective powers and for power factor.
5. Pushbutton for maximum and average values for currents and power levels.
6. Pushbutton for harmonics.
7. Pushbutton for electrical energy meters, timers and impulse counters

Plug-in modules

DIRIS® A-30

DIRIS® A-41*

** With current measurement module for Neutral as standard.*

Pulse outputs

2 configurable pulse outputs (type, weight and run) on ±kWh, ±kvarh and kVAh.

MODBUS® communication

RS485 link with MODBUS® protocol (speed up to 38400 baud).

PROFIBUS® DP communication

SUB-D9 link with PROFIBUS® DP protocol (speed up to 12 Mbaud).

Analogue outputs

You can connect a maximum of 2 modules, i.e. 4 analogue outputs.
2 outputs can be allocated to:
3I, In, 3V, 3U, F, ±ΣP, ±ΣQ, ΣS, ΣPFL/C, Isys, Vsys, Usys, Ppred, Qpred, Spred, T°C internal, T°C 1, T°C 2, T°C3 and to 30 VDC power supply.

2 inputs - 2 outputs

You can connect a maximum of 3 modules, i.e. 6 inputs / 6 outputs.
2 outputs can be allocated to:
- monitoring: 3I, In, 3V, 3U, F, ±ΣP, ±ΣQ, ΣS, ΣPFL/C, THD 3I, THD In, THD 3V, THD 3U, Ppred, Qpred, Spred, T°C internal, T°C 1, T°C2, T°C3 and of time counter,
- remote control,
- timed remote control,
- 2 inputs for pulse counting.

Storage capability

- Memory function up to max. 62 days for P+, P-, Q+, Q- with a TOP for internal or external synchronisation of 5, 8, 10, 15, 20, 30 and 60 minutes.
- Memory function for the last 10 timed and dated alarms.
- Memory function for the last min and max instantaneous values for 3U, 3V, 3I, In, F, ΣP±, ΣQ±, ΣS, THD 3U, THD 3V, THD, 3U, THD, 3V, THD, 3I, THD In.
- Memory function of average values 3U, 3V et F as a function of synchronisation (maximum 60 days).

Ethernet communication

- Ethernet link with MODBUS/TCP or MODBUS RTU over TCP.

Ethernet communication with RS485 MODBUS gateway

- Ethernet link with MODBUS/TCP or MODBUS RTU over TCP.
- Connect 1 to 247 RS485 MODBUS slaves.

DIRIS A-30/A-41

Multifunction measuring unit - PMD

measurement and advanced monitoring - door mounting

Accessories

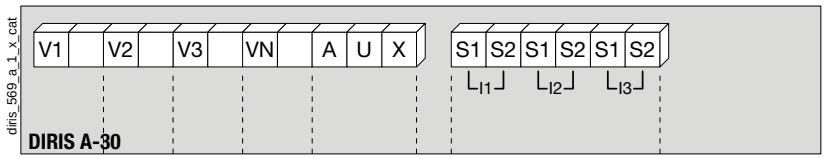
Current transformer

See “Current transformers” pages.

IP65 protection

Terminals

DIRIS A-30

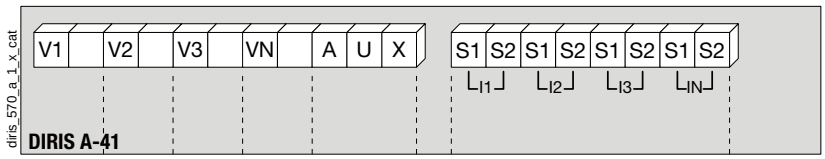


S1 - S2: current inputs

AUX: auxiliary power supplies U_s

V1 - V2 - V3 - VN: voltage inputs

DIRIS A-41

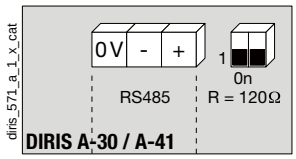


S1 - S2: current inputs

AUX: auxiliary power supplies U_s

V1 - V2 - V3 - VN: voltage inputs

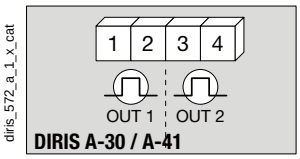
Communication module



RS485 link.

R = 120 Ω : internal resistance for the RS485 link.

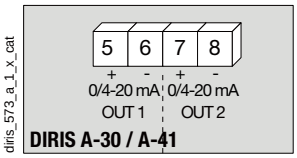
Pulse output module



1 - 2: pulse output n°1.

3 - 4: relay output n°2.

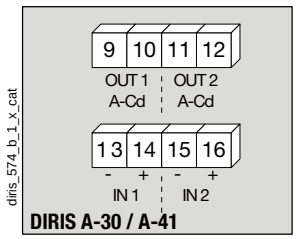
Analogue output module



5 - 6: analogue output n°1.

7 - 8: analogue output n°2.

2 input / 2 output module



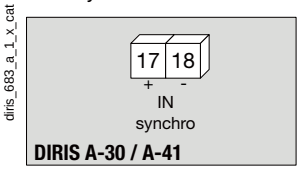
9 - 10: relay output n°1.

11 - 12: relay output n°2.

13 - 14: optical input n°1.

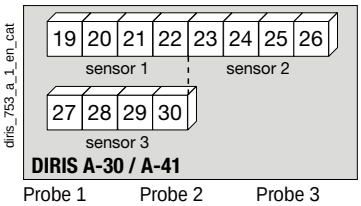
15 - 16: optical input n°2.

Memory module



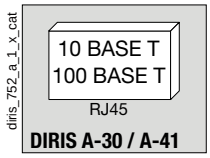
17 - 18: synchronisation input.

Temperature module

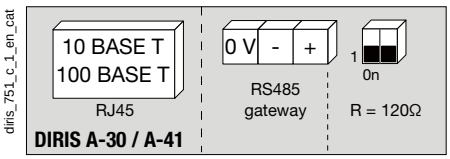


Probe 1	Probe 2	Probe 3
19: red	**23:** red	**27:** red
20: red	**24:** red	**28:** red
21: white	**25:** white	**29:** white
22: white	**26:** white	**30:** white

Ethernet module



Ethernet module + RS485 MODBUS gateway



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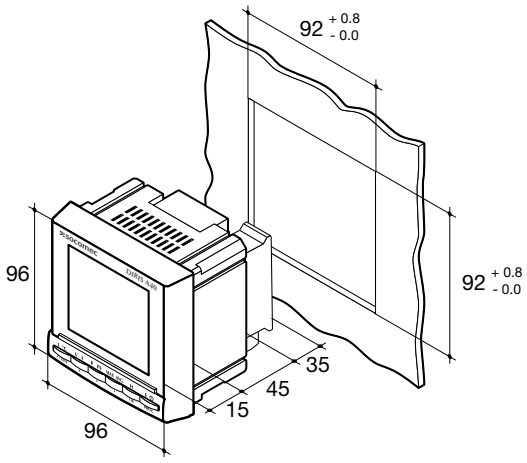
Electrical characteristics

Measurement of currents on insulated inputs (TRMS)	
Via CT primary	9,999 A
Via CT secondary	1 or 5 A
Measurement range	0 … 11 kA
Input consumption	≤ 0,1 VA
Measurement updating period	1 s
Accuracy	0.2%
Permanent overload	6 A
Intermittent overload	10 I_n for 1 s
Voltage measurements (TRMS)	
Direct measurement between phases	50 to 1039 VAC
Direct measurement between phase and neutral	28 to 600 VAC
VT primary measurement	500,000 VAC
VT secondary measurement	60, 100, 110, 173, 190 VAC
Frequency	50 / 60 Hz
Input consumption	≤ 0,1 VA
Measurement updating period	1 s
Accuracy	0.2%
Current - voltage product	
Limitation for TC 1 A	10,000,000
Limitation for TC 5 A	10,000,000
Power measurement	
Measurement updating period	1 s
Accuracy	0.5%
Power factor measurement	
Measurement updating period	1 s
Accuracy	0.5%
Frequency measurement	
Measurement range	45 … 65 Hz
Measurement updating period	1 s
Accuracy	0.1%
Energy accuracy	
Active (according to IEC 62053-22)	Class 0.5 S
Reactive (according to IEC 62053-23)	Class 2
Auxiliary power supply	
Alternative voltage	110 …400 VAC
AC tolerance	± 10 %
Direct current	120 … 350 VDC / 12 … 48 VDC
DC tolerance	± 20 % / - 6 … + 20 %
Frequency	50 / 60 Hz
Power consumption	≤ 10 VA

Module 2 inputs - 2 outputs: outputs (alarms / control)	
Number of relays	2(1)
Type	250 VAC - 5 A - 1150 VA
Module 2 inputs - 2 outputs: optical coupler inputs	
Number	2(1)
Power supply	10 … 30 VDC
Minimum width of signal	10 ms
Minimum length between 2 pulses	18 ms
Type	Optical couplers
Pulse output module	
Number of relays	2
Type	100 VDC - 0.5 A - 10 VA
Max. number of manoeuvres	≤ 10^8
Analogue output module	
Number of outputs	2(2)
Type	Insulated
Scale	0 / 4 … 20 mA
Load resistance	600 Ω
Maximum current	30 mA
MODBUS communication module	
Link	RS485
Type	2 to 3 half duplex wires
Protocol	MODBUS® RTU
MODBUS® speed	4800 to 38400 baud
PROFIBUS DP communication module	
Link	SUB-D9
Protocol	PROFIBUS® DP
PROFIBUS® speed	9.8 kbaud … 12 Mbaud
Ethernet communication module	
Connection technology	RJ45
Baud rate	10 base T / 100 base T
Protocol	MODBUS TCP or MODBUS RTU on TCP
Temperature module (inputs)	
Type	PT100
Connection	2, 3 or 4 wires
Dynamic	- 20°C ... 150°C
Accuracy	± 1 digit
Maximum length	300 cm
Operating conditions	
Operating temperature range	-10 to +55°C
Storage temperature	-20 to 85°C
Relative humidity	95%

(1) Max. 3 modules / DIRIS.
(2) Max. 2 modules / DIRIS.

Case



diris_582_f_1_x_cat

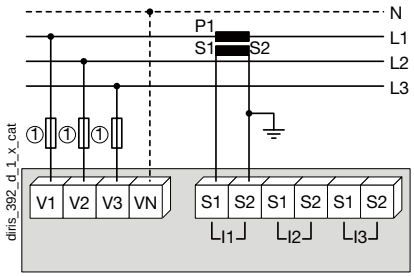
Type	Panel mounting
Dimensions W x H x D	96 x 96 x 60 mm
Case degree of protection	IP30
Front degree of protection	IP52
Display type	Backlit LCD display
Type of terminal strips	Fixed or detachable
Section of connection for voltages and other terminals	0,2 … 2.5 mm^2
Section of connection for currents	0.5 … 6 mm^2
Weight	400 g

Connections

Balanced low-voltage network for DIRIS A-30

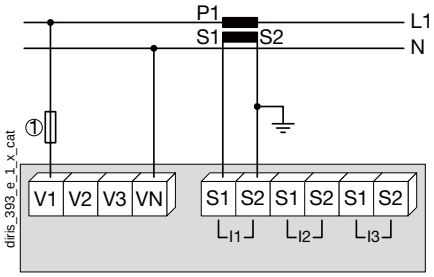
Recommendation: When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI, which can be found in the SOCOMEC catalogue: please consult us.
In TNC mode, it is advisable to connect the DIRIS A-30/A-41 to earth using the functional earth module.

3/4 wires with 1 CT



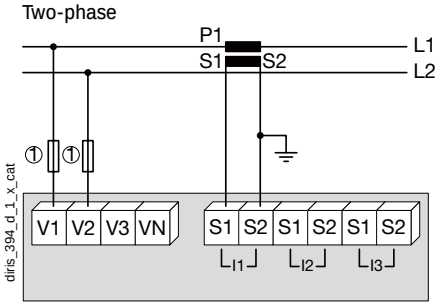
The use of 1 TC reduces by 0.5% the accuracy of the phases, the current for which is worked out by vector calculation.
1. 0.5 A gG / 0.5 A class CC fuses.

Single-phase



1. 0.5 A gG / 0.5 A class CC fuses.

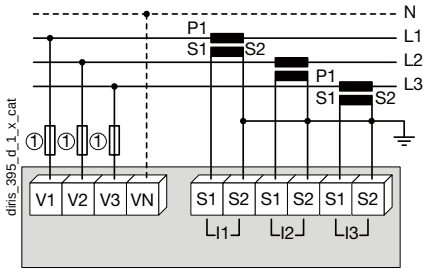
Two-phase



1. 0.5 A gG / 0.5 A class CC fuses.

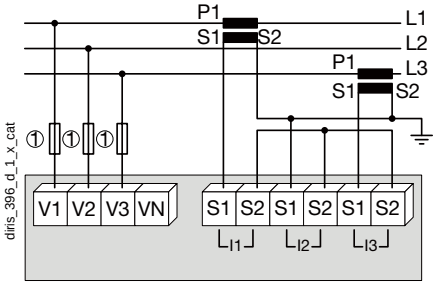
Balanced low-voltage network for DIRIS A-30

3/4 wires with 3 CTs



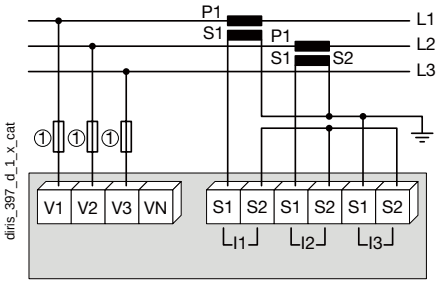
1. 0.5 A gG / 0.5 A class CC fuses.

3 wires with 2 CTs



The use of 2 TC reduces by 0.5% the accuracy of the phase, the current for which is worked out by vector calculation.
1. 0.5 A gG / 0.5 A class CC fuses.

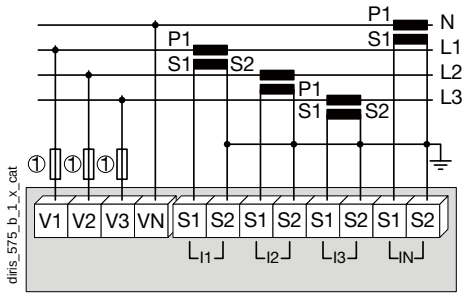
3 wires with 2 CTs



The use of 2 TC reduces by 0.5% the accuracy of the phase, the current for which is worked out by vector calculation.
1. 0.5 A gG / 0.5 A class CC fuses.

Balanced low-voltage network for DIRIS A-41

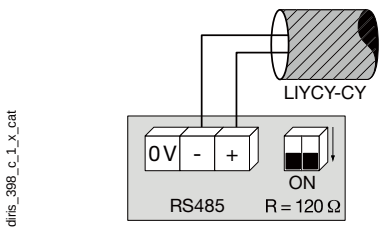
4 wires with 4 CTs



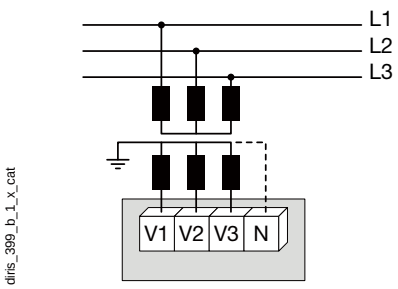
1. 0.5 A gG / 0.5 A class CC fuses.

Additional information

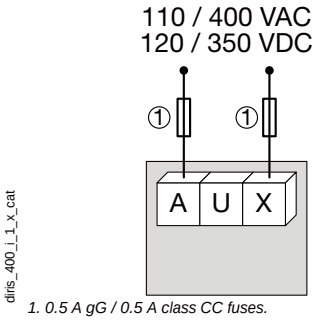
Communication via RS485 link



Connection of potential transformer for HV networks



AC and DC auxiliary power supply



1. 0.5 A gG / 0.5 A class CC fuses.

References

Basic device Auxiliary power supply U_s	DIRIS A-30 Reference		DIRIS A-41 With CT on the neutral Reference
110 ... 400 VAC / 120 ... 350 VDC	4825 **0403**		4825 **0404**
12 ... 48 VDC	4825 **0405**		4825 **0406**

Options Plug-in modules[1]	Reference		Reference
Pulse outputs	4825 **0090**		4825 **0090**
RS485 MODBUS® communication	4825 **0092**		4825 **0092**
PROFIBUS® DP communication	4825 **0205**		4825 **0205**
Analogue outputs	4825 **0093**		4825 **0093**
2 inputs - 2 outputs	4825 **0094**		4825 **0094**
Storage capability	4825 **0097**		4825 **0097**
Ethernet communication[2]	4825 **0203**		4825 **0203**
Ethernet communication + RS485 gateway[2]	4825 **0204**		4825 **0204**
Temperature inputs.	4825 **0206**		4825 **0206**

(1) Ease of integration of additional functions (maximum 4 slots on A-30 and 3 on A-41).
(2) Dimensions: 2 slots.

Accessories	To be ordered in multiples of	Reference	To be ordered in multiples of	Reference
IP65 protection.	1	4825 **0089**	1	4825 **0089**
Integration kit for 144 x 96 mm cutout	1	4825 **0088**	1	4825 **0088**
Fuse holders to protect voltage inputs (type RM) 3 pole	4	5701 **0018**	4	5701 **0018**
Fuse holders to protect the auxiliary power supply (type RM) 1 pole + neutral	6	5701 **0017**	6	5701 **0017**
gG 10x38 0.5 A fuses	10	6012 **0000**	10	6012 **0000**
Range of current transformers	1	See “Current transformers” pages.	1	See “Current transformers” pages.
Ferrite for use with communication modules	1	4899 **0011**		4899 **0011**
PT100 temperature probe, M6 screw	1	4825 **0208**	1	4825 **0208**
PT100 temperature probe, M6 lug	1	4825 **0209**	1	4825 **0209**
Associated DIRIS software	See “Easy Config System” pages			
Automatic CT short-circuiting device	See “Current transformers” pages.			

Expert Services

> Study, definition, advice, implementation, maintenance and training… Our experts "Expert Services" offer complete support for the success of your project.

DIRIS A-40

Multifunction measuring unit - PMD

measurement, monitoring and event analysis with smart sensors - door mounting

DIRIS A-40

The solution for

> Industry
> Building
> Infrastructure

Strong points

> Assisted configuration
> Connected to the Cloud
> Compliant with IEC 61557-12
> Smart sensors

Integrated technologies

PreciSense AutoCorrect VirtualMonitor

For more information see our website www.socomec.com

Conformity to standards

> IEC 61557-12
> UL E257746
> EN 50160

Function

The **DIRIS A-40** is a panel-mounted power monitoring device (PMD). It is designed for measuring, monitoring and reporting electrical energy.

The DIRIS A-40 offers a range of functions for measuring voltage, current, power, energy and quality.
It allows the analysis of a single-phase or three-phase load.

Advantages

Assisted configuration

The configuration wizard guides the user step by step. It also detects and corrects configuration errors. This cuts the commissioning time in half and always delivers a reliable result.

Smart sensors

Three current sensor formats (solid-core TE, split-core TR/iTR and Rogowski coil TF) allow integration of the DIRIS A-40 into new and existing electrical installations.

Connected to the Cloud

The range comprises IoT ready connected products that enable data to be exported automatically for remote operation without any limit on time, distance and time in storage.

Compliant with IEC 61557-12

Reference standard for PMDs (Performance metering & monitoring devices), IEC 61557-12 standard guarantees performance levels and satisfactory performance from the PMDs under the environmental conditions typical of industrial and tertiary applications.

Functions

Multi-measurement
- Currents
  - I1, I2, I3, In, Isystem
- Voltages & frequency
  - V1, V2, V3, VN, Vsystem, U12, U23, U31, Usystem, f
- Powers
  - P1, P2, P3, ΣP, Q1, Q2, Q3, ΣQ, S1, S2, S3, ΣS
  - Predictive powers ΣP, ΣQ, ΣS
- Power factor
  - PF1, PF2, PF3, ΣPF
- Cos φ & tangent φ
  - Instantaneous values per phase

Metering
- Active energy: +/- kWh
- Reactive energy: +/- kvarh
- Apparent power: kVAh
- Multi-tariff (8 max.)
- Hour Meter

Quality
- Voltage Unbalance
  - Vdir, Vinv, Vhom, Udir, Uinv, Unba, Vnba, Vnb, Unb
- Current unbalance
  - Idir, Iinv, Ihom, Inba, Inb
- Total harmonic distortion
  - Currents THDi1, THDi2, THDi3,THDiN, TDDI
  - Phase-to-neutral voltage THDv1, THDv2, THDv3
  - Phase-to-phase voltage THDu12, THDu23, THDu31
- Individual harmonics up to 63rd
  - Currents: HI1, HI2, HI3, HIn
  - Phase-to-neutral voltage: HV1, HV2, HV3
  - Phase-to-phase voltage: HU12, HU23, HU31
- Kfactor & Crest factor
- Events according to EN 50160
  - Voltage dips, outages, interruptions, swells
- Waveform capture
  - Automatic waveform captures when event occurs, and manual recording of the waveform
  - Available through communication

Monitoring of protection
- Auxiliary contact monitoring
- Report and alarm on trips
- Number of operations

Load curves and historical records (max. 130 days)
- Active, reactive and apparent power
- Currents, voltages and frequency

Alarms
- Alarms for all electrical values, events and input status changes, possibility of logical combination
- Time-stamping of events

Communication
- DIRIS A-40 RS485 Modbus as standard
- DIRIS A-40 Ethernet Modbus
- DIRIS A-40 PROFIBUS DPV1

Inputs
- 3 digital inputs
  - Power supplied from DIRIS A-40 or an external source
  - Function: logic status, status of circuit breaker, counting of pulses or synchronization multifluid metering
- 2 logical outputs
  - Function: Command, energy pulse output, load shedding, alarm

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Functions

Monitoring
- Real-time measurement of electrical values.
- View data as graphs or tables.
- Power quality analysis of the utility supply and of loads.

Metering
- Measurement of active, reactive and apparent energies.
- Historical record of measurements.
- Graphic display on monthly, weekly, daily or hourly basis.

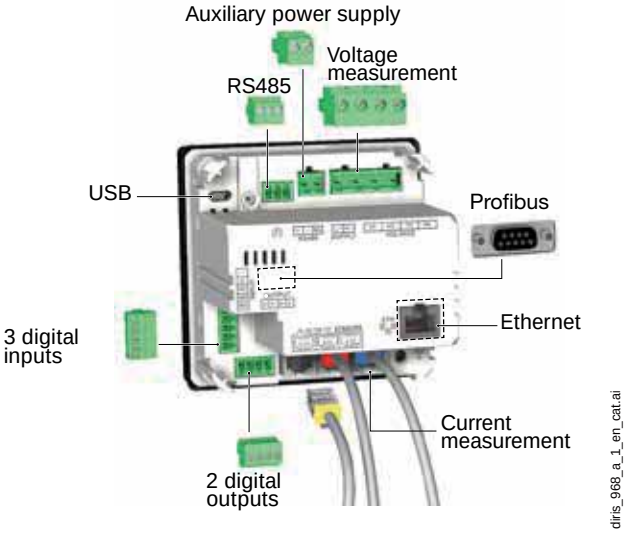
Alarming
- Display of alarms.
- History of alarms.


soft_027_a_1_fr_cat.eps


soft_036_a_1_fr_cat.eps

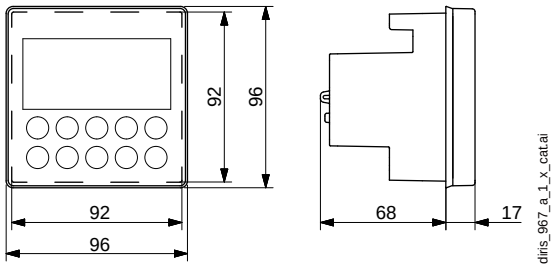

soft_025_a_1_fr_cat.eps

Terminals



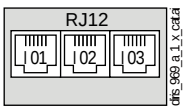
diris_968_a_1_en_cat.ai

Dimensions (mm)



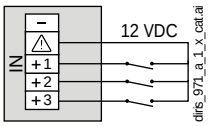
diris_967_a_1_x_cat.ai

Current measurement



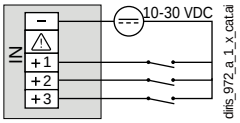
diris_969_a_1_x_cat.ai

3 inputs supplied by the product



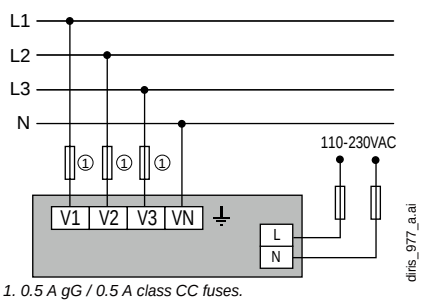
diris_971_a_1_x_cat.ai

3 inputs with external power supply



diris_972_a_1_x_cat.ai

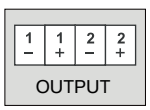
Voltage connections inc auxiliary power supply



diris_977_a.ai

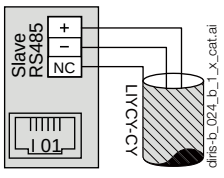
1. 0.5 A gG / 0.5 A class CC fuses.

2 outputs



Earth

RS485



diris-b_024_b_1_x_cat.ai

Connections

Associated current sensors

Various types of current sensors can be connected to the DIRIS A-40: solid-core (TE), split-core (TR/iTR) or Rogowski (TF). This range of sensors is suitable for all types of new or existing installations. A quick RJ12 connection makes wiring easy and reliable and prevents wiring errors. The DIRIS A-40 automatically recognizes the sensor size and type. This guarantees the overall accuracy of the DIRIS A-40 + current sensor measurement chain.
For more information: see “TE, TR/iTR, TF sensors” pages.

TE solid current sensors

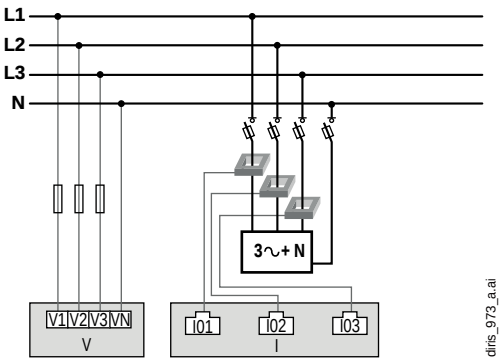
TR/iTR split-core current sensors

TF Rogowski current sensors

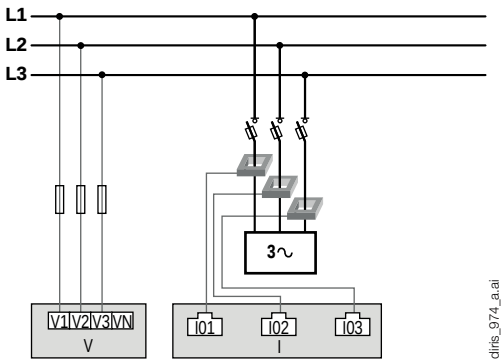
TE / TR/iTR / TF current sensors

Network and connection examples

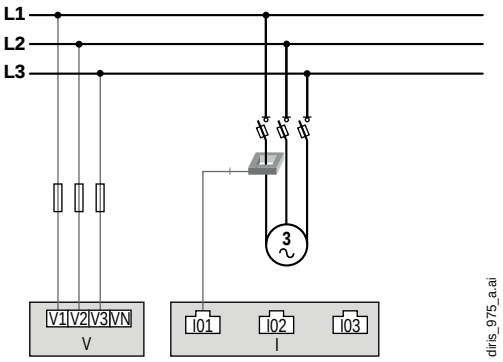
Three-phase + Neutral
3P+N - 3 CT (1 three-phase load + calculated Neutral)



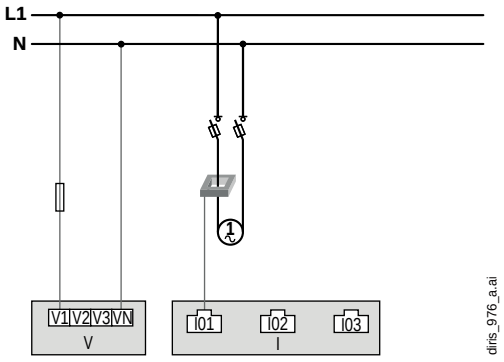
Three-phase
3P - 3CT (1 three-phase load)



Three-phase
3P - 1CT (1 balanced three-phase load)



Single-phase
1P+N - 1CT (1 single-phase load)



1. 0.5 A gG / 0.5 A class CC fuses.
If self-supplied, a fuse must always be added to the Neutral.

CT: Current sensor 3~ Load

DIRIS A-40 characteristics

Electrical characteristics

Auxiliary power supply	
Alternative voltage	110/400 VAC or 120/300 VDC - Cat III
Frequency	50/60 Hz
Power consumption	5VA AC / 1,5VA DC (48250500) 8VA AC / 2,5VA DC (48250501 & 48250502)
Connection	Removable spring-cage terminal block, 2x 2 positions, 0.5 - 2.5 mm² solid cable or 0.25 - 1.5 mm² stranded cable with end piece

Measurement characteristics

Power and energy measurement	
Accuracy Active energy and active power	Class 0.2 DIRIS A-40 only Class 0.5 with TE, TF or iTR sensors Class 1 with TR sensors
Accuracy of reactive energy	Class 2 with TE, TR / iTR or TF sensors

Power factor measurement	
Accuracy	Class 0.5 with TE, TF or iTR sensors Class 1 with TR sensors

Voltage measurement	
Characteristics of the network measured	50-300VAC (Ph/N) - 87-520VAC (Ph/Ph) - CAT III
Frequency range	45 to 65Hz
Frequency accuracy	Class 0.02
Network type	Single-phase/ Two-phase / Two-phase with neutral / Three-phase / Three-phase with neutral
Measurement by voltage transformer	Primary: 400 000 VAC Secondary: 60, 100, 110, 173, 190 VAC
Input consumption	≤ 0,1 VA
Accuracy of voltage measurement	Class 0.2
Connection	Removable spring-cage terminal block, 4 positions, 0.5 - 2.5 mm² solid cable or 0.25 - 1.5 mm² stranded cable with end piece

Current measurement	
Number of current inputs	3
Associated current sensors	Solid TE, split-core TR/iTR, flexible TF current sensors
Accuracy	0.2 DIRIS A-40 class only Class 0.5 with TE, TF or iTR sensors Class 1 with TR sensors
Connection	Specific Socomec cable with RJ12 connectors

Input characteristics

Number	3
Type / Power supply	Optocoupler with internal (12 VDC ± 10%) or external (12-24 VDC ± 20%) polarisation
Input function	Logic status, status of circuit breaker, synchronization topography, multifluid pulse metering
Connection	Removable screw terminal block, 5 positions, stranded or solid 0.14 - 1.5 mm² cable

Output characteristics

Number	2
Type	Optocoupler 30 Vd.c. max 20mA max - SELV
Output function	Command, energy pulse output, load shedding, alarm
Connection	Removable screw terminal block, 4 positions, stranded or solid 0.14 - 1.5 mm² cable

Communication characteristics

DIRIS A-40 RS485	
Link	RS485
Connection type	2 to 3 half duplex wires
Protocol	Modbus RTU
Baud rate	1200 to 115 200 baud
USB	Configuration of DIRIS A-40

References

DIRIS A-40 monitoring devices		**Reference**
DIRIS A-40	RS485 Modbus - 3 inputs / 2 outputs	4825 **0500**
DIRIS A-40	Ethernet Modbus TCP or BACnet IP - webserver - RS485 Modbus - 3 inputs / 2 outputs	4825 **0501**
DIRIS A-40	Profibus DPV1 - RS485 Modbus - 3 inputs / 2 outputs	4825 **0502**

Accessories	**To be ordered in multiples of**	**Reference**
Fuse disconnect switches to protect voltage inputs (RM type)	4	5701 **0018**
Fuse disconnect switches to protect the 1-pole + neutral auxiliary power supply (RM type)	6	5701 **0017**
gG 10x38 0.5 A fuses	10	6012 **0000**

DIRIS B

Multifunction measuring unit - PMD

measurement, monitoring and event analysis with smart sensors - modular format

Single-circuit metering, measurement & analysis

diris-b_038.eps

DIRIS B-10 / B-30
RS485

Configuration with Easy Config System.

The solution for

> Industry
> Building
> Infrastructure
> Local authority

Strong points

> Plug & Play
> Global accuracy class 0.5 in accordance with IEC 61557-12
> Multi-circuit
> Communication

Integrated technologies

PreciSense AutoCorrect VirtualMonitor

For more information see our website www.socomec.com

Conformity to standards

> UL E257746
> IEC 61557-12
> EN 50160
> ISO 14025

Function

The DIRIS B is a power monitoring device in a modular format that communicates via RS485. The 4 RJ12 independent current inputs of the device allow it to manage several types and number of circuits: for example, 4 single-phase loads or 1 three-phase load + 1 single-phase load.

The DIRIS B is connected to current sensors (RJ12 connection) that are suitable for all types of installation: solid TE, split-core TR/iTR, and flexible TF current sensors.

Advantages

Plug & Play

A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. Automatically addressing and configuring the product (communication address, load type, type and ratio of current sensor) allow you to simplify implementation and to save time.

Class 0.5 in accordance with IEC 61557-12

- Class 0.2 for the meter alone.
- Class 0.5 from 2% to 120% of nominal current for the global measurement chain (associated with TE/iTR/TF current sensors).

Multi-circuit

- 4 current measurement inputs allow you to configure multiple circuits in order to optimise the number of measurement devices per installation.

Communication

- The DIRIS B can be connected to:
  - a remote DIRIS D-30 screen for displaying measurement and metering data.
  - DIRIS Digiware M-50/M-70 gateways for centralisation and communication of data via Ethernet. DIRIS Digiware M-70 embeds WEBVIEW-M, a webserver for remote visualisation of measurement data.
  - optional modules for more communication options including a second RS485 port or PROFIBUS DP protocol. Digital or Analog input/output, as well as temperature input modules can also be connected.

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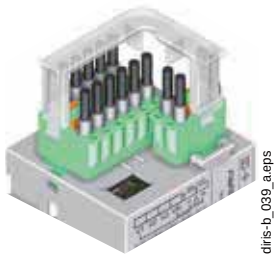
Application	Local metering	Local analysis
		
DIRIS B	***B-10*** RS485	***B-30*** RS485
Number of current inputs		
	4	4
Metering		
± kWh, ± kvarh, kVAh	•	•
Load curves		•
Multi-tariff	•	•
Multi-measurement		
U12, U23, U31, V1, V2, V3, f	•	•
U system, V system	•	•
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•
P, Q, S, PF per phase	•	•
Predictive power	•	•
Ph/N unbalance	•	•
Ph/Ph unbalance	•	•
Current unbalance (Inba, Idir, Iinv, Ihom, Inb)	•	•
Phi, cos Phi, tan Phi	•	•
Quality analysis		
THDv1, THDv2, THDv3, THDu12, THDu23, THDu31	•	•
THDi1, THDi2, THDi3, THDin	•	•
Individual harmonics U & V (up to 63rd)		•
Individual harmonics I (up to 63rd)		•
Crest factor I1, I2, I3, In		•
Crest factor V1, V2, V3, U12, U23, U31		•
Voltage dips, interruptions, swells (EN 50160)		•
Overcurrents		•
Alarms		
On threshold		•
Inputs/outputs		•
History of average values		
45 days (max)		•
Communication		
RS485 Modbus	•	•
2 inputs (status / pulse)	•	•

Accessories

DIRIS B sealing cover

- Prevents access to the cabling of the monitoring device.



USB configuration cable (2 m)

- Advanced configuration of DIRIS B gateways can be achieved using the EASY CONFIG software via Ethernet or direct USB connection.

DIRIS B

Multifunction measuring unit - PMD

measurement, monitoring and event analysis with smart sensors - modular format

DIRIS D-30 display

DIRIS D-30

diris-d_001_a_1_cat

Connection

diris-d_004_b_1_x_cat

DIRIS D-30 DIRIS B

Optional modules

DIRIS O

diris-b_031_a

Optional module ***DIRIS B***

Optional modules (4 max.)*

- Digital inputs/outputs
- Analogue inputs/outputs
- Temperature inputs
- Communication protocols

** maximum 4 optional modules with maximum 1 temperature module and 1 communication module (Modbus, PROFIBUS).*

diris-o_019_a

DIRIS O-iod

- 2 digital inputs centralises the metering pulses or the input status changes of the auxiliary contacts.
- 2 digital outputs can be connected to configurable alarms warning of exceeded thresholds (power, current, etc.) or can be piloted remotely.

diris-o_018_a

DIRIS O-ioa

- 2 inputs (4-20 mA) centralise analogue sensors (pressure, humidity, temperature, etc.)
- 2 outputs (4-20 mA) report the measurements (power, currents, etc.) to PLCs.

diris-o_020_a

DIRIS O-it

- 3 temperature inputs to be connected to PT100 or PT1000 sensors.
- Ambient air temperature.

diris-o_024_a

DIRIS O-m

- Provides a second RS485 Modbus communication port to the DIRIS B for simultaneous sending of information via RS485 to two supervision stations.

diris-o_023_a

DIRIS O-p

- Adds a PROFIBUS DPV1 communication port to the DIRIS B.

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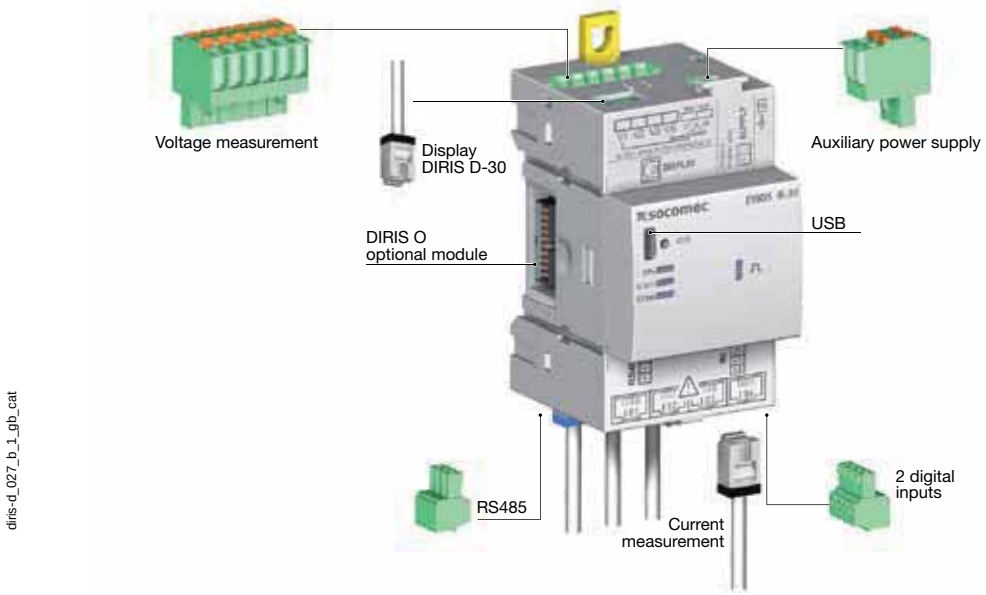
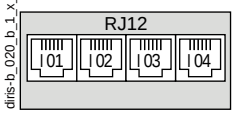
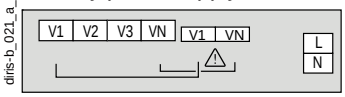
DIRIS B terminals



Current measurement

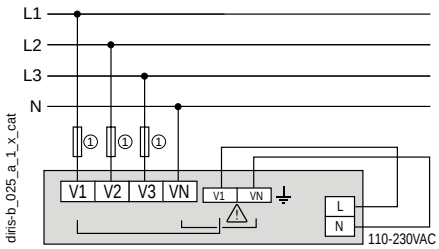


Voltage measurement and auxiliary power supply



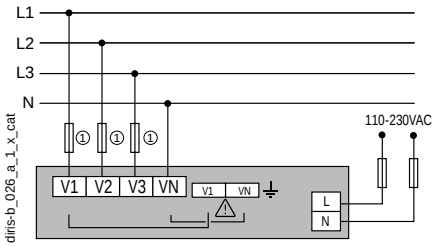
Self supply

Easy connection of the power supply from the measurement terminal (specific terminals)



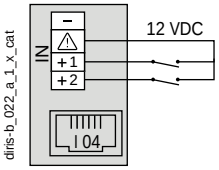
1. Fuses 0.5 A gG / 0.5 A class CC.

Separate power supply

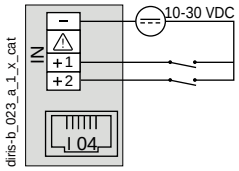


1. Fuses 0.5 A gG / 0.5 A class CC.

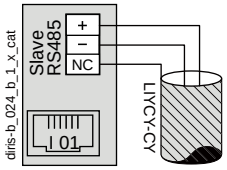
2 inputs supplied by the product



2 inputs with external power supply

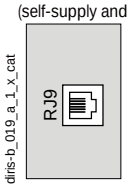


RS485



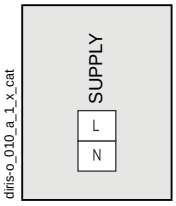
RJ9 for DIRIS D-30

(self-supply and data)

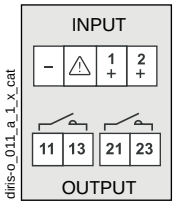


Terminals of optional DIRIS O modules

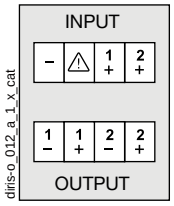
Optional module power supply



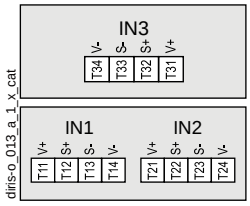
DIRIS O-iod



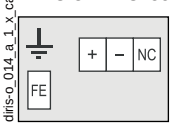
DIRIS O-ioa



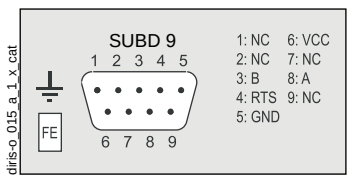
DIRIS O-it



DIRIS O-m RS485



DIRIS O-p



Connections

Associated current sensors

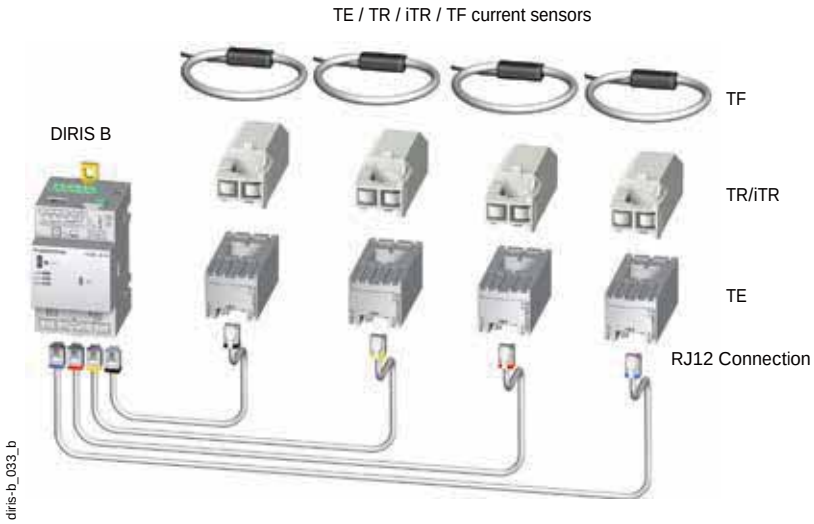
Various types of current sensors can be connected to the DIRIS B: solid-core TE , split-core TR/iTR, flexible TF current sensors. This range of sensors can be adapted to all types of new or existing installations. A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. The DIRIS B automatically recognises the type of sensor used and its current rating. This guarantees the overall accuracy of the DIRIS B + current sensor measurement chain.
For more information: see “TE, TR/iTR, TF sensors” pages.

