advanio
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U-PM Power Meter

Multi-circuit Power Transducer (3.5mm DIN Rail / IP20)

Main Features

- 1 and 4 Circuit Power Meter for Modbus
- RS-485 communication supported Modbus RTU protocol
- Memory：2MB Flash ROM
- Isolation：AC 2KV, 50/60Hz, for 1min,
  Between Power / Input / Output / Case

Introduction

The U-PM series was designed for multi-circuit power measurement, up to 12 single phase or 4 three-phase circuit power input. Applicable to different types of power circuit makes U-PM a valuable option.

Hardware standard built in a RS485 Modbus RTU communication port, demand function, data logging and 2MB Flash memory.

At the same time, din rail mounting provides easy installation and larger elasticity.

Application

Distributed Electricity Measurement

Rental Building / House Apartment / School Dormitory Booth electricity billing management

Market Stalls / Food Court / Movable House / Exhibition Store rental booth electricity management

Specification

Electrical Characteristics

Measurement	True RMS
Sampling	128 point / Cycle
Update time	0.5 second
Metering system type	1P2W, 1P3W, 3P3W, 3P4W
Voltage Rnage	PT Primary side ratio 100V – 9999KV PT Secondary side ratio: 50 – 600V
Direct Input	≦ 600V(L-L) or ≦ 400V(L-N)
Input Current	Main circuit input: 333mV CT Primary side ratio: 5–600 A (Φ10–Φ35 mm)
Metering over range	Voltage:1.2X rated voltage continuous (600V max) Current:1.2X rated current of CT
Frequency	45 – 65Hz
Power Range	DC 10 – 60V, 5W

TOU (Time of Use)

4 Seasons	1-4 seasons per year
8 Tariff setting	1-8 each day (for peak, mid peak, off peak per day for billing)
Parameters of TOU	AE-Imp, AE-Total, RE-Imp, RE-Total, SE, SE-Total in every circuit month and previous month.
Yearly setting	Tar setting for 1 year or sett up to 5 years
Power Quality	Total harmonic distortion per phase, per line, average of voltage and per circuit, average of current.
Panel light	Power / Communication / System indicator

Demand

Calculation method	Slide / Fix
Calculation cycle	1 – 60 minutes

Data Logging

Setting	50 factors can be record at the same time. Time interval can be set from 1 – 32767, unit can be set to day, hour, minute, second
Memory	2MB Flash ROM

Pulse Output

Output mode	Open collector (O.C.) Output: 30 Vdc, 30mA (max.)
Energy pulse output	1600 Pulse / kWh ; duty cycle 50%

Communication

Protocol	Modbus RTU mode
Baud rate	1200/2400/4800/9600/19200/38400/57600/115200 bps
Data bits	8 bits
Parity	None / Even / Odd
Stop bit	1 or 2
Address	1 – 247
Distance	1200M max
Terminate resistor	120 – 300Ω / 0.25W (typical:150Ω)

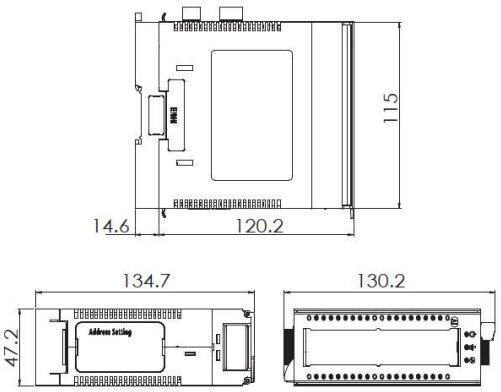
Environmental Characteristics

Temperature	-25 to +70℃ (Operating) -30 to +75℃ (Storage)
Temp. coefficient	≤100 PPM/℃
Humidity	5 to 95% RH, Non-condensing (Operating) 0 to 95% RH, Non-condensing (Storage)
Safety	Insulation resistance: ≧100MΩ @ 500Vdc

