

# AEM-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 , 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.



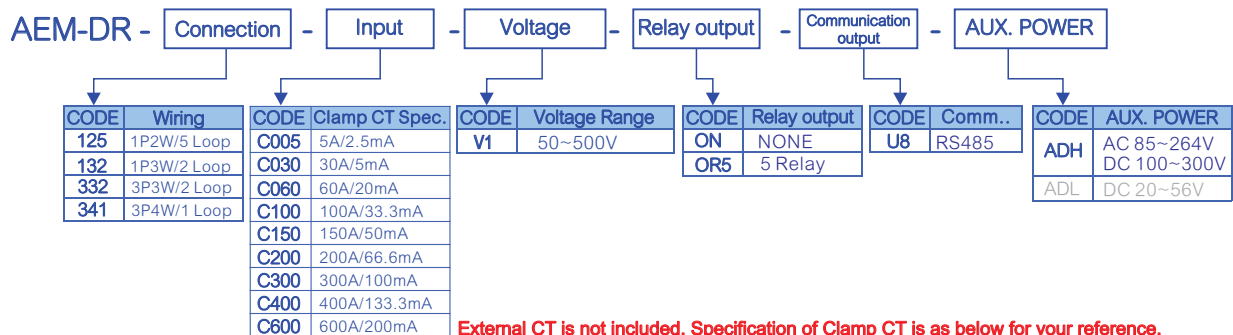
## ■ Feature

- 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 as standard for remote controlling relay output
- Standard DIN-Rail mounting
- CE Approved
- Embedded 1MB flash memory for Data-Logging

## ■ Applications

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

## ■ ORDERING INFORMATION



## ■ TECHNICAL SPECIFICATION

### Measurement and Wiring

Phase & Wiring	Voltage	Current	Frequency
1P2W	50~500V <sub>LL</sub>	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

\* Accuracy non-include clamp CT ratio error

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 ≤ 500V  
 CT Primary setting: 1~9999A  
 Frequency: 45~65Hz

Max. input withstand:  
 Voltage: 1.2 X Rated voltage continuous(600V max)  
 Current: Clamp CT Specification 1.2X Rate voltage continuous

### Communication function

Port: RS-485  
 Protocol: Modbus RTU Mode  
 Address: 1~247  
 Baud rate: 1200、2400、4800、9600、19200、38400 bps  
 Parity check: N81、N82、O81、E81  
 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 AEM-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  $\geq$   
 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: AC85~346Vac , 50/60Hz , DC100~300Vdc  
 ADL: 20~56Vdc  
 Power consumption: AC: 10VA , DC: 4W  
 Temperature Coefficient: 100 ppm/°C