TE solid-core current sensors

TR/iTR split-core current sensors

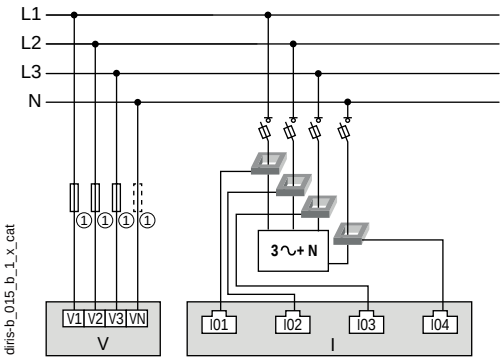
TF flexible current sensors

TE / TR / iTR / TF current sensors

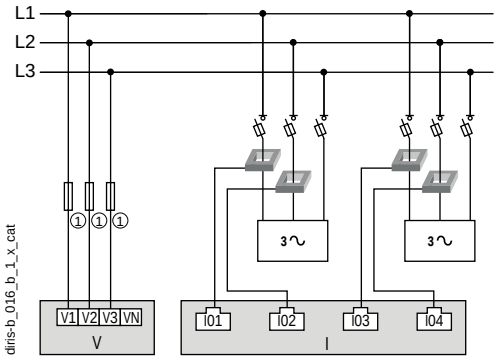


Network and connection examples

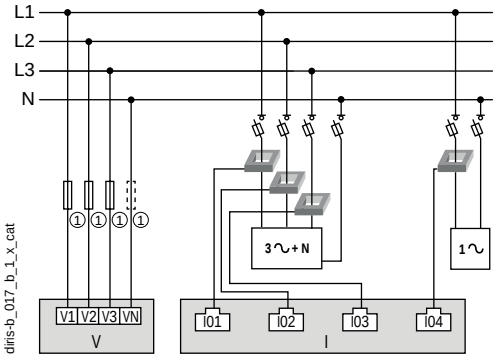
Three-phase + neutral
3P+N - 4CTs (measurement for 1 three-phase load + Neutral)



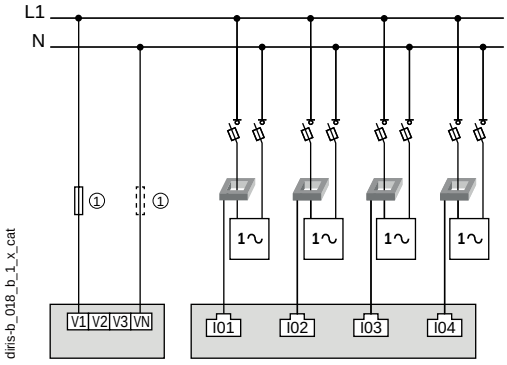
Three-phase
3P - 2CTs (2 three-phase loads without neutral)



Three-phase
3P+N - 3CTs & 1P+N - 1CT (1 three-phase load & 1 single-phase load)



Single-phase
1P+N-1CT (4 single-phase loads)

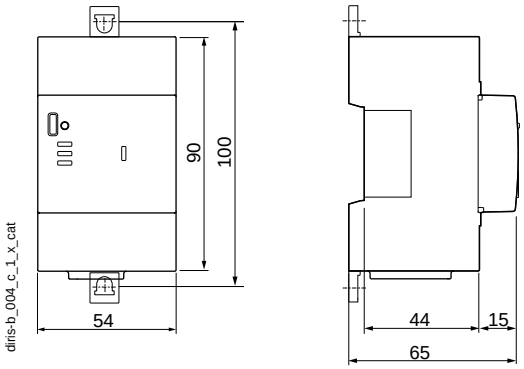


1. Fuses 0.5 A gG / 0.5 A class CC.
In case of self-supply, a fuse must be added on the neutral.

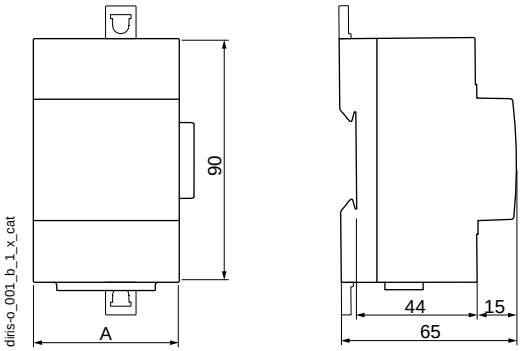
CT: Current sensors 3~ Load

Dimensions (mm)

DIRIS B

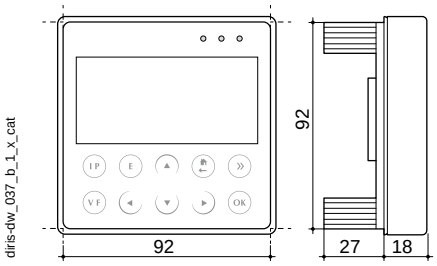


DIRIS O optional modules



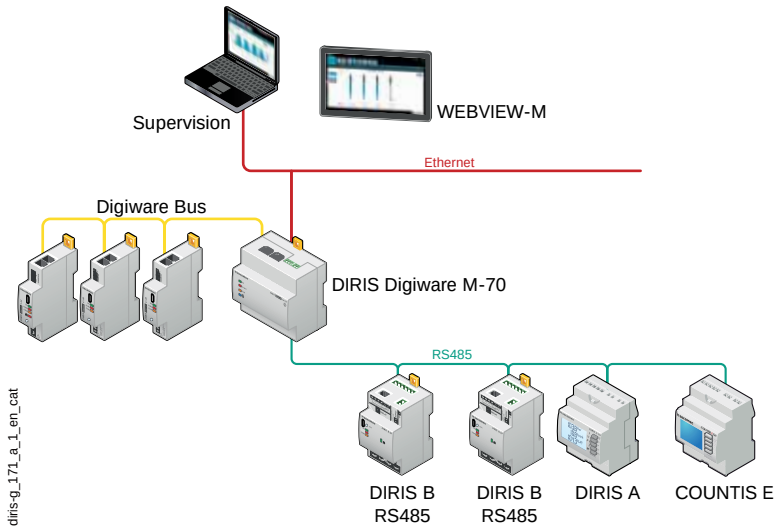
DIRIS O optional modules	A (mm)
DIRIS O-iod - DIRIS O-ioa - DIRIS O-it	45
DIRIS O-m - DIRIS O-p	54

DIRIS D-30



Communication architecture

Example of communication architecture with **DIRIS Digiware M-70 gateway and WEBVIEW-M** embedded web server.



DIRIS B characteristics

Electrical characteristics

Auxiliary power supply	
AC voltage	110-230 VAC ±15 % (Ph/N ou Ph/Ph) Cat III
Frequency	50/60 Hz
Consumption	< 2 VA without display < 6VA with display
Connection	Removable spring-cage terminal, 2 x 2 positions, 0.5 … 2.5 mm² solid cable or 0.25 … 1.5 mm² stranded cable with ferrule

Measurement characteristics

Energy and power measurement	
Accuracy Active energy and active power	Class 0.2 DIRIS B alone Class 0.5 with TE, iTR or TF current sensors Class 1 with TR current sensors
Reactive energy accuracy	Class 2 with TE, TR or TF current sensors
Power factor measurement	
Accuracy	Class 0.5 with TE, iTR or TF current sensors Class 1 with TR current sensors
Voltage measurement	
Network characteristics measured	50-300VAC (Ph/N) - 87-520VAC (Ph/Ph) - CAT III
Frequency range	45 … 65Hz
Frequency accuracy	Class 0.02
Network type	Single-phase / Two-phase / Two-phase with neutral / Three-phase / Three-phase with neutral
Measurement by voltage transformer	Primary: 400 000 VAC Secondary: 60, 100, 110, 173, 190 VAC
Input consumption	≤ 0.1 VA
Permanent overload	300VAC Ph/N
Voltage measurement accuracy	Class 0.2
Connection	Removable spring-cage terminal, 2 x 6 positions, 0.5 … 2.5 mm² solid cable or 0.25 … 1.5 mm² stranded cable with ferrule
Current measurement	
Number of current inputs	4
Associated current sensors	Solid TE , split-core TR/iTR , flexible TF current sensors
Accuracy	Class 0.2 DIRIS B alone Class 0.5 with TE, iTR or TF current sensors Class 1 with TR current sensors
Connection	RJ12 connectors with specific SOCOMEC cable

Input characteristics

Number	2
Type / Power supply	Optocoupler internal polarisation (12 VDC ± 10 %) or external polarisation (10-30 VDC ± 10%)
Input function	Logic status, pulse meter or synchronisation pulse status (input 1)

Communication characteristics

DIRIS B RS485	
Link	RS485
Connection type	2 … 3 half duplex wires
Protocol	Modbus RTU
Speed	1200 … 115200 bauds
USB	DIRIS B RS485 configuration

Environment characteristics

Operating temperature	-10 … +70 °C
Storage temperature	-25 … +85 °C
Operating humidity	55 °C / 97% relative humidity
Operating altitude	2000 m
Vibration	1G from 10 to 100Hz

DIRIS D-30 display characteristics

Mechanical characteristics	
Screen type	Capacitive touch-screen technology, 10 keys
Screen resolution	350 x 160 pixels
Single product connection	
RJ9	Self-supply and data
Micro-USB	Updating
Degree of protection	IP65 (front face)
Environment	
Storage temperature (°C)	-20 ... +70°C
Operating temperature (°C)	-20 ... +70°C
Humidity	95 % to 40°C
Installation category	CAT III
Degree of pollution	2

DIRIS O optional modules characteristics

Power supply(1)	
AC voltage	110-230 VAC ±15 %
Frequency	50/60 Hz

(1) No power supply on DIRIS O-it.

DIRIS O-iod - 2 digital inputs/2 digital outputs	
Number of inputs	2 per optional modules - max. 4 optional modules
Type	Optocoupler internal polarisation (12 VDC ± 10 %) or external polarisation (10-30 VDC ± 10%)
Function	Logic status or pulse meter
Number of outputs	2 per optional modules - max. 4 optional modules
Type	Relay / 230 VAC ±15 % - 1 A
Function	Configurable alarm (current, power…) on threshold overruns or remote controlled status
Inputs/Outputs connection	Removable screw terminal, 4 positions, 0.14 to 1.5 mm² stranded or solid cable
DIRIS O-ioa - 2 analogue inputs/2 analogue outputs	
Number of inputs	2 per optional modules - max. 4 optional modules
Type	4-20 mA
Function	Connection of analogue sensors (pressure, humidity, temperature…)
Number of outputs	2 per optional modules - max. 4 optional modules
Type	4-20 mA
Function	Transmission of measurement image (current, power…) to PLCs
DIRIS O-it - 3 temperature inputs	
Number of inputs	3 external inputs + 1 measurement for ambient temperature
Dynamic	-20 … 150 °C
Type	PT100 or PT1000
Function inputs 1, 2 and 3	Temperature measurement
DIRIS O-m - RS485 communication	
Link	RS485 2 … 3 half duplex wires
Protocol	Modbus RTU
Speed	1200 … 115200 bauds
Connection	Removable screw terminal, 3 positions, 0.14 to 1.5 mm² stranded or solid cable
DIRIS O-p - PROFIBUS communication	
Protocol	PROFIBUS DPV1

References

DIRIS B monitoring devices		Reference
DIRIS B-10	RS485 - Modbus - 230 VAC	4829 **0010**
DIRIS B-30	RS485 - Modbus - 230 VAC	4829 **0000**
DIRIS O optional modules		**Reference**
DIRIS O-iod	2 digital inputs / 2 digital outputs	4829 **0030**
DIRIS O-ioa	2 analogue inputs/2 analogue outputs 4-20 mA	4829 **0031**
DIRIS O-it	3 temperature inputs PT 100 / PT 1000	4829 **0032**
DIRIS O-m	RS485 Modbus communication	4829 **0033**
DIRIS O-p	PROFIBUS communication	4829 **0034**

Accessories	To be ordered in multiples of	Reference
DIRIS D-30 - Single-point display		4829 **0200**
RJ9 cable for DIRIS D-30 display - 1.5 m		4829 **0280**
RJ9 cable for DIRIS D-30 display - 3 m		4829 **0281**
DIRIS B sealing cover for I/O terminals		4829 **0049**
USB configuration cable		4829 **0050**
Fuse disconnect switches to protect voltage inputs (RM type)	4	5701 **0018**
Fuse disconnect switches to protect the 1-pole + neutral auxiliary power supply (RM type)	6	5701 **0017**
gG 10x38 0.5 A fuses	10	6012 **0000**

DIRIS Q800

Electrical network analyser

quality analysis of electrical energy and power grids

DIRIS Q800

The solution for

> Industry
> Infrastructure
> Healthcare buildings
> Data centers

Strong points

> Large colour touchscreen
> High performance and accuracy
> Regulatory compliance
> Multiple communication channels

Compliance with standards

> IEC 61000-4-30 :2015 Ed.3 class A
> IEC 62586-1
> IEC 62586-2
> IEC 62053-22
> IEC 62053-24
> EN 50160

Function

The **DIRIS Q800** is a multifunction network analyser for all energy efficiency projects. It helps to actively ensure the electrical system runs continuously and at optimised rates. As such, with this system you can:

- Improve the efficiency of your facility.
- Reduce production losses.
- Optimise running costs.
- Reduce maintenance costs.

To achieve these objectives, the DIRIS Q800 does the following:

- Measures electrical parameters and status (via auxiliary contacts).
- Analyses the quality of energy according to class A IEC 61000-4-30:2015 Ed.3.
- Measures differential current.
- GPS synchronisation.
- Sends an email in the event of an alarm.

Advantages

Large colour touchscreen

The 192 x 144 mm color touchscreen is tactile, easy to operate and provides intuitive navigation.

Regulatory compliance

By its compliance with IEC 61000-4-30:2015 Ed.3 Class A for all electrical parameters and IEC 62586-2 , you have the assurance of a certified and high quality product.

Multiple communication channels

With its multiple communication options, the DIRIS Q800 can be integrated into any type of communication infrastructure:

- 1 rear Ethernet port for permanent cable connection.
- 1 front Ethernet for local diagnostics.
- 1 Wifi port.
- 1 RS485 port.
- 1 USB port.
- GPS synchronisation.
- Built-in Webserver.
- Protocols: HTTP, HTTPS, FTP, NTP, MODBUS, PQDIF, SMTP.

Functions

Measurements

- Measures across 4 quadrants
- Voltage by phase, current by phase, frequency.
- Neutral current, differential current.
- Neutral/earth voltage.
- Active, reactive and apparent power.
- Cos phi and power factor.
- THD and spectral analysis up to the 63rd for current and voltage.
- Flicker (Pst, Plt).
- Voltage and current unbalance.
- Remote control signals.
- Current and Power Demand: average and maximum (timestamped)

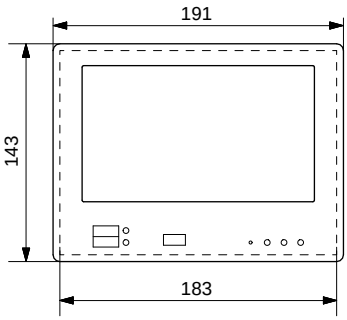
Logging

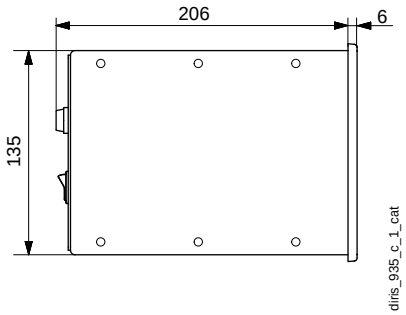
- EN 50160 events ½ period (10 ms): voltage dips, voltage cutouts, voltage surges.
- Current events 1/2 period (10 ms): inrush
- Data exported automatically via FTP.
- EN 50160 reports with CBEMA / ITIC curves for PQ events.
- Transients (20 micro seconds).

Inputs/outputs

- 4 digital inputs.
- 4 digital outputs.
- 4 analogue outputs.

Dimensions (mm)





Dimensions	
Cutout	192 x 144 DIN / 186 x 138 mm
Front panel (W x H)	191 x 143 mm
Enclosures (W x H x D)	183 x 135 x 190 mm
Weight	1400 g

Specifications

Auxiliary power supply	
Voltage range	100 ... 240 VAC / 65 … 250 VDC
Frequency	50/60 Hz
Power consumption	Max. 15 VA
Backup battery	Li-ion 2500 mAh (>15 min autonomy)
Measurement inputs	
Direct voltage measurement input	P-N: max 580 V RMS CAT III L-L: max 1000 V RMS CAT III
U4 direct voltage measurement input	Max 580 V RMS CAT II
Voltage input crest factor	2
Current inputs	Max 7 A RMS
Current input consumption	0.04 VA
Current input crest factor	3
Voltage input impedance	› 6 MΩ
Frequency range	42.5 to 57.5 Hz/51 to 69 Hz
Voltage reference channel	U1N/U12
Sampling	51.2 kHz @50 Hz
Accuracy	
Three-phase voltage	± 0.1%
4th voltage (neutral/earth)	± 0.2%
Currents	± 0.2%
Power	± 0.2%
Frequency	± 10 mHz
Harmonics	Class 1 IEC/EN 61000-4-7
Active energy	Class 0.2S IEC/EN 62053-22
Reactive energy	Class 1 IEC/EN 62053-24

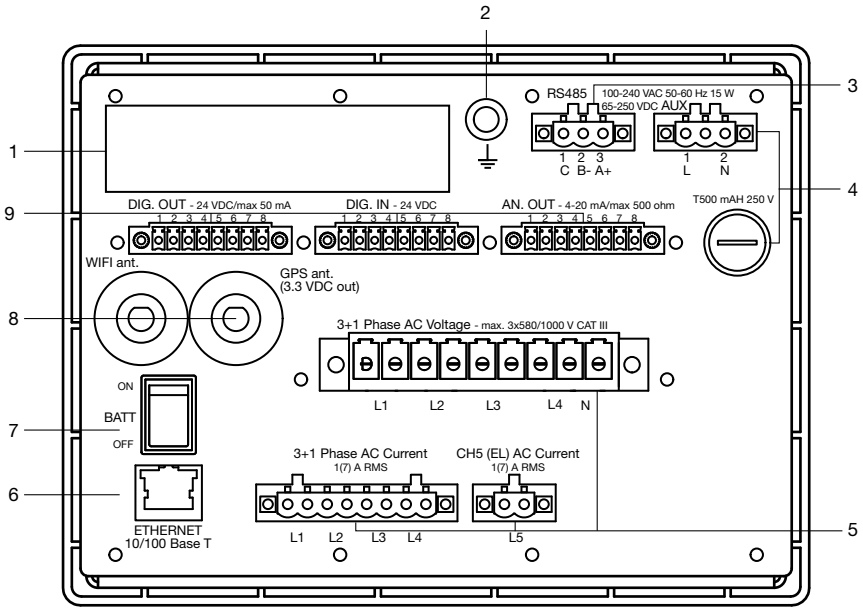
Communication	
Ethernet ports	2 Auto MDIX RJ45 10/100 Base Ethernet
RS485 opto-insulated port (slave)	0.5 UL 4800 to 115200 bps
Passive WIFI antenna	RP-SMA female
Active GPS antenna	SMA female
Protocols	HTTP, HTTPS, FTP, SFTP, NTP, NMEA, Modbus RTU/TCP, SMTP
USB port	USB 2.0
Environmental conditions	
Operating temperature (max. range)	-25 … +55°C
Storage temperature	-25 … +75°C
Humidity	Max. 95 %
Max.altitude	2000 m
Standards and safety	
Product comformity	IEC/EN 62586-1, IEC/EN 62586-2
Safety	EN 61010-2-030
Degree of pollution	2 (EN 61010-1)
Degree of protection	IP40 front, IP20 rear
Directive	RED §3.1a Health EN 62311 :2008 RED § 3.1b EMC

References

Designation	Reference
DIRIS Q800 100 ... 240 VAC / 65 … 250 VDC	4826 **0100** (1)

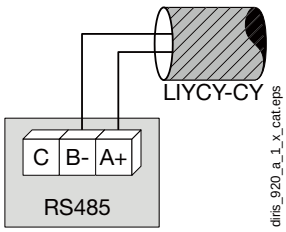
(1) Power supply 19 ... 60 VDC: please contact us.

Terminals

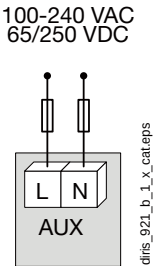


1. Product label
2. Earth connection
3. RS485 MODBUS RTU communication
4. Auxiliary power supply and fuse
5. Voltage and current inputs
6. Auto MDIX ETHERNET port
7. Battery switch
8. GPS and WIFI antenna
9. Logical outputs, analogue inputs/outputs

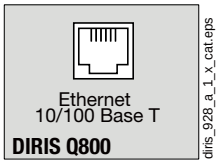
Communication via RS485 link



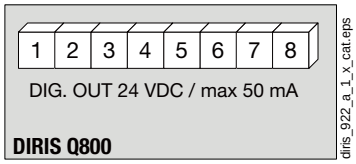
AC and DC auxiliary power supply



Ethernet communication

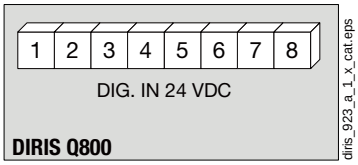


Digital outputs



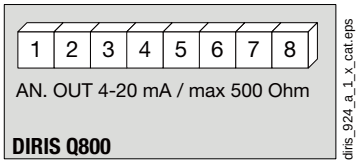
1-2: optocoupler output 1
3-4: optocoupler output 2
5-6: optocoupler output 3
7-8: optocoupler output 4

Digital inputs



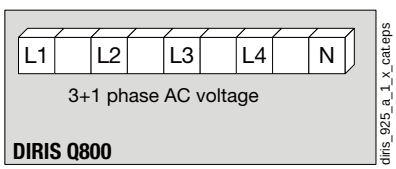
1-2: optocoupler input 1
3-4: optocoupler input 2
5-6: optocoupler input 3
7-8: optocoupler input 4

Analogue outputs

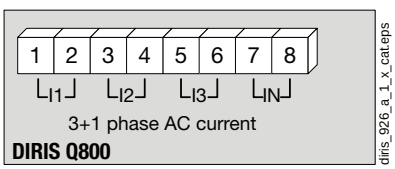


1-2: analogue output 1
3-4: analogue output 2
5-6: analogue output 3
7-8: analogue output 4

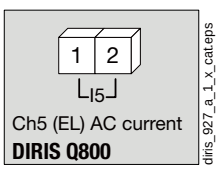
Current and voltage inputs



L1, L2, L3, L4, N: voltage inputs



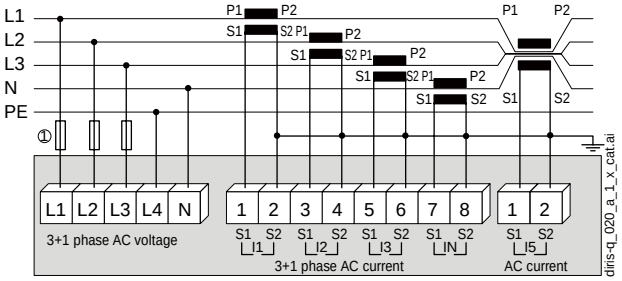
1-2: current input i1
3-4: current input i2
5-6: current input i3
7-8: current input iN



1-2: differential core connections

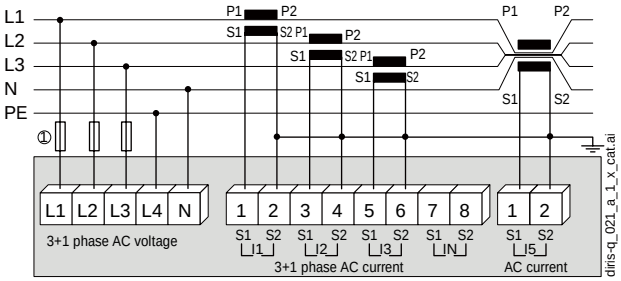
Connections

Three-phase + neutral, 4 CT + differential measurements (1/5 A)



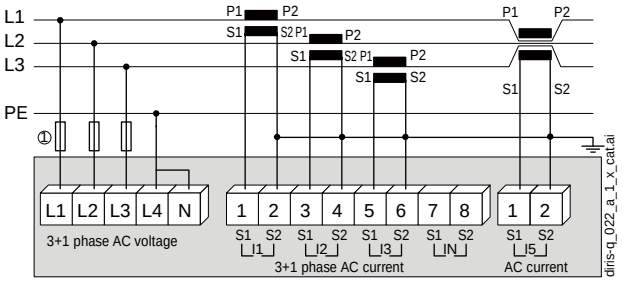
1. 0.5 A gG / 0.5 A class CC fuses.

Three-phase + neutral, 3 CT + differential measurements (1/5 A)



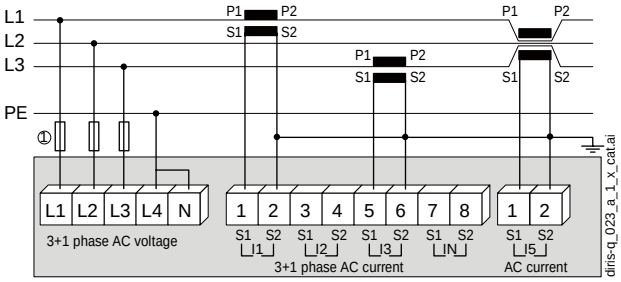
1. 0.5 A gG / 0.5 A class CC fuses.

Three-phase, 3 CT + differential measurements (1/5 A)



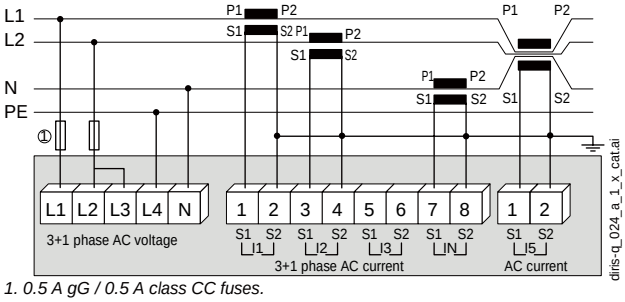
1. 0.5 A gG / 0.5 A class CC fuses.

Three-phase, 2 CT + differential measurements (1/5 A)



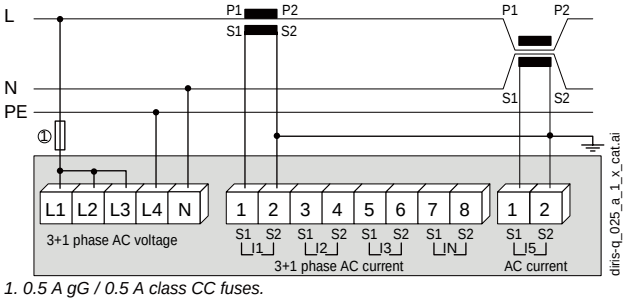
1. 0.5 A gG / 0.5 A class CC fuses.

Two-phase + neutral, 3 CT + differential measurements (1/5 A)



1. 0.5 A gG / 0.5 A class CC fuses.

Single-phase, 1 CT + differential measurements (1/5 A)



1. 0.5 A gG / 0.5 A class CC fuses.

Expert Services

> Study, definition, advice, implementation, maintenance and training… Our experts “Expert Services” offer complete support for the success of your project.

Selection guide

Current transformers

Type	TRB 60	TRB 70	TRB 135	TCA 14	TCA 21	TCA 22	TCB 17-20	TCB 26-30	TCB 28-30	TCB 26-40	TCB 32-40	TCB 44-50
Format	Wound primary			Cable			Cable – busbar					
Class	0.5	0.5	0.5	1	0.5/1	1	1	0.5/1	0.5/1	1	0.5/1	0.5/1
Version 0.2s			(1)			(2)		T2CB 26-30			T2CB 32-40	
	p. 323			p. 325			p. 326					
Rating (A)												
0.5												
5	5 … 10	5 … 40										
10												
15												
20												
25			25 … 150	* 25 … 150								
30												
40				40 … 150								
50					60 … 300			50 … 750				
60							60 … 400					
75											75 … 1000	
80									80 … 500			
100						100 … 600				100 … 750		
125												
150								* 150 … 750				150 … 1250
160												
200						* 150 … 600					* 200 … 750	
250												
300												
400												
500												
600												
750												
800												
1000												
1200												
1250												
1500												
1600												
2000												
2500												
3000												
4000												
5000												
Dimensions												
Height	75.5	85.5	85	65	65	65	65	61	70	75.5	88.5	98.5
Width	61	71	135	45	45	49.5	49.5	75.5	49.9	61	71	86
Depth	35	45	60	30	30	35	50	48	68	48	58	58
Cable (Ø mm)				14	21	22.5	17.5	26	28	26	32	44
Busbar 1							20x5	30x10	30x10	32x18	40x10	50x12
Busbar 2								20x10 (x2)		40x12	30x5 (x2)	40x10 (x2)
Busbar 3												

** Class 1.*

(1) See T2RB 115 for a 0.2S wound primary version. Dimensions differ from TRB 135.

(2) See T2CA 225 for a 0.2S closed-loop cable version. Dimensions differ from TCA 22.

	TCB 44-63	TCB 55-80	TCD 85-100	TCB 100-125	TBA 60	TBA 80	TBA 100	TBA 103	TBA 127	TO 23	TO 58	TO 812	TO 816
	Cable – busbar				Busbar					Split-core			
	0.5	0.5	0.5	0.5	0.5/1	0.5	0.5	0.5	0.5	1/3	0.5/1	0.5/1	0.5
	T2CB 44-63						T2BA 100	T2BA 103	T2BA 127				
	p. 327				p. 330					p. 334			
	200 … 1600	* 300 … 1500	400 … 2000	750 … 3000	1000 … 3000	200 … 1600	300 … 2000	600 … 4000	* 1200 … 3000	400 … 2000	* 1000 … 1500	400 … 4000	1200 … 2000	100 … 400	250 … 1000	250 … 1500	1000 … 5000
	105.5	123.5	184.8	184.8	129	117	167	150	175	106	158	198	243
	96	120	172	172	88	96	129	99	100	93	125	155	195
	58	58	52	52	48	68	78	58	55	58	58	58	79
	44	55	85	100									
	63x10	80x10	100x10	123x30	60x30	84x34	100x55	103x41	128x38	33x23	85x55	125x85	165x85
	50x10 (x2)	60x30	80x10 (x3)	100x10 (x3)									
		60x10 (x2)											

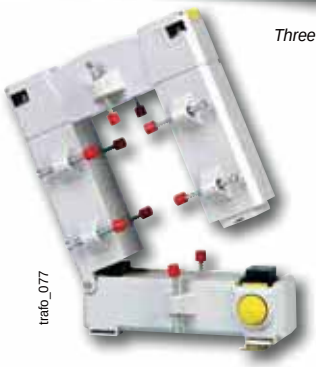
Current transformers

Measurement devices

from 5 to 5000 A

Three-phase CT

Bar-through CT



Split-core transformer

Cable-through CT

Function

SOCOMEC current transformers deliver to the secondary a standard current proportional to the primary current and adapted to the rating of the associated device. They are equipped as standard with removable terminal covers and double terminals allowing the secondary to be short-circuited without any risk.

They are mounted using two screw-on metal brackets or, in certain cases, by a clip-on DIN-rail fastener. The connections are made by screws or by fast-on terminals.

- Accuracy class: 0.2s — 0.5 or 1.
- Dielectric quality: 3 kV — 50 Hz — 1 min.
- Operating frequency: 50 — 60 Hz.
- Permanent overload: 1.2 In.
- Insulation class: E (120 °C).

Advantages

An adapted accuracy class

In order to get the best of your DIRIS multifunction meters and COUNTIS energy meters, we can provide current transformers with the following accuracy classes: 0.2s; 0.5; 1 or 3.

A wide range of ratings and dimensions

Your measurement process can be optimised whatever your needs in terms of ratings, space requirements, conductor sizing or accuracy class. A wide range of combinations are available in our standard range with specific versions available on request (other ratios, tropicalisation and specific frequency, class or burden).

Quick and easy to mount

Our current transformers are adapted to any type of mounting: edgewise or flat mounting, DIN-rail or back-plate mounting. Implementation is easy and rapid.

The solution for

> Industry
> Office buildings

Strong points

> An adapted accuracy class
> A wide range of ratings and dimensions
> Quick and easy to mount

Conformity to standards

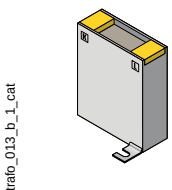
> IEC 61869-2
> IEC 61439-1

Available on request

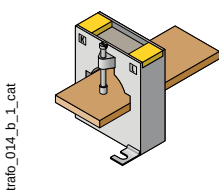
SOCOMEC also offer customised solutions:

> 1 A secondary
> Double or triple primary ratio
> Voltage transformer
> Summation CTs

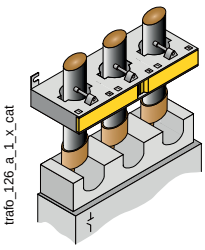
Composition of the range



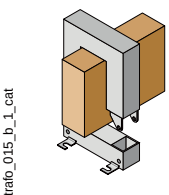
Primary wound moulded case CT



Bar or cable-through CT



Bar or cable-through three-phase CT



Bar-through split-core CT

socomec Innovative Power Solutions

Primary wound moulded case CT

References

Primary	Secondary[1]	TRB 60 Class 0.5	TRB 60 Reference	TRB 70 Class 0.5	TRB 70 Reference	T2RB 115 Class 0.2s	T2RB 115 Reference	TRB 135 Class 0.5	TRB 135 Reference
5 A	5 A	2.5 VA	192T **0505**	10 VA	192T **0521**				
10 A	5 A	2.5 VA	192T **0510**	10 VA	192T **0522**				
15 A	5 A			10 VA	192T **0523**				
20 A	5 A			10 VA	192T **0524**				
25 A	5 A			10 VA	192T **0525**	7.5 VA	192U **0402**	10 VA	192T **0603**
30 A	5 A			5 VA	192T **0530**	7.5 VA	192U **0403**	10 VA	192T **0607**
40 A	5 A			5 VA	192T **0541**	7.5 VA	192U **0404**	10 VA	192T **0604**
50 A	5 A			5 VA	192T **0551**	7.5 VA	192U **0405**	10 VA	192T **0605**
60 A	5 A					7.5 VA	192U **0406**	10 VA	192T **0606**
75 A	5 A					7.5 VA	192U **0407**	10 VA	192T **0608**
80 A	5 A					7.5 VA	192U **0408**	10 VA	192T **0609**
100 A	5 A							10 VA	192T **0610**
125 A	5 A					7.5 VA	192U **0412**	10 VA	192T **0612**
150 A	5 A					7.5 VA	192U **0415**	10 VA	192T **0615**

(1) Secondary 1 A: on request.

Accessories

Accessories	TRB 60 Reference	TRB 70 Reference		TRB 135 Reference
DIN-rail mounting	192T **0003**	192T **0005** [1]		
Sealable cover	192T **0105**	192T **0103**		192T **0101** [2]

(1) Not available for 50 A rating
(2) For 125 and 150 A ratings, use reference 192T 0103.

CT Plug-in transducer (CEA-VA)

Power supply	Output	TRB 60 Reference	TRB 70 Reference
Self-supplied	0-20 mA / 0-10 VDC	192Y **0015**	192Y **0025** [1]
230 VAC	0-20 mA / 0-10 VDC	192Y **0215**	192Y **0225** [1]
24 VDC	0-20 mA / 0-10 VDC	192Y **0115**	192Y **0125** [1]

(1) Not available for ratings 40 and 50 A

CT Plug-in transducer (CEA-VA4)

Power supply	Output	TRB 60 Reference	TRB 70 Reference
230 VAC	4-20 mA / 0-10 VDC	192T **0255**	192Y **0265** [1]
24 VDC	4-20 mA / 0-10 VDC	192Y **0155**	192Y **0165** [1]

(1) Not available for ratings 40 and 50 A

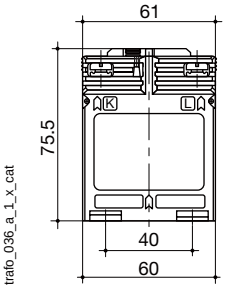
Certificate of performance

Each class 0.2s current transformer is supplied with an individual certificate of performance, attesting to its accuracy.

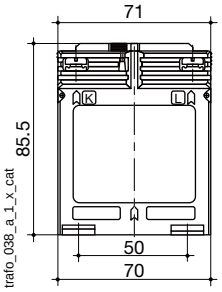
Primary wound moulded case CT (continued)

Dimensions (mm)

TRB 60

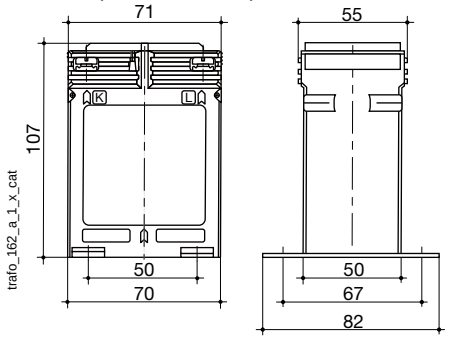


TRB 70(1)

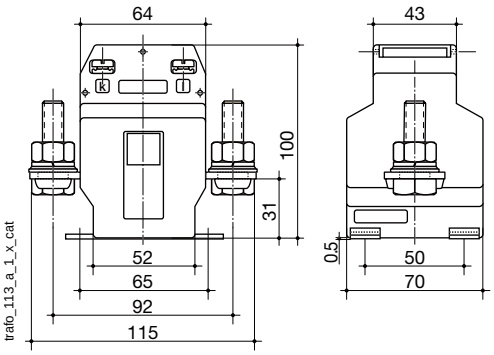


(1) different dimensions for 40 and 50 A ratings

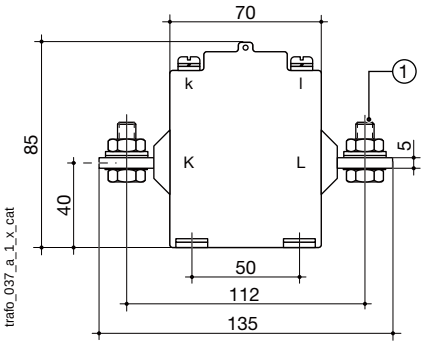
TRB 70 (for 40 and 50 A)



T2RB115

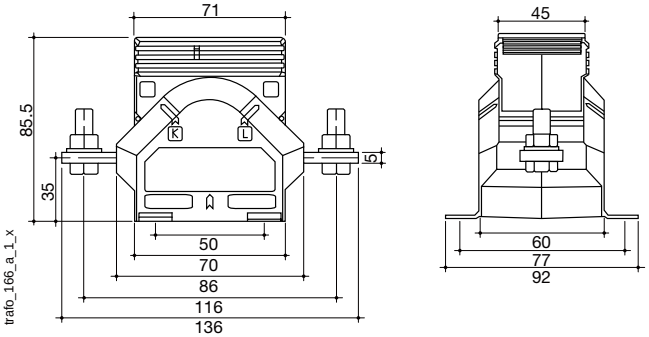


TRB 135



① *25 to 100 A: M8 x 25*

TRB 135 (for 125 and 150 A)



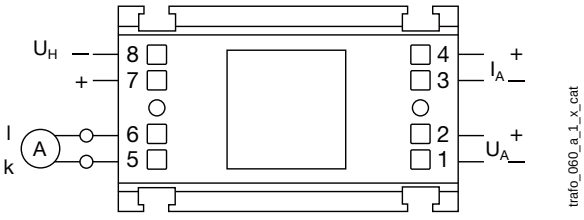
Primary wound CT	TRB 60	TRB 70 (1)	T2RB 115	TRB 135 (2)
H x W x D (mm)	75.5 x 61 x 35	85.5 x 71 x 45	115 x 100 x 70	85 x 135 x 60
DIN-rail mounting	yes	yes	no	no

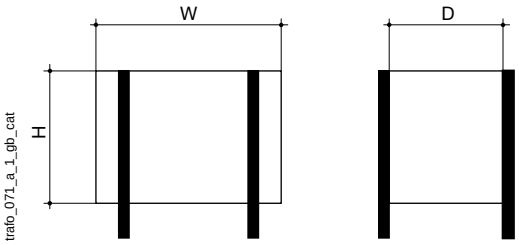
(1) Dimensions are different for TRB 70 with 40 and 50 A ratings.
(2) Dimensions are different for TRB 135 with 125 and 150 A ratings.

Associated transducers

Transducer to be associated with adapted current transformers:

- Class 0.5.
- Input: 1 or 5 A.
- Output:
  - 0-20 mA, 0-10 V (type CEA-VA)
  - 4-20 mA, 0-10 V (type CEA-VA4)
- Self-supplied or auxiliary power supply 24 VDC or 230 VAC.
- 3 sizes according to the CT: type 1, 2 or 3.





Dimensions (mm)

Converter	For CT	Height (mm)	Width (mm)	Depth (mm)
Type 1	TRB 60	50.5	60	32.5
Type 2	TRB 70	50	70	43

Cable-through CT

References

Primary	Secondary[1]	TCA 14 Class 1	TCA 14 Reference	TCA 21 Class 1	TCA 21 Class 0.5	TCA 21 Reference	TCA 22 Class 1	TCA 22 Reference	T2CA 225 Class 0.2s	T2CA 225 Reference
40 A	5 A	1	192T **1404**							
50 A	5 A	1	192T **1405**							
60 A	5 A	1.5	192T **1406**	1 VA		192T **2006**				
75 A	5 A	1.5	192T **1407**	1.5 VA		192T **2007**				
80 A	5 A			1.5 VA		192T **2008**				
100 A	5 A	2.5	192T **1410**		1.5 VA	192T **2010**	1 VA	192T **2022**		
125 A	5 A	2.5	192T **1412**		1.5 VA	192T **2012**				
150 A	5 A	2.5	192T **1415**		1.5 VA	192T **2015**	1.5 VA	192T **2023**	1.5 VA	192U **2215**
200 A	5 A				2.5 VA	192T **2020**	2.5 VA	192T **2024**	2.5 VA	192U **2220**
250 A	5 A				2.5 VA	192T **2016**	3.75 VA	192T **2025**	5 VA	192U **2225**
300 A	5 A				2.5 VA	192T **2017**	3.75 VA	192T **2030**	5 VA	192U **2230**
400 A	5 A						5 VA	192T **2034**	5 VA	192U **2240**
500 A	5 A						5 VA	192T **2035 (2)**	10 VA	192U **2250**
600 A	5 A						5 VA	192T **2036 (2)**	10 VA	192U **2260**

(1) Secondary 1 A: on request. *(2) Dimensions of T2CA 225*

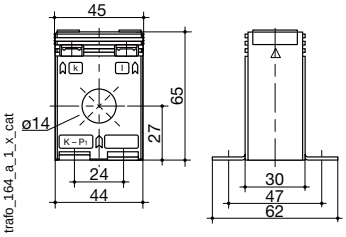
Accessories

Accessories	TCA 14 Reference	TCA 21 Reference	TCA 22 Reference	T2CA 225 Reference
DIN-rail mounting	192T **0006**	192T **0006**	192T **0007**	192T **0003**
Guide tube Ø 8.5 mm[1]		192T **0020**		
Guide tube Ø 12.5 mm[1]		192T **0021**	192T **0023**	
Guide tube Ø 16.5 mm[1]			192T **0024**	
Sealable cover				192T **0105**

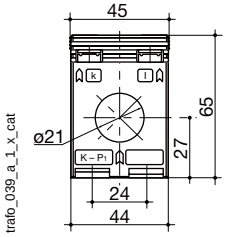
(1) For centralising cables within the CT aperture.

Dimensions (mm)

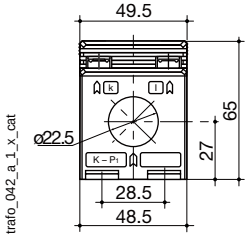
TCA 14



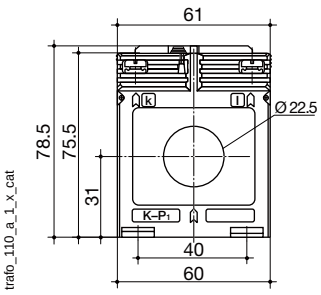
TCA 21



TCA 22



T2CA 225



Cable-through CT	TCA 14	TCA 21	TCA 22[1]	T2CA 225
Ø cable (mm)	14	21	22.5	22.5
H x W x D (mm)	65 x 45 x 30	65 x 45 x 30	65 x 49.5 x 35	78.5 x 61 x 35
DIN-rail mounting	yes	yes	yes	yes

(1) Dimensions are different for 600 A: 78.5x61x35.

Current transformers

Measurement devices

from 5 to 5000 A

Bar or cable-through CT

References

		TCB 17-20		TCB 26-30			T2CB 26-30		TCB 28-30		
Primary	Secondary(1)	Class 1	Reference	Class 0.5	Class 1	Reference	Class 0.2s	Reference	Class 0.5	Class 1	Reference
50 A	5 A				1 VA	192T **2305**					
60 A	5 A	1 VA	192T **2106**		1 VA	192T **2306**					
75 A	5 A	1 VA	192T **2107**		1.5 VA	192T **2307**					
80 A	5 A	1.25 VA	192T **2108**		1.5 VA	192T **2308**				1.25 VA	192T **2408**
100 A	5 A	1.5 VA	192T **2110**	1.5 VA		192T **2310**				1.5 VA	192T **2410**
125 A	5 A	1.5 VA	192T **2112**	1.5 VA		192T **2312**				2.5 VA	192T **2412**
150 A	5 A	2.5 VA	192T **2115**	1.5 VA		192T **2315**	1.5 VA	192U **2315**		2.5 VA	192T **2415**
160 A	5 A	2.5 VA	192T **2116**								
200 A	5 A	2.5 VA	192T **2120**	2.5 VA		192T **2320**	2.5 VA	192U **2320**	2.5 VA		192T **2420**
250 A	5 A	5 VA	192T **2125**	5 VA		192T **2325**	2.5 VA	192U **2325**	2.5 VA		192T **2425**
300 A	5 A	5 VA	192T **2130**	5 VA		192T **2330**	5 VA	192U **2330**	2.5 VA		192T **2430**
400 A	5 A	5 VA	192T **2140**	5 VA		192T **2340**	5 VA	192U **2340**	5 VA		192T **2440**
500 A	5 A			5 VA		192T **2350**	5 VA	192U **2350**	5 VA		192T **2450**
600 A	5 A			5 VA		192T **2360**	5 VA	192U **2360**			
750 A	5 A			5 VA		192T **2375**	5 VA	192U **2375**			

(1) Secondary 1 A: on request.

		TCB 26-40		TCB 32-40			T2CB 32-40	
Primary	Secondary(1)	Class 1	Reference	Class 0.5	Class 1	Reference	Class 0.2s	Reference
75 A	5 A				1.5 VA	192T **4007**		
100 A	5 A	1.5 VA	192T **3210**	1.5 VA		192T **4010**		
125 A	5 A	2.5 VA	192T **3212**	1.5 VA		192T **4012**		
150 A	5 A	2.5 VA	192T **3215**	2.5 VA		192T **4015**		
160 A	5 A	2.5 VA	192T **3216**					
200 A	5 A	2.5 VA	192T **3220**	5 VA		192T **4020**	2.5 VA	192U **4020**
250 A	5 A	2.5 VA	192T **3225**	5 VA		192T **4025**	5 VA	192U **4025**
300 A	5 A	5 VA	192T **3230**	10 VA		192T **4030**	5 VA	192U **4030**
400 A	5 A	5 VA	192T **3240**	10 VA		192T **4040**	5 VA	192U **4040**
500 A	5 A	5 VA	192T **3250**	10 VA		192T **4050**	5 VA	192U **4050**
600 A	5 A	5 VA	192T **3260**	10 VA		192T **4060**	5 VA	192U **4060**
750 A	5 A	10 VA	192T **3275**	10 VA		192T **4075**	5 VA	192U **4075**
800 A	5 A			10 VA		192T **4080**		
1000 A	5 A			10 VA		192T **4090**		

(1) Secondary 1 A: on request.