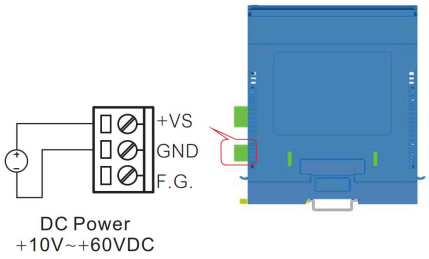
Mechanical Characteristics

Dimensions	129.6(L) x 47.2(W) x 135(H) mm
Material	ABS, Gray (with fire-retardant)
Mounting	35mm DIN Rail (EN0022)
IP Enclosure	IP20

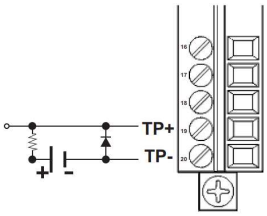
Dimensions



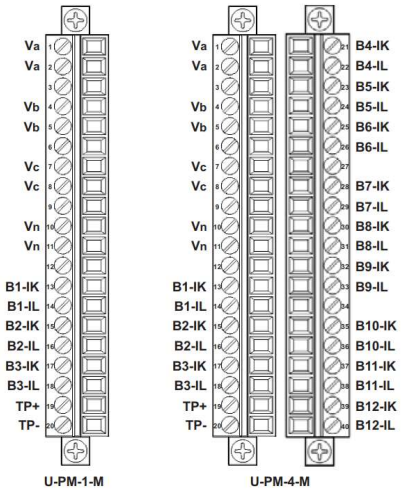
Power Supply



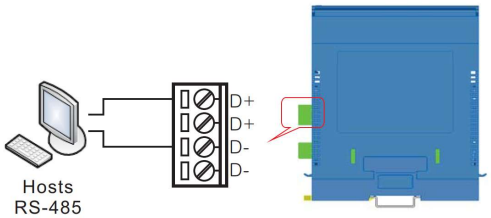
Pulse Output



Device Connection Assignment



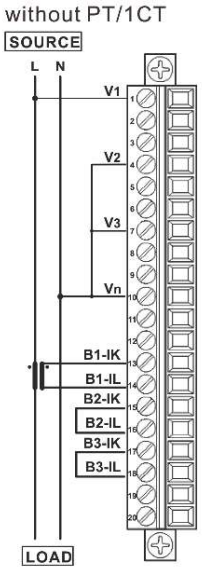
RS-485 Communication



Metering System Type Connection (Notice: CT secondary side is 333mVac, could not be grounded when wiring.)

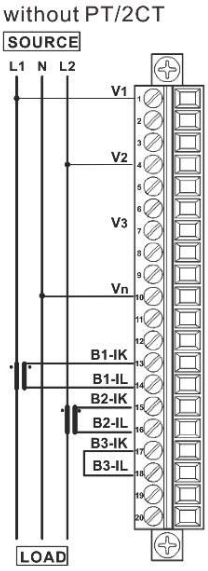
1P2W

without PT/1CT



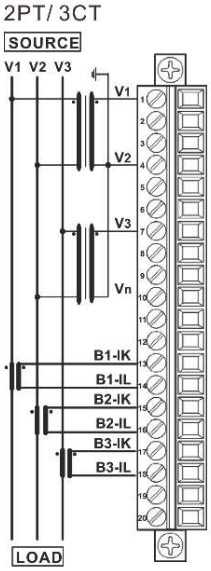
1P3W

without PT/2CT

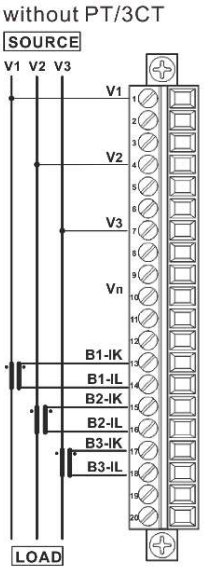


3P3W (Inverter load should be connected by 3P3W with 3CT.)