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

**Electrical Safety**

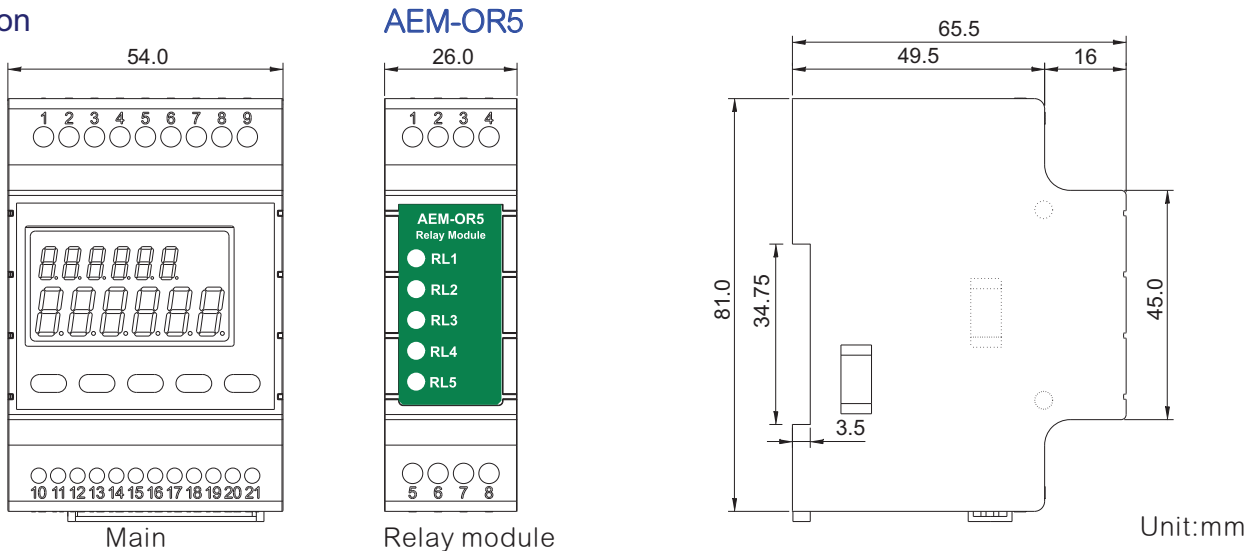
Insulating resistance:  $\geq 100M@500V_{dc}$   
 Dielectric strength : AC 2KV, 1min 50/60Hz, Input/Output/Power/Case  
 EMC: EN1326-1:2006  
 EN61000-3-2:2006+A1:2009+A2:2009  
 EN61000-3-3:2008  
 LVD: EN61010-1:2010  
 MTBF: 49x10<sup>4</sup> hours

**Mechanical**

Case material: PC fireproof  
 Mounting: DIN rail  
 Wire terminal: Voltage input:  
 AWG: 28~12 / 0.2~2.5mm<sup>2</sup>  
 Screw Torque Value: M2.5 / 5.202kgf.cm (Max)  
 Current input:  
 AWG: 28~14 / 0.2~1.5mm<sup>2</sup>  
 Screw Torque Value: M2 / 2.04kgf.cm (Max)  
 Weight: AEM-DR: 185g, AEM-OR5: 75g

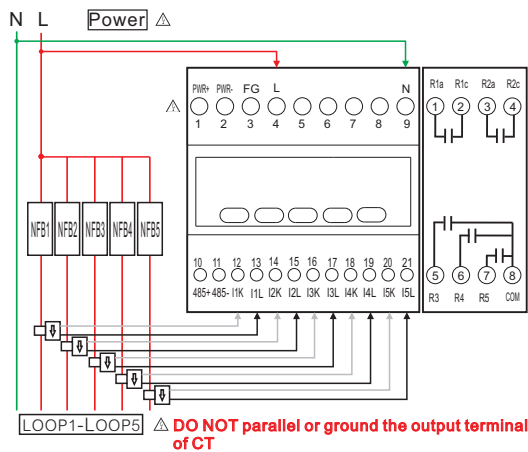
AEM-DR

**Dimension**

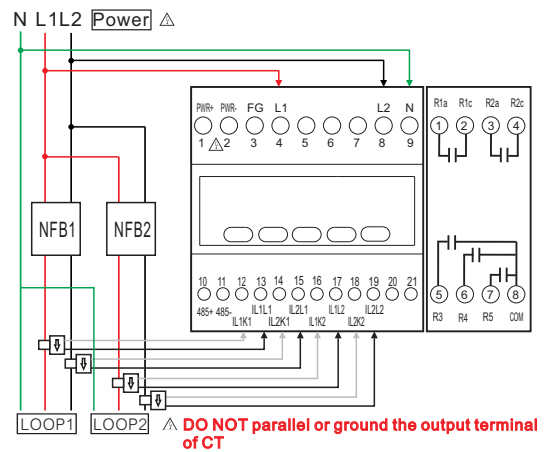


( Secondary output wire of CT must be wiring separately as protection. DO NOT parallel or ground. )