Accessories

Accessories	TCB 17-20 Reference	TCB 26-30 Reference	TCB 26-40 Reference	TCB 32-40 Reference
DIN-rail mounting	192T **0007**	192T **0003**	192T **0003**	192T **0005**
Sealable cover		192T **0105**	192T **0105**	192T **0103**

CT Plug-in transducer (CEA-VA)

Power supply	Output	TCB 26-30 Reference	TCB 26-40 Reference	TCB 32-40 Reference
Self-supplied	0-20 mA / 0-10 VDC	192Y **0015**	192Y **0015**	192Y **0035**
230 VAC	0-20 mA / 0-10 VDC	192Y **0215**	192Y **0215**	192Y **0235**
24 VDC	0-20 mA / 0-10 VDC	192Y **0115**	192Y **0115**	192Y **0135**

CT Plug-in transducer (CEA-VA4)

Power supply	Output	TCB 26-30 Reference	TCB 26-40 Reference	TCB 32-40 Reference
230 VAC	4-20 mA / 0-10 VDC	192T **0255**	192T **0255**	192Y **0275**
24 VDC	4-20 mA / 0-10 VDC	192Y **0155**	192Y **0155**	192Y **0175**

References

Primary	Secondary(1)	TCB 44-50 Class 0.5	TCB 44-50 Reference	TCB 44-63 Class 0.5	TCB 44-63 Reference	T2CB 44-63 Class 0.2s	T2CB 44-63 Reference
150 A	5 A	1.5 VA	192T **5015**				
200 A	5 A	2.5 VA	192T **5020**	1.5 VA	192T **6420**		
250 A	5 A	5 VA	192T **5025**	1.5 VA	192T **6425**		
300 A	5 A	5 VA	192T **5030**	2.5 VA	192T **6430**	5 VA	192U **6430**
400 A	5 A	10 VA	192T **5040**	5 VA	192T **6440**	5 VA	192U **6440**
500 A	5 A	10 VA	192T **5050**	10 VA	192T **6450**	10 VA	192U **6450**
600 A	5 A	10 VA	192T **5060**	10 VA	192T **6460**	10 VA	192U **6460**
750 A	5 A	10 VA	192T **5075**	10 VA	192T **6475**	10 VA	192U **6475**
800 A	5 A	15 VA	192T **5080**	10 VA	192T **6480**		
1000 A	5 A	15 VA	192T **5090**	15 VA	192T **6490**	10 VA	192U **6490**
1200 A	5 A	15 VA	192T **5092**	15 VA	192T **6492**	10 VA	192U **6492**
1250 A	5 A	15 VA	192T **5095**	15 VA	192T **6493**	10 VA	192U **6493**
1500 A	5 A			15 VA	192T **6495**	10 VA	192U **6495**
1600 A	5 A			15 VA	192T **6494**		

(1) Secondary 1 A: on request.

Primary	Secondary(1)	TCB 55-80 Class 0.5	TCB 55-80 Reference	TCB 85-100 Class 0.5	TCB 85-100 Reference	TCB 100-125 Class 0.5	TCB 100-125 Reference
400 A	5 A	2.5 VA	192T **8140**				
500 A	5 A	5 VA	192T **8150**				
600 A	5 A	5 VA	192T **8160**				
750 A	5 A	10 VA	192T **8175**	2.5 VA	192T **9675**		
800 A	5 A	10 VA	192T **8180**	5 VA	192T **9680**		
1000 A	5 A	15 VA	192T **8190**	10 VA	192T **9690**	5 VA	192T **9590**
1200 A	5 A	15 VA	192T **8192**	10 VA	192T **9692**		
1250 A	5 A	15 VA	192T **8193**	15 VA	192T **9693**	10 VA	192T **9593**
1500 A	5 A	15 VA	192T **8195**	15 VA	192T **9695**	15 VA	192T **9595**
1600 A	5 A	15 VA	192T **8194**	15 VA	192T **9694**		
2000 A	5 A	15 VA	192T **8196**	30 VA	192T **9696**	30 VA	192T **9596**
2500 A	5 A			30 VA	192T **9697**	30 VA	192T **9597**
3000 A	5 A			30 VA	192T **9698**	30 VA	192T **9598**

(1) Secondary 1 A: on request.

Accessories

Accessories	TCB 44-50 Reference	TCB 44-63 Reference	TCB 55-80 Reference	TCB 85-100 Reference	TCB 100-125 Reference
Sealable cover	192T **0102**	192T **0102**	192T **0102**	192T **0106**	192T **0106**

CT Plug-in transducer (CEA-VA)

Power supply	Output	TCB 44-50 Reference	TCB 44-63 Reference	TCB 55-80 Reference
Self-supplied	0-20 mA / 0-10 VDC		192Y **0045**	192Y **0045**
230 VAC	0-20 mA / 0-10 VDC		192Y **0245**	192Y **0245**
24 VDC	0-20 mA / 0-10 VDC		192Y **0145**	192Y **0145**

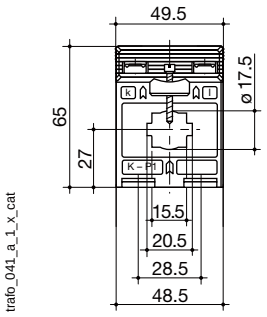
CT Plug-in transducer (CEA-VA4)

Input	Output	TCB 44-50 Reference	TCB 44-63 Reference	TCB 55-80 Reference
230 VAC	4-20 mA / 0-10 VDC		192Y **0285**	192Y **0285**
24 VDC	4-20 mA / 0-10 VDC		192Y **0185**	192Y **0185**

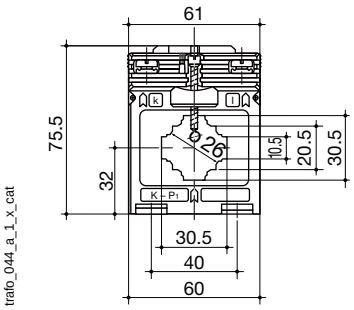
Bar or cable-through CT (continued)

Dimensions (mm)

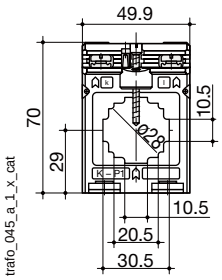
TCB 17-20



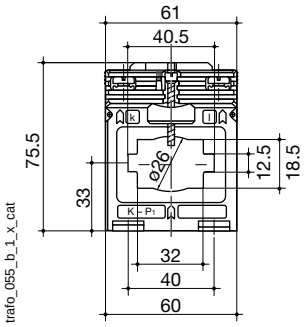
TCB 26-30 and T2CB 26-30



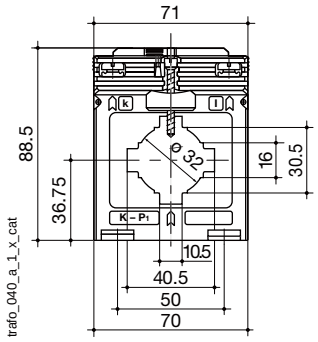
TCB 28-30



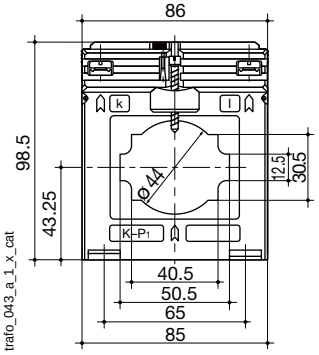
TCB 26-40



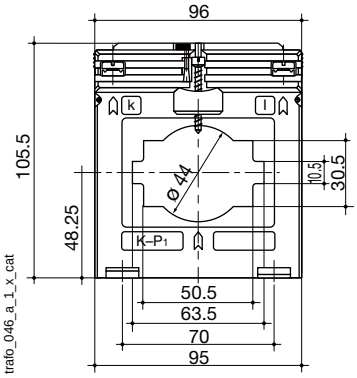
TCB 32-40 and T2CB 32-40



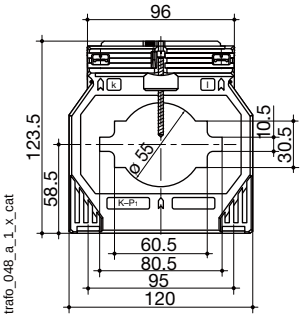
TCB 44-50



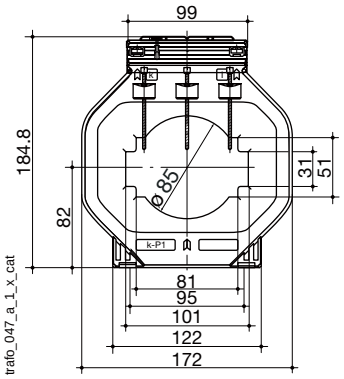
TCB 44-63 and T2CB 44-63



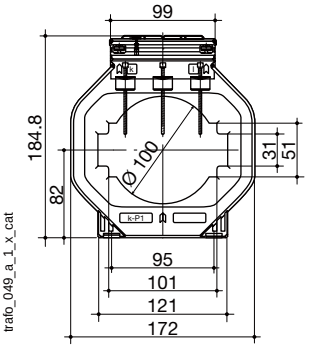
TCB 55-80



TCB 85-100



TCB 100-125



Bar or cable-through CT	TCB 17-20	TCB 26-30	T2CB 26-30	TCB 26-40	TCB 28-30	TCB 32-40	T2CB 32-40
Bar (mm)	20 x 5 (x 1)	30 x 10 (x 1) / 20 x 10 (x 1…2)	30 x 10 (x 1) / 20 x 10 (x 1…2)	40 x 12 (x 1) / 32 x 18 (x 1)	30 x 10 (x 1)	40 x 10 (x 1) / 30 x 5 (x 1…2)	40 x 10 (x 1) / 30 x 5 (x 1…2)
Ø cable (mm)	17.5	26	26	26	28	32	32
H x W x D (mm)	65 x 49.5 x 50	75.5 x 61 x 48	75.5 x 61 x 48	75.5 x 61 x 48	70 x 49.9 x 68	88.5 x 71 x 58	88.5 x 71 x 58
DIN-rail mounting	yes	yes	yes	yes		yes	yes

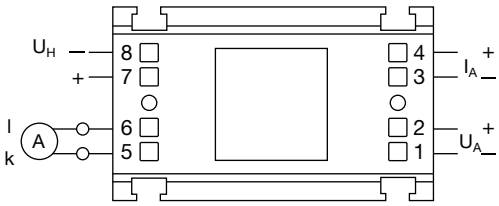
Bar or cable-through CT	TCB 44-50	TCB 44-63	T2CB 44-63	TCB 55-80	TCB 85-100	TCB 100-125
Bar (mm)	50 x 12 (x 1)/ 40 x 10 (x 1…2)	63 x 10 (x 1)/ 50 x 10 (x 1…2)	63 x 10 (x 1)/ 50 x 10 (x 1…2)	80 x 10 (x 1)/ 60 x 30 (x 1) / 60 x 10 (x 1…2)	100 x 10 (x 1…2) / 80 x 10 (x 1…3)	123 x 30 (x 1)/ 100 x 10 (x 1…3)
Ø cable (mm)	44	44	44	55	85	100
H x W x D (mm)	98.5 x 86 x 58	105.5 x 96 x 58	105.5 x 96 x 58	123.5 x 120 x 58	184.5 x 172 x 52	184.5 x 172 x 52

Associated transducers

trafo_074

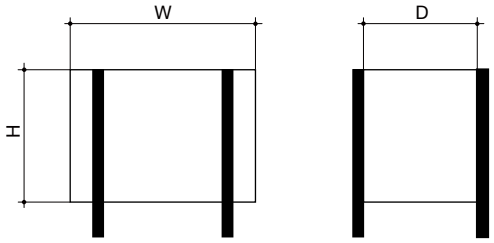
Transducer to be associated with adapted current transformers:

- *Class 0.5.*
- *Input: 1 or 5 A*
- *Output:*
  - *0-20 mA, 0-10 V (model CEA-VA),*
  - *4-20 mA, 0-10 V (model CEA-VA4),*
- *Self-supplied or auxiliary power supply 24 VDC or 230 VAC.*
- *3 sizes according to the CT: type 1, 2 or 3.*



trafo_060_a_1_x_cat

trafo_071_a_1_gb_cat



Dimensions (mm)

Converter	For CT	Height (mm)	Width (mm)	Depth (mm)
Type 1	TCB 26-30	50.5	60	32.5
Type 1	TCB 26-40	50.5	60	32.5
Type 2	TCB 32-40	50	70	43
Type 3	TCB 44-63	50.5	95	43
Type 3	TCB 55-80	50.5	95	43

Bar-through CT

References

		TBA 60			TBA 80		TBA 100		T2BA 100	
Primary	Secondary	Class 0.5	Class 1	Reference	Class 0.5	Reference	Class 0.5	Reference	Class 0.2s	Reference
200 A	5 A		2.5 VA	192T **7020**						
250 A	5 A	2.5 VA		192T **7025**						
300 A	5 A	2.5 VA		192T **7030**	2.5 VA	192T **7530**				
400 A	5 A	5 VA		192T **7040**	5 VA	192T **7540**				
500 A	5 A	5 VA		192T **7050**	5 VA	192T **7550**				
600 A	5 A	10 VA		192T **7060**	5 VA	192T **7560**	5 VA	192T **8060**		
750 A	5 A	10 VA		192T **7075**	5 VA	192T **7575**	5 VA	192T **8075**		
800 A	5 A	10 VA		192T **7080**	10 VA	192T **7580**	5 VA	192T **8080**		
1000 A	5 A	15 VA		192T **7090**	15 VA	192T **7590**	5 VA	192T **8090**		
1200 A	5 A	15 VA		192T **7092**	15 VA	192T **7592**	10 VA	192T **8092**	5 VA	192U **8092**
1250 A	5 A	15 VA		192T **7093**	15 VA	192T **7593**	10 VA	192T **8093**	5 VA	192U **8093**
1500 A	5 A	15 VA		192T **7095**	15 VA	192T **7595**	15 VA	192T **8095**	5 VA	192U **8095**
1600 A	5 A	15 VA		192T **7094**	15 VA	192T **7594**	15 VA	192T **8094**		
2000 A	5 A				15 VA	192T **7596**	15 VA	192T **8096**	5 VA	192U **8096**
2500 A	5 A						30 VA	192T **8097**	10 VA	192U **8097**
3000 A	5 A						30 VA	192T **8098** (1)	10 VA	192U **8098**
4000 A	5 A						30 VA	192T **8099** (1)		

(1) Dimensions are different for TBA 100 with 3000 and 4000 A primary.

		TBA 103		T2BA 103		TBA 127		T2BA 127	
Primary	Secondary	Class 0.5	Reference	Class 0.2s	Reference	Class 0.5	Reference	Class 0.2s	Reference
400 A	5 A	2.5 VA	192T **9340**			2.5 VA	192T **9740**		
500 A	5 A	2.5 VA	192T **9350**			2.5 VA	192T **9750**		
600 A	5 A	2.5 VA	192T **9360**			2.5 VA	192T **9760**		
750 A	5 A	2.5 VA	192T **9375**			2.5 VA	192T **9775**		
800 A	5 A	5 VA	192T **9380**			5 VA	192T **9780**		
1000 A	5 A	10 VA	192T **9390**	5 VA	192U **9390**	10 VA	192T **9790**		
1200 A	5 A	10 VA	192T **9392**	5 VA	192U **9392**	10 VA	192T **9792**	5 VA	192U **9792**
1250 A	5 A	10 VA	192T **9393**	5 VA	192U **9393**	10 VA	192T **9793**	5 VA	192U **9793**
1500 A	5 A	15 VA	192T **9395**	5 VA	192U **9395**	15 VA	192T **9795**	5 VA	192U **9795**
1600 A	5 A	10 VA	192T **9394**			15 VA	192T **9794**		
2000 A	5 A	15 VA	192T **9396**			15 VA	192T **9796**	5 VA	192U **9796**
2500 A	5 A					15 VA	192T **9797**		
3000 A	5 A					25 VA	182T **9798 (1)**		
4000 A	5 A					30 VA	182T **9799 (1)**		

(1) Replacement model TRA 127 for this rating.

Accessories

Accessories	TBA 60 Reference	TBA 80 Reference	TBA 100 Reference	T2BA 100 Reference	TBA 103 Reference	T2BA 103 Reference	TBA 127 Reference	T2BA 127 Reference
Sealable cover	192T **0102**		192T **0102**	192T **0102**			192T **0102**	192T **0102**

CT Plug-in transducer (CEA-VA)

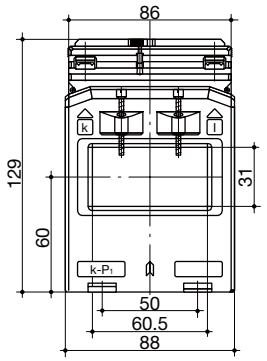
Power supply	Output	TBA 100 Reference
Self-supplied	0-20 mA / 0-10 VDC	192Y **0045**
230 VAC	0-20 mA / 0-10 VDC	192Y **0245**
24 VDC	0-20 mA / 0-10 VDC	192Y **0145**

CT Plug-in transducer (CEA-VA4)

Power supply	Output	TBA 100 Reference
230 VAC	4-20 mA / 0-10 VDC	192Y **0285**
24 VDC	4-20 mA / 0-10 VDC	192Y **0185**

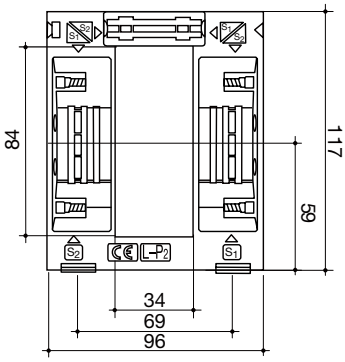
Dimensions (mm)

TBA 60



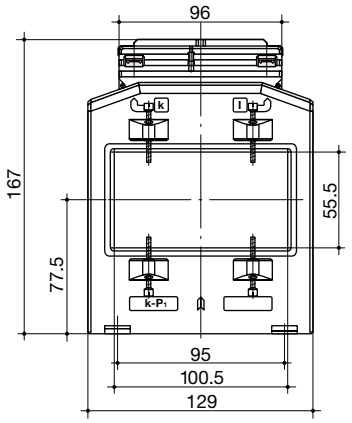
trafo_050_a_1_x_cat

TBA 80
300 to 2000 A



trafo_059_a_1_x_cat

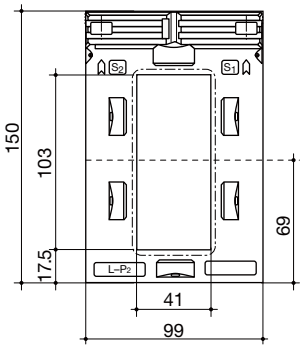
TBA 100 600 to 2500 A(1)
T2BA 100 1200 to 3000 A



trafo_082_a_1_x_cat

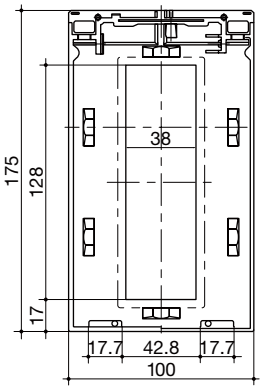
(1) TBA 100, 3000 and 4000 A: 214 x 129 x 78 mm.

TBA 103 and T2BA 103



trafo_054_a_1_x_cat

TBA 127 and T2BA 127



trafo_052_a_1_x_cat

Bar-through CT	TBA 60	TBA 80	TBA 100	T2BA 100	TBA 103	T2BA 103	TBA 127	T2BA 127
Bar (mm)	60 x 30	84 x 34	100 x 55	100 x 55	103 x 41	103 x 41	128 x 38	128 x 38
H x W x D (mm)	129 x 88 x 78	117 x 96 x 68	167 x 129 x 78 (1)	167 x 129 x 78	150 x 99 x 58	150 x 99 x 58	175 x 100 x 55	175 x 100 x 55

(1) TBA 100, 3000 and 4000 A: 214 x 129 x 78 mm.

Three-phase bar or cable-through CT

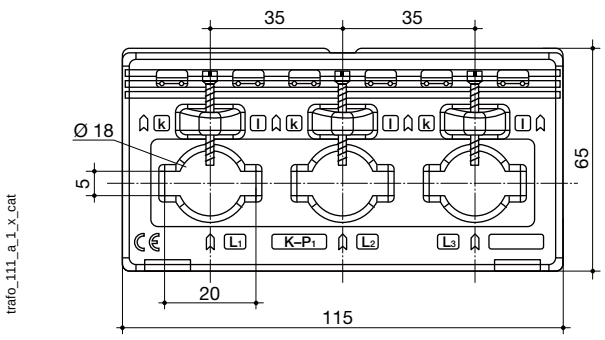
References

Primary	Secondary[1]	TCB3 18-20 Class 1	TCB3 18-20 Reference	TCB3 22-30 Class 1	TCB3 22-30 Reference
3 x 100 A	3 x 5 A	1 VA	192T **3310**		
3 x 150 A	3 x 5 A	1.25 VA	192T **3315**		
3 x 200 A	3 x 5 A	1.5 VA	192T **3320**		
3 x 250 A	3 x 5 A	2.5 VA	192T **3325**	2.5 VA	192T **3425**
3 x 300 A	3 x 5 A			3.75 VA	192T **3430**
3 x 400 A	3 x 5 A			5 VA	192T **3440**
3 x 500 A	3 x 5 A			5 VA	192T **3450**
3 x 600 A	3 x 5 A			5 VA	192T **3460**

(1) Secondary 1 A: on request.

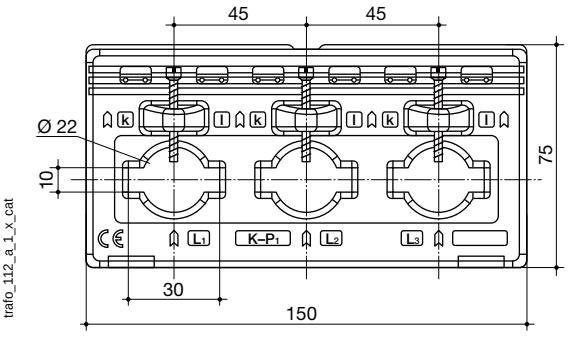
Dimensions (mm)

TCB3 18-20



trafo_111_a_1_x_cat

TCB3 22-30



trafo_112_a_1_x_cat

Three-phase bar or cable-through CT	TCB3 18-20	TCB3 22-30
Ø cable (mm)	18	22
Bar-through	20 x 5	30 x 10
H x W x D (mm)	115 x 65 x 37	150 x 75 x 37
DIN-rail mounting	no	no

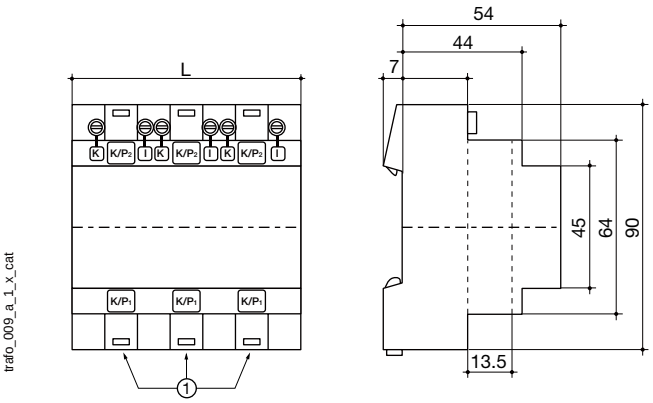
References

Primary	Secondary(1)	TCA 13 — 3P Class 1	TCA 13 — 3P Reference
3 x 50 A	5 A	1 VA	192T **1905**
3 x 60 A	5 A	1.25 VA	192T **1906**
3 x 75 A	5 A	1.5 VA	192T **1907**
3 x 80 A	5 A	1.5 VA	192T **1908**
3 x 100 A	5 A	2.5 VA	192T **1910**
3 x 125 A	5 A	2.5 VA	192T **1912**
3 x 150 A	5 A	2.5 VA	192T **1915**
3 x 160 A	5 A	2.5 VA	192T **1916**

(1) Secondary 1 A: on request.

Dimensions (mm)

TCA 13 — 3P



trafo_009_a_1_x_cat

(1) Cable-through aperture Ø 13.5 mm.

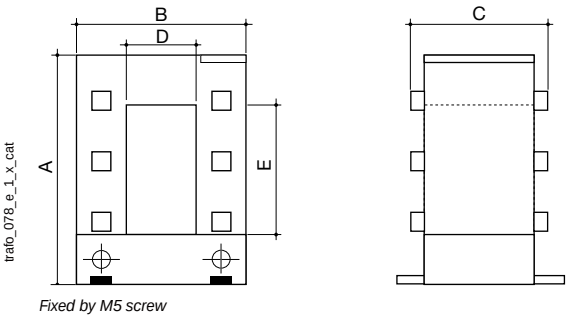
Number of modules	Front degree of protection	Terminal degree of protection	L (mm)	Mounting
6	IP65	IP20	105	35 mm DIN-rail

Split-core CT

References

		TO 23			TO 58			TO 812			TO 816	
Primary	Secondary	Class 1	Class 3	Reference	Class 0.5	Class 1	Reference	Class 0.5	Class 1	Reference	Class 0.5	Reference
100 A	5 A		1.25 VA	192T **4601**								
150 A	5 A		1.5 VA	192T **4602**								
200 A	5 A		2.5 VA	192T **4603**								
250 A	5 A	1.5 VA		192T **4604**		1.5 VA	192T **4625**		1.5 VA	192T **4725**		
300 A	5 A	3.75 VA		192T **4605**		2.5 VA	192T **4630**		2.5 VA	192T **4730**		
400 A	5 A	5 VA		192T **4606**	1 VA		192T **4640**		2.5 VA	192T **4740**		
500 A	5 A				2.5 VA		192T **4650**	2.5 VA		192T **4750**		
600 A	5 A				2.5 VA		192T **4660**	2.5 VA		192T **4760**		
750 A	5 A				2.5 VA		192T **4675**	2.5 VA		192T **4775**		
800 A	5 A				2.5 VA		192T **4680**	2.5 VA		192T **4780**		
1000 A	5 A				5 VA		192T **4610**	5 VA		192T **4710**	10 VA	192T **4810**
1250 A	5 A							7.5 VA		192T **4712**	10 VA	192T **4812**
1500 A	5 A							7.5 VA		192T **4715**	10 VA	192T **4815**
1600 A	5 A										10 VA	192T **4814**
2000 A	5 A										10 VA	192T **4820**
2500 A	5 A										10 VA	192T **4825**
3000 A	5 A										15 VA	192T **4830**
4000 A	5 A										15 VA	192T **4840**
5000 A	5 A										15 VA	192T **4850**

Dimensions (mm)



Fixed by M5 screw

Dimensions (mm)

Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
TO 23	106	93	58	23	33
TO 58	158	125	58	55	85
TO 812	198	155	58	85	125
TO 816	243	195	79	85	165

Split-core CT	TO 23	TO 58	TO 812	TO 816
H x W x D (mm)	106 x 93 x 58	158 x 125 x 58	198 x 155 x 58	243 x 195 x 75

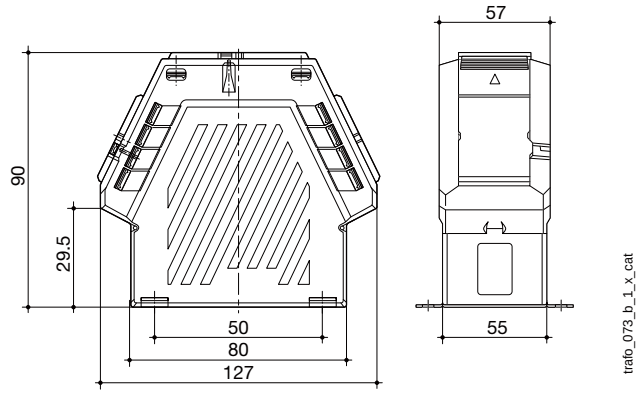
Summation CT

Reference

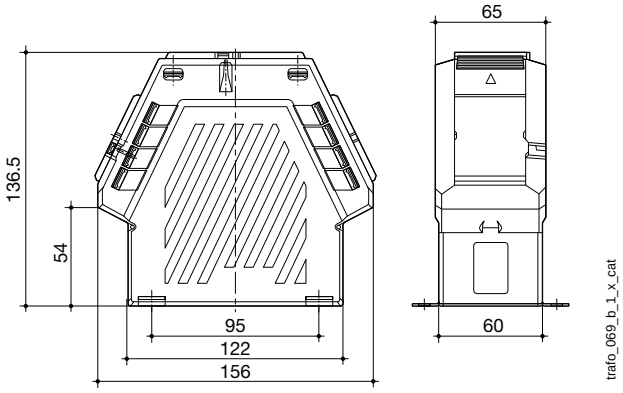
Primary	Secondary	BSA 02 Reference	BSA 03 Reference	BSA 04 Reference
5 + 5/5 A	5 A	192T **0802**		
5A + 5+ 5/5	5 A		192T **0803**	
5 + 5 + 5 + 5/5 A	5 A			192T **0904**

Dimensions (mm)

BSA 02 and BSA 03



BSA 04



Summation CT	BSA 02	BSA 03	BSA 04
H x W x D (mm)	90 x 127 x 57	90 x 127 x 57	136.5 x 156 x 65
DIN-rail mounting	no	no	no

Selection guide

Software solutions for energy monitoring and analysis

What are the features? → For what size of project? → Where is the data stored?

	WEBVIEW-S	WEBVIEW-M	WEBVIEW-L
			
Hosting of the application(1)	**DIRIS A-40 Ethernet**	**DIRIS Digiware M-70 /D-70**	**DATALOG H80/H81**
Data collection	*p. 338*	*p. 338*	*p. 338*
Maximum number of connected measurement devices	1	32	100 (WEBVIEW-L100) 200 (WEBVIEW-L200)
Interfacing to third-party applications			via connector
Export of data in CSV format	•	•	•
Real time monitoring			
U/V voltages and currents I	•	•	•
Powers P, Q, S, Power factor	•	•	•
Quality monitoring THDi, THDu, THDv, K factor, Harmonic analysis up to 63rd	•	•	•
Energy metering Ea+, Ea-, Er+, Er-, Es	•	•	•
Pulse counting	•	•	•
Input/Output monitoring	•	•	•
Measurement history U, V, I, P, Q, S,	•	•	•
Energy analysis			
Energy consumption analysis	•	•	•
Multi-parameter analysis			•
Alarm management			
Product alarms	•	•	•
Software alarms			
Alarms history	•	•	•
Transmission of alarms	e-mail	e-mail	e-mail
Reporting management			
Customisable user interface		Photoview	Photoview
Hierarchy management		•	•
Conformity to standards			
Energy Server Standard - IEC 62974-1		•	•

(1) For more information on the hardware please refer to the appropriate catalogue pages.
(2) N'VIEW is a software solution intended for energy management purposes only.

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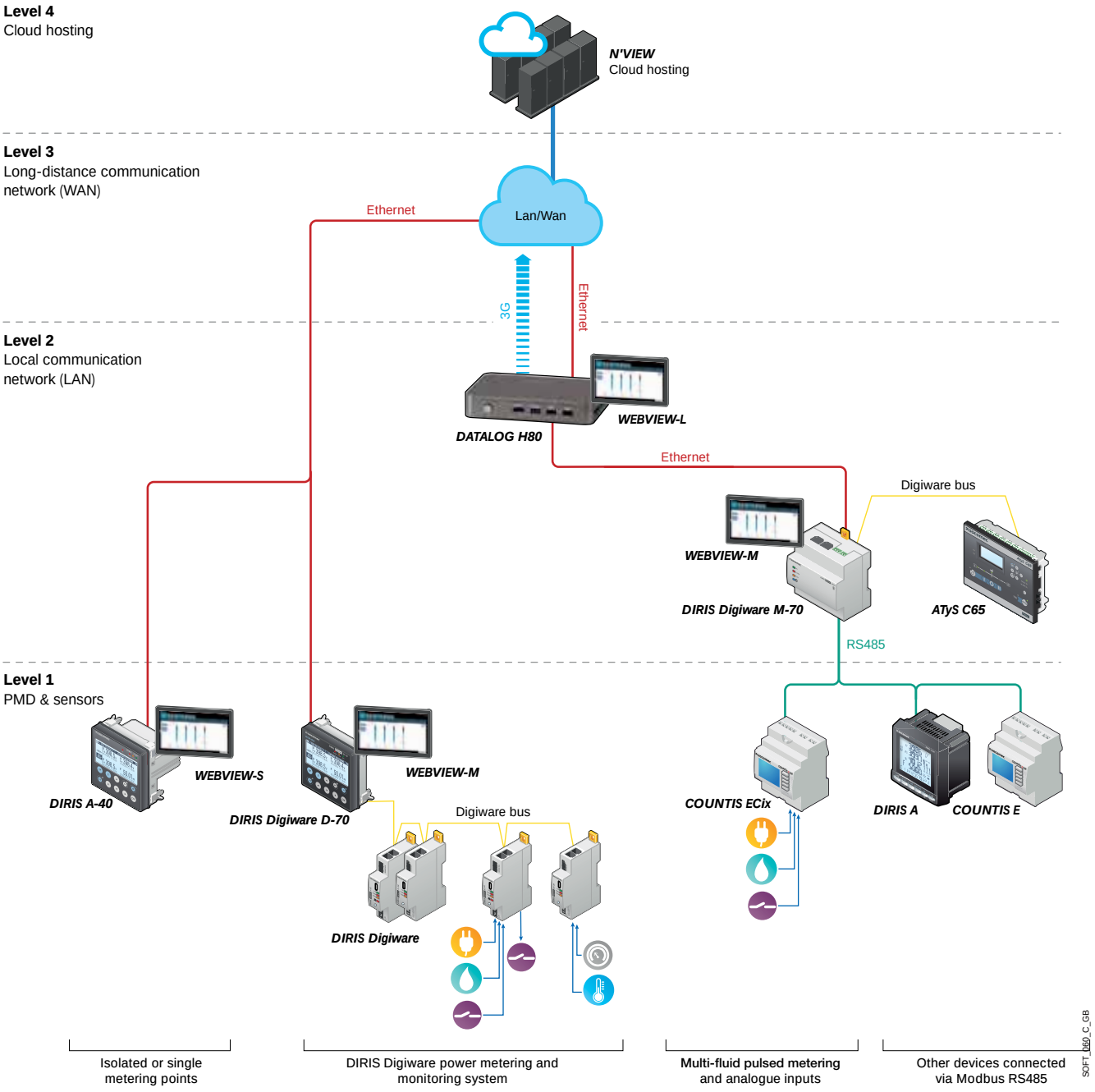
Architecture



Expert Services

Require integration onto your network?

No problem for our Expert Services team. They work out all the details of the measurement schedule, the complete integration of all devices in your energy management system, the configuration of your software application, the training of your teams and details of operational support. For further information, please contact your nearest Socomec office.

WEBVIEW

Embedded software for power monitoring and energy management

soft_076

The solution for

> Industry
> Building
> Infrastructure
> Local authority

Strong points

> Plug & Play
> Easy to use
> Various functions

Compliance with standards

> IEC 62974-1(1)

(1) Energy Server standard applicable to WEBVIEW-M and L versions embedded in DIRIS Digiware M-70/D-70 and DATALOG H80.

Function

WEBVIEW is a web based software embedded in DIRIS A-40 power monitoring devices, DIRIS Digiware D-70 displays, DIRIS Digiware M-70 communication gateways and DATALOG H80/H81 dataloggers delivering real-time monitoring of all measurements from up to 200 devices and displaying the breakdown of energy consumptions.

Uncover the causes of electrical disturbances and anticipate maintenance requirements thanks to historical records of multiple electrical parameters.

Pre-set alarms defined by the user can be sent by e-mail. Users can access WEBVIEW via a web browser on a PC or a tablet.

Strong points

Plug & Play

Quickly configure WEBVIEW thanks to the automatic detection of Socomec devices. Create geographical and electrical hierarchies to reflect your installation and your processes.

Easy to use

WEBVIEW centralises measurements from all downstream devices via a single clear and user friendly interface. The ergonomics of each screen allow users to easily and quickly analyse the parameters and the behaviour of the installation.

Various functions

Very easy to configure and to use, WEBVIEW offers a wide range of features including real-time monitoring, alarm management and notification by e-mail, multi-utility analysis (electricity, water, gas), power parameter logging and allocation of consumption by end-use and location.

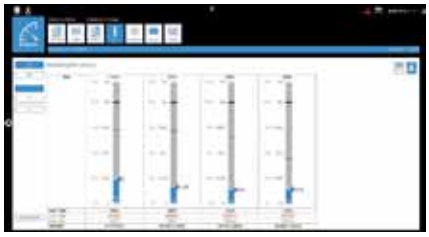
Characteristics

Type	Hosting	Functions	Number of measurement devices
WEBVIEW-S	DIRIS A-40	Monitor, Alarm, Analyse	1
WEBVIEW-M	DIRIS Digiware M-70	Monitor, Alarm, Analyse, Photoview	32
	DIRIS Digiware D-70	Monitor, Alarm, Analyse, Photovieww	32
WEBVIEW-L	DATALOG H80 / H81	Monitor, Alarm, Analyse, Photoview	100/200

Functions

Monitor

- Automatic detection of connected devices.
- Summary of the parameters measured for the electrical network and loads.
- Display of voltage, current, power, power factor, total harmonic distortion (THD) and harmonics per rank.
- Display of average/instantaneous values with min/max limits depending on the devices.
- Total and partial energy consumption per load.
- Input / output status.
- Synchronisation of device clocks.
- Graphical or table representation.


soft_076.eps

Alarm

- Alarms for overloads, events and input status changes.
- Display of alarms history.
- Sorting by type, nature, criticality or state.
- Alarms displayed on the main page.
- Alarm notification by e-mail (SMTP).


soft_074.eps

Analyse

- Historical measurements and consumption.
- Historical records of multiple electrical parameters.
- Breakdown of consumption by location, by end-use and by utility type (water, gas, electricity…).
- Export of consumption data in a CSV format.


soft_075.eps

Photoview

- Photoview: customised dashboard of the WEBVIEW environment via the upload of graphical files (building plans, electrical circuit diagrams, production processes…)
- Real time monitoring via drag and drop of parameters on the background pictures (measurement points, alarms, text…).
- Display of the mapping of the measurement plan by cascading of several images.


soft_064.eps

References

Type	Host device	Reference
WEBVIEW-S	DIRIS A-40	4825 **0501**
WEBVIEW-M	DIRIS Digiware M-70	4829 **0222**
	DIRIS Digiware D-70	4829 **0203**
WEBVIEW-L 100	DATALOG H80	4854 **0020**
	DATALOG H81 (3G network)	4854 **0021**
WEBVIEW-L 200	DATALOG H80	4854 **0030**
	DATALOG H81 (3G network)	4854 **0031**

Easy Config System

Configuration software

Software suite

soft_122_a

soft_124_a

Function

With the Easy Config System, you can configure your Socomec power monitoring and load-breaking equipment while visualising all electrical measurements in real time.

Its speed and simplicity make the Easy Config System software an essential tool for:

- Panel builders and system integrators who want to provide correctly configured electrical panels for their customers
- Operators who want to configure their devices on their own or change specific settings

The bonus: you can easily save and modify your configurations and also duplicate them from one device to another or from one system to another.

Advantages

Quick configuration

Easy Config System is a quick and easy way for system integrators and panel builders to configure their installations:

- Automatic discovery of connected devices
- Configuration of multiple devices at the same time
- Duplication of configurations between devices.

Local or remote access

You can access Easy Config System either locally by connecting it to devices via a USB cable, or remotely with an Ethernet connection. This system provides great flexibility taking into account the constraints of your facility. With the remote access option, you can change settings and correct any configuration or wiring errors, without having to physically return to site.

Reliable data

Easy Config System has a dynamic dashboard (see next page) which adapts to the type of device and can display the phasor diagram, the alarms in progress or detected sensors and their ratings. It also provides an overview of the topology, listing the connected devices, with their firmware versions and internal clock, and the quality of communication.

This ensures the user that the wiringand configuration are correct and, as a result, data is reliable.

Strong points

> Faster

> More reliable

> More flexible

Compatible with

> DIRIS Digiware
power monitoring system

> DIRIS A & B
power monitoring devices

> ISOM insulation monitoring systems

> COUNTIS E energy meters

> ATyS C55/C65, ATyS p and ATyS pm transfer switches and controllers

Free download Easy Config System

https://www.socomec.com/easy-config-system_en.html

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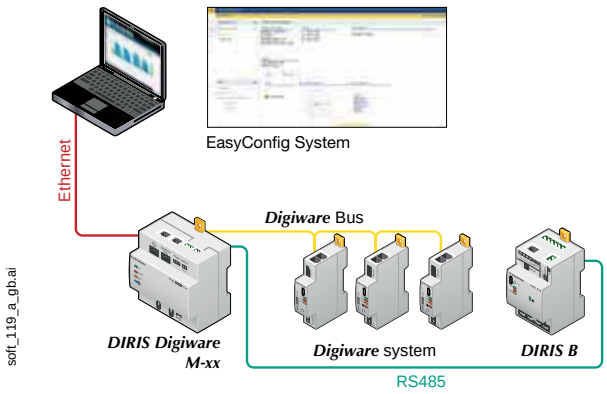
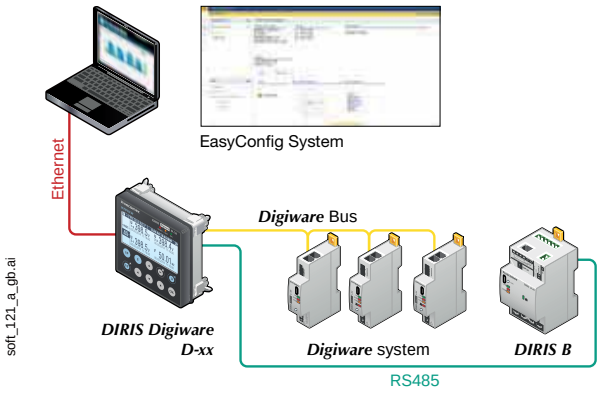
Configuration options

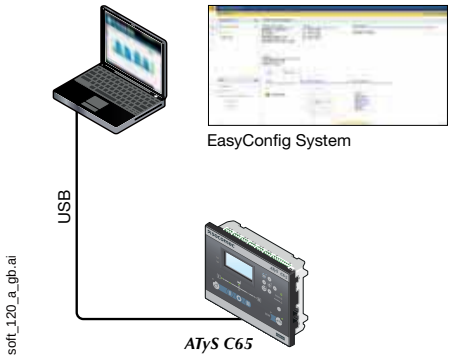
Configure the entire system with an Ethernet connection to a DIRIS Digiware M-xx gateway



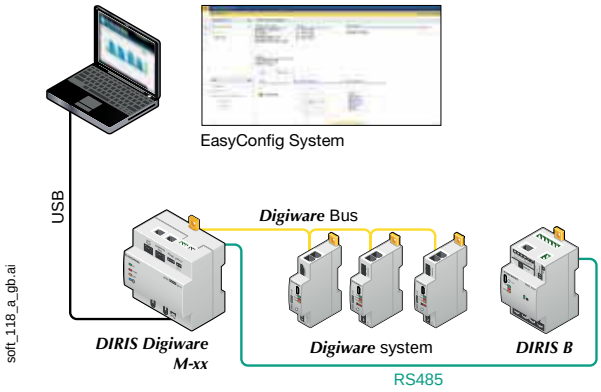
Configure the entire system with an Ethernet connection to a DIRIS Digiware D-xx display



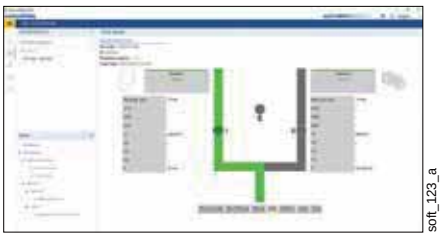
Configure the equipment via USB only



Configure the entire system with a USB connection to a DIRIS Digiware M-xx gateway



A dashboard adapted to each type of device



D-xx displays and M-xx gateways
- List of products in the topology
- Firmware versions of connected devices
- Internal clock for connected devices
- Enabled services
- Communication diagnostics

Multifunction meters
- U/I phasor diagram
- Main electrical readings
- AutoCorrect wiring diagnostics
- Connected sensors and their ratings
- Alarms in progress

Transfer switches
- Electrical data on each source
- Status of primary and secondary sources
- Input / output state
- Alarms in progress
- Operating modes (AUTO/MANU/TEST)
- Timers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DIGIWARE BUS
Alarm1
Alarm2
RESET
TEST
INJ
ISOM
I-60
socomec
ISOM
D-75
INSULATION
L-60 @8
INST
AVG
THRES HOLDS
Rf > 4
MΩ
Cf
10
µF
RESET
TEST
OK

Insulation monitoring

Insulation monitoring for power networks and control circuits

ISOM Digiware

ISOM Digiware D
Consult us

DIRIS Digiware U
Consult us

ISOM Digiware L-60
Consult us

ISOM Digiware F-60
Consult us

ISOM

ISOM K-20
Consult us

ISOM K-40
Consult us

Insulation monitoring solutions for medical locations

ISOM Digiware

ISOM Digiware D-55h
Consult us

ISOM Digiware L-60h
Consult us

ISOM

ISOM D-15h
Consult us

ISOM K-40h
Consult us

Portable insulation fault location system

ISOM PS-62
Consult us

Core balance transformers and sensors

ISOM Digiware

ISOM T-15
Consult us

Locating core balance transformers
Consult us

Current sensors ***TE/TR/TF***
Consult us

ISOM

Locating core balance transformers
Consult us

Expert Services

Our experts are here for you to make your project a success.

