EM-DR Multi-circuit power meter(DIN rail)

Description

Provide high accuracy measurement, display and remote communication of single phase & three phase parameters (V, A, P, Q, S, PF, Hz, Kwh). Multi-circuit design and relay output modular expansion design decrease the overall cost and make the functionality more flexible. All monitored data is available via a RS485 serial ,PLC communication for the needs in energy management, alarming, and remote controlling. Embedded flash memory for Data-Logging can avoid any data missing once the communication is interrupted. Moreover, its ultra compact size DIN-rail mounting makes itself mountable in virtually any panel, enclosure or indoor Cabinet.

Feature

- Metering parameters of Voltage, Current, Frequency, Power factor, Active Power, Reactive Power, Apparent Power, Energy (Watt-Hr), et al in 1P2W, 1P3W, 3P3W, 3P4W unbalanced system
- 2-line display both with 6 digits, able to view the name and value of the parameter at the same time
- Modular Expansion Design, able to correspond to different parameters individually
- Relay output with Start Delay, Hysteresis, Energized, and de-energized delay functions
- With RS485 serial or a PLC communication port as standard for remote controlling relay output
- Standard DIN-Rail mounting
- According to CE standards
- Embedded 1MB flash memory for Data-Logging
- With 20 words variables in Modbus address for acquiring the demand measurement at cost

Applications

- Rental Building Electricity Charging Managemen
- Rental Apartment Electricity Charging Management
- Booth Electricity Charging Management
- Market/Vender/Stand Electricity Charging Managemen
- Distributed Generation Electricity Charging Management
- Dormitory Electricity Charging Management

ORDERING INFORMATION

EM-DR - Connection - Input - Voltage - Relay output - Communication output - AUX. POWER

CODE	Wiring
125	1P2W/5 Loop
132	1P3W/2 Loop
332	3P3W/2 Loop
341	3P4W/1 Loop

CODE	Clamp CT Spec.
C005	5A/2.5mA
C060	60A/20mA
C100	100A/33.3mA
C150	150A/50mA
C200	200A/66.6mA
C300	300A/100mA
C400	400A/133.3mA
C600	600A/200mA

CODE	Voltage Range
V1	50~500V

CODE	Relay output
ON	NONE
OR5	5 Relay

CODE	Comm..
U8	RS485
UL	PLC-Comm..

CODE	AUX. POWER
ADH	AC 85~264V DC 100~300V
ADL	DC 20~56V

External CT is not included. Specification of Clamp CT is as below for your reference.

TECHNICALSPECIFICATION

Measurement and Wiring

Phase & Wiring	Voltage	Current	Frequency
1P2W	50~500V_{L-L}	depends on external CT	45~65Hz
1P3W			
3P3W			
3P4W			

Accuracy & Resolutions

PARAMETERS	ACCURACY	RESOLUTION	INPUT RANGE
Voltage	0.2%	0.1V	0~9999
Current	0.2%	0.001A	0~9999
Neutral Current	1.0%	0.001A	0~9999
Active Power	0.5%	0.1W	-32768~32767
Reactive Power	0.5%	0.1var	-32768~32767
Apparent Power	0.5%	0.1VA	-32768~32767
Power factor	0.5%	0.001	±0.020~+1.000
Frequency	0.2%	0.01Hz	45.00~65.00
Active Energy	0.5%	0.1kWh	0~999999
Reactive Energy	0.5%	0.1kvarh	0~999999

* Current Specification 400A or more, because the instrument can not be calibrated with the accuracy required to add additional error of 0.5% *

Measurement: True RMS measuring Parameters
Display update period: 0.5 Sec
Wiring: 1P2W, 1P3W, 3P3W, 3P4W
Input range: Voltage: As metering and Wiring
PT Primary side unit: V or KV
PT Primary setting: 50.0V~99.99KV
PT Secondary setting:50.0~500.0V
Direct Input: Primary = Secondary ≦ 500V
Current: depends on external CT
CT Primary setting: 1~9999A
Frequency: 45~65Hz
Max. input withstand:
Voltage:1.2 X Rated voltage continuous(600V max)
Current: Clamp CT Specification1.2X Rate voltage continuous

Communication function

Port: RS-485
PLC(power line communication)
Half-duplex Transmission
Protocol: Modbus RTU Mode
Address: 1~255 selectable
Baud rate: 1200、2400、4800、9600、19200 or 38400 bps selectable
Parity check: N81、N82、odd、even selectable
Wire distance:1200M max
Terminal resistance:150Ω.
Variable Communication address: Customizing from 0100h to 0113h, 20 address parameters

Recording

Memory: Internal 1MB
Capability: Depends, i.e. saving up to 100,000 records with recording KWH parameters only.
Recording interval:1~32767
Time units: Second, minute, hour, day

Display

LCD backlight :2-line, 6 digits for each. Top pane: 6.5mm high; bottom pane: 9.6mm high
Comm. status indication: With Communication status display icon
Parameter indication : show parameters and channels in words
Alarm status indication:R1~R5 with Relay contact status display icon

