Elecnova

User Manual for

Rail-Mounted Multi-Circuit Power Meter

Apply to： PD194Z-E14

1.Overview

Rail-mounted multi-circuit power meter can measure parameters of multiple three phase or single phase power grid such as voltage, current, power, frequency, energy, demand, extreme value, total harmonic distortion, 2nd-31st harmonics, voltage and current unbalance and multi-rate electric energy measurement. The maximum measurement circuits of PD194Z-E14 is four three-phase circuits or twelve one single-phase circuits. The meter adopts access mode of external current transformer and modular design which is convenient for user to choose different functions to meet different requirements at field.

2.Functions

The table below lists correlated variables the meter can measure including variables obtained through basic power and further calculations.

Measuring function	Accuracy	Real time	Extreme value	Demand	Remarks
Phrase voltage, wire voltage	0.2	●	●	—	
Voltage	0.2	●	●	●	
Frequency	±0.01Hz	●	●	—	
Phase active power	0.5	●	●	●	
Total active power	0.5	●	●	●	
Phase reactive power	0.5	●	●	—	
Total reactive power	0.5	●	●	—	
Phase apparent power	0.5	●	●	—	
Total apparent power	0.5	●	●	—	
Phase frequency factor	0.5	●	●	—	
Total power factor	0.5	●	●	—	
Total harmonic distortion	A grade	●			
2-31 harmonic distortion	A grade	●			
Input/output active energy	0.5S	●	—	—	Closed type current transformer:0.5 S grade; Open type current
Input/output reactive energy	2	●	—	—	
Multi-rate active energy	0.5S	●			

					transformer:1 grade;

Note：“●” Yes，“—” No.

3.Type selection

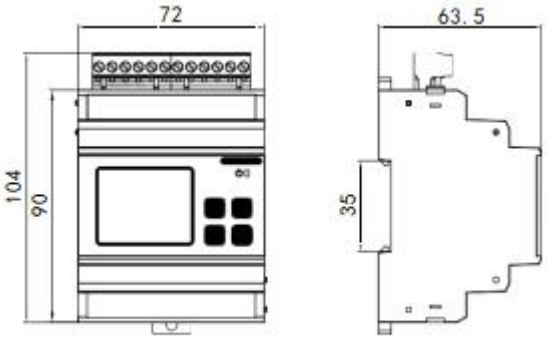
The functions of each component of PD194Z-E1* series rail-mounted multi-circuit power meter are listed in table below.

Name	Function
PD194Z-E14 main module	To measure the grid parameters of four three-phase circuits or twelve single-phase circuits including voltage, current, power, frequency, energy, extreme value, harmonics and other parameters, one RS485 communication interface. E14 is the required module.
EK1 module	To monitor four digital input and two relays output, optional.
EC1 module	Communication module, one RS485 interface, Modbus-RTU protocol, optional.

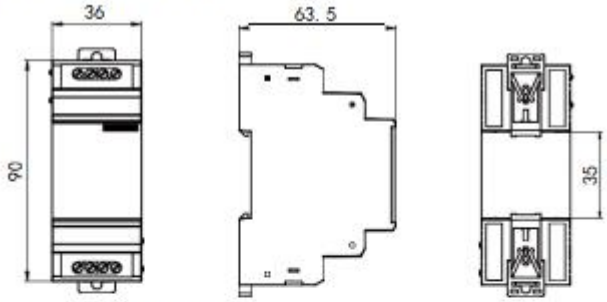
4.Installation

4.1Dimensions

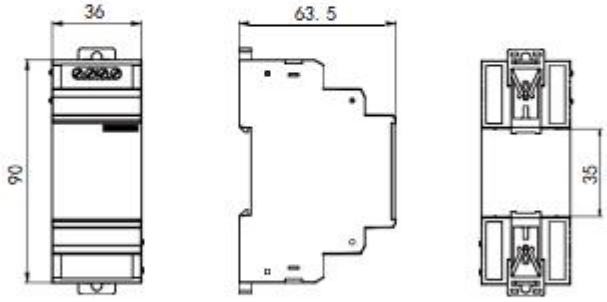
4.1.1Main module



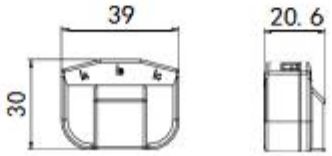
4.1.2 Dimensions of EK1 module



4.1.3 Dimensions of EC1 module

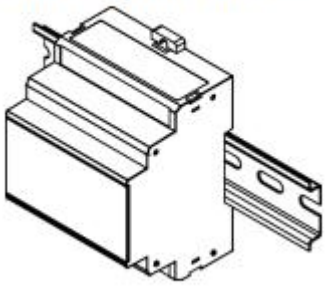


4.1.4 Switching module Z1



4.2 Installation

4.2.1 Main/EK1/EC1 installation



Rail mounted (adopt DIN 35 rail installation)

5.Technical specifications

5.1 PD194Z-E14 main module

Working environment conditions	
Working temperature	-20°C～70°C
Storage temperature	-40°C～85°C

Relative humidity	≤95%RH，no condensation
Altitude	≤2500m
IP degree	IP20
Insulation	Signal, power supply, output terminals to case resistance>100MΩ
Withstand voltage	≥2kV
EMC	≥Class III
Power supply	
Rated range	AC/DC(80～270)V
Consumption	≤5VA
Withstand voltage	≥2kV
Voltage input	
Range	3×220V/380V
Resolution	0.1 V
Impedance	≥1.7 MΩ/phase
Consumption	≤0.1 VA /phase
Overload	Continuous:1.2Un Instantaneous: 2un/10s
Frequency	45-65 Hz
Current input	
Range	External current transformer, please refer to: 7.5 current transformer
Pulse output	
Pulse width	80ms±20%
Max voltage of port	35V
Max current of port	10mA
Pulse frequency	≤10Hz
Communication interface	
Physical interface	RS485
Communication speed	Max 9600bps
Physical protocol	Modbus-RTU
Isolation voltage	4000 V AC

5.2 EK1 main module

Digital input	
Capacity	5A/250 VAC; 5A/30 VDC
Isolation voltage	Between contact and coil: 2000 VAC / min
Action time	10 ms max
Release time	5 ms max
Mechanical life	10^6 times
Digital input	
Sensitivity	Support DC 15V power, turn-on：≤10kΩ，turn-off：≥15kΩ
Isolation voltage	4000 V AC
Scanning time	1 ms
Filtering time	30 ms

5.3 EC1 communication module

communication interface	
Physical interface	RS485
Communication speed	Up to 9600bps
Physical protocol	Modbus-RTU
Isolation voltage	2500 V AC