Availability and security for your IT network – leave it to the experts

Choose an IT network and make continuity of service a priority. You have constant control over the network and its insulation from the earth, no matter what happens.
This gives you a secure, stable network adapted to your needs.

Ensures a continuous power supply

The IT system ensures you can continue to use your systems even if there's an insulation fault. This particular design makes it possible to limit the risks for operators and facilities.

Guarantees the safety of personnel and property

To protect against indirect contact, the requirements (IEC 60364, NF C 15100, etc.) state that an insulation monitoring device (IMD) should be installed. The ISOM system also minimises the risk of fire and explosion in BE2 and BE3 premises.

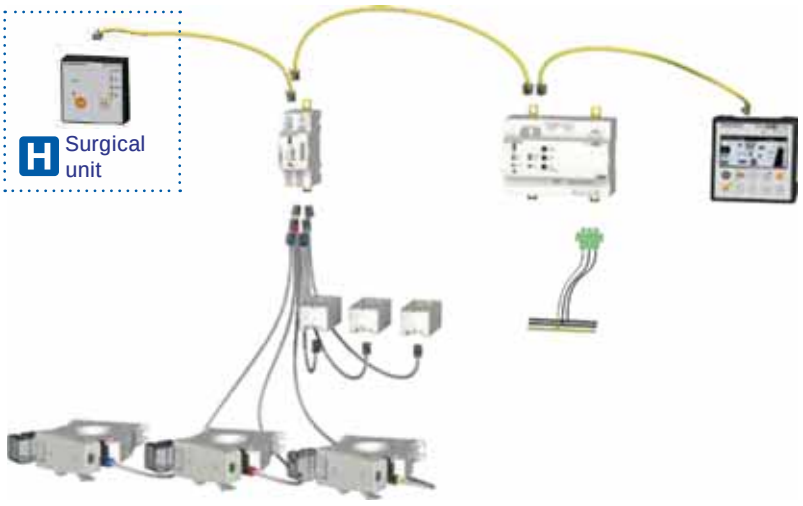
Make your network's maintenance budget go further

Complementing an ultra-preventative earthing system, the IT system requires continuous maintenance.
The ISOM IMD is suitable for all kinds of network. It is complemented by a fault locating device (FLD) allowing for an extended and more efficient location of earth leakage faults.
Pooling the consumption measuring and insulation infrastructure also reduces the overall cost of monitoring your electrical systems.

The solution for

- Naval and military facilities
- Rail and aeronautical infrastructures
- Process / manufacturing industries
- Oil & gas industries
- Energy production
- Healthcare facilities

ISOM Digiware for medical facilities



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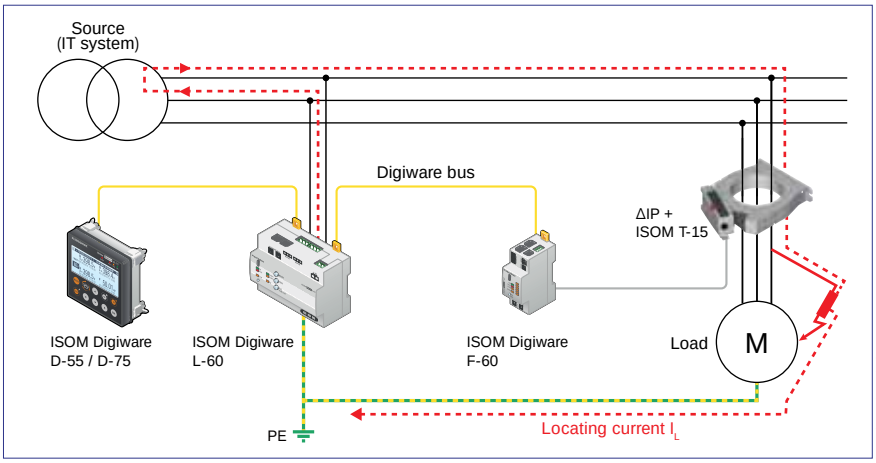
Control principle for insulation and fault location

The IT system ensures you can continue to use your systems even if there's an insulation fault. This means:

- A signal from the insulation monitoring device (IMD) that there has been an insulation change on the network
- Rapid fault location without interruption (fault location device) and elimination of insulation faults



Control principle for insulation and fault location.

Insulation monitoring device (IMD)

The IMD must be compatible firstly with the leakage capacity of the network and secondly with the type (AC or DC) of resistive earth fault current generated by the receptors.

SOCOMEC IMDs with self-adaptive measurement signalling are compatible with highly capacitive networks. They cover every application and eliminate interruptions generated by power converters.

Fault Locating Device (FLD)

Faults can be detected in two ways:

- Automatically, with a fixed system
- Manually, with a portable system

A fault-locating system comprises:

- A standalone booster (INJ) or one built onto the IMD
- One or multiple locating units equipped with detecting core balance transformers

The IMD detects an insulation fault and emits an alarm. This information automatically activates the locating system.

Like the IMD, the booster generates a pulse signal according to the extent of the insulation fault and the mains voltage.

In case of a major insulation fault, the signal value is automatically limited by current.

The fault is detected by core balance transformers when the insulation fault occurs.

The pulse current is analysed so the fault can be assessed.

ISOM Digiware for power networks and control/ command circuits

isom-dw_064_a.psd

2 in 1 Performance

- The first revolutionary system with multi-measurement and insulation control.
- 100% compatible with Digiware systems.
- 100% customisable and scalable.
- Full Socomec solution.
- Option to combine Digiware ISOM and DIRIS modules within the same system.

OhmScanner

- Precise and rapid location of insulation faults.
- Anticipates faults.
- Detailed insulation mapping (resistive and capacitive breakdown).
- Periodic monitoring of the degree of insulation on each circuit.

Expert services for IT neutral arrangements

From commissioning to operating support and training, Socomec service experts help you in your energy efficiency improvement strategy.
With access to our multi-skilled service experts, you are guaranteed the best startup and use of your insulation monitoring solution.

SITE_611_A.EPS

Services

Startup

We check the settings and the proper operation of the devices. Our services help you get the most out of your facility and improve its efficiency.

Operation support

We offer support in the operation of your system, allowing you to benefit from either adhoc or regular site visits (application of IEC 60363-6) as part of a support contract.
From fault-finding to testing the insulation architecture, Socomec provides services that draw on our extensive expertise.

Certified training

Take a personalised training course to understand the distribution of different neutral systems and to make full use of the functionality of our solutions.
We provide personalised monitoring and regular upgrading of your maintenance equipment.

The solution for

- > Process/manufacturing industries
- > Oil & gas industries
- > Energy production
- > Naval and military infrastructures
- > Transport
- > Healthcare facilities

What we do

- > Startup
- > Operation support
- > Fault-finding
- > Testing the insulation architecture
- > Certified training

Approvals and certifications

- > Socomec is registered as an ongoing professional training organisation.

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Startup

What we do

- Check the correct hardware configuration.
- Operational tests using a simulated magnetic core fault current.
- Provide information on the main features of our products.
- Summary report containing test results, configurations and settings.

Methods and hardware

- Measuring equipment and fault-locating system.
- Portable fault detection case for industrial and hospital environments.
- Locating core balance transformers (open, closed).

Operating support – adhoc services or support contracts

What we do

- Help set up and operate the system.
- Find faults on the system.
- Ensure an IMD is functioning properly.
- Help analyse the collected data.
- Save the various configurations.
- The support contract includes an annual onsite visit as well as exclusive access to our experts via a dedicated webline. As part of the support contract, we can provide regular services or keep you updated over time about how to use equipment such as in the case of PS-61/62.

Methods and hardware

- Measuring equipment.
- Handheld fault locating system (tested and certified).
- Locating core balance transformers.

Certified training

What we do

The training is intended to be both theoretical and practical, concise and interactive. At the end of the training, you will be aware of the IT neutral system concept and the elements necessary for using the fault-detection and locating system.

By simulating and detecting system faults, you can consolidate what you learn during the training.

This training course is aimed at the people who will monitor and maintain the correct level of insulation in your electrical equipment.

Agenda

- Theory module:
  - IT neutral system and layout.
  - Monitoring and protection hardware
  - Installation standards

- Practical module
  - Study of different configurations with ISOM products.
  - Handling and configuring the devices.
  - Practical exercises onsite.

References

	Reference
Startup	**9 231 012 200**
Testing the Insulation Monitoring Device (adhoc)	**9 234 022 200**
Fault-finding (adhoc)	**9 234 022 500**
Support contract – annual testing of multi-brand IMD architecture	**9 235 012 100**
Support contract – annual testing of ISOM IMD architecture	**9 235 012 200**
Support contract – annual testing of ISOM DIGIWARE IMD architecture	**9 235 022 200**
Support contract – fault-finding	**9 235 022 500**
Training on using ISOM DIGIWARE at customer site	**9 232 012 200**
Training on the handheld fault location tool, PS-61/62	**9 232 012 500**

Selection guide

Insulation Monitoring Devices

IMD ISOM

Which need? → Which application? → Type of network?

Application	Power networks		
Type of network	Isolated	Isolated / Large	Very large or disturbed
Load type	AC / DC		
			
ISOM	***K-20*** *Consult us*	***K-40*** *Consult us*	***D-x5 + L-60*** *Consult us*
Characteristics			
Maximum network voltage	480 VAC 240 VDC	480 VAC 240 VDC	480 VAC 480 VDC
Measuring principle	Auto-adaptative	Auto-adaptative	Auto-adaptative
Max leakage capacitance (µF)	30	150	300
Number of threshold	2	2	2
Value of the threshold (kΩ)	1-1000	1-1000	0.5 -1000
Type of display	Graphical with backlight	Graphical with backlight	Graphical with backlight
Insulation carthography			•
Energy management (PMD)			•
Location current injection			•
Communication		MODBUS RTU	MODBUS TCP MODBUS RTU
Webserver			• (D-75)
Casing	Modular + panel mounted	Modular + panel mounted	**Panel mounted (D-xx)** **Modular (L-60)**
Dimensions (mm)	96	96	**125 (L-60)** **96 (D-x5)**
Accessories IMD			
Overvoltage limitor	•	•	•
Alarm report			

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Network size? → Type of loads? → Communication?

	Control circuits			Medical locations	
	Isolated	Large	Very large	Mono	Tri / Mono
	AC / DC			AC	
					
	K-20 *Consult us*	***K-40*** *Consult us*	***D-x5 + L-60*** *Consult us*	***K-40h*** *Consult us*	***D-55h + L-60h*** *Consult us*
	480 VAC 240 VDC	480 VAC 240 VDC	480 VAC 480 VDC	250 VAC	250 VAC
	Auto-adaptative	Auto-adaptative	Auto-adaptative	Auto-adaptative	Auto-adaptative
	30	150	300	5	10
	2	2	2	1	1
	1-1000	1-1000	0.5-1000	50-500	50-500
	Graphical with backlight	Graphical with backlight	Graphical with backlight	Graphical with backlight	Graphical with backlight
			•		•
			•		•
			•		•
		MODBUS RTU	MODBUS TCP MODBUS RTU	MODBUS RTU	MODBUS TCP MODBUS RTU
			• (D-75)		
	Modular + panel mounted	Modular + panel mounted	Panel mounted (D-xx) Modular (L-60)	Modular + panel mounted	Panel mounted (D-55h) Modular (L-60h)
	96	96	125 (L-60h) 96 (D-55h)	96	125 (L-60h) 96 (D-55h)
	•				
				D-15h *Consult us*	D-15h *Consult us* D-55h *Consult us*

Selection guide

Insulation Fault Location

IFL ISOM

Which need? → Which application? → Type of network?

Application	
Type of network	
ISOM	
Characteristics	
Maximum network voltage	
Number of monitored circuits	
Portable insulation fault	
Communication	
Display	
Insulation cartography	
Energy management (PMD)	
Location current injection	
Webserver	
Casing	
Dimensions (mm)	
Accessories	
Clamp 115 mm	
Connection adaptator T-15	
Solid core balance transformers ΔIP	
Split core balance transformers ΔIP/R	
Rectangular core balance transformers WR/TOC	
Current sensor TE	
Current sensor TR	
Current sensor TF	
Voltage measurement module Digiware U-xx	
Panel mounting frame	

Network size? → Type of loads? → Communication?

	Power networks Control circuits Medical locations	
	Very large or disturbed	
		
	Digiware F-60 *Consult us*	***PS-62*** *Consult us*
		480 VAC / 480 VDC
	6 circuits	1 circuit
		•
	With D-x5: MODBUS TCP, MODBUS RTU	MODBUS TCP SD-card for screenshots
	Leds	Graphical with backlight
	•	•
	•	
		•
	With D-x5	•
	Modular	Portable casing
	36	456 x 347 x 247
		•
	•	•
	•	
	•	
	•	
	•	
	•	
	•	
	•	
	•	


socomec
IΔn (A)
ON
Delay (S)
RESYS P40
TEST
RESET
% x IΔn

Electronic protection

Differential protection

RESYS M40

p. 358

RESYS M40R

p. 360

RESYS P40

p. 362

Expert Services

Our experts are here for you to make your project a success.
see page 8.

Effective protection for your electrical installation

All electrical installations, particularly those which incorporate sensitive loads, must be appropriately monitored and/or protected against indirect contact, earth leakage currents, short circuits and voltage surges.

To secure your installation against these various risks, we offer a range of protection devices which have been grouped under the heading "Electronic protection":

- RESYS earth leakage relays
  See our selection guide, "Differential protection".

With many years of experience in the industry and an extensive knowledge of installation standards, SOCOMEC delivers much more than high-performance products. Our services include:

- auditing your low-voltage installation
- defining protection requirements
- seamless product integration into your electrical distribution system
- system commissioning
- training on the use of, and the standards applicable to, the system
- turnkey monitoring solutions.

Contact us now and let us provide you with a solution for your installation.

Important!

Sound knowledge of your electrical network is essential in ensuring the successful outcome of your project.

Your choice of electronic protection devices and their location on your installation depends on:

- the type of supply source,
- the length of the conductors,
- the type and nature of the electrical loads connected to the network.

Expert Services

We will help you design your protection solution, guaranteeing perfect integration of the products in your installation.

For further information, please contact your nearest SOCOMEC branch.

Differential protection: a RESYS solution for each application


APPLI 268 A

Motor feeder application.


SITE 538 A

Industrial site application.


APPLI 146 A

Local battery application.

Earth leakage relays fulfil two key functions:

- **Protection against indirect contact** in the following earthing schemes:
  - TT (mandatory)
  - TNS and IT on second fault (with long conductor lengths)
  - IT (with multiple earthing points in an LV network).
- **Prevention / signalling** for TNS or TT earthing arrangements.

In both cases, you need to identify the type of load present on your network to choose the most suitable differential relay.

There are three types of relay:

- **Type AC** for loads that may cause a pure sinusoidal AC earth leakage current
- **Type A** for loads that may generate an AC and/or a pulsing DC earth leakage current
- **Type B** for loads that may generate a DC earth leakage current (including protection types AC & A)

You can combine SOCOMEC toroids and earth leakage relays to suit the needs of each application:

- Interference from variable speed drives, dimmers, etc. through their TRMS measurement: RESYS relay type A or B
- Presence of pulsing components: RESYS relay type A
- Presence of DC circuits: RESYS relay type B.

Due to the mixture of components and loads in industrial applications type AC differential relays do not cover all the necessary requirements, therefore SOCOMEC proposes type A and B differential relays.

What you need to know

To identify the different categories of load present in your installation, visit our website www.socomec.com/en/resys

Selection Guide

Differential protection

Which requirement? ▶ Which application?

Applications	Motor load break	
		
Model	***RESYS M40*** *p. 358*	***RESYS P40*** *p. 360*
Characteristics		
Type of protection DDR	A type	A type
Tripping threshold	30 mA … 30 A	30 mA … 30 A
Time setting	0 … 10 s	0 … 10 s
Automatic reclosing function		
Pre-alarm function	•	•
Output contact	2	2
Case	DIN modular	Panel mounting
Dimensions (mm)	44	48x48
Accessories		
Core balance transformers		
Circular closed toroids ΔIC	•	•
Split-core balance transformer ΔIP-R	•	•
Rectangular closed toroids WR	•	•

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Which type of protection?

	Isolated sites
	
	RESYS M40R *p. 362*
	A type
	30 mA … 30 A
	0 … 10s
	•
	2
	Modular
	44
	•
	•
	•

RESYS M40

Type A differential relays
for motor load break

Function

RESYS M40 earth leakage relays associated with a remote trip breaking device (automatic power breaking), provide the following functions:

- protection against indirect contact,
- limitation of leakage currents.

They also preventively monitor electrical installations via their (configurable) pre-alarm function or when used as signalling relays.

Advantages

Fully configurable

- 2 relays with configurable function (alarm or pre-alarm at 50% IΔn).
- Adjustment of IΔn from 0.03 to 30 A.
- Time delay 0 to 10 s.
- Positive or negative security configurable by the user.
- Selection of toroid ratio.

Tripping accuracy by TRMS measurement

Improves immunity to nuisance tripping.

Instantaneous display of permanent leakage currents.

The LED bargraph provides a real-time display of fluctuations in leakage currents.

Compact modular design

44 mm in width, the unit allows easy integration into dedicated enclosures. The adjustment buttons are protected by a sealable cover, while the display of available alarms is displayed directly on the front face of the device.

Improved immunity to EMC interferences

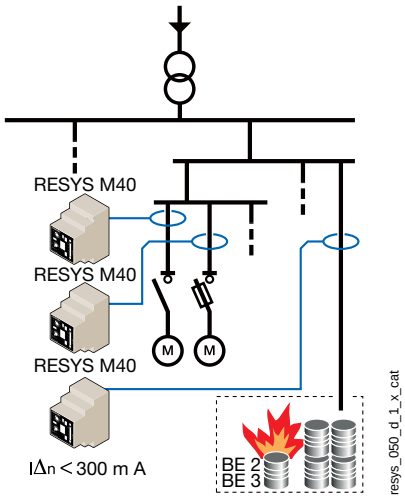
The device has new electronics which improve electromagnetic compatibility.

Applications

Rapid recognition of an insulation fault increases the availability of the distribution network by preventing accidental power cuts and the resulting loss of production.

Protection against fire or explosion risks

The use of Residual Differential Devices (with adjustment IΔn ≤ 300 mA) provides protection against the risk of fire or explosion generated by tracking currents to earth, in areas classed as BE2 or BE3 respectively. This protection is mandatory in TT, TN and IT neutral systems.



The solution for

- Processes
- Manufacturing
- Oil, gas and petrochemistry
- Energy production

Strong points

- Fully configurable
- Measurement accuracy by TRMS
- Instantaneous display of permanent leakage currents
- Compact and modular case with LED bargraph
- Improved immunity to EMC interferences

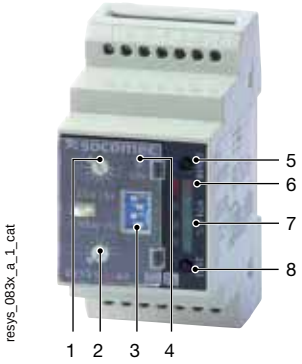
Conformity to standards

- IEC 60755
- IEC 60947-2
- IEC 60664
- IEC 61543 A1

Approvals and certifications(1)

(1) Product reference on request.

Front panel



1. IΔn setting.
2. Time delay setting.
3. Configuration micro-switches (x4).
4. "ON" LED.
5. "RESET" pushbutton.
6. "TRIP" alarm LED.
7. LED bargraph (% x IΔn).
8. "TEST" pushbutton.

General characteristics

- RESYS M40 with 2 configurable relays:
  - either 2 alarm relays,
  - or 1 alarm relay and 1 pre-alarm relay (50 % IΔn).
- Adjustment sensitivity from 0.03 mA to 30 A.
- Time delay 0 to 10 s.
- Tripping accuracy by TRMS measurement.
- Automatic instantaneous tripping at 30 mA.
- Positive or negative security configurable by the user.
- Selection of toroid ratio.
- Automatic permanent relay-toroid connection test.
- Sealable cover.

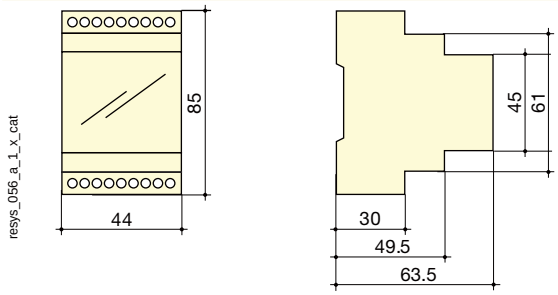
Characteristics

Auxiliary power supply U_s	
Frequency	47 … 63 Hz
AC operating zone	0.8 … 1.15 U_s
DC operating zone	0.8 … 1.05 U_s
Max. consumption	6 VA (AC) / 5 W (DC)
Insulation (according to IEC 60664-1 standard)	
Rated insulation voltage	250 VAC
Rated impulse voltage	2.5 kV (115 VAC) / 4 kV (230/400 VAC)
Degree of pollution	Class 3
Threshold values	
IΔn setting	0.03 - 0.1 - 0.3 - 0.5 - 1 - 3 - 5 - 10 - 30 A
Accuracy of tripping	- 20 … - 10 % IΔn
Domain of mains frequency	15 … 400 Hz
Time delay setting	0 - 0.06 - 0.15 - 0.30 - 0.50 - 0.80 - 1 - 4 - 10 s
PRE-ALARM relay tripping	50 % IΔn
Hysteresis of the PRE-ALARM relay	20 % IΔn
Alarm	
Alarm configuration mode	storage / automatic reset
Alarm factory setting	storage
Reset	manual by pushbutton / using terminal
Output contacts	
Number of contacts	2
Type of ALARM 1 contact	250 VAC - 8 A - 2000 VA
Type of ALARM 2 or PRE-ALARM contact	250 VAC - 6 A - 1500 VA
ALARM 1 operating mode	positive / negative security(1)
ALARM 2 or PRE-ALARM operating mode	positive security(1)
Factory setting of ALARM 1 operating mode	negative security
Factory setting of ALARM 2 operating mode	positive security

(1) Negative security: relay activated in case of alarm / Positive security: relay not activated in case of alarm.

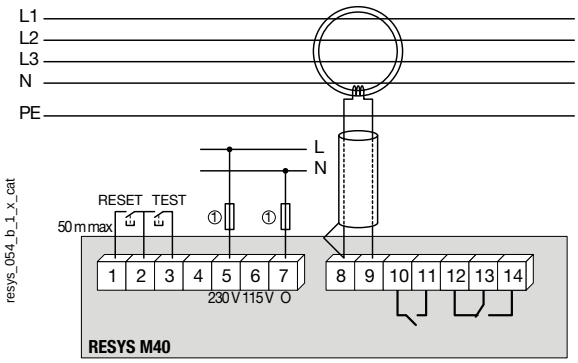
Operating conditions	
Operating temperature	- 20 … + 55 °C
Storage temperature	- 30 … + 70 °C

Case



Type	modular
Number of modules	2.5
Dimensions W x H x D	44 x 85 x 63.5
Case protection index	IP40
Terminal protection index	IP20
Rigid cable cross-section	0.2 … 4 mm²
Flexible cable cross-section	0.2 … 2.5 mm²
Weight	190 g

Terminals and connections



1 - 2 - 3: external push buttons
5 - 6 - 7: auxiliary power supplies U_s
8 - 9: SOCOMEC differential toroid connections
10 - 11: alarm relay 2 or pre-alarm outputs
12 - 13 - 14: alarm relay 1 output

Note: The earth conductor must not pass through the toroid.
For single phase applications, only the live and neutral need to be passed through the toroid.
Cabling: for distances > 1 m, use twisted pair cable between the unit and toroid. Do not connect the shield to earth.

1. Fuses 2 A gG .

References

Auxiliary power supply U_s(1)	**RESYS M40 Reference**
115 / 230 VAC	4941 **3723**(2)
400 VAC	4941 **3740**(2)
12 … 125 VDC	4941 **3602**(2)

(1) Other rating: Please consult us. (2) References and characteristics of closed, split core and rectangular toroids: see "Core balance transformers type A"

RESYS M40R

Type A earth leakage relays with automatic reclosing

The solution for

- Power distribution (Public lighting)
- Water treatment
- Processes
- Telecom, Datacom and broadcasting
- Farm buildings

Strong points

- Automatic reclosing
- Fully configurable
- Continuity of the power supply for strategic applications
- Tripping accuracy by TRMS measurement
- Instantaneous display of permanent leakage currents

Conformity to standards

- IEC 60755
- IEC 60947-2
- IEC 60664
- IEC 61543 A1

Function

RESYS M40R earth leakage relays associated with a remote trip breaking device (automatic power breaking and reclosing), provide the following functions:

- protection against indirect contact,
- limitation of leakage currents.
- reclosing of trip breaking device after earth leakage detection and power supply breaking.

The relay recloses the system up to six consecutive times after different time intervals. If the fault is still present after the sequence of six reclosing attempts, the relay is locked in alarm mode and a manual intervention will be required.

Rapid recognition of an insulation fault increases the availability of the distribution network by preventing accidental power cuts and the resulting loss of production. TRMS measurement avoids repeated random tripping and the bargraph allows the display of permanent leakage current.

Advantages

Automatic reclosing

This function provides protection, particularly in isolated sites or for processes requiring a restart in the event of transient faults (continuity of service ensured in the absence of a maintenance team).

Fully configurable

- Adjustment of IΔn from 0.03 to 30 A.
- Time delay 0 to 10 s.

Ensures continuity of the power supply for strategic applications or in isolated sites

In the majority of cases, where the fault is not permanent, simply reclosing may resolve the situation.

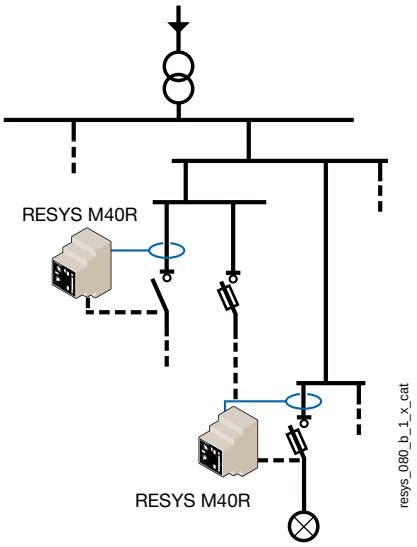
Tripping accuracy by TRMS measurement

Improves immunity to nuisance tripping.

Instantaneous display of permanent leakage currents

The LED bargraph provides a real-time display of fluctuations in leakage currents.

Applications



The RESYS M40R relay must be combined with an automatic tripping/reclosing breaking device:

- a motorised switch
- a device fitted with an undervoltage coil
- a contactor.

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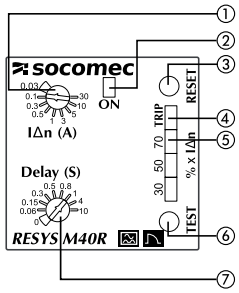
Front panel

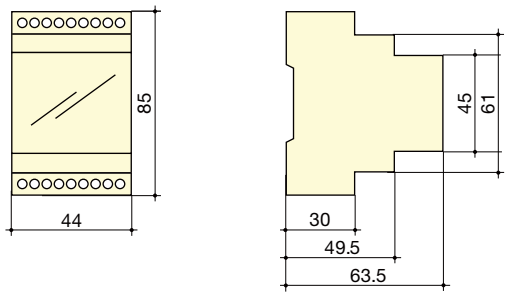
resys_078_a_1_x_cat



1 - Adjustment IΔn.
2 - "ON" LED.
3 - "RESET" pushbutton.
4 - "TRIP" alarm LED.
5 - LED Bargraph (% x IΔn).
6 - "TEST" pushbutton.
7 - Time delay setting.

Case

resys_056_a_1_x_cat



Type	modular
Number of modules	2.5
Dimensions W x H x D	44 x 85 x 63.5 mm
Case protection index	IP40
Terminal protection index	IP20
Rigid cable cross-section	0.2 … 4 mm²
Flexible cable cross-section	0.2 … 2.5 mm²
Weight	190 g

Characteristics

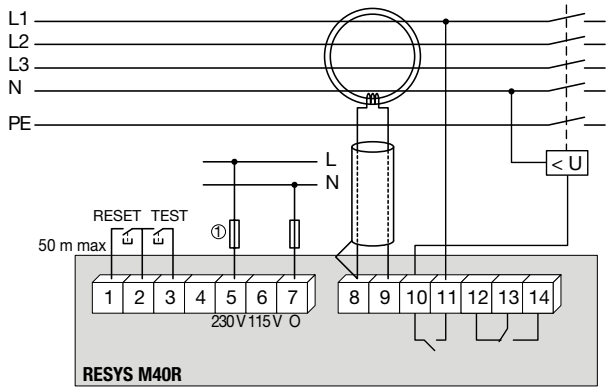
Auxiliary power supply U_s	
Frequency	47 … 63 Hz
AC operating zone	0.8 … 1.15 U_s
DC operating zone	0.8 … 1.05 U_s
Max. consumption	6 VA (AC) / 5 W (DC)
Insulation (according to IEC 60664-1 standard)	
Rated insulation voltage	250 VAC
Rated impulse voltage	2.5 kV (115 VAC) / 4 kV (230/400 VAC)
Degree of pollution	Class 3
Threshold values	
IΔn setting	0.03 - 0.1 - 0.3 - 0.5 - 1 - 3 - 5 - 10 - 30 A
Accuracy of tripping	- 20 … - 10 % IΔn
Domain of mains frequency	15 … 400 Hz
Time delay setting	0 - 0.06 - 0.15 - 0.30 - 0.50 - 0.80 - 1 - 4 - 10 s
Reclosing	
Nb of automatic reclosing attempts	6 max
Time delay between two reclosing	7.5 - 15 - 30 - 60 - 120 - 240 s
Reset of automatic reclosing counter (t_{CR})	15 min
Alarm	
Alarm configuration mode	automatic reset (6x max, then recording)
Reset	manual by pushbutton / using terminal
Output contacts	
Number of contacts	2
Type of ALARM 1 contact	inverter
Type of ALARM 2 contact	simple
Characteristics contact ALARM 1	250 VAC - 8 A - 2000 VA
Characteristics contact ALARM 2	250 VAC - 6 A - 1500 VA
ALARM 1 operating mode	negative security(1)
ALARM 2 operating mode	positive security (1)

(1) Negative security: relay activated in case of alarm /
Positive security: relay not activated in case of alarm.

Operating conditions	
Operating temperature	- 20 … + 55 °C
Storage temperature	- 30 … + 70 °C

Terminals and connections

resys_079_b_1_x_cat



1. Fuses 2 A gG .

1 - 2 - 3: external push buttons
5 - 6 - 7: auxiliary power supplies U_s
8 - 9: SOCOMEC differential toroid connections
10 - 11: alarm relay 2 output
12 - 13 - 14: alarm relay 1 output

Note: The earth conductor must not pass through the toroid.
For single phase applications, only the live and neutral need to be passed through the toroid.

Cabling: for distances > 1 m, use twisted pair cable between the unit and toroid.
Do not connect the shield to earth.

References

Auxiliary power supply U_s(1)	RESYS M40R Reference
115/230 VAC	4941 **3724**
400 VAC	4941 **3741**

(1) Other rating: Please consult us.

RESYS P40

Type A earth leakage relays for motor load break

RESYS P40

Function

RESYS P40 earth leakage relays associated with a remote trip breaking device (automatic power breaking), provide the following functions:

- protection against indirect contact,
- limitation of leakage currents.

They also preventively monitor electrical installations via their (configurable) pre-alarm function or when used as signalling relays.

Advantages

Fully configurable

- 2 relays with configurable function (alarm or pre-alarm at 50% IΔn).
- Adjustment of IΔn from 0.03 to 30 A.
- Time delay 0 to 10 s.
- Positive or negative security configurable by the user.
- Selection of toroid ratio.

Tripping accuracy by TRMS measurement

Improves immunity to nuisance tripping.

Instantaneous display of permanent leakage currents.

The LED bargraph provides a real-time display of fluctuations in leakage currents.

Compact sealed case

Compact 48 x 4 8 mm case is particularly well suited to integration in MCCs with high density withdrawable compartments.

Improved immunity to EMC interferences

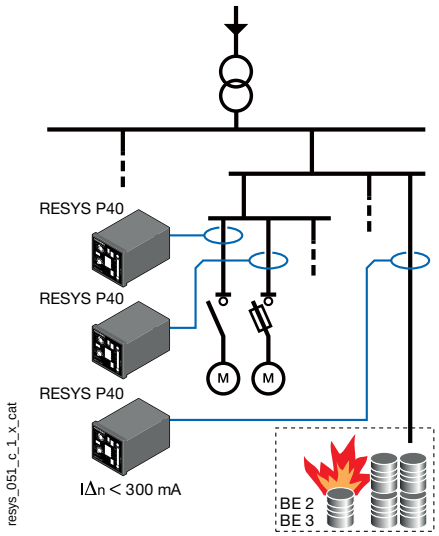
The device has new electronics which improve electromagnetic compatibility.

Applications

Rapid recognition of an insulation fault increases the availability of the distribution network by preventing accidental power cuts and the resulting loss of production. RESYS P40 are particularly suitable for insertion in electricity control panels with withdrawable compartments.

Protection against fire or explosion risks

The use of Residual Differential Devices (with adjustment IΔn ≤ 300 mA) provides protection against the risk of fire or explosion generated by tracking currents to earth, in areas classed as BE2 or BE3 respectively. This protection is mandatory in TT, TN and IT neutral systems.



The solution for

- Process
- Manufacturing
- Oil, gas and petrochemistry

Strong points

- Fully configurable
- Tripping accuracy by TRMS measurement
- Instantaneous display of permanent leakage currents
- Compact sealed case
- Improved immunity to EMC interferences

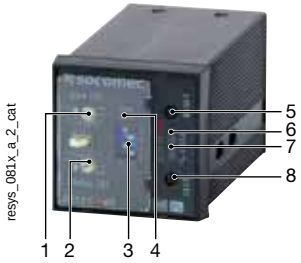
Conformity to standards

- IEC 60755
- IEC 60947-2
- IEC 60664
- IEC 61543 A1

Approvals and certifications(1)

(1) Product reference on request.

Front panel



1. IΔn setting.
2. Time delay setting.
3. Configuration micro-switches (x4).
4. "ON" LED.
5. "RESET" pushbutton.
6. "TRIP" alarm LED.
7. LED bargraph (% x IΔn).
8. "TEST" pushbutton.

Characteristics

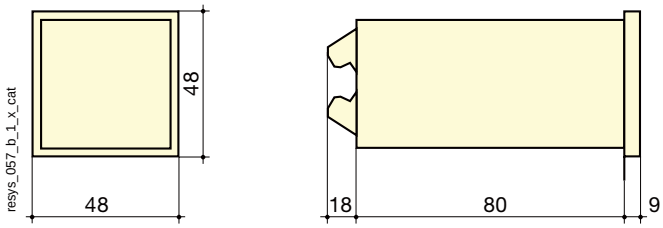
Auxiliary power supply U_s	
Frequency	47 … 63 Hz
AC operating zone	0.8 … 1.15 U_s
DC operating zone	0.8 … 1.05 U_s
Consumption	6 VA (AC) / 5 W (DC)
Insulation (according to IEC 60664-1 standard)	
Rated insulation voltage	250 VAC
Rated impulse voltage	2.5 kV (115 VAC) / 4 kV (230/400 VAC)
Degree of pollution	Class 3
Threshold values	
IΔn setting	0.03 - 0.1 - 0.3 - 0.5 - 1 - 3 - 5 - 10 - 30 A 4 - 10 s
Accuracy of tripping	- 20 … - 10 % IΔn
Domain of mains frequency	15 … 400 Hz
Time delay setting	0 - 0.06 - 0.15 - 0.30 - 0.50 - 0.80 - 1
PRE-ALARM relay tripping	50 % IΔn
Hysteresis of the PRE-ALARM relay	20 % IΔn

Alarm	
Alarm configuration mode	storage / automatic reset
Alarm factory setting	storage
Reset	manual by pushbutton / using terminal
Output contacts	
Number of contacts	2
Type of ALARM 1 contact	250 VAC - 8 A - 2000 VA
Type of ALARM 2 or PRE-ALARM contact	250 VAC - 6 A - 1500 VA
ALARM 1 operating mode	positive / negative security(1)
ALARM 2 or PRE-ALARM operating mode	positive security(1)
Factory setting of ALARM 1 operating mode	negative security
Factory setting of ALARM 2 operating mode	positive security

(1) Negative security: relay activated in case of alarm / Positive security: relay not activated in case of alarm.

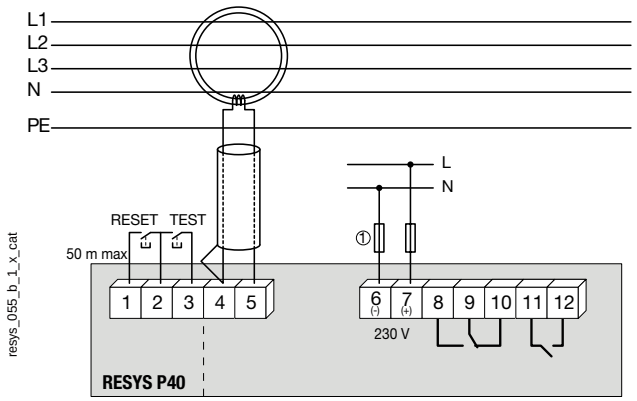
Operating conditions	
Operating temperature	- 20 … + 55 °C
Storage temperature	- 30 … + 70 °C

Case



Type	panel mounting
Dimensions W x H x D	48 x 48 x 107 mm
Case protection index	IP40
Terminal protection index	IP20
Rigid cable cross-section	0.2 … 4 mm²
Flexible cable cross-section	0.2 … 2.5 mm²
Weight	190 g
Cutout	45 x 45 mm

Terminals and connections



1 - 2 - 3: external push buttons
4 - 5: SOCOMEC differential toroid connections
6 - 7: Auxiliary power supply U_s
8 - 9 - 10: alarm relay 1 output
11 - 12: alarm relay 2 or pre-alarm outputs

Note: The earth conductor must not pass through the toroid.
For single phase applications, only the live and neutral need to be passed through the toroid.
Cabling: for distances 1 m, use twisted pair cable between the unit and toroid.
Do not connect the shield to earth.

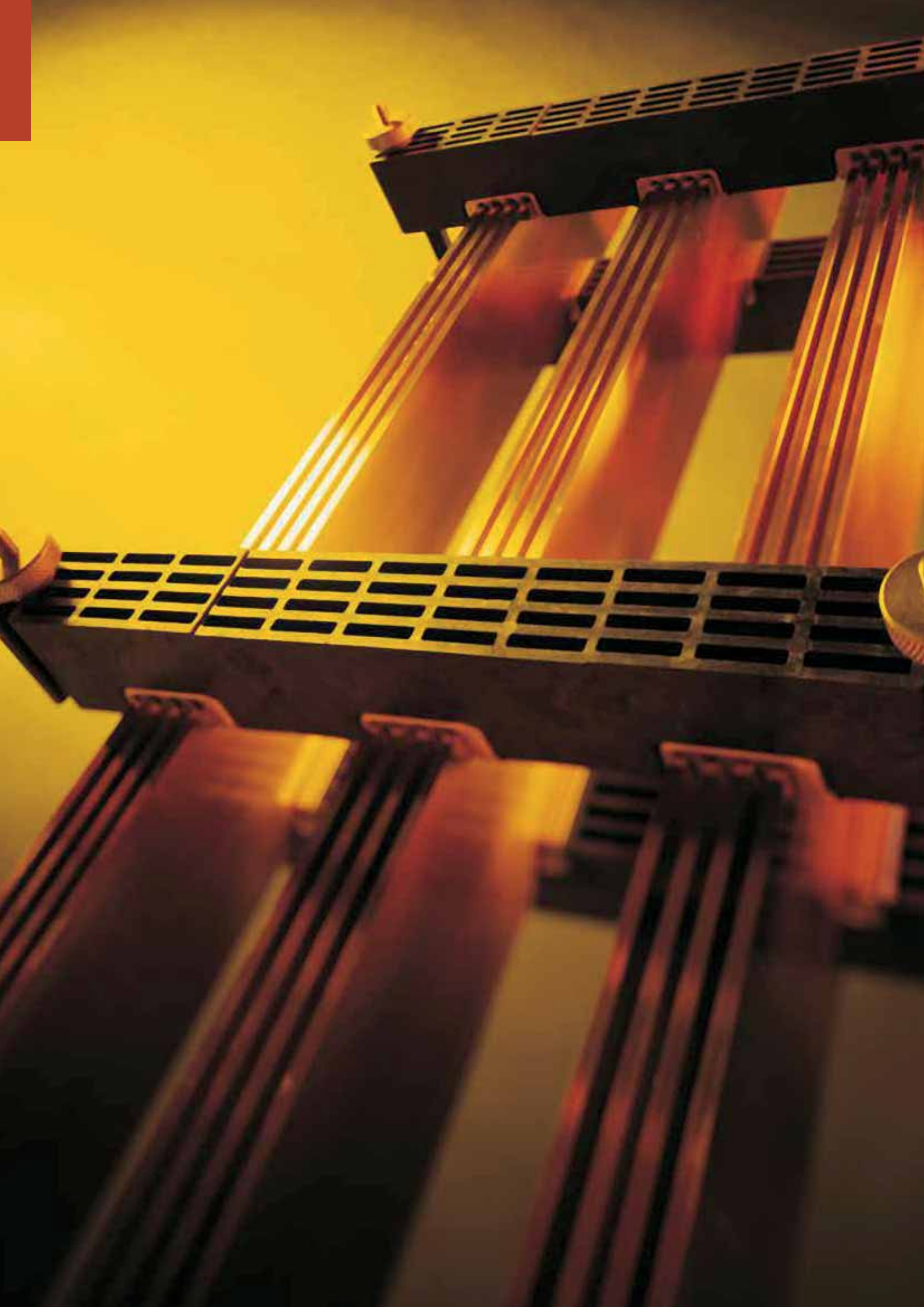
1. Fuses 2 A gG .

References

Auxiliary power supply U_s(1)	**RESYS P40 Reference**
115 VAC	4942 **3711**(2)
230 VAC	4942 **3723**(2)
12 … 125 VDC	4942 **3602**(2)

(1) Other rating: Please consult us. (2) References and characteristics of closed, split core and rectangular toroids: see "Core balance transformers type A"

Description of accessories	**Reference**
Soft protection cover IP65	4942 **0000**



Enclosures & accessories

Busbar supports

Busbars *p. 366*

Edgewise mounting with fixed interphase
p. 368

Edgewise mounting with adjustable interphase
p. 378

Flat mounting with fixed interphase
p. 382

Unipolar flat-mounted
p. 388

Other supports
p. 396

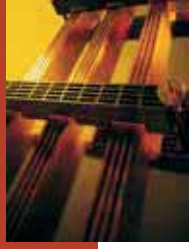
Distribution

High power

Distribution blocks
p. 398

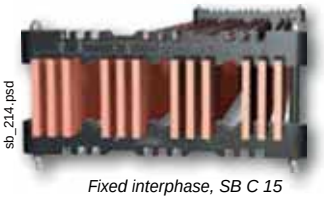
Medium power

Distribution blocks
p. 398

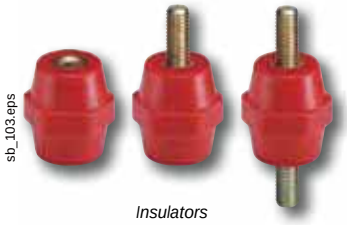


Busbar supports

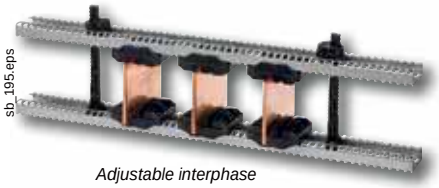
Busbars



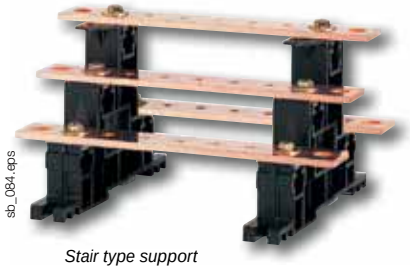
Fixed interphase, SB C 15



Insulators



Adjustable interphase



Stair type support

The solution for

> Electrical distribution

Conformity with standards

> IEC 61439-1
> IEC 60865-1

Approvals and certifications (1)

> ASEFA/LCIE

(1) Product part numbers on request.

Function

SOCOMEC insulating busbar supports enable the fixing and holding in place of copper or aluminium busbars or busbar systems during a short-circuit.

Characteristics

Insulators

- Polyester without halogen.
- UL94 VO self-extinguishing.
- Colour red RAL 3002.
- Operating temperature from -40 °C to +130 °C.
- Deformation under load temperature (ASTM D643): > 200°C.
- Dielectric constant (ASTM D150): 4/5.
- Arc resistance (ASTM D495): > 180 s.
- Water absorption (ASTM D570): < 0.3%.

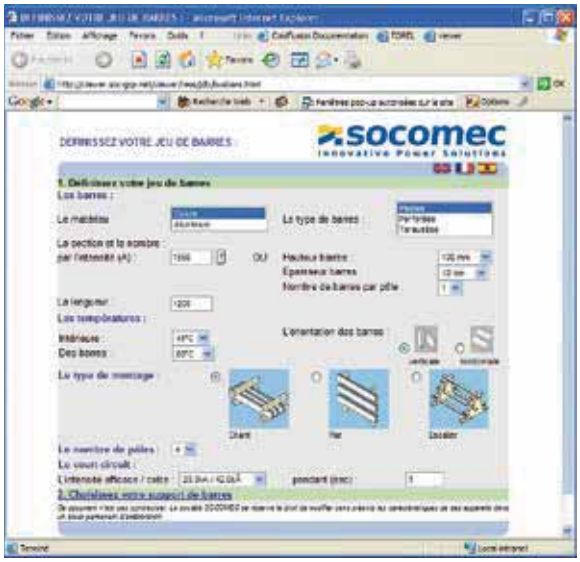
Busbar supports

- High dielectric strength.
- High mechanical resistance.
- Amagnetism of assembly parts.
- High resistance to damp heat (supplied "tropicalised").