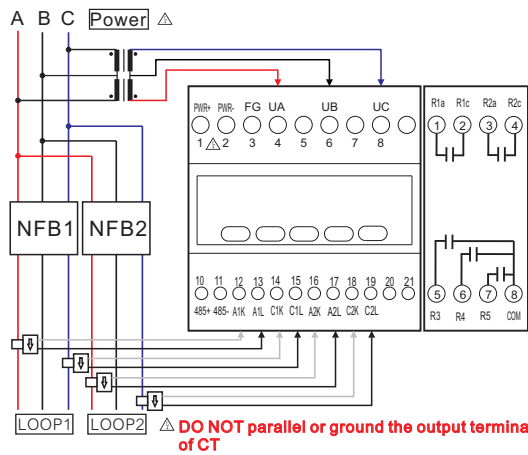
1P2W  
5 Loop



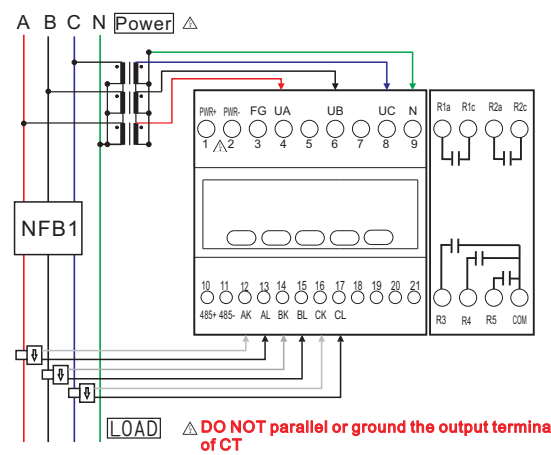
1P3W  
2 Loop



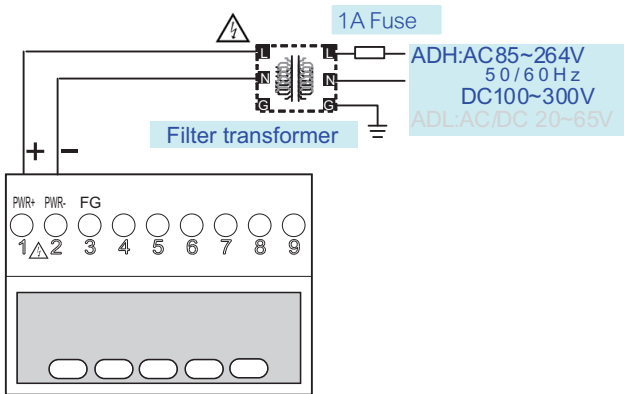
3P3W  
2 Loop



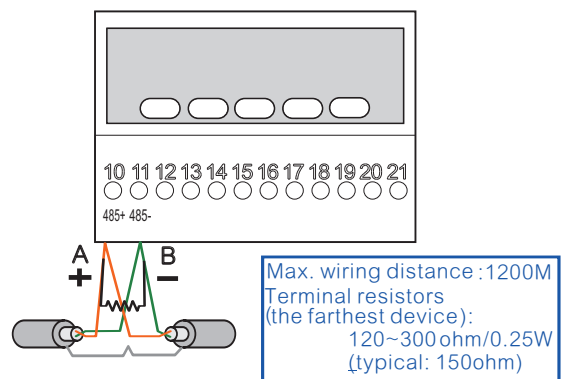
3P4W  
1 Loop



Power Supply



RS485 Communication Port



## ■ Accessory

### Clamp CT Specification

US-CTA-  $\Phi$  - Rated Current

CODE	Size	CODE	Primary current
10	$\Phi$ 10	005	5A
16	$\Phi$ 16	060	60A
		100	100A
		030	30A
24	$\Phi$ 24	150	150A
		200	200A
		*300	300A
*35	$\Phi$ 35	*400	400A
		*600	600A

(MOQ 100 pcs)

### Picture of CT



Model	Primary Current	Secondary	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-24-030	30A	5	1.0	6000:1	205g
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



### Alert Settings