Relay Output Module EM-OR5

Control function

Remote Control: 5 relay outputs (Option) which can be control via communication directly
Alert Management:
Set point: 5 set points can corresponding individually to each relay output

Relay output:R1&R2 FORM-A,R3~R5 FORM-A Common mode 1A/230Vac, 3A/115V
Relay parameter corresponding:
Selected from various power parameters ≧
Relay mode: Hi / Lo / Hi.HLd / Lo.HLd / Ro / oFF
Energizing functions: Start delay/ Energize time delay & de-energize time delay/ Hysteresis/ Energized Latch
Start band: 0~9999 counts
Start delay:0:00.0~9(Minutes):59.9(Second)
Energize time delay:
0:00.0~9(Minutes):59.9(Second)
De-energize time delay:
0:00.0~9(Minutes):59.9(Second)
Hysteresis: 0~9999counts

Power

Aux Power: ADH:85~346Vac, 50/60Hz, 100~300Vdc
ADL:20~56Vdc
Power consumption:AC:10VA, DC:4W
Temperature Coefficient:100 ppm/℃

Security

Password:two groups password in 4 digits for "parameter setting" &"reset to zero for WATT"
Parameter setting : Password is able to set
Reset to zero for WATT: password is unable to set
Function Lock: There are 4 options
User Level: User Level lock. User can get into User Level only for checking but unable to change the setting
Programming Level:Programming Level lock. User can get into programming level only for checking but unable to change the setting
ALL: All lock. Lock both User Level & Programming Level. User can get into all level for checking but unable to change the setting
None: No Lock
Parameter storage methods: F-RAM (Ferroelectric RAM), a random-access memory

Operating environment

Operation Temperature & Humidity:
0~60℃;Display 0~60℃/0~80%RH, No-condensing
Storage Temperature & Humidity:
-20~70℃/0~80%RH , Non condensing

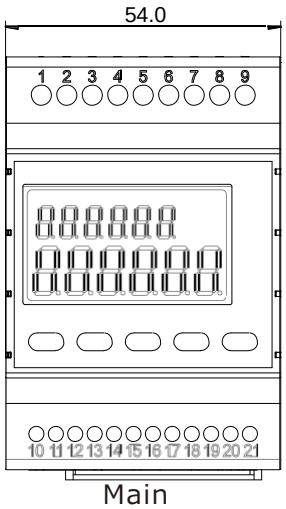
Electrical Safety

Surge test: 6KV , 1.2x50usec
Common mode & differential mode
Insulating resistance:≧ 100M ohm,DC500V
Dielectric strength : AC 2KV,50/60Hz,Input/Ouput/Power/Case
Standard: EN61010;EN61326

Mechanical

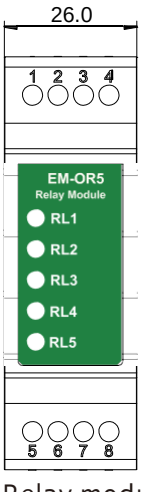
Case material: PC fireproof
Mounting: DIN rail
Weight: EM-DR:185g,EM-RO5:75g

■Dimension

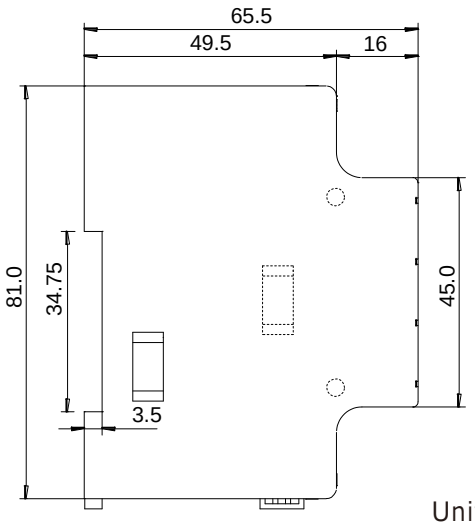


Main

EM-OR5



Relay module

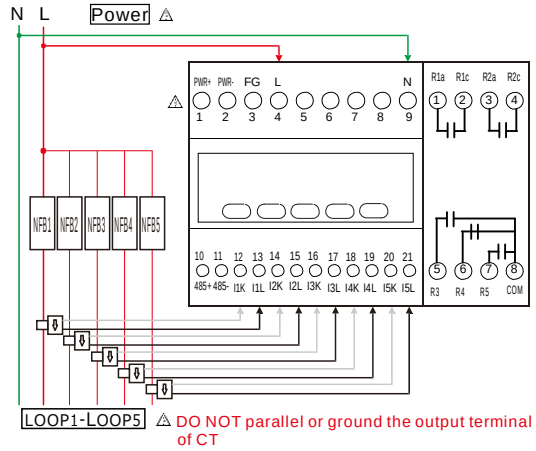


Unit:mm

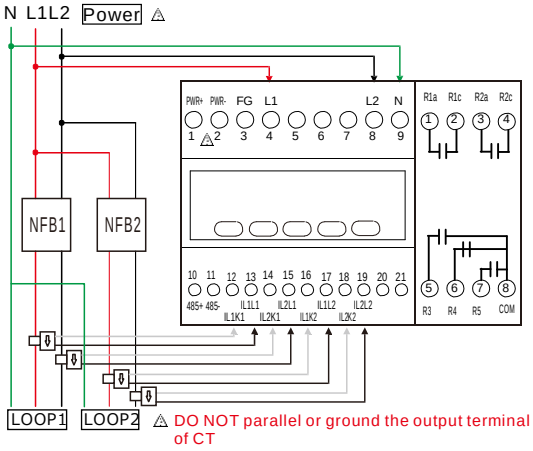
■ Wiring Diagram

(Secondary output wire of CT must be wiring separately as protection.
DO NOT parallel or ground.)