Stair type supports

- Thermoplastic material.
- VO self-extinguishing.
- Insulating voltage: 1000 V.

Software tool for size selection



sb_201_b_1_fr_cat.eps

Strong points

> Easy to install and use
> Manages changes depending on environmental conditions

Function

Mechanical System is a multi-language software used for sizing busbar systems. It defines the configuration of the busbar system, including bar section and distance between supports, according to the required electrical characteristics of the panel in compliance with standard IEC 61439-1.

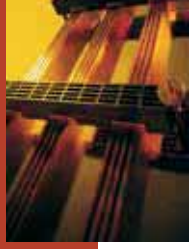
Advantages

Easy to install and use

The Mechanical System software is available for download from www.socomec.com. Once installed, the software can be used offline. It runs on Windows.

Manages changes depending on environmental conditions

Mechanical System allows you to perfectly adapt the copper section according to the environmental conditions of your panel and installation.

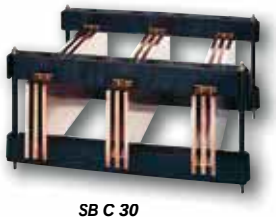


Busbar supports

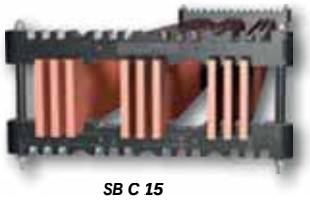
Edgewise mounting with fixed interphase

SBC 20

SB C 10



SB C 30



SB C 15

The solution for

> Electrical distribution

Conformity with standards

> IEC 61439-1
> IEC 60865-1

Strong points

> Insulating materials
> Durability
> Easy to use
> Extensive range

Function

With SOCOMEC's insulating bar supports you can:
- mount and attach the busbars inside the electrical panel,
- cope with the forces experienced by the busbars during a short circuit.

Advantages

Insulating materials

- Our range of SB C edgewise mounting bar supports is made using thermoplastic. This very resistant material (reinforced fibreglass) is insulating so there are no risks in terms of clearance and creepage distances.

Durability

- Most bar supports have an M8 screw connection which provides outstanding robustness to the entire busbar structure.

Easy to use

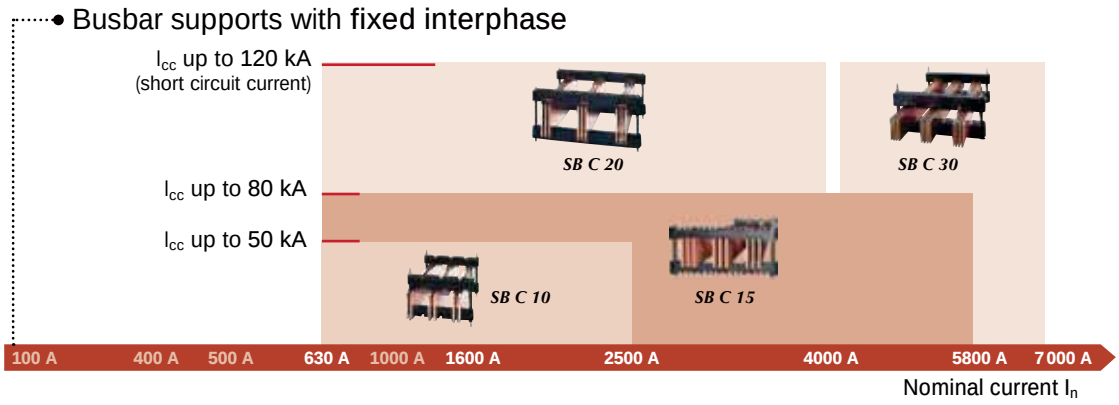
- Only one type of spacer kit is required for the whole range of edgewise mounting busbar supports (SB C) with fixed interphase.

Extensive range

- Our range of bar supports allows you to assemble busbars with up to 120 kA of short-circuit current.

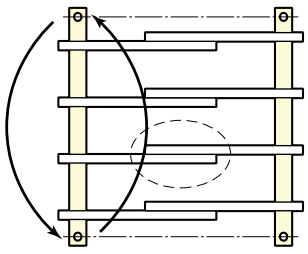
Selection guide

Edgewise mounting



What you need to know

Bars joined by reversing a support
Compatible with SB C 10 and SB C 20



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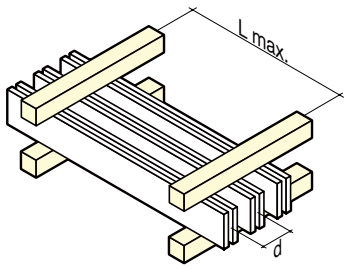
Respecting the maximum distance between two supports ensures that the busbar supports are able to withstand the given short circuit current values. At these limits, distortion of the copper bars may occur. These deformations are permitted by standard IEC 61439-1 so long as they adhere to the insulation distances.



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Busbar supports
Edgewise mounting with fixed interphase

References

Support only

Use

To assemble a complete busbar support, please observe the multiple order quantity and order 1 spacer set

Type of busbar support	No. of poles	Number of busbars per phase	Thickness	Interphase	Interfixed	Available for order in multiples of	Support only Reference
SB C 10	3 P	1 ... 2	5	75	250	2	5024 **6300**
		1	10				
	4 P	1 ... 2	5	60			5024 **6500**
		1		65			
	3 P	1	10	75			5024 **6400**
		2		90			
	4 P	1 ... 2			350		5024 **6600**
SB C 15	3 P	1 ... 3		110			5024 **4501**
	4 P			90			
SB C 20	3 P	1 ... 4	5	110		1	5024 **8300**
	4 P			90			5024 **8400**
	3 P	1 ... 3	10	110			5024 **7300**
	4 P			90			5024 **7400**
SB C 30	3 P	1 ... 3		185	525		5024 **5300**
	4 P			130			5024 **5500**

Spacer kit for support

Use

The spacer kit comprises 2 threaded rods, 2 insulating spacers, cut to length according to bar height, and 4 nuts.

Bar height (mm)	Available for order in multiples of	Reference
25	1	5020 **2025**
30		5020 **2030**
32		5020 **2032**
40		5020 **2040**
50		5020 **2050**
60		5020 **2060**
63		5020 **2063**
80		5020 **2080**
100		5020 **2100**
125		5020 **2125**
160		5020 **2160**
200		5020 **2200**

Accessories

Adjustable interfixed profiles

Use

Adjustable interfixed profiles allow you to install the busbar supports at a variable depth.
For high-load busbars, we recommend the use of adjustable reinforced floating profiles.


sb_215.psd

Type of busbar support	For depth Min./max. (mm)	Pack qty	Reference
SB C 10 2 x 5 / 1 x 10	575 / 675	1	5024 **9050**
SB C 10 1 x 10 / 2 x 10	575 / 775		5024 **9051**
SB C 15			5024 **9052**
SB C 20			
SB C 30			5024 **9054**

Adjustable reinforced floating profiles

Use

With adjustable reinforced floating profiles, you can install busbar supports in varying depths in the case of high-load busbars (from 100 kg/ml).


sb_218.psd

Type of busbar support	For depth Min./max. (mm)	Available for order in multiples of	Reference
SB C 15	575 / 775	1	5024 **9053**
SB C 20			
SB C 30			5024 **9055**

Holding rod for SB C 15

Use

With the holding rods for SB C 15, you can install the support on a standard mounting profile in the case of high-load busbars (from 100 kg/ml).
Material: Stainless steel threaded rod.


acces_496_a.psd

Bar height (mm)	Available for order in multiples of	Reference
32	1	5020 **1040**
40		
50		5020 **1060**
60		
80		5020 **1101**
100		
125		5020 **1125**
160		5020 **1160**

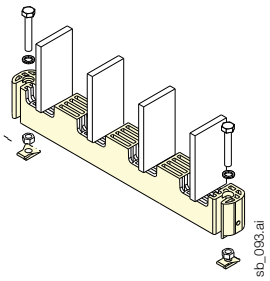
Accessories (continued)

Bar holder

Use

The heels hold the busbars upright.

Type of busbar support	Number of bars	No. of poles	Available for order in multiples of	Reference
SB C 10	2 x 5 / 1 x 10	3	1	5024 **9031**
	2 x 5 / 1 x 10	4		5024 **9041**
	1 x 10 / 2 x 10	3		5024 **9034**
	1 x 10 / 2 x 10	4		5024 **9044**
SB C 15	1 to 3 x 10	3		5024 **9032**
	1 to 3 x 10	4		5024 **9042**
SB C 20	1 to 4 x 5 / 1 to 2 x 10	3		5024 **9032**
	1 to 4 x 5 / 1 to 2 x 10	4		5024 **9042**
SB C 30	1 to 3 x 10	3 / 4		5024 **9033**

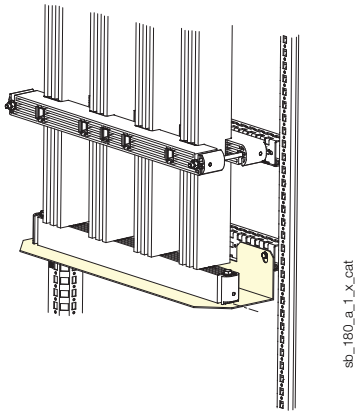


Installation corner piece

Use

Allows the holding heel to be placed on a support.

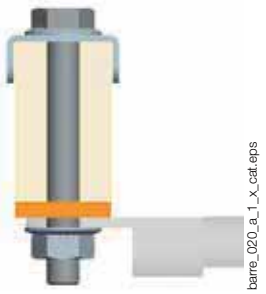
For cabinet Depth (mm)	To be ordered in multiples of	Reference
Min. 400	1	5024 **9000**
Min. 600	1	5024 **9001**



Fast connection of flexible bar or cables

Use

- Allows you to connect flexible bars or cables to busbars without having to drill the bars.
- Connect on 2 x 10 mm-thick bars placed side-by-side, 10 mm apart.
- For lug or flexible bar widths greater than 40 mm, use 2 connection accessories.
- Tightening with M10 screw, tightening torque 45Nm.
- For the connection, you will need: 1 tightening head nut and 1 screw adapted to the height of the bars.

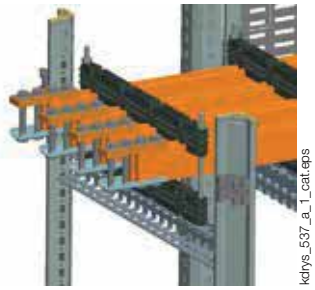


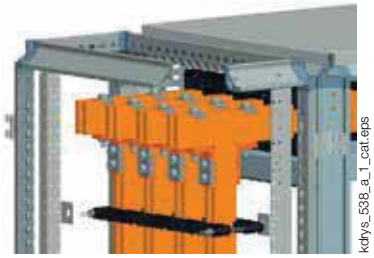
Type	Bar (mm)	Available for order in multiples of	Reference
M10 tightening head nut	All	12	5119 **4423**

Quick connection for busbars

Use

- Lock and connect busbars without drilling.
- Connect on 2 x or 3 x 10 mm-thick bars placed side-by-side.
- M10 screw tightening, 45 Nm torque. (to be ordered separately).





Current (A)	Number of bars / poles	Available for order in multiples of	Horizontal connection Reference	Vertical connection Reference
1600	2	1	5119 **4411**	5119 **4401**
3200	3		5119 **4412**	5119 **4402**
5000	3		5119 **4413**	5119 **4403**

Screws for quick connection

Type	Bar (mm)	Available for order in multiples of	Reference
M10 screw	30	100	5119 **4503**
	50		5119 **4505**
	60		5119 **4506**
	80		5119 **4508**
	100		5119 **4510**
	125		5119 **4512**
	160		5119 **4513**

Characteristics

SB C 10

SB C 10 3 poles, distance between centres 75 mm, bar thickness 5 mm

	I_{cc} peak kA	25	48	63	84	110
	I_{cc} rms kA 1s	12.5	23	30	40	50
Bar width I	25	275	150	100	75	50
	32	300	150	125	75	75
	40	350	175	125	100	75
	50	400	200	150	125	75
	63	450	225	175	125	100
	80	500	250	200	150	125
	100	575	300	225	175	125
Bar width II	25	1000	650	500	375	300
	32	1000	750	575	425	350
	40	1000	850	650	475	375
	50	1000	950	725	550	350
	63	1000	1000	825	600	375
	80	1000	1000	950	625	400
	100	1000	1000	1000	650	425

SB C 10 3 poles, distance between centres 75 mm, bar thickness 10 mm

	I_{cc} peak kA	25	48	63	84	110
	I_{cc} rms kA 1s	12.5	23	30	40	50
Bar width I	30	800	425	325	225	175
	50	1000	550	425	300	225
	60	1000	600	450	325	275
	80	1000	700	550	400	325
	100	1000	800	600	450	350

SB C 10 3 poles, distance between centres 90 mm, bar thickness 10 mm

	I_{cc} peak kA	25	48	63	84	110
	I_{cc} rms kA 1s	12.5	23	30	40	50
Bar width I	30	825	425	325	250	200
	50	1000	550	425	300	250
	60	1000	625	475	350	275
	80	1000	1000	550	400	325
	100	1000	1000	625	450	375
Bar width II	30	1000	750	575	425	325
	50	1000	1000	750	550	375
	60	1000	1000	825	625	425
	80	1000	1000	975	725	450
	100	1000	1000	1000	825	450

SB C 10 4 poles, distance between centres 60 mm, bar thickness 5 mm

	I_{cc} peak kA	25	48	63	84	110
	I_{cc} rms kA 1s	12.5	23	30	40	50
Bar width I	25	275	150	100	75	50
	32	300	150	125	75	75
	40	350	175	125	100	75
	50	400	200	150	125	75
	63	450	225	175	125	100
	80	500	250	200	150	125
	100	575	300	225	175	125
Bar width II	25	1000	625	475	350	250
	32	1000	725	550	400	250
	40	1000	825	625	450	275
	50	1000	925	700	450	275
	63	1000	1000	800	475	300
	80	1000	1000	925	500	325
	100	1000	1000	1000	550	350

SB C 10 4 poles, distance between centres 65 mm, bar thickness 10 mm

	I_{cc} peak kA	25	48	63	84	110
	I_{cc} rms kA 1s	12.5	23	30	40	50
Bar width I	30	800	425	325	225	175
	50	1000	550	425	300	225
	60	1000	600	450	325	275
	80	1000	700	550	400	325
	100	1000	800	600	450	350

SB C 10 4 poles, distance between centres 90 mm, bar thickness 10 mm

	I_{cc} peak kA	25	48	63	84	110
	I_{cc} rms kA 1s	12.5	23	30	40	50
Bar width I	30	825	425	325	250	200
	50	1000	550	425	300	250
	60	1000	625	475	350	275
	80	1000	1000	550	400	325
	100	1000	1000	625	450	375
Bar width II	30	1000	750	575	425	325
	50	1000	1000	750	550	375
	60	1000	1000	825	625	425
	80	1000	1000	975	725	450
	100	1000	1000	1000	750	450

SB C 15

SB C 15 3 poles, distance between centres 110 mm, bar thickness 10 mm

	I_{cc} peak kA	84	110	154	165	176
	I_{cc} rms kA 1s	40	50	70	75	80
Bar width I	30	325	200	125	125	100
	50	425	250	175	150	150
	60	475	275	200	175	175
	80	550	325	225	200	200
	100	625	375	250	225	225
	125	700	400	275	250	250
	160	825	475	325	300	275
Bar width II	30	450	350	225	275	200
	50	575	475	325	275	250
	60	650	500	375	300	250
	80	750	600	375	325	250
	100	850	675	375	325	275
	125	975	775	400	350	300
	160	1000	925	425	375	325
Bar width III	30	625	475	350	300	250
	50	775	625	350	300	250
	60	1000	750	350	300	250
	80	1000	775	375	325	250
	100	1000	800	375	325	275
	125	1000	925	425	350	300
	160	1000	950	450	375	325

SB C1 5 4 poles, distance between centres 90 mm, bar thickness 10 mm

	I_{cc} peak kA	84	110	154	165	176
	I_{cc} rms kA 1s	40	50	70	75	80
Bar width I	30	275	225	125	125	100
	50	350	300	175	150	125
	60	375	350	175	175	150
	80	425	400	200	200	200
	100	475	450	250	225	225
	125	525	525	275	250	225
	160	625	600	325	300	275
Bar width II	30	425	350	225	225	175
	50	575	450	275	225	200
	60	625	500	275	225	200
	80	725	575	275	250	225
	100	825	675	300	275	225
	125	950	750	350	300	225
	160	1000	825	400	325	275
Bar width III	30	575	475	275	225	200
	50	775	600	275	225	200
	60	850	600	275	225	200
	80	1000	650	275	250	225
	100	1000	675	300	275	225
	125	1000	750	350	300	250
	160	1000	825	400	325	275

SB C 20

SB C 20 3 poles, distance between centres 110 mm, thickness 10 mm

	I_{cc} peak kA	63	84	110	154	165	187	220	264
	I_{cc} rms kA 1s	30	40	50	70	75	85	100	120
Bar width I	50	775	575	475	325	300	250	225	175
	60	875	650	500	350	325	275	250	200
	80	1000	750	600	425	400	325	275	225
	100	1000	850	675	475	450	375	275	225
	125	1000	975	775	525	500	425	275	250
	160	1000	1000	875	600	575	500	300	250
Bar width II	50	1000	575	475	325	300	250	225	175
	60	1000	650	500	350	325	275	250	200
	80	1000	750	600	425	400	325	275	225
	100	1000	850	675	475	450	375	300	225
	125	1000	975	775	525	500	425	325	250
	160	1000	1000	875	600	575	500	350	250

SB C 20 4 poles, distance between centres 90 mm, thickness 10 mm

	I_{cc} peak kA	63	84	110	154	165	187	220	264
	I_{cc} rms kA 1s	30	40	50	70	75	85	100	120
Bar width I	50	750	550	450	300	275	225	225	150
	60	825	625	475	325	300	250	225	150
	80	975	725	575	400	375	300	250	175
	100	1000	825	650	450	425	350	275	175
	125	1000	950	750	500	475	400	300	200
	160	1000	1000	850	575	550	475	300	225
Bar width II	50	750	550	450	300	275	225	225	150
	60	825	625	475	325	300	250	225	150
	80	975	725	575	400	375	300	250	175
	100	1000	825	650	450	425	350	275	175
	125	1000	950	750	500	475	400	300	200
	160	1000	1000	850	575	550	475	300	225

Characteristics (continued)

SB C 30

SB C 30 3 poles, distance between centres 185 mm, thickness 10 mm

	Icc peak kA	63	84	110	154	165	187	220	264
	Icc rms kA 1s	30	40	50	70	75	85	100	120
Bar width I	50	450	350	275	200	200	175	150	100
	60	500	375	300	225	200	175	150	125
	80	600	450	350	225	225	200	175	150
	100	650	500	400	275	250	225	200	175
	125	750	550	450	300	275	250	225	175
	160	825	625	500	350	300	275	250	200
	200	950	700	575	400	350	300	275	225
Bar width II	50	850	625	500	350	325	275	225	200
	60	925	700	550	375	350	300	250	225
	80	1000	800	650	450	400	350	300	250
	100	1000	925	725	500	450	400	350	275
	125	1000	1000	825	550	500	450	400	325
	160	1000	1000	925	625	575	525	450	375
	200	1000	1000	1000	700	650	575	500	375
Bar width III	50	1000	900	725	475	450	400	350	275
	60	1000	975	775	525	500	425	375	300
	80	1000	1000	925	625	575	500	425	350
	100	1000	1000	1000	700	650	575	475	350
	125	1000	1000	1000	800	725	650	550	375
	160	1000	1000	1000	900	825	750	575	375
	200	1000	1000	1000	1000	925	825	575	400

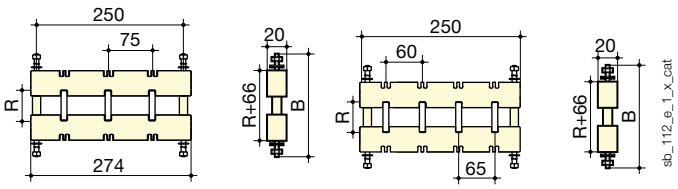
SB C 30 4 poles, distance between centres 130 mm, thickness 10 mm

	Icc peak kA	63	84	110	154	165	187	220	264
	Icc rms kA 1s	30	40	50	70	75	85	100	120
Bar width I	50	425	325	250	175	175	150	125	100
	60	475	350	275	200	175	150	125	100
	80	575	425	325	225	200	175	150	125
	100	625	475	375	250	225	200	175	150
	125	725	525	425	275	250	225	200	150
	160	800	600	475	325	275	250	225	175
	200	925	675	550	375	325	275	250	200
Bar width II	50	800	600	475	325	300	250	200	175
	60	850	650	525	350	325	275	225	200
	80	1000	775	600	425	375	325	275	225
	100	1000	875	675	475	425	375	325	250
	125	1000	975	775	525	475	425	375	275
	160	1000	1000	875	600	550	500	425	275
	200	1000	1000	1000	675	625	550	450	300
Bar width III	50	1000	825	650	425	400	375	325	225
	60	1000	900	725	475	450	400	325	225
	80	1000	1000	825	575	525	475	350	225
	100	1000	1000	950	650	600	525	375	250
	125	1000	1000	1000	750	575	575	425	275
	160	1000	1000	1000	850	775	600	425	275
	200	1000	1000	1000	975	825	625	450	275

Dimensions (mm)

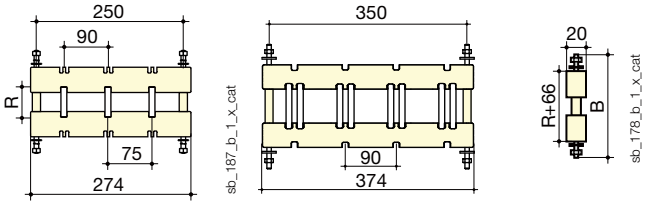
SB C 10

2x 5 mm bar or 1x 10 mm bars



Fixed interphase:
- 3 poles 2 x 5 mm or 1 x 10 mm: 75 mm
- 4 poles bar thickness 5 mm: 60 mm,
  bar thickness 10 mm: 65 mm.

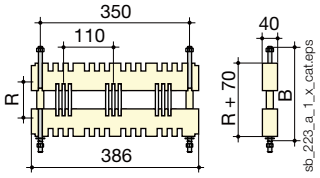
1 or 2 bars of 10 mm



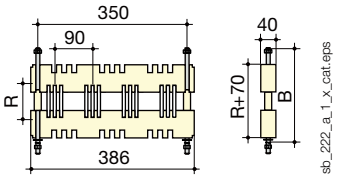
Fixed interphase:
- 3 poles 1 x 10 mm bar: 75 mm
  2 x 10 mm bars per pole: 90 mm
- 4 poles 1 x or 2 x 10 mm bars: 90 mm.

SB C 15

3 poles 1 to 3x 10 mm bars



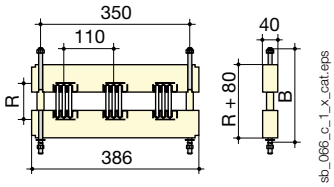
4 poles 1 to 3x 10 mm bars



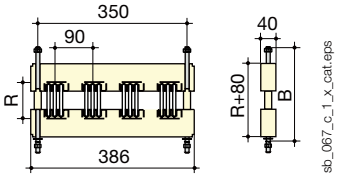
Fixed interphase:
- 3 poles: 110 mm
- 4 poles: 90 mm

SB C 20

3 poles 1 to 4x 5 mm bars and 1 to 2x 10 mm bars

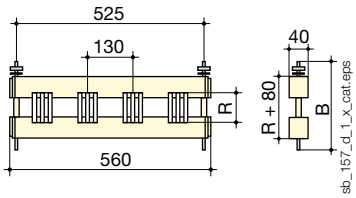


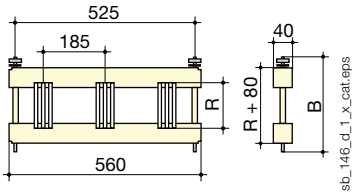
4 poles 1 to 4x 5 mm bars and 1 to 2x 10 mm bars



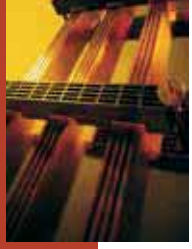
Fixed interphase:
- 3 poles: 110 mm
- 4 poles: 90 mm

SB C 30



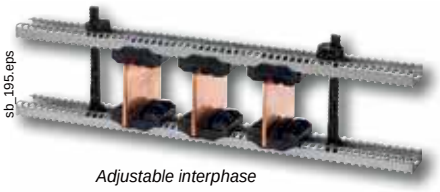


Fixed interphase:
- 3 poles: 185 mm
- 4 poles: 130 mm



Busbar supports

Edgewise mounting with adjustable interphase



Adjustable interphase

The solution for

> Electrical distribution

Conformity with standards

> IEC 61439-1
> IEC 60865-1

Strong points

> Insulating materials
> Durability
> Adaptability

Function

With SOCOMEC's insulating **bar supports** you can:
- mount and attach the busbars inside the electrical panel,
- cope with the forces experienced by the busbars during a short circuit.

Advantages

Insulating materials

Our range of SBC upright supports with adjustable interphase is made using thermoplastic. This very resistant material (reinforced fibreglass) is insulating so there are no risks in terms of clearance and creepage distances.

Amagnetism of assembly parts.

High resistance to damp heat (supplied "tropicalised").

Durability

Standard spacers are made of high-strength insulating material. If used in extreme conditions or for greater robustness, metal rod kits are available.

Adaptability

The studs are fixed onto profiles adapted to standard cabinet sizes.

Selection guide

Edgewise mounting

Busbar supports with adjustable interphase

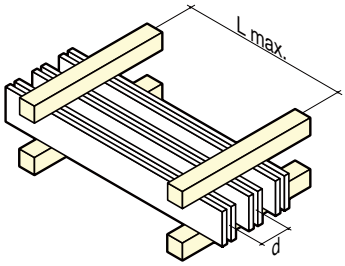
I_{cc} up to 80 kA

SB C ER P

100 A | 400 A | 500 A | 630 A | 1000 A | 1600 A | 2500 A | 4000 A | 5800 A | 7000 A

Nominal current I_n

What you need to know



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Respecting the maximum distance between two supports ensures that the busbar supports are able to withstand the given short circuit current values. At these limits, distortion of the copper bars may occur. These deformations are permitted by standard IEC 61439-1 so long as they adhere to the insulation distances.

Busbar supports

Edgewise mounting with adjustable interphase

References

Full support

Designation	Thickness of busbar (mm)	Busbar width (mm)	Number of bars	No. of poles	Reference
Complete busbar supports	10	480	1 … 3	4	5025 **5135**

Slot

Ordering guide

- For three poles, order: 6 x studs, 2 x rods, 2 x profiles.
- For four poles, order: 8 x studs, 2 x rods, 2 x profiles.

Slot	Bar thickness (mm)	Number of bars	No. of poles	Quantity	Available for order in multiples of	Reference
Slot for 5 mm bars	5	3	3 P	6 (1)	8	5025 **5205**
Slot for 5 mm bars	5	3	4 P	8 (1)	8	5025 **5205**
Slot for 10 mm bars	10	2	3 P	6 (1)	4	5025 **5210**
Slot for 10 mm bars	10	2	4 P	8 (1)	4	5025 **5210**
Slot for 10 mm bars	10	3	3 P	6 (1)	1	5025 **5111**
Slot for 10 mm bars	10	3	4 P	8 (1)	1	5025 **5111**

(1) Quantity required for 1 busbar support
(2) Kit of 2 profiles and 4 brackets.

Mounting accessories	Length (mm)	Quantity	Available for order in multiples of	Reference
Stud kit (bar height 25 to 200 mm)		2 (1)	4	5025 **5100**
Stud kit metal (bar height 0 to 100 mm)		2	2	5025 **5101**
Stud kit metal (bar height 0 to 200 mm)		2	2	5025 **5102**
380 mm profile	380	2 (1)	4	5025 **5124**
480 mm profile	480	2 (1)	4	5025 **5125**
580 mm profile	580	2 (1)	4	5025 **5126**
780 mm profile	780	2 (1)	4	5025 **5128**
2 m profile	2000		4	5025 **5120**
Profile for Prisma enclosure (2)	525	1 (1)	1	5025 **5130**

Characteristics

5 mm slot / 3 bars and 10 mm slot / 2 bars

	L max. (support bars in mm) for						
peak I_{sc}	**82 kA**	**114 kA**	**152 kA**	**165 kA**	**187 kA**		
rms I_{sc}	**39 kA**	**52 kA**	**69 kA**	**75 kA**	**85 kA**		
Bar x qty						**d min. (mm)**	**Iz (A) (1)**
50 x 5 x 1	500	325	175	150		75	600
50 x 5 x 2	500	325	175	150	100	75	1050
50 x 5 x 3	500	325	175	150	100	75	1450
63 x 5 x 1	525	350	200	175		75	700
63 x 5 x 2	525	350	200	175	125	75	1250
63 x 5 x 3	525	350	200	175	125	75	1800
80 x 5 x 1	525	350	200	175	125	75	900
80 x 5 x 2	525	350	200	175	125	75	1550
80 x 5 x 3	525	350	200	175	125	75	2200
100 x 5 x 1	550	375	225	200	175	75	1100
100 x 5 x 2	550	375	225	200	175	75	1900
100 x 5 x 3	550	375	225	200	175	75	2650
125 x 5 x 1	575	400	250	225	200	75	1300
125 x 5 x 2	575	400	250	225	200	75	2350
125 x 5 x 3	575	400	250	225	200	75	3250
80 x 10 x 1	1000	750	350	300	200	75	1300
80 x 10 x 2	1000	750	350	300	200	75	2300
100 x 10 x 1	1000	750	375	325	225	75	1550
100 x 10 x 2	1000	775	375	325	225	75	2750
125 x 10 x 1	1000	775	375	325	225	75	1900
125 x 10 x 2	1000	775	375	325	225	75	3350
160 x 10 x 1	1000	775	400	350	250	75	2350
160 x 10 x 2	1000	800	400	350	250	75	4150

(1) Admissible busbar nominal current with a temperature inside the panel of between 45 °C and 80 °C.
For other mounting configurations, please contact us.

Characteristics (continued)

10 mm insert / 3 bars

	L max. (bar supports in mm)							
peak I_{sc}	**63 kA**	**82 kA**	**114 kA**	**152 kA**	**165 kA**	**187 kA**		
rms I_{sc}	**30 kA**	**39 kA**	**52 kA**	**69 kA**	**75 kA**	**85 kA**		
Bar x qty							**d (mm)**	**Iz (A) (1)**
50 x 10 x 1	1000	1000	650	250	200	150	70	850
50 x 10 x 2	1000	1000	650	250	200	150	70	1550
50 x 10 x 3	1000	1000	650	250	200	150	70	2150
63 x 10 x 1	1000	1000	675	275	225	175	70	1050
63 x 10 x 2	1000	1000	675	275	225	175	70	1850
63 x 10 x 3	1000	1000	675	275	225	175	70	2600
80 x 10 x 1	1000	1000	700	300	250	175	70	1300
80 x 10 x 2	1000	1000	700	300	250	175	70	2300
80 x 10 x 3	1000	1000	700	300	250	175	70	3 200
100 x 10 x 1	1000	1000	725	325	275	175	70	1550
100 x 10 x 2	1000	1000	725	325	275	175	70	2750
100 x 10 x 3	1000	1000	725	325	275	175	70	3250
125 x 10 x 1	1000	1000	725	350	275	200	70	1900
125 x 10 x 2	1000	1000	725	350	275	200	70	3350
125 x 10 x 3	1000	1000	725	350	275	200	70	4650
160 x 10 x 1	1000	1000	750	350	300	200	70	2350
160 x 10 x 2	1000	1000	750	350	300	200	70	4150
160 x 10 x 3	1000	1000	750	350	300	200	70	5800

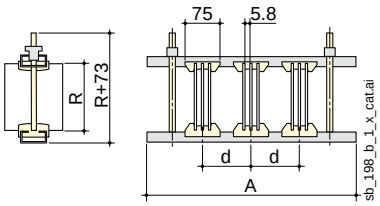
(1) Admissible busbar nominal current with a temperature inside the panel of between 45 °C and 80 °C
For other mounting configurations, please contact us.

Dimensions (mm)

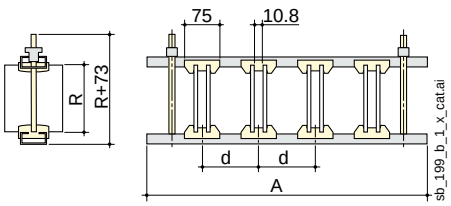
Mounting

- 1 to 3 bars of 5 mm thickness, per pole.
- 1 to 3 bars of 10 mm thickness, per pole.
- Interphase distance: min. 70 mm and max. 200 mm.
- Use 2 studs positioned symmetrically on the extremity of the poles or between the outermost poles.

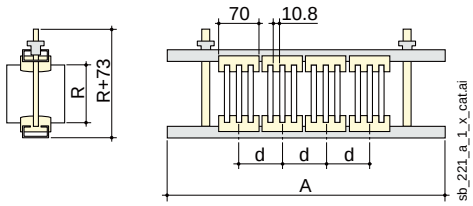
A (mm)	Cabinet (mm)
380	400
480	500
580	600
780	800



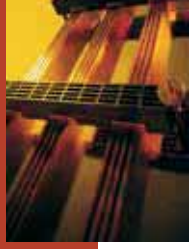
5 mm insert / 3 bars



10 mm insert / 2 bars

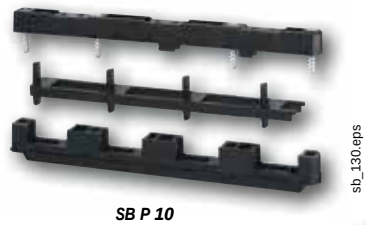


10 mm insert / 3 bars

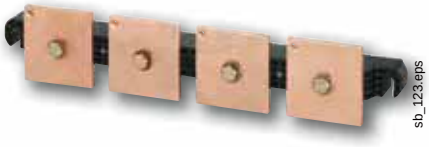


Busbar supports

Flat mounting with fixed interphase

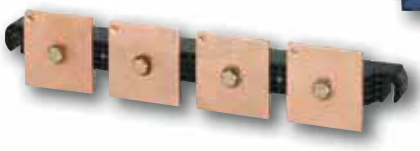


SB P 10



SB P 15

SB 7500



SB P 30

The solution for

> Electrical distribution

Conformity with standards

> IEC 61439-1
> IEC 60865-1

Strong points

> Insulating materials
> Durability
> Adaptability

Function

With SOCOMEC's insulating bar supports you can:
- mount and attach the busbars inside the electrical panel,
- cope with the forces experienced by the busbars during a short circuit.

Advantages

Insulating materials

Our range of SB P flat bar supports with fixed interphase is made using thermoplastic. This very resistant material (reinforced fibreglass) is insulating so there are no risks in terms of clearance and creepage distances.

Durability

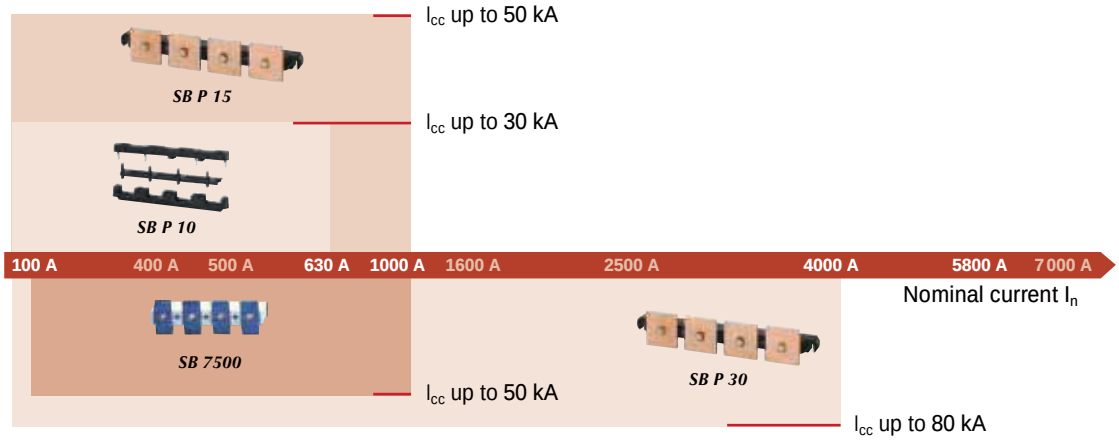
Most bar supports have an M8 screw connection which provides outstanding robustness to the entire busbar structure.

Adaptability

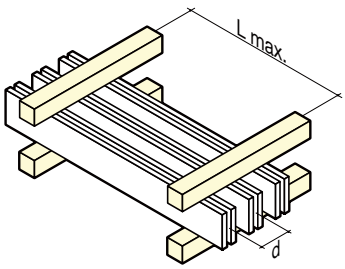
The distance between the bar support attachment points is compatible with all commercially available enclosures.

Selection guide

Flat mounting



What you need to know



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Adhering to the maximum distance between two supports ensures that the busbar supports are able to withstand the given short circuit current values. At these limits, distortion of the copper bars may occur. These deformations are permitted by standard IEC 61439-1 so long as they adhere to the insulation distances.

Busbar supports
Flat mounting with fixed interphase

References

Support only

Bar support type	No. of poles	Insulation voltage (VAC)	Bar width (mm)	Pack qty	Reference
SB 7500	3 P	1000	40-50	1	5027 **5310**
SB 7500	4 P	1000	40-50	1	5027 **5410**
SB P 10	4 P	600	12-30	1	5026 **0460**
SB P 15	3 P / 4 P	1000	30 -80	1	5023 **0150**
SB P 30	3 P	1000	50-100	1	5023 **0310**
SB P 30	4 P	1000	50-80	1	5023 **0410**

Accessories

For SB P 15

Use
Mount the support and the bars to the support.

Fixing screws for support and bars	Available for order in multiples of	Reference
Fixing set	1	5023 **0159**

For SB P 30

Mounting bracket	Available for order in multiples of	Reference
2 mounting brackets	1	5024 **9002**

Bar fixing screws	Available for order in multiples of	Reference
Grub screws for mounting 1 bar	25	5119 **4601**
Headless screw for attaching 2 thicknesses of bar	25	5119 **4602**
Headless screw for attaching 3 thicknesses of bar	25	5119 **4603**


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sb_211.psd

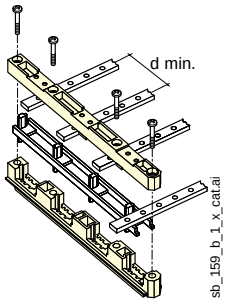
Characteristics

SB 7500

	L max. (support bars in mm) for							
peak I_{sc}	24 kA	48 kA	63 kA	82 kA	114 kA	152 kA		
rms I_{sc}	12 kA	23 kA	30 kA	39 kA	52 kA	69 kA		
Bar x qty							d (mm)	Iz (A)
50 x 5 x 1	1000	1000	950	725	525	450	75	600
50 x 5 x 2	1000	1000	1000	1000	975	850	75	1050

SB P 10

	L max. (support bars in mm) for						
peak I_{sc}	10 kA	15 kA	24 kA	48 kA	63 kA		
rms I_{sc}	6 kA	9 kA	12 kA	23 kA	30 kA		
Bar x qty						d min. (mm)	Iz (A)
12 x 5 x 1	1000	475	175			60	180
20 x 5 x 1	1000	1000	650	165		60	280
25 x 5 x 1	1000	1000	650	160		60	338
30 x 5 x 1	1000	1000	850	200	120	60	390
25 x 10 x 1	1000	1000	1000	250	150	60	508
30 x 10 x 1	1000	1000	1000	350	200	60	580



SB P 15

3 poles

	L max. (support bars in mm) for						
peak I_{sc}	24 kA	48 kA	63 kA	82 kA	114 kA		
rms I_{sc}	12 kA	23 kA	30 kA	39 kA	50 kA		
Bar x qty						d (mm)	Iz (A)
32 x 5 x 1	1000	1000	600	450	275	110	410
30 x 10 x 1	1000	1000	600	450	275	110	610
40 x 5 x 1	1000	1000	575	425	250	110	500
40 x 10 x 1	1000	1000	575	425	250	110	700
50 x 5 x 1	1000	1000	550	400	225	110	600
50 x 10 x 1	1000	1000	550	400	225	110	850
60 x 5 x 1	1000	1000	525	375	200	110	700
60 x 10 x 1	1000	1000	525	375	200	110	1000
80 x 5 x 1	1000	1000	500	350	175	110	900
80 x 10 x 1	1000	1000	500	350	175	110	1300

4 poles

	L max. (support bars in mm) for						
peak I_{sc}	24 kA	48 kA	63 kA	82 kA	114 kA		
rms I_{sc}	12 kA	23 kA	30 kA	39 kA	50 kA		
Bar x qty						d (mm)	Iz (A)
32 x 5 x 1	1000	1000	550	400	225	90	410
30 x 10 x 1	1000	1000	550	400	225	90	610
40 x 5 x 1	1000	1000	525	375	200	90	500
40 x 10 x 1	1000	1000	525	375	200	90	700
50 x 5 x 1	1000	1000	500	350	175	90	600
50 x 10 x 1	1000	1000	500	350	175	90	850
60 x 5 x 1	1000	1000	475	325	150	90	700
60 x 10 x 1	1000	1000	475	325	150	90	1000

Characteristics (continued)

SB P 30

3 poles

	L max. (support bars in mm) for									
peak I_{sc}	63 kA	84 kA	110 kA	143 kA	165 kA	176 kA	187 kA	220 kA		
rms I_{sc}	30 kA	40 kA	50 kA	65 kA	75 kA	80 kA	85 kA	100 kA		
Bar x qty									**d (mm)**	**Iz (A)**
50 x 5 x 1	1000	950	525	300	225	200	175	130	123	600
63 x 5 x 1	1000	925	525	300	225	200	175	130	123	700
80 x 5 x 1	1000	900	500	300	225	175	175	125	123	900
80 x 5 x 2	1000	900	500	300	225	175	175	125	123	1550
50 x 10 x 1	1000	950	525	300	225	200	175	130	123	850
50 x 10 x 2	1000	975	525	300	225	200	175	135	123	1550
63 x 10 x 1	1000	925	525	300	225	200	175	130	123	1050
63 x 10 x 2	1000	950	525	300	225	200	175	130	123	1850
80 x 10 x 1	1000	900	500	300	225	175	175	125	123	1300
80 x 10 x 2	1000	925	500	300	225	200	175	125	123	2300
80 x 10 x 3	1000	950	525	300	225	200	175	130	123	3200

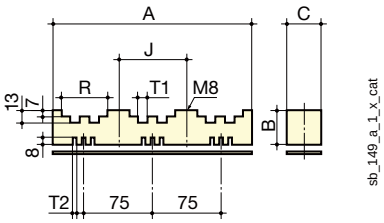
4 poles

	L max. (support bars in mm) for									
peak I_{sc}	63 kA	84 kA	110 kA	143 kA	165 kA	176 kA	187 kA	220 kA		
rms I_{sc}	30 kA	40 kA	50 kA	65 kA	75 kA	80 kA	85 kA	100 kA		
Bar x qty									**d (mm)**	**Iz (A)**
50 x 5 x 1	1000	1000	800	475	350	300	275	200	185	
63 x 5 x 1	1000	1000	800	475	350	300	275	200	185	
80 x 5 x 1	1000	1000	800	475	350	300	275	200	185	
80 x 5 x 2	1000	1000	800	475	350	300	275	200	185	
100 x 5 x 1	1000	1000	775	450	325	300	250	175	185	1100
100 x 5 x 2	1000	1000	775	450	325	300	250	175	185	1900
100 x 5 x 3	1000	1000	775	450	350	300	250	175	185	2650
50 x 10 x 1	1000	1000	800	475	350	300	275	200	185	
50 x 10 x 2	1000	1000	800	475	350	300	275	200	185	
63 x 10 x 1	1000	1000	800	475	350	300	275	200	185	
63 x 10 x 2	1000	1000	800	475	350	300	275	200	185	
80 x 10 x 1	1000	1000	800	475	350	300	275	200	185	
80 x 10 x 2	1000	1000	800	475	350	300	275	200	185	
80 x 10 x 3	1000	1000	800	475	350	300	275	200	185	
100 x 10 x 1	1000	1000	775	450	325	300	250	175	185	1550
100 x 10 x 2	1000	1000	775	450	350	300	250	175	185	2750
100 x 10 x 3	1000	1000	775	450	350	300	275	175	185	3850

Dimensions

SB 7500

No. of poles	A	B	C	J	R	T_1	T_2
3 P	220	38	35	75	52.5	11	6
4 P	295	38	35	75	52.5	11	6



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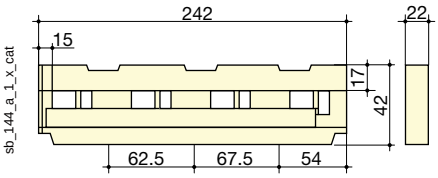

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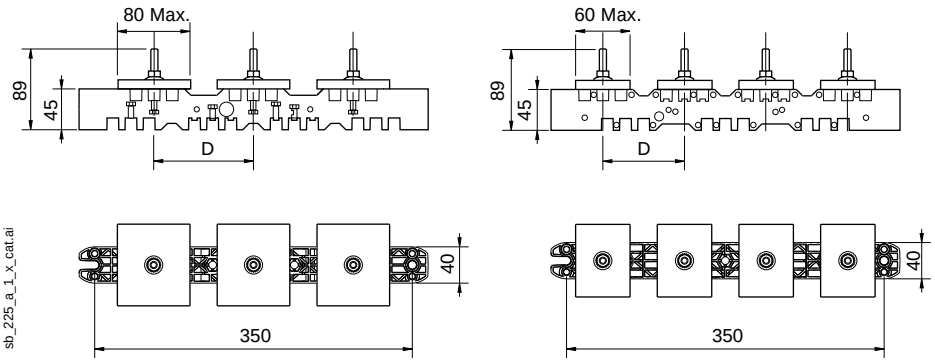
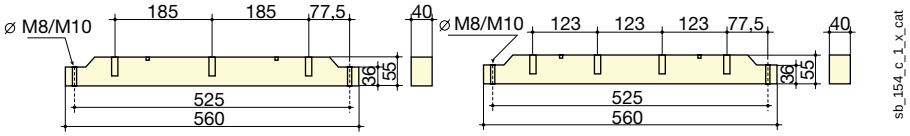
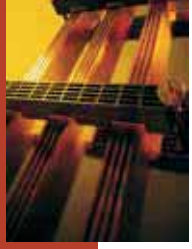


SB P 30





Busbar supports

Unipolar flat-mounted

sb_104.eps

Hexagonal insulators

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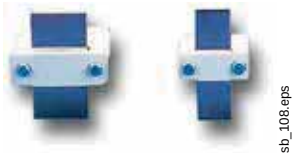
SB 205-206

sb_118.eps

SB 3



sb_108.eps

SB 1 - SB 2

sb_136.eps

The solution for

> Electrical distribution

Conformity with standards

> IEC 61439-1
> IEC 60865-1

Strong points

> Insulating materials
> Durability
> Adaptability

Function

With SOCOMEC's insulating **bar supports** you can:
- mount and attach the busbars inside the electrical panel,
- cope with the forces experienced by the busbars during a short circuit.

Advantages

Insulating materials

Our range of SB P flat busbar supports with fixed interphase is made from insulating materials. This material poses no risks in terms of clearance and creepage distances.

Durability

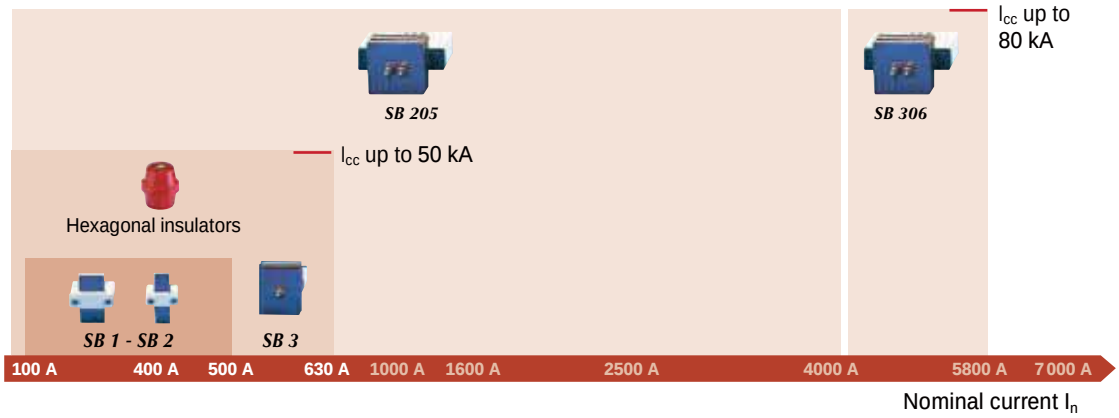
Most bar supports have an M8 screw connection which provides outstanding robustness to the entire busbar structure.

Adaptability

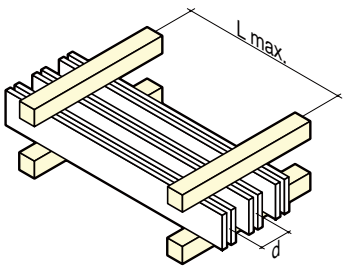
The distance between the bar support attachment points is compatible with all commercially available enclosures.

Selection guide

Flat mounting



What you need to know



Adhering to the maximum distance between two supports ensures that the busbar supports are able to withstand the given short circuit current values. At these limits, distortion of the copper bars may occur. These deformations are permitted by standard IEC 61439-1 so long as they adhere to the insulation distances.

Busbar supports
Unipolar flat-mounted

References

Hexagonal insulator

Height H (mm)	Thread M	Available for order in multiples of	Female-female Reference	Male-female Reference	Male-male Reference
16	M4	10	-	5038 **1604**	5039 **1604**
16	M5	10	-	5038 **1605**	5039 **1605**
20	M4	10	5031 **2004**	-	-
20	M6	10	5031 **2006**	-	-
25	M5	10	-	5038 **2505**	5039 **2505**
25	M6	10	5031 **2506**	5038 **2506**	5039 **2506**
30	M6	10	5031 **3006**	-	-
30	M8	10	5031 **3008**	-	-
35	M6	10	5031 **3506**	-	-
35	M8	10	5031 **3508**	5038 **3508**	5039 **3508**
35	M10	10	5031 **3510**	5038 **3510**	5039 **3510**
40	M8	10	5031 **4008**	-	-
40	M10	10	5031 **4010**	-	-
45	M8	10	5031 **4508**	-	-
45	M10	10	5031 **4510**	-	-
50	M8	10	5031 **5008**	5038 **5008**	5039 **5008**
50	M10	10	5031 **5010**	5038 **5010**	5039 **5010**
50	M12	10	5031 **5012**	-	-
60	M10	10	5031 **6010**	5038 **6010**	5039 **6010**
65	M10	10	5031 **6510**	-	-
70	M12	10	5031 **7012**	-	-

Support type SB

Support type	Insulation voltage (VAC)	Number of bars	Bar width (mm)	Available for order in multiples of	Reference
SB 1	690	1	20-25	6	5021 **0110**
SB 2	690	1	32-40	6	5022 **0110**
SB 3 without screws	690	1 ... 2	32-63	6	5023 **0111**
SB 3 pre-assembled (1)	690	1 ... 2	32-63	6	5023 **0110**
SB 205	1000	1 ... 3	100	6	5022 **5110**
SB 306	1000	1 ... 3	160	6	5023 **6110**

Accessories

Grub screw

Length (mm)	Thread	To be ordered in multiples of	Reference
20	M6	20	5032 **2006**
20	M8	20	5032 **2008**
25	M6	20	5032 **2506**
25	M8	20	5032 **2508**
30	M6	20	5032 **3006**
30	M8	20	5032 **3008**
40	M8	20	5032 **4008**
40	M10	20	5032 **4010**
50	M12	20	5032 **5012**

Characteristics

Hexagonal insulator

Height	Threading	Rated voltage (V)	Insulation voltage (VAC)		Mechanical characteristics (daN)		Max. tightening torque
H (mm)	M	AC/DC	50 Hz 1 min	Peak	Flexion	Traction	(Nm)
16	M4	500	3000	5500	100	150	3
16	M5	500	3000	5500	100	150	6
20	M4	500	3000	5500	70	170	9
20	M6	500	3000	5500	100	190	8
25	M5	500	3000	5500	180	400	6
25	M6	500	3000	5500	170	370	12
30	M6	1000	6000	11000	200	650	22
30	M8	1000	6000	11000	360	800	40
35	M6	1400	9000	16000	230	720	25
35	M8	1400	9000	16000	380	900	42
35	M10	1400	9000	16000	320	800	44
40	M8	2000	12000	21500	620	1200	50
40	M10	2000	12000	21500	620	1100	60
45	M8	2000	12000	21500	550	1200	55
45	M10	2000	12000	21500	550	1100	65
50	M8	2000	12000	21500	650	1800	60
50	M10	2000	12000	21500	650	1700	70
50	M12	2000	12000	21500	660	1300	130
60	M10	2400	12000	27000	560	1600	85
65	M10	2400	12000	27000	750	1600	90
70	M12	2400	12000	27000	750	1500	135

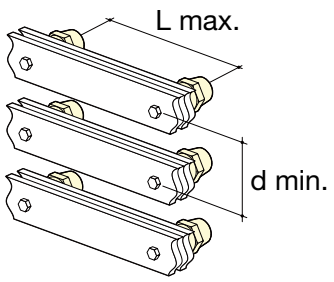
Characteristics (continued)

Hexagonal insulator

General characteristics

			L max. (support bars in mm) for						
		peak I_{sc}	24 kA	48 kA	63 kA	82 kA	114 kA		
		rms I_{sc}	12 kA	23 kA	30 kA	39 kA	52 kA		
Height H (mm)	Threading	Bar x qty						d min. (mm)	Iz (A) (1)
20	M4	15 x 5 x 1	400	100				45	220
20	M4	20 x 5 x 1	400	100				45	280
25	M6	15 x 5 x 1	550	135				45	220
25	M6	20 x 5 x 1	525	135				45	280
25	M6	25 x 5 x 1	575	145				50	330
30	M6	15 x 5 x 1	675	165				45	220
30	M6	20 x 5 x 1	650	165				45	280
30	M6	25 x 5 x 1	725	175	105			50	330
30	M8	15 x 5 x1	850	250	155			45	220
30	M8	20 x 5 x 1	1000	250	155			45	280
30	M8	25 x 5 x 1	1000	275	170	100		50	330
35	M6	15 x 5 x 1	700	175	100			45	220
35	M6	20 x 5 x 1	675	170	100			45	280
35	M6	25 x 5 x 1	750	175	110			50	330
35	M8	15 x 5 x 1	850	275	160			45	220
35	M8	20 x 5 x 1	1000	275	160			45	280
35	M8	25 x 5 x 1	1000	300	175	105		50	330
35	M8	32 x 5 x 1	1000	325	175	110		55	410
35	M10	20 x 5 x 1	850	200	125			45	280
35	M10	25 x 5 x 1	950	225	135			50	330
35	M10	32 x 5 x 1	1000	250	150			55	410
40	M8	20 x 5 x 1	1000	325	175	110		45	280
40	M8	25 x 5 x 1	1000	350	200	125		50	330
40	M8	32 x 5 x 1	1000	375	225	135		55	410
40	M10	20 x 5 x 1	1000	325	175	110		45	280
40	M10	25 x 5 x 1	1000	350	200	125		50	330
40	M10	32 x 5 x 1	1000	375	225	135		55	410
45	M8	25 x 5 x 1	1000	425	250	150		50	330
45	M8	32 x 5 x 1	1000	475	175	160		55	410
45	M8	50 x 5 x 1	1000	625	350	200	110	75	600
45	M10	25 x 5 x 1	1000	425	250	145		50	330
45	M10	32 x 5 x 1	1000	450	250	160		55	410
45	M10	50 x 5 x 1	1000	600	350	200	110	75	600
50	M8	25 x 5 x 1	1000	450	250	155		50	330
50	M8	32 x 5 x 1	1000	475	275	170		55	410
50	M8	50 x 5 x 1	1000	650	375	225	115	75	600
50	M10	32 x 5 x 1	1000	525	300	175		55	410
50	M10	50 x 5 x 1	1000	700	400	225	125	75	600
60	M10	50 x 5 x 1	1000	700	400	225	125	75	600
65	M10	50 x 5 x 1	1000	775	450	250	135	75	600

(1) Admissible busbar nominal current with a temperature inside the panel of between 45°C and 80°C.
For other mounting configurations, please contact us.

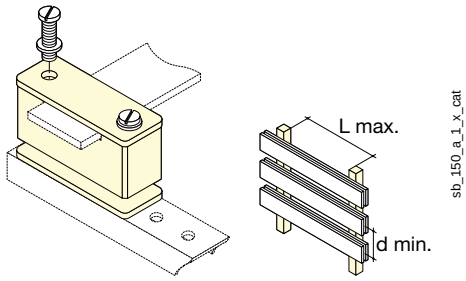


sb_164_a_1_x_cat

SB 1 - SB 2

		L max. (support bars in mm) for						
	peak I_{sc}	24 kA	48 kA	63 kA	82 kA	114 kA		
	rms I_{sc}	12 kA	23 kA	30 kA	39 kA	52 kA		
Support	Bar x qty						d min. (mm)	Iz (A) (1)
SB 1	20 x 3 x 1	650	325	250	175	135	50	210
SB 1	20 x 5 x 1	850	425	325	250	175	50	280
SB 1	25 x 5 x 1	1000	525	400	300	200	50	330
SB 2	32 x 5 x 1	1000	750	575	450	300	70	410
SB 2	40 x 5 x 1	1000	950	700	550	400	70	500

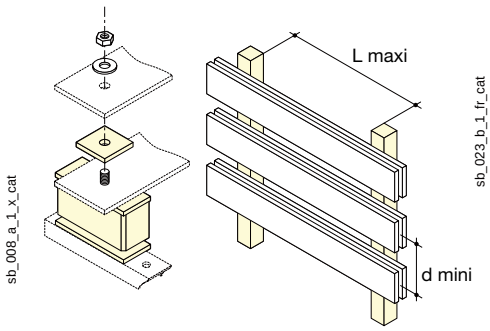
(1) Admissible busbar nominal current with a temperature inside the panel of between 45°C and 80°C.
For other mounting configurations, please contact us.



SB 3

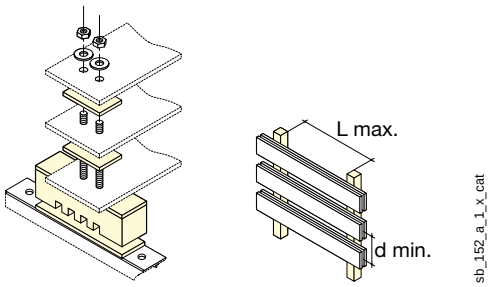
	L max. (support bars in mm) for						
peak I_{sc}	24 kA	48 kA	63 kA	82 kA	114 kA		
rms I_{sc}	12 kA	23 kA	30 kA	39 kA	52 kA		
Bar x qty						d min. (mm)	Iz (A) (1)
32 x 5 x 2	1000	1000	925	700	500	70	580
40 x 5 x 2	1000	1000	1000	1000	1000	70	700
50 x 5 x 2	1000	1000	1000	925	675	75	850
63 x 5 x 2	1000	1000	1000	1000	1000	85	1000

(1) Admissible busbar nominal current with a temperature inside the panel of between 45°C and 80°C.
For other mounting configurations, please contact us.



SB 205 - SB 206

	L max. (support bars in mm) for								
	peak I_{sc}	48 kA	63 kA	82 kA	114 kA	152 kA	165 kA		
	rms I_{sc}	12.5 kA	23 kA	30 kA	40 kA	50 kA	75 kA		
Support	Bar x qty							d min. (mm)	Iz (A)
SB 205	100 x 10 x 1	1000	800	475	250	150	125	125	1550
SB 205	100 x 10 x 2	1000	800	475	250	150	125	125	2750
SB 205	100 x 10 x 3	1000	800	475	250	150	125	125	3850
SB 306	160 x 10 x 1	1000	1000	625	350	200	150	175	2350
SB 306	160 x 10 x 2	1000	1000	625	350	200	150	175	4150
SB 306	160 x 10 x 3	1000	1000	625	350	200	150	175	5800

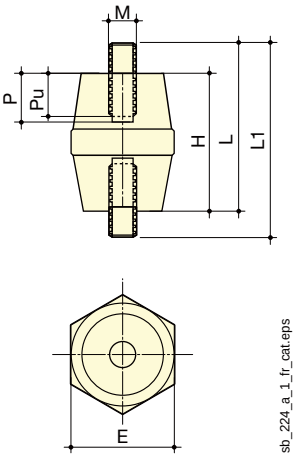


Busbar supports
Unipolar flat-mounted

Dimensions

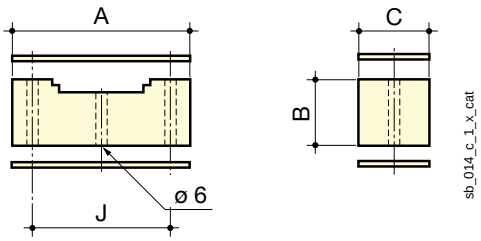
Hexagonal insulator

Height	Threading	Depth		Diameter	Length	
H (mm)	M	D (mm)	Pu (mm)	E (mm)	W (mm)	L1 (mm)
16	M4	6	5	14	26	36
16	M5	6	5	14	26	36
20	M4	8	5.5	19	-	-
20	M6	8	5.5	19	-	-
25	M5				35	45
25	M6	10	7	25	35	45
30	M6	10	7	33	-	-
30	M8	12	9	33	-	-
35	M6	12	9	33	-	-
35	M8	12	9	33	50	65
35	M10	12	9	33	65	95
40	M8	15	12	40	-	-
40	M10	15	12	40	-	-
45	M8	15	12	41	-	-
45	M10	15	12	41	-	-
50	M8	20	17	46	75	100
50	M10	20	17	46	80	110
50	M12	20	17	46	-	-
60	M10	20	17	50	85	110
65	M10	20	17	55	-	-
70	M12	25	21	55	-	-



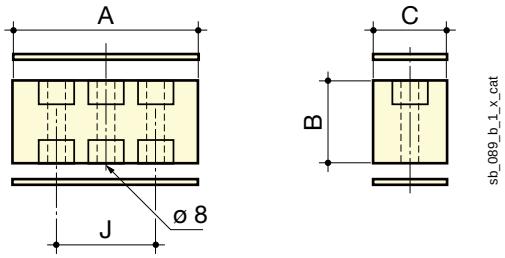
SB 1 – SB 2

Support	A	B	C	J
SB 1	50	23	20	34
SB 2	68	23	23.5	50

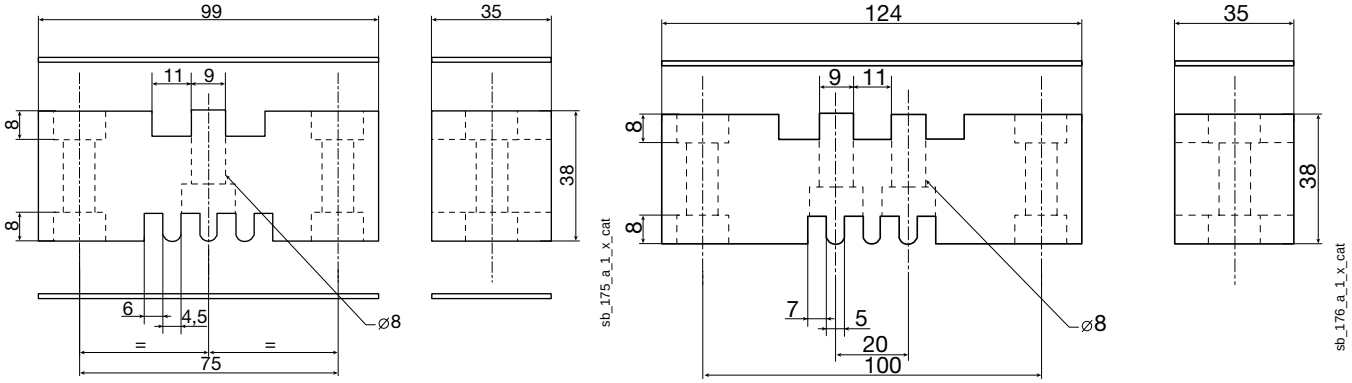


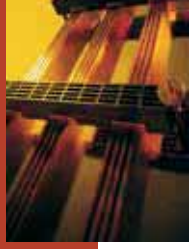
SB 3

Support	A	B	C	J
SB 3 without screws	65	32	28	36
SB 3 with screws	65	32	28	36



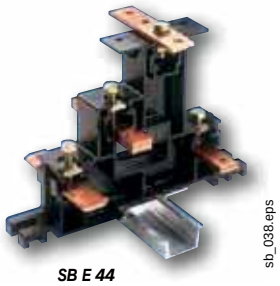
Dimensions





Busbar supports

Other supports



SB E 44

SB P 44

The solution for

> Electrical distribution

Conformity with standards

> IEC 61439-1
> IEC 60865-1

Strong points

> Insulating materials
> Durability
> Adaptability

Function

With SOCOMEC's insulating **bar supports** you can:
- mount and attach the busbars inside the electrical panel,
- cope with the forces experienced by the busbars during a short circuit.

Advantages

Insulating materials

Our range of busbar supports is made using thermoplastic. This very resistant material (reinforced fibreglass) is insulating so there are no risks in terms of clearance and creepage distances.

Durability

Most bar supports have an M8 screw connection which provides outstanding robustness to the entire busbar structure.

Adaptability

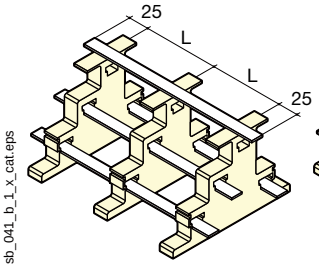
The distance between the bar support attachment points is compatible with all commercially available enclosures.

References

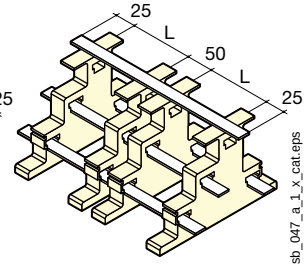
SB E 44 and SB P 44

Type of busbar support	Insulation voltage (VAC)	No. of poles	Bar width (mm)	Pack qty	Reference
SB E 44	690	4 P	15-32	1	5028 **0410**
SB P 44	690	4 P	20-32	1	5026 **0450**

Designation of SBE 44 accessories	Pack qty	Reference
270 mm long cap protection kit	1	5028 **0411**
420 mm long cap protection kit	1	5026 **0412**
620 mm long cap protection kit	1	5028 **0413**
Set of 20 protection screen adaption spacers	1	5026 **0415**



Type 1: Busbars including 3 (or more) equally spaced SB E 44 supports.



Type 2: Busbars including 3 (or more) SB E 44 supports with doubled intermediary supports.

socomec Innovative Power Solutions

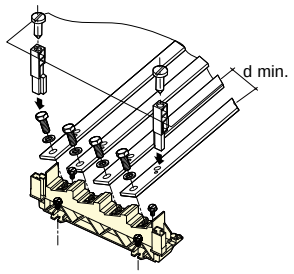
Characteristics

SB E 44

	L max. (support bars in mm) for							
	peak I_{sc}	10 kA	15 kA	24 kA	38 kA	48 kA	63 kA	
	rms I_{sc}	6 kA	9 kA	12 kA	19 kA	23 kA	30 kA	
Support	Bar x qty							Iz (A) (1)
Type 1	15 x 3 x 1	950	625	400	250	175		160
Type 1	15 x 5 x 1	1000	825	500	300	175		220
Type 1	15 x 6 x 1	1000	900	550	300	200		250
Type 1	15 x 8 x 1	1000	1000	650	300	200		290
Type 1	20 x 3 x 1	1000	825	525	300	175		210
Type 1	20 x 5 x 1	1000	1000	675	300	175		280
Type 1	20 x 6 x 1	1000	1000	750	300	175		310
Type 1	20 x 8 x 1	1000	1000	775	300	175		370
Type 1	32 x 5 x 1	1000	1000	675	250	170		410
Type 1	32 x 6 x 1	1000	1000	675	250	170		460
Type 2	15 x 3 x 1	950	625	400	250	200	150	160
Type 2	15 x 5 x 1	1000	825	500	325	250	175	220
Type 2	15 x 6 x 1	1000	900	550	350	275	200	250
Type 2	15 x 8 x 1	1000	1000	650	400	325	225	290
Type 2	20 x 3 x 1	1000	825	525	325	250	200	210
Type 2	20 x 5 x 1	1000	1000	675	425	325	225	280
Type 2	20 x 6 x 1	1000	1000	750	450	375	225	310
Type 2	20 x 8 x 1	1000	1000	850	525	375	225	370
Type 2	32 x 5 x 1	1000	1000	1000	525	325	175	410
Type 2	32 x 6 x 1	1000	1000	1000	525	325	175	460

SB P 44

	L max. (support bars in mm) for							
peak I_{sc}	10 kA	15 kA	24 kA	48 kA	63 kA	82 kA		
rms I_{sc}	6 kA	9 kA	12 kA	23 kA	30 kA	39 kA		
Bar x qty							d min. (mm)	Iz (A)
20 x 5 x 1	1000	1000	800	350	200	125	50	280
25 x 5 x 1	1000	1000	1000	350	200	125	50	330
32 x 5 x 1	1000	1000	1000	350	200	120	50	390
25 x 10 x 1	1000	1000	1000	350	200	125	50	500
30 x 10 x 1	1000	1000	1000	350	200	120	50	580
32 x 10 x 1	1000	1000	1000	350	200	120	50	610



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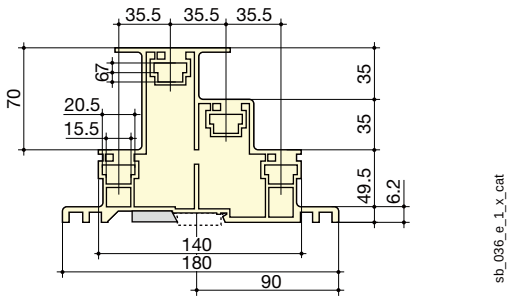
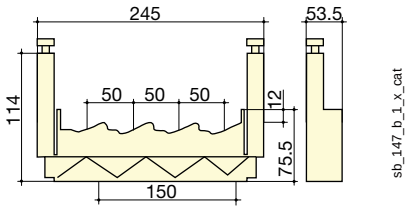
Dimensions (mm)

SB E 44

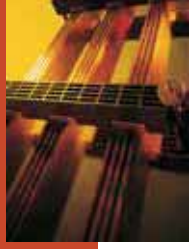


sb_036_e_1_x_cat

SB P 44



sb_147_b_1_x_cat

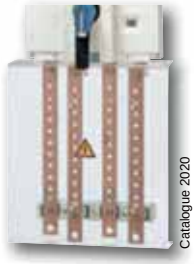


Distribution blocks

Distribution system

Single-pole distribution blocks

Multi-pole distribution bar



Distribution blocks for SOCOMEC power-switching devices

Row distribution blocks

The solution for

> Electrical distribution

Strong points

> Extensive range
> Easy integration
> IEC and UL range

Compliance with standards

> IEC 61439-1
> IEC 60947-7-1

> UL 1953
> UL 1059

Function

SOCOMEC **distribution blocks** make it easy to connect conductors. They are mounted downstream of a load break switch, a changeover switch, a fuse switch or any protection device on the market.

Advantages

Extensive range

This extensive range has the right distribution system for every need:

- 13 single-pole models, 4 multi-pole models and 2 single-block models for copper and aluminium cables for either direct or plug connection
- 1 IP20 row distribution block
- 4 distribution block models for lug connection.

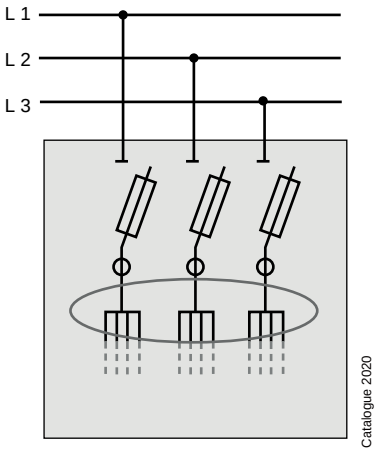
IEC and UL range

Our range of single-pole distribution blocks conforms to IEC and UL standards.

Easy integration

The compact size of the single-pole and multi-pole distributors for direct or plug connection ensures easy integration into the equipment.

Application



IEC / UL single-pole distribution blocks

General features

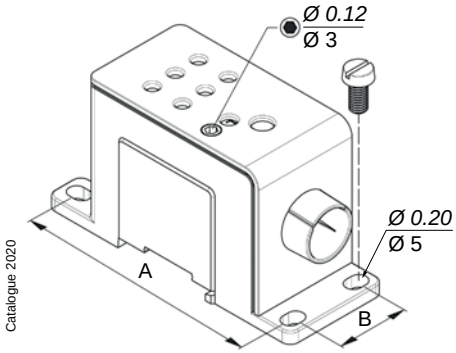
Catalogue 2020

- Material: tin-plated aluminium.
- For conductors: aluminium or copper.
- IP20 connection.
- L1, L2, L3, and N markings set by Allen key.
- DIN rail mounted.
- DIN rail attachment clip.
- Backplate mounted.
- Assembly clip for multiple distribution blocks.

References

Type	Rating (A) IEC Cu cable	IEC Al cable	UL Cu cable	UL Al cable	References
Type 1	80	63	85	65	54UL **1008**
Type 2	125	100	115	90	54UL **1012**
Type 3	175	135	175	135	54UL **1017**
Type 4	250	200	255	205	54UL **1025**
Type 5	415	36	380	310	54UL **1040**

Dimensions



Catalogue 2020

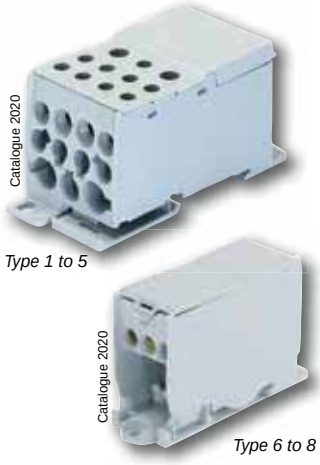
Type	Units	H x W x D	Mounting A	Mounting B
Type 1	in	1.93 x 1.417 x 3.524	3.118	0.914
	mm	49 x 36 x 89.5	79.2	23.2
Type 2	in	1.93 x 1.417 x 3.524	3.118	0.914
	mm	49 x 36 x 89.5	79.2	23.2
Type 3	in	2.09 x 1.417 x 3.898	3.492	0.914
	mm	53 x 36 x 99	88.7	23.2
Type 4	in	2.39 x 2.126 x 4.488	4.063	1.622
	mm	60.7 x 54 x 114	103.7	41.2
Type 5	in	2.39 x 2.126 x 4.488	4.063	1.622
	mm	60.7 x 54 x 114	103.7	41.2

Electrical wiring and characteristics

Type	Solid/multi-core cables IEC connection	Solid/multi-core cables UL connection	Flexible/crimped-plug cables IEC connection	Flexible/crimped-plug cables UL connection	Voltage according to IEC 60947-7-1 AC (V)	Voltage according to IEC 60947-7-1 DC (V)	Voltage according to UL 1953 AC (V)	Voltage according to UL 1953 DC (V)	Short-circuit withstand I_{cw} (kA)	Short-circuit withstand I_{pk} (kA)	Short-circuit withstand SCCR (kA)
Type 1	1 x 2.5 - 25 mm²	14 - 3 AWG	1 x 2.5 - 25 mm²	14 - 3 AWG	1000	1500	1000	1000	3	35	100
	6 x 2.5 - 10 mm²	14 - 8 AWG	6 x 2.5 - 6 mm²	14 - 10 AWG							
Type 2	1 x 2.5 - 50 mm²	14 - 1 AWG	1 x 2.5 - 35 mm²	14 - 2AWG					6	36.1	
	6 x 2.5 - 25 mm²	14 - 4 AWG	6 x 2.5 - 16 mm²	14 - 6 AWG							
Type 3	1 x 2.5 - 70 mm²	14 - 2/0 AWG	1 x 2.5 - 50 mm²	14 - 1/0 AWG					8.4	40.8	
	6 x 2.5 - 25 mm²	14 - 4 AWG	6 x 2.5 - 16 mm²	14 - 6 AWG							
Type 4	1 x 35 - 120 mm²	2 - 250 kcmil	1 x 35 - 95 mm²	2 - 4/0 AWG					14.4	47.7	
	6 x 2.5 - 35 mm²	14 - 2 AWG	6 x 2.5 - 25 mm²	14 - 4 AWG							
Type 5	1 x 70 - 240 mm²	2/0 - 500 kcmil	1 x 70 - 185 mm²	2/0 - 400 kcmil					28.8	57.2	
	6 x 2.5 - 35 mm²	14 - 8 AWG	6 x 2.5 - 25 mm²	14 - 4 AWG							

Single-pole IEC/UR distribution blocks

General features



Type 1 to 5

Type 6 to 8

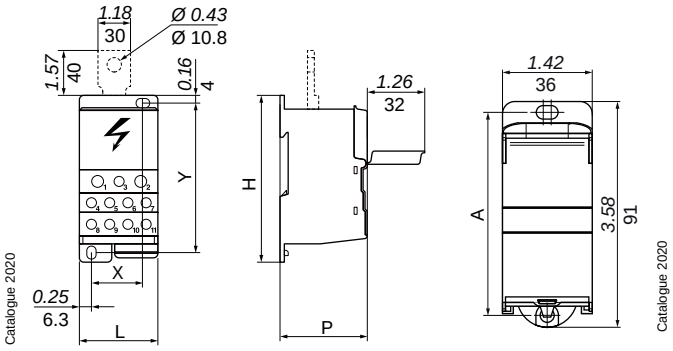
- Material: coated aluminium type 1 to type 5, copper for type 6 to type 8.
- For conductors: Aluminium or copper type 1 to type 5, copper for type 6 to type 8.
- IP20 connection.
- DIN rail mounted.
- Backplate mounted.

References

Type	Rating (A) IEC Cu cable	IEC Al cable	UR Cu cable	UR Al cable	References
Type 1	125	100	115	90	5411 **1012**
Type 2	125	100	115	90	5411 **1013**
Type 3	175	135	175	135	5411 **1017**
Type 4	250	200	255	-	5411 **1025**
Type 5	400	300	-	-	5411 **1040**
Type 6	125	-	-	-	5411 **1011**
Type 7	175	-	-	-	5411 **1016**
Type 8	250	-	-	-	5411 **0124**
Accessories					**References**
Connection for type 4					5410 **0025**
Connection for type 5					5410 **0040**

Attachments for mounting directly to load break switching device terminal

Dimensions



Type 1 to 5 *Type 6 to 8*

Distribution blocks with direct connection or IP20 jacks that plug into symmetrical DIN rail.

Type	Units	Dimensions H x W x D	Mounting A	Mounting B
Type 1	in	2.91 x 1.06 x 1.81	2.44	0.157
	mm	74 x 27 x 46	62	4
Type 2	in	2.80 x 1.77 x 1.69	2.386	0.685
	mm	71 x 45 x 43	60.6	17.4
Type 3	in	2.80 x 1.77 x 1.69	2.386	0.685
	mm	71 x 45 x 43	60.6	17.4
Type 4	in	3.74 x 1.75 x 1.93	3.836	1.165
	mm	95 x 44.5 x 49	86	29.6
Type 5	in	3.74 x 1.75 x 1.93	3.836	1.165
	mm	95 x 44.5 x 49	86	29.6
Type 6	in	3.58 x 1.06 x 2.01	3.22	-
	mm	91 x 27 x 51	81.7	
Type 7	in	3.58 x 1.42 x 2.01	3.22	-
	mm	91 x 36 x 51	81.7	
Type 8	in	3.58 x 1.77 x 2.01	3.22	-
	mm	91 x 45 x 51	81.7	

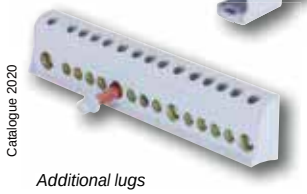
Electrical wiring and characteristics

Type	Solid/multi-core cables IEC connection	Solid/multi-core cables UL connection	Flexible/crimped-plug cables IEC connection	Flexible/crimped-plug cables UL connection	Voltage according to IEC 60947-7-1 AC (V)	Voltage according to IEC 60947-7-1 DC (V)	Voltage according to UL 1059 AC (V)	Voltage according to UL 1059 DC (V)	Short-circuit withstand I_{cw} (kA)	Short-circuit withstand I_{pk} (kA)
Type 1	1 x 10 - 35 mm²	1 x 8 - 2 AWG	1 x 10 - 35 mm²	1 x 8 - 2 AWG	1000	1500	600	600	4.2	30
	1 x 2.5 - 25 mm²	1 x 14 - 4 AWG	1 x 2.5 - 16 mm²	1 x 14 - 6 AWG						
	6 x 2.5 - 25 mm²	6 x 14 - 4 AWG	6 x 2.5 - 16 mm²	6 x 14 - 6 AWG						
Type 2	1 x 10 - 35 mm²	1 x 8 - 2 AWG	1 x 10 - 35 mm²	1 x 8 - 2 AWG					4.2	30
	10 x 2.5 - 16 mm²	10 x 14 - 4 AWG	10 x 2.5 - 10 mm²	10 x 14 - 6 AWG						
Type 3	1 x 10 - 70 mm²	1 x 8 - 2/0 AWG	1 x 10 - 50 mm²	1 x 8 - 1/0 AWG					11	30
	10 x 2.5 - 16 mm²	10 x 14 - 4 AWG	10 x 2.5 - 10 mm²	10 x 14 - 6 AWG						
Type 4	1 x 35 - 120 mm²	1 x 2 - 250 kcmil	1 x 35 - 95 mm²	1 x 2 - 4/0 AWG					21	51
	2 x 2.5 - 35 mm²	2 x 14/2 AWG	2 x 2.5 - 25 mm²	2 x 14 - 4 AWG						
	5 x 2.5 - 16 mm²	5 x 14 - 6 AWG	5 x 2.5 - 16 mm²	5 x 14 - 6 AWG						
	4 x 2.5 - 10 mm²	4 x 14 - 8 AWG	4 x 2.5 - 10 mm²	4 x 14 - 8 AWG						
Type 5	1 x 95 - 185 mm²	-	1 x 95 - 150 mm²	-			-	-	21	51
	2 x 2.5 - 35 mm²		2 x 2.5 - 25 mm²							
	5 x 2.5 - 16 mm²		5 x 2.5 - 16 mm²							
	4 x 2.5 - 10 mm²		4 x 2.5 - 10 mm²							
Type 6	2 x 10 - 35 mm²		2 x 6 - 25 mm²						4.2	25
	2 x 2.5 - 25 mm²		2 x 1.5 - 16 mm²							
	6 x 1.5 - 16 mm²		6 x 1.5 - 10 mm²							
Type 7	2 x 25 - 70 mm²		2 x 16 - 50 mm²						8.4	36
	3 x 2.5 - 25 mm²		3 x 1.5 - 16 mm²							
	8 x 1.5 - 16 mm²		8 x 1.5 - 10 mm²							
Type 8	1 x 35 - 120 mm²		1 x 25 - 95 mm²						14.4	60
	1 x 1.5 - 50 mm²		1 x 1.5 - 35 mm²							
	4 x 1.5 - 16 mm²		4 x 1.5 - 10 mm²							
	8 x 2.5 - 25 mm²		8 x 2.5 - 16 mm²							

Multi-pole distribution blocks with IEC bars

General features

Type 1 to 4



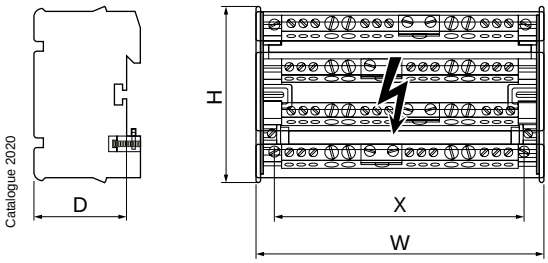
Additional lugs

- Material: uncoated brass.
- For conductors: copper.
- DIN rail mounted.
- DIN rail attachment clip.
- Backplate mounted.
- Additional insulated bars.
- Reversible cap.

References

Type	Rating (A)	N° of poles	N° of connections	References
Type 1	100	3/4	7	5421 **4010**
Type 2	125		12	5421 **4011**
Type 3	125		15	5421 **4012**
Type 4	160		12	5421 **4016**
Additional lugs				**References**
7 connections				5421 **1010**
12 connections				5421 **1012**
15 connections				5421 **1013**

Dimensions



Type	Units	H x W x D	Mounting X
Type 1	in	4.11 x 2.84 x 1.96	2.126
	mm	104.5 x 72.2 x 49.7	54
Type 2	in	4.11 x 5.01 x 1.96	4.291
	mm	104.5 x 127.2 x 49.7	109
Type 3	in	4.11 x 6.90 x 1.96	4.646
	mm	104.5 x 175.2 x 49.7	118
Type 4	in	4.11 x 6.43 x 1.96	4.055
	mm	104.5 x 163.2 x 49.7	103

Electrical wiring and characteristics

Type	Solid/multi-core cables	Flexible/crimped-plug cables	Voltage according to IEC 60947-7-1 AC (V)	Voltage according to IEC 60947-7-1 DC (V)	Short-circuit withstand I_{cw} (kA)	Short-circuit withstand I_{pk} (kA)
Type 1	2 x 2.5 / 25 mm²	2 x 1.5 / 16 mm²	690	1000	3	24
	5 x 1.5 / 16 mm²	5 x 1.5 / 10 mm²				
Type 2	1 x 10 / 35 mm²	1 x 4 / 25 mm²			4.2	26
	7 x 2.5 / 25 mm²	7 x 1.5 / 16 mm²				
	4 x 1.5 / 16 mm²	4 x 1.5 / 10 mm²				
Type 3	1 x 10 / 35 mm²	1 x 6 / 35 mm²			4.2	28
	3 x 6 / 35 mm²	3 x 4 / 25 mm²				
	11 x 1.5 / 16 mm²	11 x 1.5 / 10 mm²				
Type 4	1 x 25 / 70 mm²	1 x 16 / 50 mm²			8.4	36
	3 x 10 / 35 mm²	3 x 4 / 25 mm²				
	8 x 2.5 / 25 mm²	8 x 1.5 / 16 mm²				

Earthing lug

References

Mounting by	N° of outgoing circuits per section (mm²)	Material	L (mm)	To be ordered in multiples	Reference
2x M4 screws	10 x 16 + 2 x 35	Brass	120	10	5414 **0120**
2x M6 screws	41 x 16 + 2 x 35	Brass	470	10	5414 **0470**

IEC / UR single-block multi-pole distribution blocks

General features

Catalogue 2020

Single-block multi-pole distribution block
175 A 3 P

- Material: uncoated brass for 125 A, tin-plated copper for 175 A.
- For conductors: aluminium or copper (175 only).
- IP20 connection.
- DIN rail mounted.

References

Rating (A)	N° of poles	Rating (A) IEC Cu cable	IEC Al cable	UL Cu cable	UL Al cable	References
125	4	125	-	-	-	5411 **4112**
175	3	175	135	175	135	5411 **3017**

Dimensions

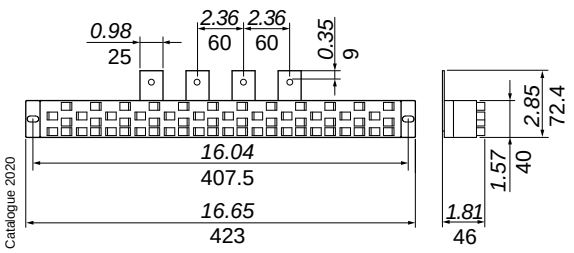
Rating (A)	Units	H x W x D	Mounting A	Mounting B
125	in	2.93 x 3.86 x 1.93	2.48	2.323 - 2.795
	mm	74.5 x 98 x 49	63	59 - 71
175	in	2.8 x 3.15 x 1.69	2.382	2.07
	mm	71 x 80 x 43	60.6	52.5

Electrical wiring and characteristics

Rating (A)	Solid/multi-core cables IEC connection	Solid/multi-core cables UL connection	Flexible/crimped-plug cables IEC connection	Flexible/crimped-plug cables UL connection	Voltage according to IEC 60947-7-1 AC (V)	Voltage according to IEC 60947-7-1 DC (V)	Voltage according to UL 1059 AC (V)	Voltage according to UL 1059 DC (V)	Short-circuit withstand I_{cw} (kA)	Short-circuit withstand I_{pk} (kA)
125	1 x 6 - 35 mm²	-	1 x 6 - 25 mm²	-	690	1000	600	600	4.2	25
	2 x 4 - 16 mm²		2 x 4 - 10 mm²							
	5 x 1.5 - 6 mm²		5 x 1.5 - 6 mm²							
175	1 x 10 - 70 mm²	1 x 8 - 2/0 AWG	1 x 10 - 50 mm²	1 x 8 - 1/0 AWG	1000	1500			11	30
	6 x 2.5 - 16 mm²	6 x 14 - 4 AWG	6 x 2.5 - 10 mm²	6 x 14 - 6 AWG						

Distribution row with IP20 connectors

Catalogue 2020



Catalogue 2020

References

Rating (A)	Length	With connecting cords(1)	I_{cc} (kA rms)	Reference
250(2)	1 row	Yes	10	5420 **2426**
250(2)	1 row	No	10	5421 **2426**

(1) Supplied with 6 mm² connecting cords, L = 120 mm, 12 black connectors, 12 blue connectors.
(2) Outgoing circuits should be split across the full number of outputs

Accessories

Cables

Rating (A)	Cable type	Length (mm)	Colour	To be ordered in multiples	Reference
40	6 mm²	120	Blue	10	5421 **1006**
40	6 mm²	120	Black	10	5421 **1016**
40	6 mm²	320	Blue	10	5421 **1106**
40	6 mm²	320	Black	10	5421 **1116**
63	10 mm²	320	Blue	10	5421 **1101**
63	10 mm²	320	Black	10	5421 **1111**

Plug-in connectors

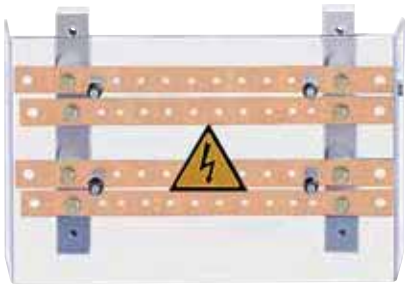
Connector type	To be ordered in multiples	Reference
1.5 - 2.5 mm²	20	5421 **0025**
4 - 6 mm²	20	5421 **0125**

Lug connection

Multi-pole distribution block

References

Rating (A)	N° of poles	I_{cc} (kA rms)	N° of outgoing circuits per section (mm^2)	Reference
160	3 P	10	2 x 95 + 8 x 25	5412 **3016**
160	4 P	10	2 x 95 + 8 x 25	5412 **4016**
250	3 P	15	2 x 150 + 8 x 50	5412 **3025**
250	4 P	15	2 x 150 + 8 x 50	5412 **4025**
400	3 P	21	2 x 240 + 8 x 95	5412 **3040**
400	4 P	21	2 x 240 + 8 x 95	5412 **4040**
630	3 P	21	2 x 300 + 8 x 150	5412 **3063**
630	4 P	21	2 x 300 + 8 x 150	5412 **4063**

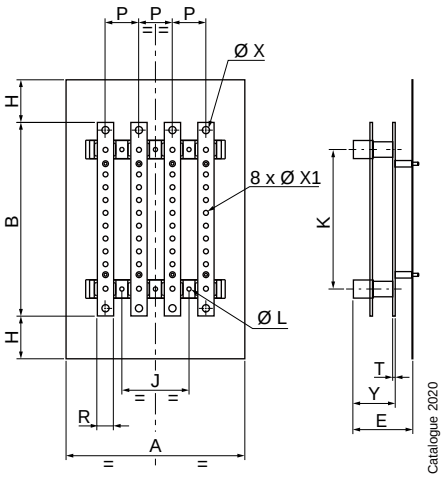


Catalogue 2020

Dimensions (mm)

Rating (A)	N° of poles	Units	A	B	E	H	J	K	Ø L	P	R	T	Ø X	Ø X1	Y
160	3 P	in	6.06	11.26	2.87	1.83	4.80	8.15	0.26	1.42	0.79	0.16	0.35	0.24	2.13
		mm	154	286	73	46.5	122	207	6.5	36	20	4	9	6	54
	4 P	in	7.48	11.26	2.87	1.83	6.22	8.15	0.26	1.42	0.79	0.16	0.35	0.24	2.13
		mm	190	286	73	46.5	158	207	6.5	36	20	4	9	6	54
250	3 P	in	8.27	12.09	3.27	2.26	1.97	8.7	0.28	1.97	0.98	0.16	0.43	0.31	2.20
		mm	210	307	83	57.5	50	222	7	50	25	4	11	8	56
	4 P	in	8.27	12.09	3.27	2.26	1.97	8.7	0.28	1.97	0.98	0.16	0.43	0.31	2.20
		mm	260	307	83	57.5	100	222	7	50	25	4	11	8	56
400	3 P	in	11.06	14.76	4.57	3.25	2.56	10.63	0.31	2.56	1.26	0.20	0.57	0.33	3.23
		mm	281	375	116	82.5	65	270	8	65	32	5	14.5	8.5	82
	4 P	in	13.62	14.76	4.57	3.25	5.12	10.63	0.31	2.56	1.26	0.20	0.57	0.33	3.23
		mm	346	375	116	82.5	130	270	8	65	32	5	14.5	8.5	82
630	3 P	in	10.67	17.24	4.61	3.56	2.56	13.11	0.31	2.56	1.57	0.24	0.57	0.41	3.27
		mm	271	438	117	90.5	65	333	8	65	40	6	14.5	10.5	83
	4 P	in	13.62	17.24	4.61	3.56	5.12	13.11	0.31	2.56	1.57	0.24	0.57	0.41	3.27
		mm	346	438	117	90.5	130	333	8	65	40	6	14.5	10.5	83

Distribution block with lug connection, frontal protection against indirect contact.