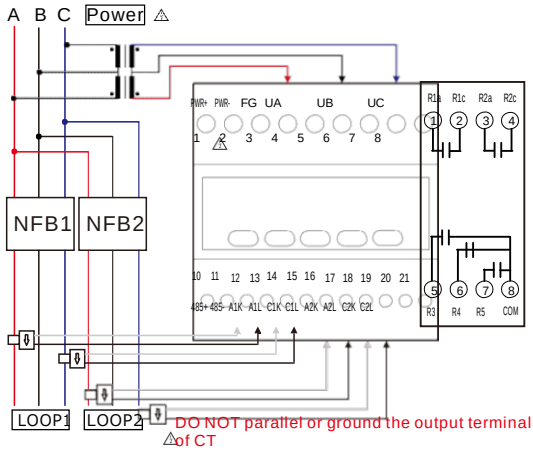
1P2W 5 Loop



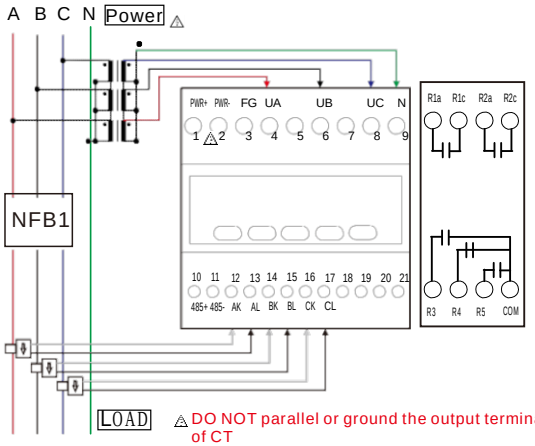
1P3W 2 Loop



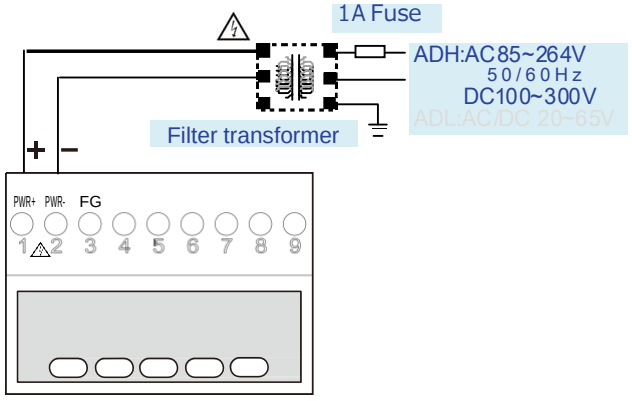
3P3W 2 Loop



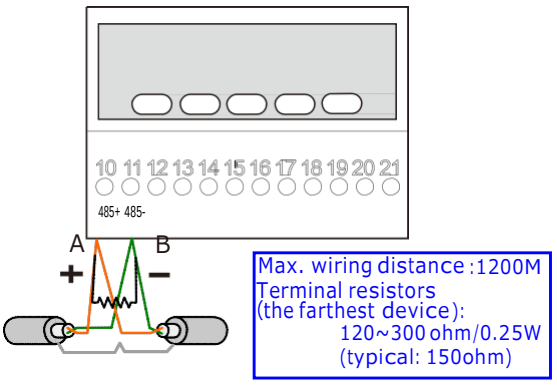
3P4W 1 Loop



Power Supply



RS485 Communication Port



Accessory

Clamp CT Specification

US-CTA- Φ - Rated Current

CODE	Size
10	Φ10
16	Φ16
24	Φ24
*35	Φ35

CODE	Primary current
005	5A
060	60A
100	100A
150	150A
200	200A
*300	300A
*400	400A
*600	600A

No inventory for the specifications marked with *.
Minimum order is 100pcs.

Picture of CT

Model	Primary Current (A)	Secondary Current (mA)	Accuracy %F.S.	Variable ratio	Weight
US-CTA-10-005	5A	2.5	1.0	2000:1	60g
US-CTA-16-060	60A	20	0.5	3000:1	100g
US-CTA-16-100	100A	33.3	0.5	3000:1	100g
US-CTA-24-150	150A	50	0.5	3000:1	205g
US-CTA-24-200	200A	66.6	0.5	3000:1	205g
US-CTA-35-300	300A	100	0.5	3000:1	375g
US-CTA-35-400	400A	133.3	0.5	3000:1	375g
US-CTA-35-600	600A	200	0.5	3000:1	375g

Application