Catalogue 2020

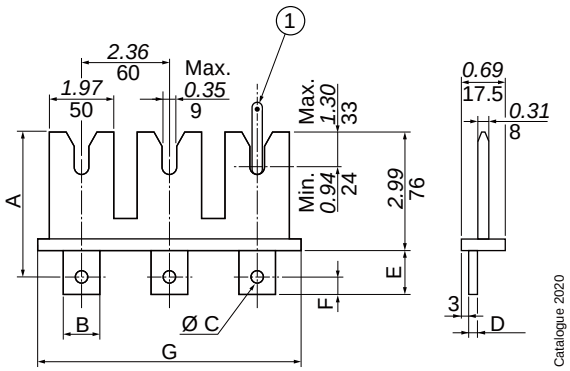
Plug-in for 5 to 6.3 mm bars

References

Rating (A)	N° of poles	Reference
125/160	3 P	3699 **3P16**
	4 P	3699 **6P16**
250/400	3 P	3699 **3P39**
	4 P	3699 **6P39**
630/800	3 P	3699 **3P80**
	4 P	3699 **6P80**

Dimensions (mm)

Rating (A)	N° of poles	Units	A	B	C	D	E	F	G
125/160	3 P	in	3.90	0.79	M8	0.12	0.91	0.39	7.32
		mm	99	20		3	23	10	186
	4 P	in	3.90	0.79		0.12	0.91	0.39	9.76
		mm	99	20		3	23	10	248
250/400	3 P	in	4	0.79	M10	0.16	1.10	0.49	7.32
		mm	101.5	25		4	28	12.5	186
	4 P	in	4	0.98		0.16	1.10	0.49	9.76
		mm	101.5	25		4	28	12.5	248
630/800	3 P	in	4	0.98	M10	0.16	1.10	0.49	7.32
		mm	101.5	25		4	28	12.5	186
	4 P	in	4	0.98		0.16	1.10	0.49	9.76
		mm	101.5	25		4	28	12.5	248



1. Bar thickness 5 to 6.3 mm.

Catalogue 2020

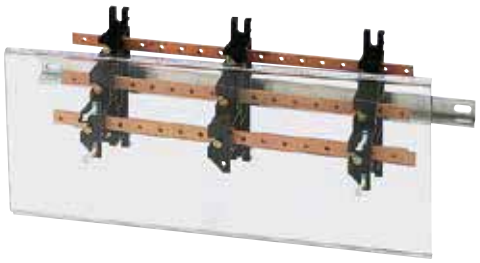
Lug connection (cont.)

Split throw multi-pole distribution block

References

Rating (A)	L (mm)	N° of poles	I_{cc} (kA rms)	No of brackets	Distribution block Reference	Protective cover Reference
160	270	4 P	25	2	5028 **0421**	5028 **0411**
160	420	4 P	17	2	5028 **0451**	5028 **0412**
160	620	4 P	20	3	5028 **0471**	5028 **0413**
250	270	4 P	30	2	5028 **0423**	5028 **0411**
250	420	4 P	22	2	5028 **0453**	5028 **0412**
250	620	4 P	18	3	5028 **0473**	5028 **0413**
400	270	4 P	24	2	5028 **0425**	5028 **0411**
400	420	4 P	21	2	5028 **0455**	5028 **0412**
400	620	4 P	13	3	5028 **0475**	5028 **0413**

Type	Cond.	Reference
Spacer adaptor for protection covers	1	5028 **0415**



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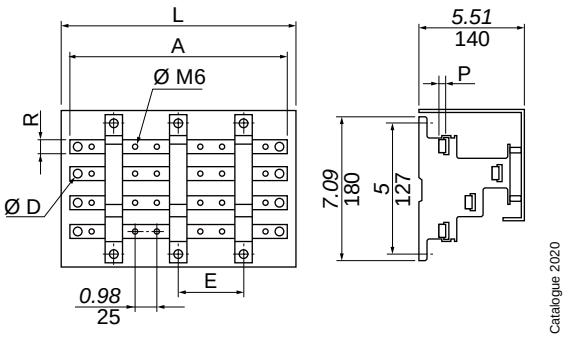
Dimensions (mm)

Rating (A)	N° of feeders	Units	A	Ø D	E	L	P	R
160	9	in	9.84	0.31	5.91	10.63	0.20	0.59
		mm	250	8	150	270	5	15
	15	in	15.75	0.31	11.81	16.54	0.20	0.59
		mm	400	8	300	420	5	15
	21	in	23.62	0.31	9.84	24.41	0.20	0.59
		mm	600	8	250	620	5	15
250	9	in	9.84	0.39	5.91	10.63	0.20	0.79
		mm	250	10	150	270	5	20
	15	in	15.75	0.39	11.81	16.54	0.20	0.79
		mm	400	10	300	420	5	20
	21	in	23.62	0.39	9.84	24.41	0.20	0.79
		mm	600	10	250	620	5	20
400	8	in	8.86	0.47	5.91	10.63	0.20	1.26
		mm	225	12	150	270	5	32
	14	in	14.76	0.47	11.81	16.54	0.20	1.26
		mm	375	12	300	420	5	32
	20	in	24.41	0.47	9.84	24.41	0.20	1.26
		mm	620	12	250	620	5	32



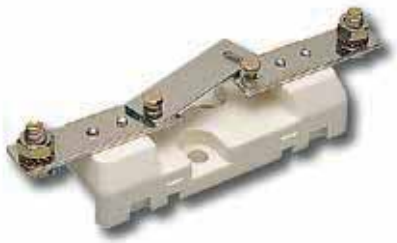
Catalogue 2020

Split throw distribution block, with threaded holes, plugs into symmetrical DIN rail. Comes pre-mounted and without protective cap.

Disconnectable neutral

References

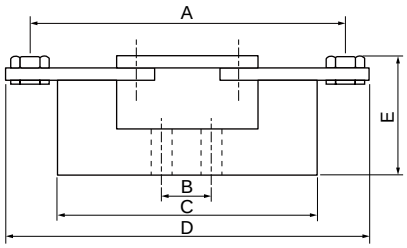
Rating (A)	Connection type	Reference
160	Lug connection	NB16 **0000**
250	Lug connection	NB25 **0000**
400	Lug connection	NB40 **0000**
630	Lug connection	NB63 **0000**



repar_030_a_2_cat

Dimensions (mm)

Rating (A)	Units	A	B	C	D	E	Max. width
160	in	3.94	0.98	3.35	4.61	1.77	1.26
	mm	100	25	85	117	45	32
250	in	5.91	0.98	4.72	6.81	1.77	1.26
	mm	150	25	120	173	45	32
400	in	6.93	0.98	5.91	7.87	2.56	2.17
	mm	176	25	150	200	65	55
630	in	8.27	0.98	6.30	9.45	2.56	2.95
	mm	210	25	160	240	65	75



shunt_012_a_1_x_cat

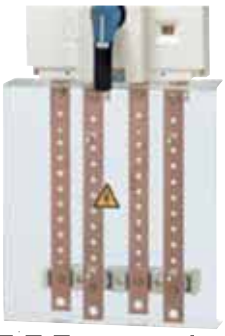
Multi-pole distribution block for SIRCO

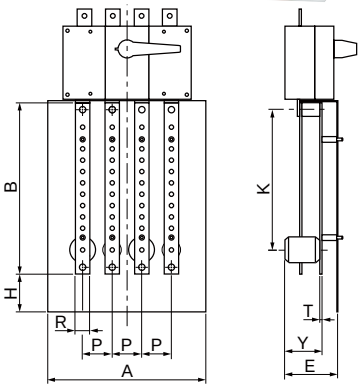
References

Rating (A)	N° of poles	I_{cc} (kA rms)	N° of outgoing circuits per section (mm^2)	Reference
160	3 P	10	1 x 95 + 8 x 25	5411 **3016**
	4 P	10	1 x 95 + 8 x 25	5411 **4016**
250	3 P	15	1 x 150 + 8 x 50	5411 **3025**
	4 P	15	1 x 150 + 8 x 50	5411 **4025**
400	3 P	21	1 x 240 + 8 x 95	5411 **3040**
	4 P	21	1 x 240 + 8 x 95	5411 **4040**
630	3 P	21	1 x 300 + 8 x 150	5411 **3063**
	4 P	21	1 x 300 + 8 x 150	5411 **4063**

Dimensions (mm)

Rating (A)	N° of poles	Units	A	B	E	H	K	P	R	T	Y
160	3 P	in	6.06	11.26	2.87	1.83	10.30	1.42	0.79	0.16	2.13
		mm	154	286	73	46.5	261.5	36	20	4	54
	4 P	in	7.48	11.26	2.87	1.83	10.30	1.42	0.79	0.16	2.13
		mm	190	286	73	46.5	261.4	36	20	4	54
250	3 P	in	8.27	12.09	3.27	2.26	10.98	1.97	0.98	0.16	2.20
		mm	210	307	83	57.5	279	50	25	4	56
	4 P	in	10.24	12.09	3.27	2.26	10.98	1.97	0.98	0.16	2.20
		mm	260	307	83	57.5	279	50	25	4	56
400	3 P	in	11.06	14.76	4.57	3.25	13.39	2.56	1.26	0.20	3.23
		mm	281	375	116	82.5	340	65	32	5	82
	4 P	in	13.62	14.76	4.57	3.25	13.39	2.56	1.26	0.20	3.23
		mm	346	375	116	82.5	340	65	32	5	82
630	3 P	in	10.67	17.24	4.61	3.56	16.16	2.56	1.57	0.24	3.27
		mm	271	438	117	90.5	410.5	65	40	6	83
	4 P	in	13.62	17.24	4.61	3.56	16.16	2.56	1.57	0.24	3.27
		mm	346	438	117	90.5	410.5	65	40	6	83





Distribution block with lug connection, frontal protection against non-intentional contact (load break switching device not included).

repar_020_b_1_cat

Catalogue 2020

Multi-pole distribution block for FUSERBLOC and SIRCO VM2

References

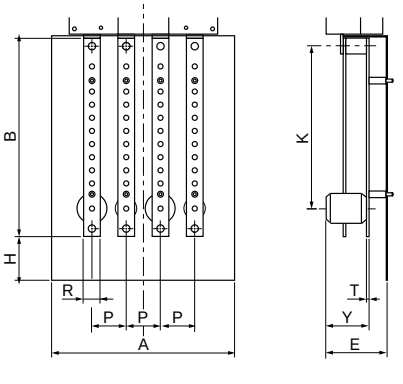
Rating (A)	Fuse size	N° of poles	Device	N° of outgoing circuits per section (mm^2)	Reference
100/125/160	22x58 / 00	3 P	FUSERBLOC	10x16 + 2x35 + 3xM6	5413 **3016**
		4 P		10x16 + 2x35 + 3xM6	5413 **4016**
160	0	3 P		10x16 + 2x35 + 3xM6	5413 **3017**
	0	4 P		10x16 + 2x35 + 3xM6	5413 **4017**
250	1	3 P		11 x M8	5413 **3025**
	1	4 P		11 x M8	5413 **4025**
400	2	3 P		11 x M8	5413 **3040**(1)
	2	4 P		11 x M8	5413 **4040**(1)
160 / 200		3 P	SIRCO VM2	10x16 + 2x35 + 3xM6	5413 **3020**
		4 P		10x16 + 2x35 + 3xM6	5413 **4020**

*(1) *Distribution block compatible only with 400A Fuserbloc fuse reference 3xxx xx39*

Dimensions (mm)

Rating (A)	N° of poles	Device	Units	A	B	E	H	K	P	R	T	Y
100 / 125 / 160	3 P	FUSERBLOC	in	4.33	10.24	2.40	0.79	9.17	1.42	0.79	0.16	1.54
			mm	110	260	61	20	233	36	20	4	39
	4 P		in	5.71	10.24	2.40	0.79	9.17	1.42	0.79	0.16	1.54
			mm	145	260	61	20	233	36	20	4	39
160	3 P		in	5.91	10.24	2.40	0.79	9.17	1.97	0.79	0.16	1.54
			mm	150	260	61	20	233	50	20	4	39
	4 P		in	7.87	10.24	2.40	0.79	9.17	1.97	0.79	0.16	1.54
			mm	200	260	61	20	233	50	20	4	39
250	3 P		in	7.68	13.39	2.64	0.59	11.81	2.36	1.26	0.20	1.77
			mm	185	340	67	15	300	60	32	5	45
	4 P		in	9.65	13.39	2.64	0.59	11.81	2.36	1.26	0.20	1.77
			mm	245	340	67	15	300	60	32	5	45
400	3 P		in	8.27	13.39	2.64	0.59	11.81	2.60	1.26	0.20	1.77
			mm	210	340	67	15	300	66	32	5	45
	4 P		in	10.83	13.39	2.64	0.59	11.81	2.60	1.26	0.20	1.77
			mm	275	340	67	15	300	66	32	5	45
160 / 200	3 P	SIRCO VM2	in	5.59	10.24	2.40	0.79	9.17	1.08	0.79	0.16	1.54
			mm	142	260	61	20	233	27.5	20	4	39
	4 P		in	5.59	10.24	2.40	0.79	9.17	1.08	0.79	0.16	1.54
			mm	142	260	61	20	233	27.5	20	4	39

repar_013_a_2_cat



Catalogue 2020

By-Pass Double Line
LOAD
Q1
Q2
ATS
Q3
S2
S1
BY-PASS
Q1
Q2
Q3
ATEX
socomec
SWITCH 1
SWITCH 2
SPD 1
SPD 2

Integrated products & solutions

Enclosed switches

Enclosed switches *p. 410*

Load break switches in insulated enclosures

COMO
Polycarbonate
20 to 125 A
p. 415

SIRCO
Polyester
160 to 630 A
p. 416

Load break switches in metallic enclosures

SIRCO M
Painted steel
20 to 100 A
p. 417

SIRCO
Painted steel
160 to 1600A
p. 416

SIRCO M
Stainless steel
32 to 100 A
p. 418

Fuse combination load break switches in insulated enclosures

FUSERBLOC
Polyester
50 to 160 A
p. 423

In metallic enclosures

FUSERBLOC
Painted steel
32 to 800 A
p. 423

Safety enclosures

Safety enclosures *p. 426*

Enclosed transfer switches

For critical applications

ATyS Bypass
Steel
40 to 3200 A
p. 428

Specific applications

H Solutions for medical locations
p. 432

Specific requirements

Socomec offers customisation and development of products to meet your every requirement. Contact your sales branch for more information.

Enclosed Products and Equipment to suit all your applications

The specialist in load breaking, switching, protection, metering and measurement, SOCOMEC designs and produces standard and tailored integrated solutions.

With our dual expertise (in products and solutions) we can offer you the electrical equipment you need for your systems, all under a manufacturer's guarantee.

IEC 61439

The result of the long accumulation of extensive experience, our standard integrated solutions bring you:

- Fast implementation backed up by a review of system limitations
- Ease-of-use, without any risk of non-compliance errors

Our solutions guarantee:

- The safety and protection of people and goods
- Continuity of use
- Compliance with standards on products, assemblies and installations

What you need to know!

SOCOMEC has an entire department at your service, dedicated to the design and production of specialist equipment.

This department is here to support you throughout your projects, including:

- Building specifications
- Budgets
- Planning
- Design and production
- Qualification and certification
- Support during installation and startup
- Training

Draw on our expertise and contact your local SOCOMEC branch.

Enclosed switches

SITE 301 A

Enclosed switches incorporate load-break switches with or without fuses, developed, qualified and certified for industrial electrical distribution and service sector networks.

They support the load-breaking, isolation and lockout of the mains power for all types of loads and can also be used as a general switch for equipment in various applications.

Safety enclosures

SITE 558 A

Safety enclosures are designed to be installed near a motor or a machine to separate them from the power supply. This includes manually operated, padlockable load-break switches, in the OFF position with a visible and reliable display of the switchgear's open position.

During preventive maintenance or inspection work, these enclosures ensure operator safety against the accidental startup of electrical machines.

For use in an explosive atmosphere (dust), use our ATEX model to prevent any explosion during the unit's opening/closing phases, which generate electrical arcs.

Enclosed Transfer Switch


SITE 375 A

Switching enclosures ensure the availability of electrical power in critical facilities (high-rises, public buildings, hospitals, IT or telecommunications centres, airports, industrial sites, etc.), operated manually or automatically to switch between a normal power source and a backup source (genset or auxiliary transformer) to cover in the event of failure.

For sites that require a power availability rate close to 100%, our ATyS Bypass solution offers dual redundancy during normal operation, service and maintenance work. With its capacity to resume Normal/Bypass channels, the ATyS Bypass solution allows the continued, seamless and safe use of your systems.

Solutions for medical premises


SITE 629 A

The availability of a reliable electrical power supply is vital to ensure continuity of care. There is no excuse today for power failures that can lead to life-or-death situations.

Medical IT unearthing system cabinets ensure the availability of electrical power in medical centres (in accordance with standard IEC 60364-7-710).

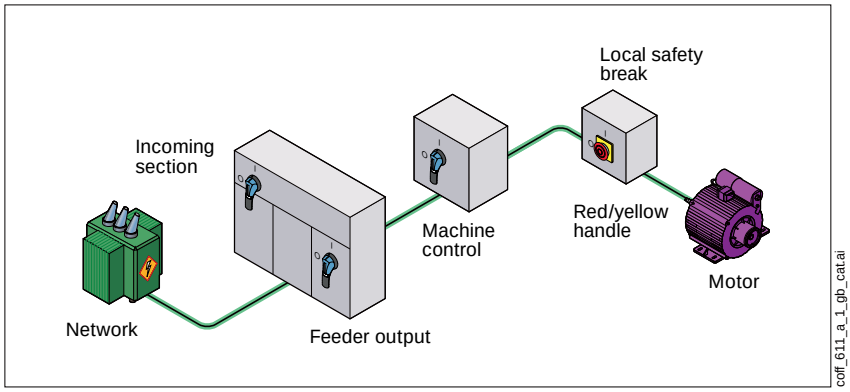
The SOCOMEC medical IT cabinet range comes in three models and provides the solution for all your medical centre needs, with manufacturer's guarantee.

Enclosed switches

Enclosed load break switches and fuse combination load break switches

Switchgear systems are an essential part of your electrical system. Installed at every level of the distribution, they allow you to secure and isolate parts of the network or electrical equipment.

SOCOMEC load break switches in power distribution and machine control applications



The solution for

> Processing industry
> Infrastructure
> OEM

The advantages

> Increased flexibility
> Maintenance safety
> Adaptable to every environment

A manufacturer's expertise

> Active in the electrical switchgear market since 1922, Socomec is both a global leader and an undisputed benchmark reference.
> Our enclosed solutions, with or without fuse protection, are suitable for a wide variety of commercial and industrial power distribution operating environments and applications.
From 20 to 1600 A, to IEC or UL standards, we now have one of the widest ranges on the market.

Business sectors

Processing industry
- Cement plant - Quarries
- Steel plant
- Food processing industries

OEM
- HVAC - heating, ventilation and air-conditioning
- Lifting

Infrastructure
- Airports - Tunnels - Motorways
- Water treatment

Which product for which business?

Enclosure	Insulated		Metallic	
	Polycarbonate	Polyester	Painted sheet metal	Stainless steel
Rating	20 to 125 A	160 to 630 A	20 to 1600 A	32 to 100 A
Application				
Cement plant		++	+++	
Steel plant		++	+++	
Food processing	+	++		+++
Tunnels	+++	++	+	
Water treatment	++	+++		
HVAC	+++	++		
Lifting	+	++	+++	

The benefits of our range

Enclosed switches equipped with Socomec load break switches or fuse combination load break switches provide emergency breaking, breaking for mechanical maintenance, local safety isolation and fuse protection for any low voltage circuit.

FLEXIBILITY

Increased flexibility for more productivity

Controlling the power as close as possible to consumers makes operation and maintenance easy, autonomous and safe. This allows you to optimise the equipment's operating times.

Maintenance safety

Breaking close to the load means the system can reliably identify which circuits need to be disconnected.

On-load breaking and isolating, as well as the clear indication of the load break switch's position and the triple lock of the operating handle (in the open position) allows non-qualified persons to reliably and easily shutdown and isolate a supply circuit.

The locking of access (live or non current-carrying) to the enclosure's internal equipment can be managed to suit all kinds of safety procedures.

A solution to suit any environment

Available in 4 materials, the Socomec enclosed switch range can withstand most environmental constraints; protection against water and dust (IP), mechanical impact (IK) or corrosion.

Selection guide

Enclosed switches

Which application? ▶ In which operating environment?

Electrical feature	Load break switches					
Enclosure	Insulated		Metallic			
						
Model	***COMO*** **20 to 125 A** *p. 415*	***SIRCO*** **160 to 630 A** *p. 416*	***SIRCO M*** **20 to 100 A** *p. 416*	***SIRCO*** **160 to 1600 A** *p. 417*	***SIRCO M*** **32 to 100 A** *p. 418*	
Application						
Local breaking	•	•	•	•	•	
Circuit protection						
Environmental risks						
Corrosion	+++	+++	+	+	+++	
Chemical	++	++	+	+	+++	
Mechanical impact	+	++	+++	+++	+++	
Electrical characteristics						
Rated current: AC-22A, 400 V	20 … 125 A	160 … 630 A	20 … 100 A	160 … 1600 A	32 … 100 A	
Motor power AC-22A, 400 VAC (kW)	7.5 … 45	80 … 280	9 … 45	80 … 710	15 … 45	
Number of poles	3 / 4 / 6 / 8 P	3 / 4 P	3 / 4 P	3 / 4 P	3 / 4 P	
Enclosure characteristics						
Material						
Polycarbonate	•					
Polyester		•				
Painted sheet metal			•	•		
Stainless steel					•	
Protection degree	IP 65	IP 65	IP 65	IP 65	IP 65	
Connection characteristics						
High-Low	•	•	•	•		
Low-Low	•	•	•	< 630 A	•	
Minimum recommended connection section (mm²)	1.5	50	1.5	50	1.5	
Max. connection cross section (mm²)	50	2 x 300	70	6 x 185	70	

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Which electrical feature ?

Which connection?

	Fuse combination load break switches	
	Insulated	Metallic
		
	FUSERBLOC **50 to 160 A** *p. 423*	*FUSERBLOC* **32 to 800 A** *p. 423*
	•	•
	•	•
	+++	+
	++	+
	++	+++
	50 … 160 A	32 … 800 A
	25 … 80	15 … 450
	3 / 4 P	3 / 4 P
	•	
		•
	IP 55	IP 65
	•	•
	•	< 630 A
	6	2.5
	2 x 300	4 x 185

Enclosed switches

Load break switches

20 to 1600 A

COMO *enclosure 20 to 125 A*
Polycarbonate - IP65

SIRCO *enclosure 160 to 630 A*
Polyester - IP65

SIRCO M *enclosure 32 to 100 A*
Stainless steel - IP65

SIRCO M *enclosure 20 to 100 A*
Painted steel - IP65

SIRCO *enclosure 160 to 1600 A*
Painted steel - IP65

The solution for

- > OEM
- > Industries
- > Commercial buildings
- > Electrical distribution

Strong points

- > Safe operation
- > Suitable for all kinds of environment
- > Easy setup
- > Extensive range

Compliance with standards

- > IEC 60947-3
- > IEC 60364
- > EN 60947-3
- > EN 61439
- > EN 60204-1

Other products

- > Customised solutions available on request.

Function

Enclosed load break switches ensure the on-load breaking and making of circuits and safely isolate all low-voltage electrical circuits by providing protection against contact with live parts and environmental elements, such as dust, water and other hazards.

They enable the shutdown and isolation of the power supply as close to the equipment as possible.

Advantages

Safe operation

- Reliable lockout for safe maintenance procedures.
- On-load breaking.
- Ergonomic operating handle, available in red/yellow or black.
- Triple lock in OFF position.

Easy setup

- Cable access top and/or bottom.
- Cable gland knockouts (≤ 125 A).
- Removable gland plates at top and bottom for steel enclosures ≥160 A.
- Plenty of room for cabling.

Extensive range

- Standard range
- Customised on request.

Suitable for all kinds of environment

- Insulated enclosure for chemical and food processing applications, indoor or outdoor installation.
- Painted steel enclosure for areas at risk of mechanical impact.
- Stainless enclosure for food processing and pharmaceutical applications.

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Load break switch in insulated enclosure

■ *COMO* in polycarbonate enclosure

como-enc_002 - 032 - 026 - 036

General characteristics

- From 20 to 125 A.
- 3, 4, 6, 8 poles.
- Yellow/red or grey/blue version.
- Triple lock in OFF position.
- Polycarbonate enclosure.
- Screw-on front.
- Degree of protection: IP65.
- Cable gland knock-outs at top, bottom and sides.
- Door interlocking when switch is ON.

Accessories

- Solid neutral pole (max. 1).
- NO+NC or 2 NO auxiliary contact module for pre-break and signalling of positions 0 and I.
  Up to 2 auxiliary contact modules can be fitted to each product, one on each side of the switch.

References

Rating (A)	N° of poles	With blue handle	With red handle	Solid neutral pole(1)	Auxiliary contacts (1)
20	3 P	2115 **3301**	2115 **3401**	-	-
	4 P	2115 **4301**	2115 **4401**		
25	3 P	2115 **3302**	2115 **3402**	2115 **5005**	1 AC NO+NC 2113 **4001** 1 AC 2 NO 2113 **4002**
	4 P	2115 **4302**	2115 **4402**		
32	3 P	2115 **3303**	2115 **3403**		
	4 P	2115 **4303**	2115 **4403**		
	6 P	2115 **6303**	2115 **6403**		
	8 P	2115 **8303**	2115 **8403**		
40	3 P	2115 **3304**	2115 **3404**	2115 **5007**	
	4 P	2115 **4304**	2115 **4404**		
63	3 P	2115 **3306**	2115 **3406**		
	4 P	2115 **4306**	2115 **4406**		
	6 P	2115 **6306**	2115 **6406**		
	8 P	2115 **8306**	2115 **8406**		
80	3 P	2115 **3308**	2115 **3408**	2115 **5009**	
	4 P	2115 **4308**	2115 **4408**		
100	3 P	2115 **3309**	2115 **3409**	2115 **5011**	
	4 P	2115 **4309**	2115 **4409**		
125	3 P	2115 **3312**	2115 **3412**		
	4 P	2115 **4312**	2115 **4412**		

Enclosure		
Size	H x W x D (mm)	Cable-in top and bottom (mm)
CPC 0	92 x 64 x 83	2 x Ø 25
CPC 1	163 x 100 x 115	2 x Ø 25(2)
CPC 2	200 x 146 x 150	2 x Ø 32 / 40(2)
CPC 1	163 x 100 x 115	2 x Ø 25(2)
CPC 2	200 x 146 x 150	2 x Ø 32 / 40(2)
CPC 3	304 x 214 x 182	2 x Ø 50 / 63(2)
CPC 2	200 x 146 x 150	2 x Ø 32 / 40(2)
CPC 3	304 x 214 x 182	2 x Ø 50 / 63(2)

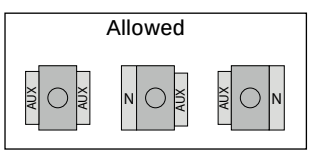
(1) Max. configuration capacity: 1 solid neutral pole + 1 aux contact, or 2 aux contacts.
(2) In addition to top and bottom gland knock-outs, 2 x M20 knock-outs are included on each side of the enclosure fot CPC 1 thru CPC 3.

Configurations

Possible configurations

Solid neutral pole and auxiliary contact accessories can be fitted to the left and/or right side of the COMO switch. Note that only one neutral pole can be fitted. See the below table for details.

Accessory 1 (left)	COMO switch	Accessory 2 (right)
Aux. contact	3/4/6/8P	Aux. contact
Solid neutral	3/4/6/8P	Aux. contact
Aux. contact	3/4/6/8P	Solid neutral



Enclosed switches

Load break switches

20 to 1600 A

Load break switch in insulated enclosure

■ *SIRCO* in polyester enclosure

coff_584_front.psd

General characteristics

- From 160 to 630 A.
- 3 poles + unswitched neutral, 4 poles.
- Black handle (red/yellow on request).
- Triple lock in OFF position.
- Polyester enclosure.
- Screw-on front.
- Colour: RAL 7035.
- Degree of protection: IP65.
- Wall-mounted, 4 brackets included.

Accessories

- NO/NC auxiliary contact.
- Terminal screen.

References

Rating (A)	N° of poles	With black handle	Auxiliary contacts	Protective screen	Enclosure Size	Enclosure H x W x D (mm)
160	3 P + N	3116 **5016**	1st AC NO/NC 2699 **0031**	2698 **3012**	CP 32	360 x 270 x 171
	4 P	3116 **4016**		2698 **4012**		
250	3 P + N	3116 **5025**		2698 **3020**	CP 53	540 x 360 x 171
	4 P	3116 **4025**		2698 **4020**		
400	3 P + N	3116 **5040**	2nd AC 2 NO/NC 2699 **0032**	2698 **3050**	CP 75	720 x 540 x 201
	4 P	3116 **4040**		2698 **4050**		
630	3 P + N	3116 **5063**		2698 **3050**		
	4 P	3116 **4063**		2698 **4050**		

Load break switch in metallic enclosure

■ *SIRCO M* in painted steel enclosure

coff_587_front.psd

General characteristics

- From 20 to 100 A.
- 3 poles + solid neutral.
- Red/yellow or black handle.
- Triple lock in OFF position.
- Painted steel enclosure.
- Hinged door or screw-on cover.
- Colour: RAL 7035.
- Pre-punched cable gland knockouts at top and bottom.
- Degree of protection: IP65.

Accessories

- Switched 4th pole (max. 1).
- NO+NC or 2 NO auxiliary contact (max. 2).
- Terminal shrouds.
- Wall mounting brackets.

References

Rating (A)	N° of poles	With black handle	With red/ yellow handle	Switched 4th pole	Auxiliary contacts	Terminal shroud	Wall brackets	Enclosure Size	Enclosure H x W x D (mm)	Enclosure Cable-in top and bottom (mm)
20	3 P + N	3032 **5002**(1)	3032 **5102**(1)	2200 **1001**	1 AC NO + NC 2299 **0001**	2294 **3005** (3 P) 2294 **1005** (1 P)	3031 **0011**	CT 21	200 x 150 x 120	2 x Ø 25 + 2 x Ø 32 + Ø 16
	3 P + N	3032 **5202**(2)	3032 **5302**(2)					CT 21a		
32	3 P + N	3032 **5003**(1)	3032 **5103**(1)	2200 **1003**				CT 21		
	3 P + N	3032 **5203**(2)	3032 **5303**(2)					CT 21a		
63	3 P + N	3032 **5006**(1)	3032 **5106**(1)	2200 **1006**	1 AC 2 NO 2299 **0011**	2294 **3009** (3 P) **2294 1009** (1 P)		CT 21		
	3 P + N	3032 **5206**(2)	3032 **5306**(2)					CT 21a		
100	3 P + N	3032 **5010**(1)	3032 **5110**(1)	2200 **1010**		2294 **3016** (3 P) 2294 **1011** (1 P)		CT 32	300 x 200 x 120	Ø 32 + 2 x Ø 50 + Ø 16
	3 P + N	3032 **5210** (2)	3032 **5310**(2)					CT 32a		

(1) Hinged door closed with double bar locks.

(2) Front panel screw-on.

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Load break switch in metallic enclosure (continued)

■ *SIRCO* in painted steel enclosure


coff_566_front.psd

General characteristics

- From 160 to 1600 A.
- 3 poles + solid neutral , 4 poles.
- Black handle (red/yellow on request).
- Triple lock in OFF position.
- Painted steel enclosure.
- Hinged door with double bar locking.
- Colour: RAL 7035.
- Cable gland plates: top and bottom.
- Degree of protection: IP65.
- Wall-mounted, 4 brackets included.

Accessories

- NO/NC auxiliary contact.
- Terminal screen.

References

Rating (A)	N° of poles	Handle Black Reference	Auxiliary contacts	Protective screen (top or bottom)
160	3 P + N	3032 **5016**	1st AC NO/NC 2699 **0031** 2nd AC 2 NO/NC 2699 **0032**	2698 **3012**
	4 P	3032 **4016**		2698 **4012**
250	3 P + N	3032 **5025**		2698 **3020**
	4 P	3032 **4025**		2698 **4020**
400	3 P + N	3032 **5040**		2698 **3050**
	4 P	3032 **4040**		2698 **4050**
630	3 P + N	3032 **5063**		2698 **3050**
	4 P	3032 **4063**		2698 **4050**
800	3 P + N	3032 **5080**		2698 **3080**
	4 P	3032 **4080**		2698 **4080**
1250	3 P + N	3032 **5084**		2698 **3120**
	4 P	3032 **4084**		2698 **4120**
1600	3 P + N	3032 **5088**		2698 **3120**
	4 P	3032 **4088**		2698 **4120**

Enclosure		
Size	H x W x D (mm)	Cable-in top and bottom (mm)
CT 43	400 x 300 x 210	180 x 100
CT 66	600 x 600 x 300	380 x 100
CT 86	800 x 600 x 350	560 x 100
CT 128	1200 x 800 x 300	660 x 100

Load break switch in metallic enclosure (continued)

■ *SIRCO M* in stainless steel enclosure

General characteristics

- 32 to 100A.
- 3 poles + solid neutral.
- Black or red/yellow handle.
- Triple lock in OFF position.
- Brushed stainless steel enclosure 304 (please ask for other options).
- Degree of protection: IP65.
- Pre-punched cable gland knockouts at bottom.
- Hinged door with double bar locking.

Accessories

- Switched 4th pole (max. 1).
- NO+NC or 2 NO auxiliary contact (max. 2).
- Wall mounting brackets.

References

Rating (A)	N° of poles	With black handle	With red/ yellow handle	Switched 4th pole	Auxiliary contacts	Terminal shroud	Set of stainless steel brackets	Enclosure		
								Size	H x W x D (mm)	Cable-in bottom (mm)
32	3 P + N	3032 **8003**	3032 **8103**	2200 **1003**	1 AC NO + NC 2299 **0001** 1 AC 2 NO 2299 **0011**	2294 **3005** (3 P) 2294 **1005** (1 P)	3031 **0012**	Cl 21	200 x 150 x 120	2 x Ø 25 + 2x Ø 32 + Ø 16
63	3 P + N	3032 **8006**	3032 **8106**	2200 **1006**		2294 **3009** (3 P) 2294 **1009** (1 P)				
100	3 P + N	3032 **8010**	3032 **8110**	2200 **1010**		2294 **3016** (3 P) 2294 **1011** (1 P)		Cl 32	300 x 200 x 120	Ø 32 + 2 x Ø 50 + Ø 16

Characteristics

Electrical features according to IEC 60947-3

		COMO							
Thermal current I_{th} (40°C)		**20 A**	**25 A**	**32 A**	**40 A**	**63 A**	**80 A**	**100 A**	**125 A**
Enclosed thermal current I_{th} (35°C) (A)		20	25	32	40	63	80	100	125
Enclosed thermal current I_{th} (50°C) (A)		17	22	28	35	54	69	86	108
Rated insulation voltage U_i (V)		690	690	690	690	690	690	690	690
Rated impulse withstand voltage U_{imp} (kV)		4	6	6	6	6	6	6	6
Rated operational currents I_e (A)									
Rated voltage	**Utilisation category**								
400 VAC	AC-22 A / AC-22 B	20	25	32	40	63	80	100	125
400 VAC	AC-23 A / AC-23 B	15	20	22	40	44	53	70	84
690 VAC	AC-22 A / AC-22 B		12	13	18	22	23.5	34	41
690 VAC	AC-23 A / AC-23 B		9.5	11.5	13	17.5	22	25.5	35
Operational power in AC-23 (kW) without pre-break auxiliary contact									
400 VAC without pre-break AC (kW)(1)		7.5	9.5	11.5	20	22	30	37	45
690 VAC without pre-break AC (kW)(1)			12	13	18	22	25.5	34	41
gG DIN(2) fuse protected short-circuit withstand									
Prospective short-circuit current (kA rms)		1	8	8	8	8	10	20	20
Associated fuse rating (A)		20	25	32	40	63	80	100	125
Circuit breaker protected short-circuit withstand with any circuit breaker that ensures tripping in less than 0.3s									
Current rated as short-time withstand I_{cw} 0.3s (kA rms)		0.68	0.68	1.28	1.28	2.52	2.52	4	4
Short-circuit operation (switch only)									
Current rated as short-time withstand I_{cw} 1s (kA rms)		0.34	0.34	0.64	0.64	1.26	1.26	2	2
Connection									
Minimum Cu cable cross-section (mm²)		1.5	2.5	2.5	2.5	2.5	2.5	4	4
Maximum Cu cable cross-section (mm²)		4	10	10	10	16	25	35	50

(1) The power value is given for information only, the current values vary from one manufacturer to another. (2) For a rated operational voltage U_e = 415 VAC.

		SIRCO M / SIRCO										
Thermal current I_{th} (40°C)		**20 A**	**32 A**	**63 A**	**100 A**	**160 A**	**250 A**	**400 A**	**630 A**	**800 A**	**1250 A**	**1600 A**
Frame size		**M1**	**M1**	**M2**	**M3**	**B3**	**B4**	**B5**	**B5**	**B6**	**B7**	**B7**
Enclosed thermal current I_{th} (35°C) (A)		20	32	63	100	160	250	400	630	770	1000	1450
Enclosed thermal current I_{th} (50°C) (A)		17	28	54	86	138	216	345	544	665	863	1252
Rated insulation voltage U_i (V)		800	800	800	800	800	800	1000	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV)		8	8	8	8	8	8	12	12	12	12	12
Rated operational currents I_e (A)												
Rated voltage	**Utilisation category**											
415 VAC	AC-22 A / AC-22 B	20	32	63	100	160	250	400	630	800	1250	1600
415 VAC	AC-23 A / AC-23 B	20	32	63	100	160	250	400	500	800	1250	1250
500 VAC	AC-22 A / AC-22 B	20	32	63	100							
500 VAC	AC-23 A / AC-23 B	20	25	63	80							
690 VAC	AC-22 A / AC-22 B	20	32	40/63	80/100							
690 VAC	AC-23 A / AC-23 B	20	25	40	63							
Operational power in AC-23 (kW)												
400 VAC without pre-break AC (kW)(1)		9	15	30	45	80	132	220	280	450	710	710
500 VAC without pre-break AC (kW)(1)		9	15	30	45							
690 VAC without pre-break AC (kW)(1)		11	15	30	45							
gG DIN(2) fuse protected short-circuit withstand												
Prospective short-circuit current (kA rms)		50	50	50	25	100	50	100	70	50	100	100
Associated fuse rating (A)		20	32	63	100	160	250	400	630	800	1250	2x800
Circuit breaker protected short-circuit withstand with any circuit breaker that ensures tripping in less than 0.3s												
Current rated as short-time withstand I_{cw} 0.3s (kA rms)		2.5	2.5	3	5	15	17	25	25	50	100	100
Short-circuit operation (switch only)												
Current rated as short-time withstand I_{cw} 1s (kA rms)		1.26	1.26	1.5	2.75	7	9	13	13	35	50	50
Dynamic withstand current in I_{cc} (kA peak) (6)		6	6	9	12	20	30	45	45	55	110	110
Connection												
Minimum Cu cable cross-section (mm²)		1.5	1.5	2.5	10	50	95	185	2x150	2x185		
Maximum Cu cable cross-section (mm²)		16	16	35	70	95	150	240	2x300	2x300	4x185	6x185

(1) The power value is given for information only, the current values vary from one manufacturer to another. (2) For a rated operational voltage U_e = 415 VAC.

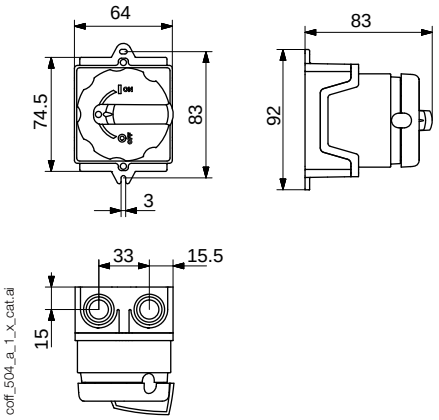
Enclosed switches

Load break switches

20 to 1600 A

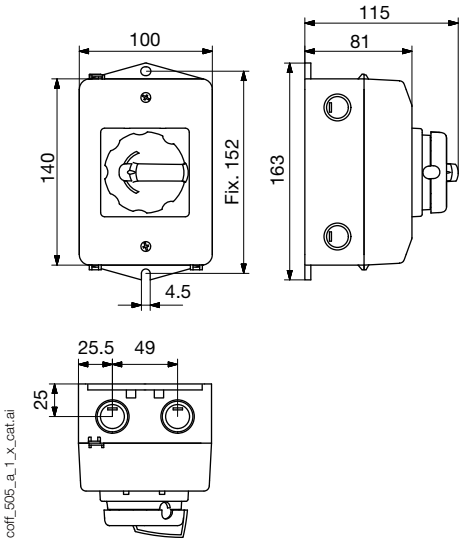
COMO dimensions

Size CPC 0



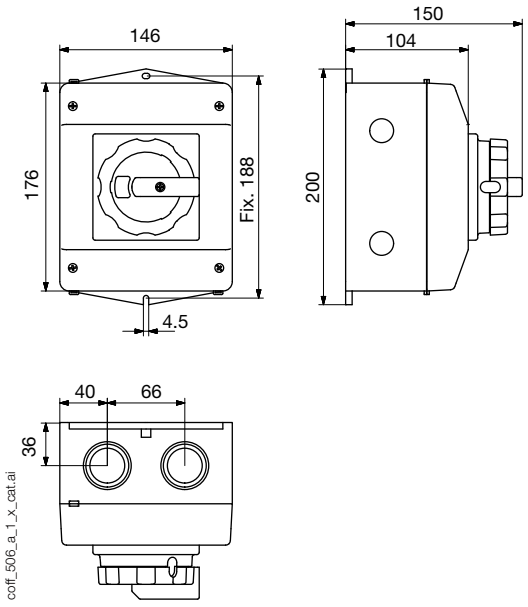
- 2x M25 cable knockouts (top and bottom)

Size CPC 1



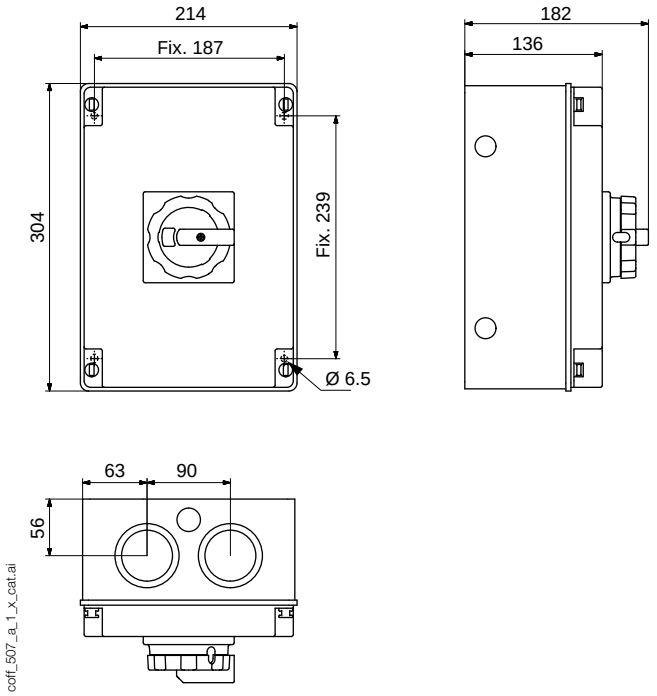
- 2x M20 cable knockouts (on each side)
- 2x M25 cable knockouts (top and bottom)
- 2 pre-drilled holes to expel water

Size CPC 2



- 2x M20 cable knockouts (on each side)
- 2x M32/M40 cable knockouts (top and bottom)
- 2 pre-drilled holes to expel water

Size CPC 3



- 2x M20 cable knockouts (on each side)
- 2x M50/M63 cable knockouts (top and bottom)
- 2 pre-drilled holes to expel water

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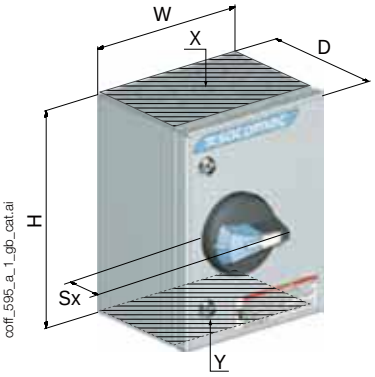
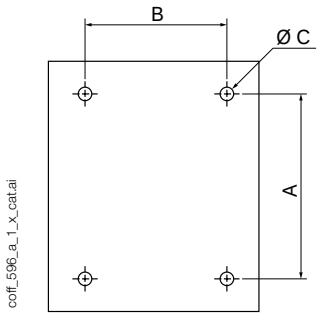
SIRCO M and SIRCO dimensions

Enclosures

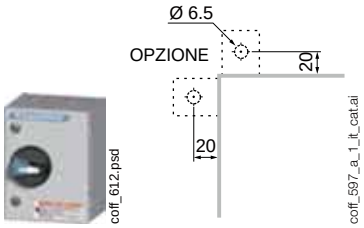


Size	Type	H x W x D (mm)	Sx (mm)	A (mm)	B (mm)	Diameter C (mm)	X - Y Cable-in top and bottom(1)
CT 21, CI21, CT 21a	1	200 x 150 x 120	36	135	85	6.5	2 x Ø 25 + 2 x Ø 32 + Ø 16
CT 32, CI32, CT 32a		300 x 200 x 120		235	135		1 x Ø 32 + 2 x Ø 50 + Ø16
CP 32	3	360 x 270 x 171	45	337	247		–
CP 53		540 x 360 x 171		516	337		
CP 75		720 x 540 x 201		696	516		
CT 43	2	400 x 300 x 210		362	262	12.5	180 x 100
CT 66		600 x 600 x 300		562	562		380 x 100
CT 86		800 x 600 x 350	60	762	562		
CT 128		1200 x 800 x 300		1162	762		660 x 100

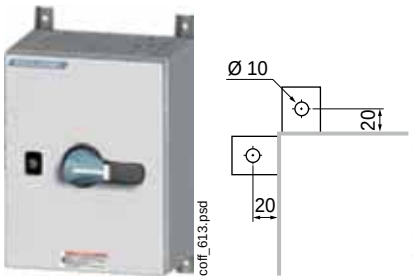
(1) For stainless steel enclosure, cable-in at bottom only



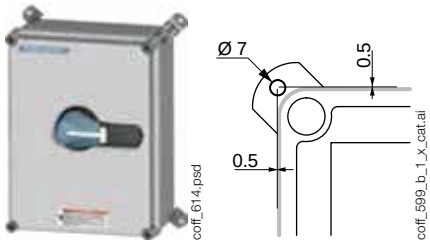
Type 1



Type 2



Type 3



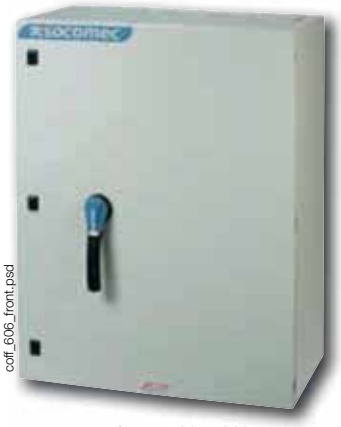
Enclosed switches

Fuse combination switches

32 to 800 A

FUSERBLOC *enclosure 32 to 63A*
Painted steel - IP65

FUSERBLOC *enclosure 50 to 160A*
Polyester - IP55



FUSERBLOC *enclosure 100 to 800A*
Painted steel - IP65

The solution for

> OEM
> Industries
> Commercial buildings
> Electrical distribution

Strong points

> Safe operation
> Suitable for all kinds of environment
> Easy setup
> Extensive range

Compliance with standards

> IEC 60947-3
> IEC 60364
> EN 60947-3
> EN 61439
> EN 60204-1

Other products

> Customised solutions available on request.

Function

Enclosed fuse combination load break switches ensure on-load breaking and making of circuits, protect against overcurrents, and safely isolate all low-voltage electrical circuits by providing protection against contact with live parts and environmental elements, such as dust, water and other hazards.

They enable the shutdown and isolation of the power supply as close to the equipment as possible.

Advantages

Safe operation

- Reliable lockout for safe maintenance procedures.
- On-load breaking.
- Ergonomic operating handle, available in red/yellow or black.
- Triple lock in OFF position.

Suitable for all kinds of environment

- Insulated enclosure for chemical and food processing applications, indoor or outdoor installation.
- Painted steel for areas at risk of impact.

Easy setup

- Cable access top and/or bottom.
- Cable gland knockouts (≤ 100 A).
- Removable gland plates at top and bottom for steel enclosures ≥ 160 A.
- Plenty of room for cabling.

Extensive range

- Standard range.
- Customised products on request.

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Fuse combination load break switch in insulated enclosure

■ *FUSERBLOC* in polyester enclosure


coff_584_front.psd

General characteristics

- From 50 to 160 A.
- 3 poles, 4 poles.
- DIN fuse protection (For BS, please contact us).
- Black handle (red/yellow on request).
- Triple lock in OFF position.
- Polyester enclosure.
- Screw-on front.
- Colour: RAL 7035.
- Degree of protection: IP55.
- Wall-mounted, 4 brackets included.

Accessories

- Aux contact NO and NC.
- Blown fuse NO/NC auxiliary contact.
- Terminal shroud.

References

Rating (A)	Case	No. of poles	With black handle	Fuse size (NF, NH)	Auxiliary contacts	Terminal shroud	Blown fuse NO/NC auxiliary contact	Size	Enclosure H x W x D (mm)
50	11	3 P	3117 **3005**	14 x 51	1 NO AC 3999 0701 1 NC AC 3999 0702	-	3994 **0405**	CP 22	270 X 270 X 171
		4 P	3117 **4005**						
100	13	3 P	3117 **3010**	22 x 58		3998 **3016**	3994 **0310**	CP 32	360 X 270 X 171
		4 P	3117 **4010**			3998 **4016**	3994 **0410**		
160	14	3 P	3117 **3016**	0		3998 **3016**	3994 **0316**	CP 52	540 X 270 X 171
		4 P	3117 **4016**			3998 **4016**	3994 **0416**	CP 53	540 X 360 X 171

■ *FUSERBLOC* in metallic enclosure


coff_606_front.psd

General characteristics

- From 32 to 800 A.
- 3 poles + solid neutral, 4 poles.
- DIN fuse protection (For BS, please contact us).
- Black handle (red/yellow on request)
- Triple lock in OFF position.
- Painted steel enclosure.
- Hinged door with double bar locking.
- Colour: RAL 7035.
- Cable gland knockouts (≤ 63 A) or removable gland plates (≥100A) at top and bottom.
- Degree of protection: IP65.
- Wall mounting brackets included (not available for 32 and 63 A.)

Accessories

- Aux contact NO and NC.
- Blown fuse NO/NC auxiliary contact.
- Terminal shrouds.

References

Rating (A)	Case	No. of poles	With black handle	Fuse size (NF, NH)	Auxiliary contacts	Terminal shroud	Blown fuse NO/NC auxiliary contact	Bracket kit	Enclosure Size	Enclosure H x W x D (mm)	Enclosure Cable-in top and bottom (mm)
32	0	3 P + N	3035 **5003**	14 x 51	1 NO AC 3999 **0701** 1 NC AC 3999 **0702**	-	3994 **0303**	3031 **0011**	CT 32a	300 x 250 x 150	Ø 32 + 2 x Ø 50 + Ø 16
		4 P	3035 **4003**								
63	12	3 P + N	3035 **5006**	00C			3899 **3380**		CT 33	300 x 300 x 150	4 x Ø 32 + Ø 16
		4 P	3035 **4006**								
100	13	3 P + N	3035 **5010**	22 x 58		3998 **3016**	3994 **0310**	included	CT43	400 x 300 x 210	180 x 100
		4 P	3035 **4010**			3998 **4016**	3994 **0410**				
160	13	3 P + N	3035 **5016**	00		3998 **3016**	3899 **3380**		CT 44	400 x 400 x 210	280 x 100
		4 P	3035 **4016**			3998 **4016**					
250	15	3 P + N	3035 **5025**	1		3998 **3025**	3994 **0325**		CT 64	600 x 400 x 250	280 x 100
		4 P	3035 **4025**			3998 **4025**	3994 **0425**				
400	16	3 P + N	3035 **5040**	2		3998 **3040**	3994 **0440**		CT 66	600 x 600 x 300	380 x 100
		4 P	3035 **4040**			3998 **4040**	3994 **0440**				
630	17	3 P + N	3035 **5063**	3		3998 **3080**	3994 **1306**		CT 108	1000 x 800 x 400	660 x 100
		4 P	3035 **4063**			3998 **4080**	3994 **1406**				
800	18	3 P + N	3035 **5080**	4		3998 **3080**	3994 **1312**				
		4 P	3035 **4080**			3998 **4080**	3994 **1412**				

Characteristics

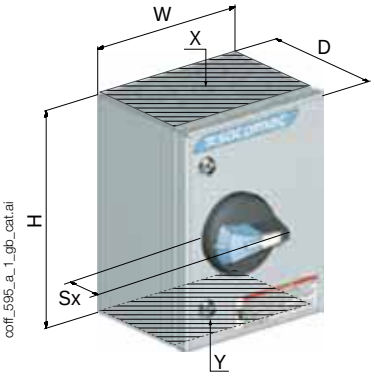
Electrical features according to IEC 60947-3

		FUSERBLOC									
Thermal current I_{th} (40 °C)		**CD 32 A**	**50 A**	**63 A**	**100 A**	**160 A**	**160 A**	**250 A**	**400 A**	**630 A**	**800 A**
NFC/DIN fuse size		14 x 51	14 x 51	00C	22 x 58	00	0	1	2	3	4
Switch body size for front and side operation		0	11	12	13	13	14	15	16	17	18
Enclosed thermal current I_{th} (35°C) (A)		32	50	57	100	160	160	240	400	630	800
Enclosed thermal current I_{th} (50°C) (A)		29	48	52	86	138	138	207	345	544	691
Rated insulation voltage U_i (V)		800	800	800	800	800	800	800	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV)		8	8	8	8	8	8	8	12	12	12
Rated operational currents I_e (A)											
Rated voltage	**Utilisation category**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**
400 VAC	AC-22 A / AC-22 B	32/32	50/50	63/63	100/100	160/160	160/160	250/250	400/400	630/630	800/800
400 VAC	AC-23 A / AC-23 B	32/32	50/50	63/63	100/100	160/160	160/160	250/250	400/400	630/630	800/800
690 VAC	AC-22 A / AC-22 B	32/32	50/50	63/63	100(2)/100(2)	160(2)/160(2)	160(2)/160(2)	250(2)/250(2)	400/400	500/630	800/800
690 VAC	AC-23 A / AC-23 B	32/32	50/50	63/63	100(2)/100(2)	125(2)/125(2)	125(2)/125(2)	250(2)/250(2)	315/400	315/400	800/800
Operational power in AC-23 (kW)											
At 400 VAC without pre-break in AC (1)(3)		15/15	25/25	30/30	51/51	80/80	80/80	132/132	220/220	355/355	450/450
At 690 VAC without pre-break in AC (1)(3)		25/25	45/45	55/55	90/90	110/110	110/110	220/220	220/295	295/400	400/400
Reactive power (kvar)											
At 400 VAC (3)		15	23	28	45	75	75	115	185	290	355
gG DIN fuse protected short-circuit withstand current											
Prospective short-circuit current (kA rms) (4)		100	100	100	100	50	100	100	100	100	100
Associated fuse rating (A) (4)		32	50	63	100	160	160	250	400	630	800
Short-circuit operation (switch only)											
Rated peak withstand current (kA peak)(4)		5.5	7.6	10.6	20	20	22.7	32.5	40	70	80
Connection											
Minimum Cu cable cross-section (mm^2)		2.5	6	10	25	35	50	95	185	2 x 150	-
Maximum Cu cable cross-section (mm^2)		16	25	25	95	95	95	240	240	2 x 300	4 x 185

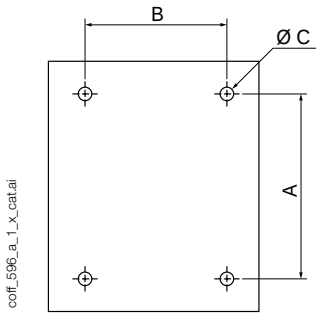
(1) Category with index A = frequent operation / Category with index B = infrequent operation.
(2) With terminal shrouds or phase barrier.
(3) The power value is given for information only; the current values vary from one manufacturer to another.
(4) For a rated operational voltage U_e = 400 VAC

Dimensions

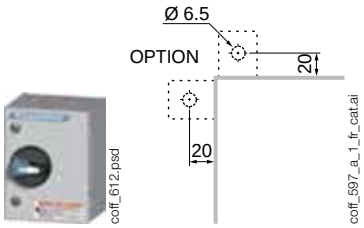
Enclosures



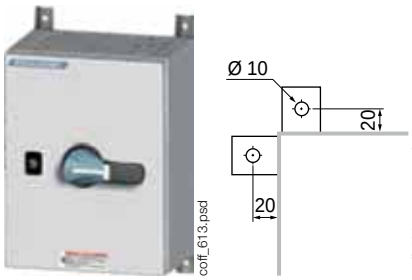
Size	Type	H x W x D (mm)	Sx (mm)	A (mm)	B (mm)	Ø C (mm)	X - Y Cable-in top and bottom[1]
CP 22	3	270 x 270 x 171	45	247	247	6.5	–
CP 32		360 x 270 x 171		337	247		
CP 52		540 x 270 x 171		516	247		
CP 53		540 x 360 x 171		516	337		
CT 32a	1	300 x 250 x 150		262	212		Ø 32 + 2 x Ø 50 + Ø 16
CT 33		300 x 300 x 150		262	262		4 x Ø 32 + Ø 16
CT 43	2	400 x 300 x 210		362	262	12.5	180 x 100
CT 44		400 x 400 x 210		362	362		280 x 100
CT 64		600 x 400 x 250		562	362		
CT 66		600 x 600 x 300		562	562		380 x 100
CT 108		1000 x 800 x 400	60	962	762		660 x 100



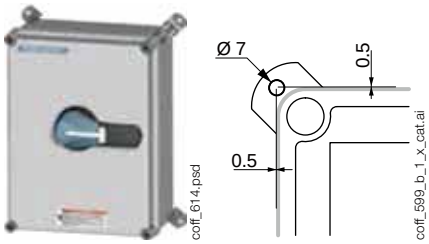
Type 1



Type 2



Type 3



Safety enclosures

Socomec safety enclosures are designed for installation near a motor or a machine in order to **isolate it from the power supply**.

All the safety enclosures are equipped with **load break switches** with front or side operating handles which are **lockable** in the open position, and with **visible, reliable indication** of the contacts' open position. They make and break under load conditions and provide safety isolation for any low voltage circuit.

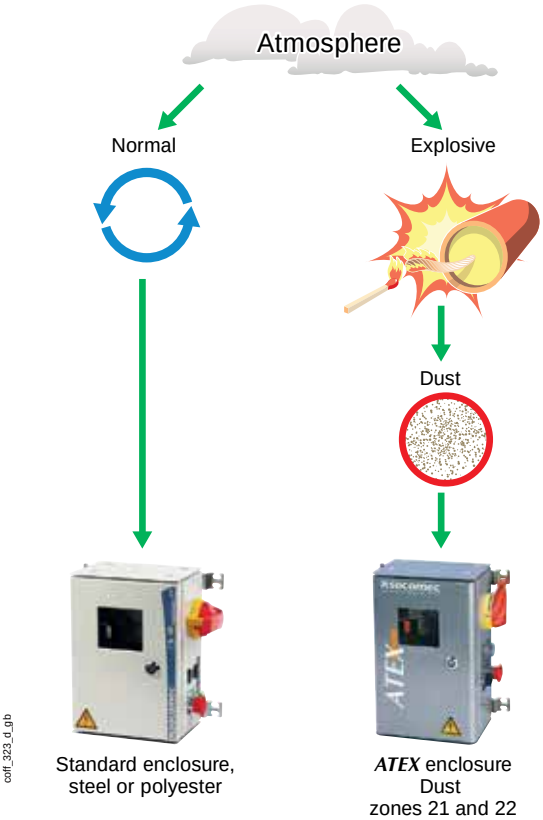
During maintenance or inspection operations, the safety enclosures guarantee the operator's **protection against the accidental startup of electrical machines**.

For use in explosive atmospheres, **ATEX dust** enclosures are available to prevent explosions caused by electrical arcs generated when opening or closing the circuits protected by the device.

STE 258_A

Which ambient atmosphere?

The operating environment is an essential parameter when choosing an enclosure. Our range of enclosures offers you solutions for the most varied of atmospheres, including the most severe.



coff_323_d_gb

Environment	Steel enclosure	Polyester enclosure	Stainless steel enclosures(1)	ATEX enclosures
Chemical aggression		•	•	
Mechanical risks	•		•	•
Dust risks	•			•
Contamination risks		•	•	
Atmospheric corrosion		•	•	
Risk of explosion				•

(1) Made to order.

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Safety functions

Positive break indication

Clear indication of the open or closed position of the switch via the handle and its clear marking.

Visible breaking

In position 1

In position 0

In accordance with IEC 60364, “an isolating device is considered as having visible breaking if the separation of the contacts is directly visible”. All the devices used in the safety enclosures have visible breaking.

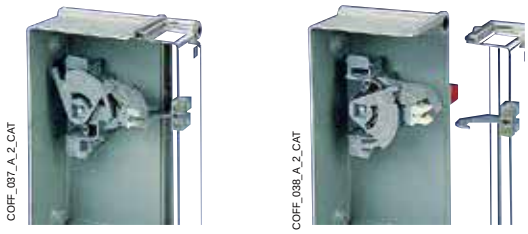
Padlocking

When working on the machine during the lockout phase, qualified personnel may perform triple handle padlocking in the open position. The ergonomic handle can accommodate up to three locks.

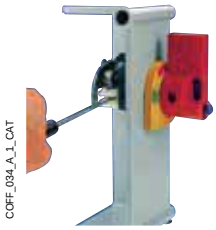
Mechanical flag indicator (optional)

Flush with the viewing window and directly linked to the operating mechanism, this gives clear, at-a-glance indication of contact position, providing easier visualisation of the breaking (standard with steel safety enclosures, optional for polyester).

Double locking



In accordance with standard 60204-1, devices located outside a closed electrical service area must be equipped with the means to allow them to be secured in the OFF position (disconnected state). Qualified personnel may use the ergonomic handle to perform triple handle padlocking.



It is possible to close the breaking device when the enclosure door is open by using a tool to inhibit the double lock, thus allowing tests to be carried out by qualified staff.

Overview of our range

For normal atmospheres

Polyester

Steel

For explosive atmospheres

Steel

Enclosed Transfer Switches

ATyS Bypass

40 to 3200 A

tablo_036

tablo_035

Function

- Automatically transfers to the available source to ensure continuity of the supply to life safety and critical loads such as sprinklers, firefighting/evacuation lifts, water pumps, etc.
- Assures continuity of service during preventative, maintenance and testing.
- Full isolation of the Automatic Transfer Switch ensures that maintenance work can be carried out safely without interruption to the load.
- Source availability, ATS position & status, and source measurements are displayed on the door-mounted D20 interface. Access to configuration parameters, test and control functions (password protected) is also available via the D20.
- ATS Bypass are required for compliance with installation stadards BS 9999:2017 and BS 8519:2020, where occupation of the building is conditional upon the availability of the life safety and fire-fighting equipment.

General features

- 40 to 3200 A, 4-pole.
- 230/400 VAC ± 20%, 50/60 Hz (ATS is self-powered from incoming sources).
- Class PC Automatic Transfer Switch.
- No-break bypass solution.
- Voltage and frequency monitoring of both sources.
- Phase rotation and neutral position control.
- Bi-stable output relay for genset start/stop command (NO/NC).
- Remote position control (I, 0, II) with dry contact.
- Manual emergency operation.
- Volt-free programmable outputs for BMS/ remote indication.
- ATS and bypass switch auxiliary contacts.
- RS485 JBus/Modbus communication (as standard).
- ATS Auto/Manual selector.
- Degree of protection: IP41 as standard (others available on request).
- Hinged door with 3 mm double bar locking.
- Mounting: ≤160A wall-mounted (brackets supplied loose), ≥250A floor-mounted on feet.
- D20 remote interface (door-mounted).
- Mimic panel (3 LEDs for live voltage on source 1, source 2, and load; optional 15/17-LED mimic panel).
- Protection against direct contact from each functional unit.
- Enclosure material: Steel.
- Colour: RAL 7035 epoxy powder coating.

The solution for

> Data centres
> Energy generation
> Healthcare buildings
> High-rise buildings
> Banks and insurance companies
> Transport

Strong points

> No-break bypass solution prevents interruption to the load when switching to bypass.
> IEC 61439-2 type tested solution
> Continuity of service for critical and life safety applications

Compliance with standards

> IEC 61439-2
> IEC 60947-6-1
> IEC 60947-3
> BS 60947-6-1

Expert Services

Technical site audit, solution specification, advice, commissioning, maintenance, training, etc.
Our Expert Services extend to a complete offer of customised services to make your project a success.

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2 model versions

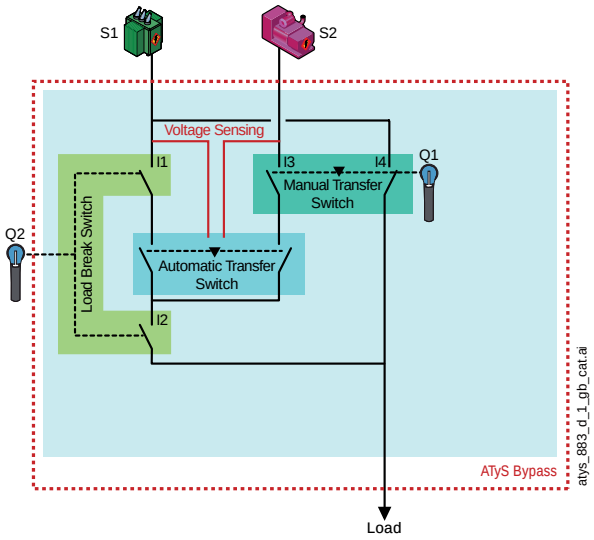
ATyS Single Line Bypass

- Comprises an Automatic Transfer Switch and a priority source bypass line. Bypass and isolation of the ATSE can be performed without interruption to the load.

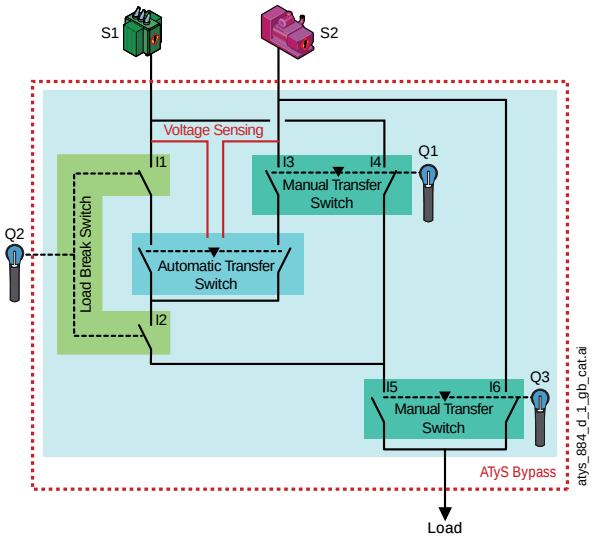
ATyS Double Line Bypass

- Comprises an Automatic Transfer Switch, a priority source bypass line and an alternative source bypass line. Priority source bypass, and isolation of the ATS, can be performed without interruption to the load.
- The addition of the alternative bypass line allows the backup source to be selected during maintenance work, should the priority source fail. ATyS Double Line Bypass provide an extra layer of power availability for the most critical applications.

ATyS Bypass - SINGLE LINE



ATyS Bypass - DOUBLE LINE



Functions

Normal position:

- The load is supplied by the priority source (S1). In the event of priority source failure, the ATS will automatically transfer to the alternative source (S2) when it is available.

Bypass position:

- Operating Q1 to Bypass creates a direct connection between the priority source (S1) and the load, without causing interruption. Opening switch Q2 provides complete isolation of the ATS from the sources and the load, thereby ensuring maintenance safety.
- Operating Q3 (Double Line only) to Bypass creates a direct connection between the alternative source (S2) and the load.
- While in bypass, tests can be performed (≥160A) without interruption to the load.

References

Standard device - 230 VAC for ATyS p M

Rating (A)	No. of poles(1)	Single line Reference	Double line Reference
40	4 P	1785 **4004**	1786 **4004**
63	4 P	1785 **4006**	1786 **4006**
80	4 P	1785 **4008**	1786 **4008**
100	4 P	1785 **4010**	1786 **4010**
125	4 P	1785 **4012**	1786 **4012**

(1) Standard ATyS Bypass require a distributed neutral to power the ATS and other components (230 VAC). If no neutral is available, please contact us for a solution.

Standard device - 230 VAC for ATyS p

Rating (A)	No. of poles(1)	Single line Reference	Double line Reference
160	4 P	1785 **4016**	1786 **4016**
250	4 P	1785 **4025**	1786 **4025**
400	4 P	1785 **4040**	1786 **4040**
630	4 P	1785 **4063**	1786 **4063**
800	4 P	1785 **4080**	1786 **4080**
1000	4 P	1785 **4100**	1786 **4100**
1250	4 P	1785 **4120**	1786 **4120**
1600	4 P	1785 **4160**	1786 **4160**
2000	4 P	1785 **4200**	1786 **4200**
2500	4 P	1785 **4250**	1786 **4250**
3200	4 P	1785 **4320**	1786 **4320**

(1) Standard ATyS Bypass require a distributed neutral to power the ATS and other components (230 VAC). If no neutral is available, please contact us for a solution.

Accessories

Customer fit

Designation	Reference
2 input/2 output plug-in programmable output module (ATyS p only)	1599 **2001**(1)

(1) Maximum 3 modules can be installed.

Factory-fitted

Cable entry/exit configuration

Use

To permit any cable entry and exit configuration (e.g. top/top), specific mounting brackets (≤ 160 A) or a factory-fitted side extension cabinet (≥ 250 A) can be provided. For ≥ 250 A solutions, power terminals can be factory-mounted within the extension cabinet to facilitate connection. Please contact us for more information.

kdrys_504

Surge protection

Use

Factory-fitted surge protection for either or both incoming sources is available on request.

sgys_069

Load measurement

Use

≥160A: Factory-fit installation of current transformers on the outgoing side of the ATyS Bypass provides current, power and energy load measurements. Available on request.

Tin-plated bars

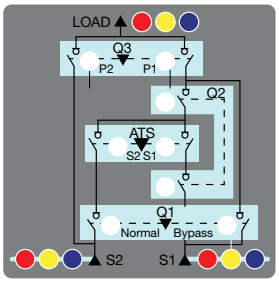
Use

≥250A: For harsh environments, tinned copper can be factory-fitted in place of the standard copper bars. Please contact us for details.

Signalling

Use

For a full overview of the system's state, opt for a 17-LED (15 for single line bypass) mimic panel (live voltage LED per phase and switch positions). Available on request.



acces_275_b_1_x_cat

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Factory-fitted (continued)

Connectivity

Use

≤125A: DIRIS Digiware M-70 gateway with WEBVIEW-M (Webserver) can be factory-fitted.

≥160A: Ethernet plug-in module (4825 0203) can be customer-fitted in place of the standard RS485 MODBUS module (plug-in Ethernet module populates 2 of the 4 ATyS p slots).

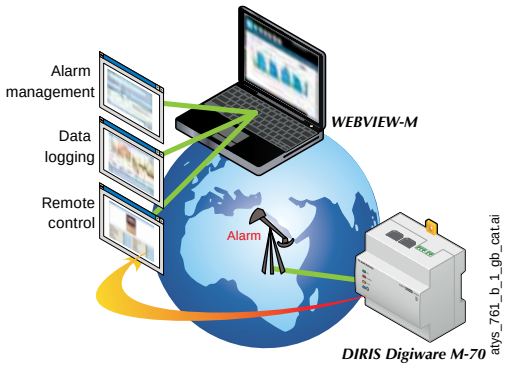
The above options provide the following:

- Remote Ethernet connectivity with real-time monitoring via a Web browser
- ATS status (position, mode, fault)
- Availability of sources (including measurements)
- Access to ATS parameters (viewing)
- ATS input and output status
- Event history

Easy Config System Software (free download)
allows the following to be performed via Ethernet connectivity:

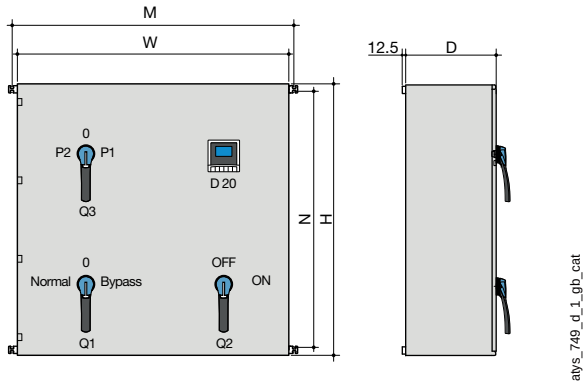
- ATS parameter configuration (1)
- Controls (remote transfers, auto inhibit, test ON/OFF load) (1)

(1) Password required.



Dimensions

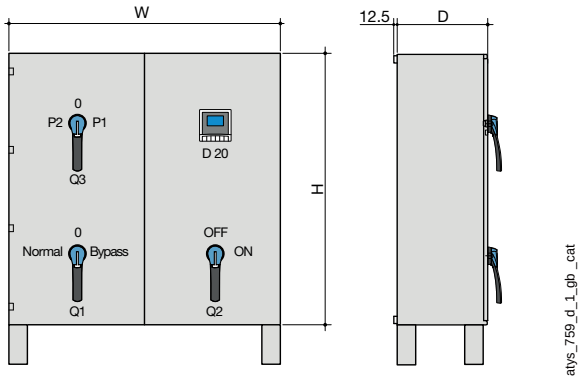
40 to 160 A



Wall-mounted

Rating (A)	Recommended cross-section (mm^2)	H (mm)	W (mm)	D (mm)	M (mm)	N (mm)	Weight (kg)
40	10	800	800	300	840	758	80
63	16	800	800	300	840	758	80
80	25	800	800	300	840	758	80
100	35	1000	800	300	840	958	80
125	50	1000	800	300	840	958	80
160	70	1000	800	400	840	958	160

≥ 250 A



Floor-mounted

Rating (A)	Recommended cross-section (mm^2)	H (mm)	W (mm)	D (mm)	Weight (kg)
250	120	1200 (1)	1000	520	180
400	240	1200 (1)	1000	520	200
630	2 x 185	1600 (2)	1200	600	600
800	2 x 240	1800 (2)	1600	800	1000
1000	4 x 150	1800 (2)	1600	800	1000
1250	4 x 185	2000 (3)	2000	1000	2000
1600	4 x 240	2000 (3)	2000	1000	2000
2000	8 x 150	2000 (4)	2200	1000	2500
2500	8 x 185	2000 (4)	2200	1000	2500
3 200	8 x 240	2000 (4)	2200	1000	2500

(1) Add 200 mm for the base feet.
(2) Add 100 mm for the base feet.
(3) Add 125 mm for the base feet.
(4) Add 120 mm for the base feet (allow for an additional 160 mm for roof fan).

Connection (input/output)

- Standard cable entry and exit is at the bottom. Other configurations may, according to cable size, require specific mounting brackets (≤160A) or a factory-fitted side extension cabinet (≥250A). Please contact us for more information.

Solutions for medical locations

Solution for the continuity and availability of the power supply in Group 2 medical facilities

Standard IEC 60364-7-710 categorises medical facilities into the three following groups, according to the risk of electric shock:

Group 0

Medical facilities which do not have any 'applied parts' intended for use.

Group 1

Medical facilities in which 'applied parts' are intended for use, as follows:

- externally, or
- invasively across every part of the body, except where Group 2 applies.

Group 2

Medical facilities in which 'applied parts' are intended for use in applications such as medical procedures, surgical procedures and life-saving treatments.

What is an 'applied part'?

Standard IEC 60364-7-710 defines an “applied part” as being part of the medical electrical equipment which in normal use

- necessarily comes into physical contact with the patient for the equipment to perform its function, or
- can be brought into contact with the patient, or
- needs to be touched by the patient.

Standard IEC 60364-7-710 also defines the precise continuity of service requirements for the power supply, depending on the type of care being given.

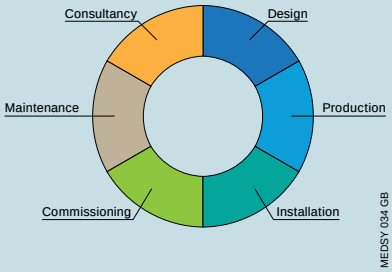
- Class 0: power supply without switching,
- Class 0.5: power available in max. 0.5 s
- Class 15: power available in max. 15 s
- Class >15: power supply available in 15 s or longer

The MEDSYS range

The MEDSYS range meets Class 0, 0.5 or ≤ 15 levels for Groups 0, 1 and 2, as defined in standard IEC 60364-7-710. It is the only IEC 61439-certified and accredited manufacturer solution. MEDSYS also meets European standard HD60364-7-710 and local requirements such as NFC15-211 for France and other countries (please contact us for more information).

From design to maintenance

In addition to its standard products, Socomec has a department dedicated to designing customised systems and meeting the requirements of your project. We support you through the various stages of your project.



Continuity of service

- Service continuity even in single fault conditions.
- Insulation fault detected in less than 6 seconds even with high-interference equipment present.
- Power availability guaranteed by automatic, static and/or continuous power transfer systems.

Guaranteed safety

- Personal protection against indirect contact (IT system, insulation) and direct contact (IP2X, segregation).
- All device signalling contacts are built-in,
- to back up data to a BMS/CTM.

Improved implementation

- The cabinets are fitted with a pivoting body, for rapid access to all functional units.
- Visual identification of the various compartments.

Technological performance

- Predictive maintenance across your entire IT system (OhmScanner technology integrated into ISOM Digiware).

IoT Ready

- Embedded web technology.
- Remote control/consultation.
- Alarm control and data analytics.

Complete range

- Four versions and eight configurations.
- Solution adapts to the usage conditions and structural properties of Group 2 locations.
- Insulation fault detection and overvoltage protection available for all configurations.

Easy maintenance

- All connections are grouped in a separate compartment.
- Some critical components can be removed (transformer, UPS, static transfer system).

Range of services

To ensure your MEDSYS bay works at its best, Socomec offers expert services including commissioning, troubleshooting and training. Contact your sales branch for more information.

Selection guide

	Basic configuration		Advanced configuration
	Includes all the equipment required to protect against indirect contact, with **a single normal** or **safety incomer**		Includes all the equipment required to protect against indirect contact for **2 normal and safety incomers** or **2 safety incomers**
			
	MEDSYS 20		*MEDSYS 30 CD*
	A	**B**	**A**
Inputs			
1 inverter/normal input	•	•	
1 inverter input and 1 spare input			•
2 inverter inputs			•
1 normal input			
2 normal/standby inputs			
Insulation transformer			
Power (kVA)	4	6.3	10
Switched	•	•	
Integrated			•
Headgear			
Load-break switch	•	•	
STATYS Static Transfer System			
ATyS M transfer switch			•
Integrated UPS			
MODULYS or NETYS RT Uninterrupted Power Supply (UPS)			
Distribution			
TN-S		•	•
IT-M (ISOM K-40h)	•	•	•
Alarm report			
ISOM D-15h Alarm notification	•	•	•
Options			
Surge protection device (SURGYS D40)	•	•	•
ISOM Digiware insulation fault detection	Contact us	Contact us	•
Dimensions			
H x W x D (mm)	630 x 403 x 129		1800 x 400 x 400

	Full configuration				
	Includes all the equipment required to protect against indirect contact, with **2 safety incomers**		Includes all the equipment required to protect against indirect contacts, with **1 single normal incomer** or **2 normal/standby incomer**		
					
	MEDSYS 40 CD		*MEDSYS 60*		
	A	**B**	**A**	**B**	**C**
	•	•			
			•		
				•	•
	10	2 x 5	10	10	2 x 10
	•	•	•	•	•
			•		
	•	•			
				•	•
			•	•	•
	•	•	•	•	•
	•	•	•	•	•
	•	•	•	•	•
	•	•	•	•	•
	•	•	•	•	•
	2000 x 600 x 450		2200 x 800 x 800		

Solutions for medical locations

Configuration that adapts as your needs change

Standard IEC 60364-7-710 requires a medical IT system for Group 2 locations and at least one transformer for each operating room or each medical site.

Transformer for the medical IT system

Socomec dry TRM transformers are LV/LV transformers that separate the general distribution network from the medical facility's power supply provided in an IT system. As such, they can isolate and compartmentalise the electrical disturbances across the entire installation.

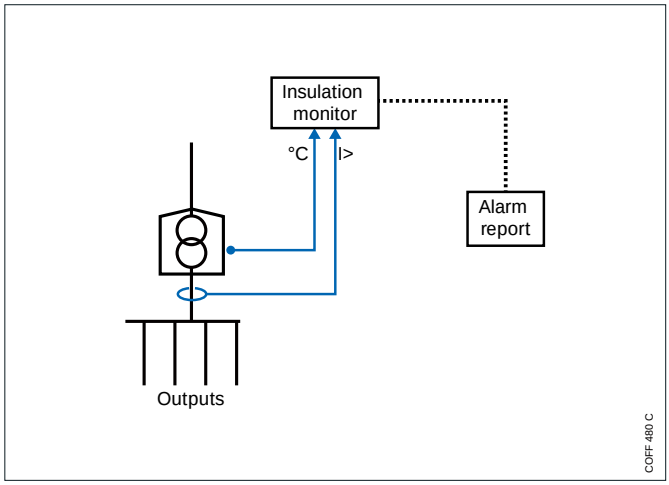
AND

Insulation Monitoring Device and alarm report

The ISOM K-40h insulation monitoring device is a combined unit for monitoring:

- The level of insulation of a medical IT system
- The charging current of single-phase transformers for medical IT systems (up to 50 A)
- The temperature of the medical IT transformer

The D-15h alarm report summarises the alarms from insulation monitoring, overheating and overloads of the medical IT transformer measured by the ISOM K-40h IMD.



Standard IEC 60364-7-710 stipulates that Group 2 medical facilities be powered by 2 separate sources.

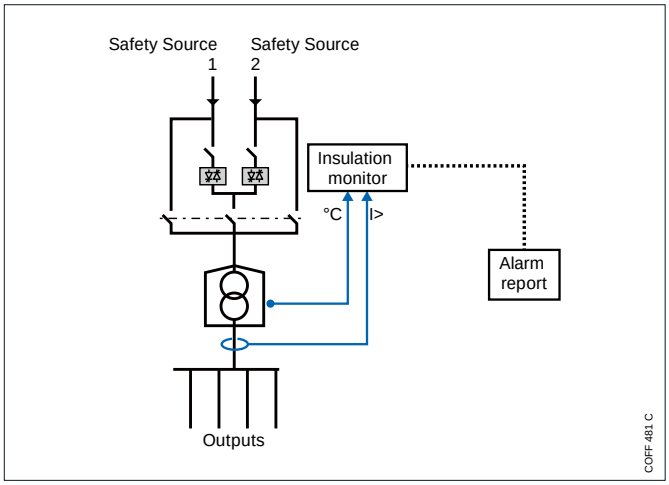
Automatic Transfer Switch (ATS)

ATyS M devices are switching systems that provide automatic transfer between 2 power sources. They have been developed, tested and approved according to criteria defined by the international product standards IEC 60947-3 and IEC 60947-6-1.

OR

Static Transfer System (STS)

STATYS static transfer systems ensure power supply redundancy between two independent sources while ensuring power continuity to critical applications by choosing the most reliable source. Loads are transferred without interruption in accordance with IEC 62310.



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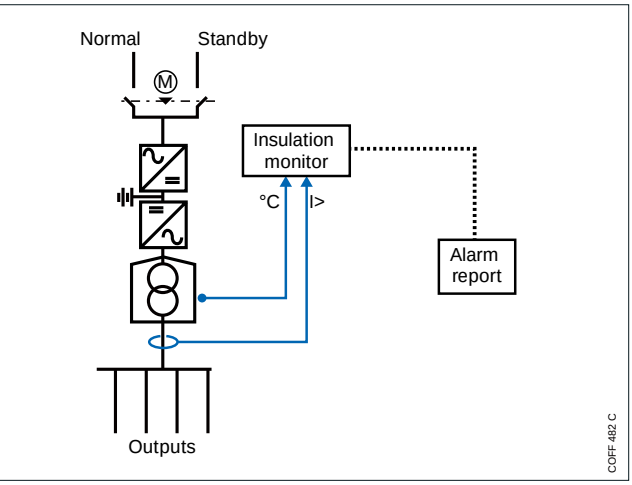
Standard IEC 60364-7 stipulates that Group 2 locations must be powered continuously.

Uninterrupted Power Supply (UPS)

The uninterruptible power supply (UPS) NETYS RT ensures continuity of power supply. Double conversion technology ensures the ultimate protection for loads.
The rack design means power and/or redundancy can be upgraded as your requirements evolve.



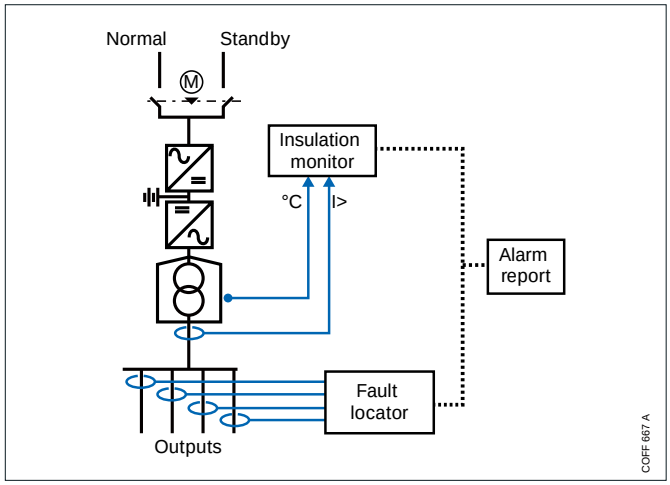
The document HD 60364-7-710 stipulates the use of a fault location device.

Insulation and multi-measurement monitoring

ISOM Digiware is a 2-in-1 system that combines insulation and multi-measurement monitoring for IT systems. This interconnected system instantly detects and pinpoints any insulation fault. It guarantees continuity of service even for single fault conditions, while protecting people and property.

OhmScanner solution

The OhmScanner detects an insulation fault before it happens. Mapping the insulation of each circuit in detail helps the user to perform predictive maintenance work (available with the ISOM Digiware system).



References list

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References list

Note

Note

Model: SOCOMEC
Production: SOCOMEC
Photography: Martin Bernhart et Studio Objectif
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Socomec: our innovations supporting your energy performance

1 independent manufacturer

3,600 employees worldwide

10 % of sales revenue dedicated to R&D

400 experts dedicated to service provision

Your power management expert

POWER SWITCHING

POWER MONITORING

POWER CONVERSION

ENERGY STORAGE

EXPERT SERVICES

The specialist for critical applications

- Control, command of LV facilities
- Safety of persons and assets
- Measurement of electrical parameters
- Energy management
- Energy quality
- Energy availability
- Energy storage
- Prevention and repairs
- Measurement and analysis
- Optimisation
- Consultancy, commissioning and training

A worldwide presence

12 production sites
- France (x3)
- Italy (x2)
- Tunisia
- India
- China (x2)
- USA (x3)

28 subsidiaries and commercial locations
- Algeria • Australia • Belgium • China • Canada
- Dubai (United Arab Emirates) • France • Germany
- India • Indonesia • Italy • Ivory Coast • Netherlands
- Poland • Portugal • Romania • Serbia • Singapore
- Slovenia • South Africa • Spain • Switzerland
- Thailand • Tunisia • Turkey • UK • USA

80 countries where our brand is distributed

HEAD OFFICE

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