2PT/ 3CT

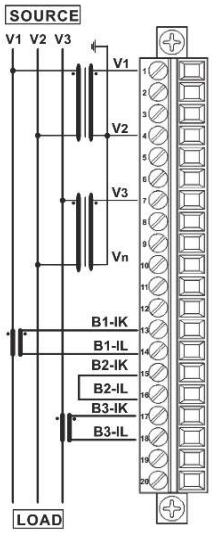


without PT/3CT

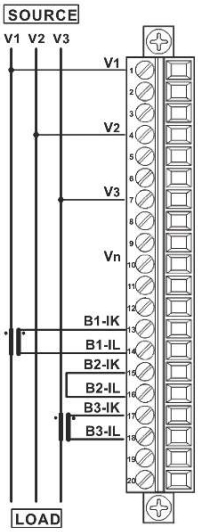


3P3W

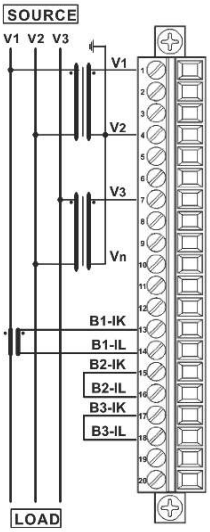
2PT/ 2CT



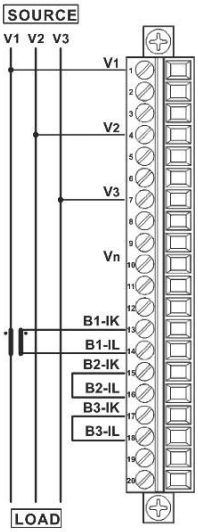
without PT/2CT



2PT/ 1CT

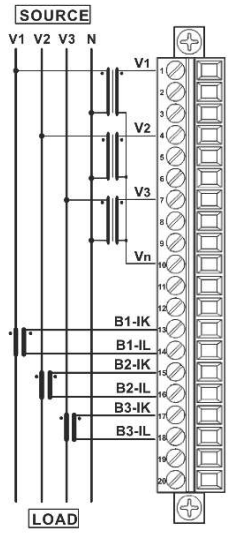


without PT/1CT

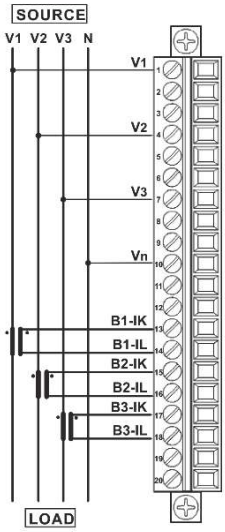


3P4W

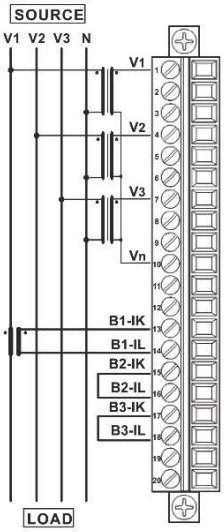
3PT/ 3CT



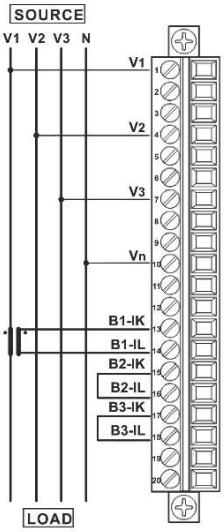
without PT/3CT



3PT/ 1CT



without PT/1CT

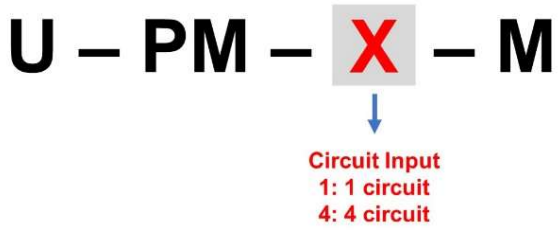


Certification

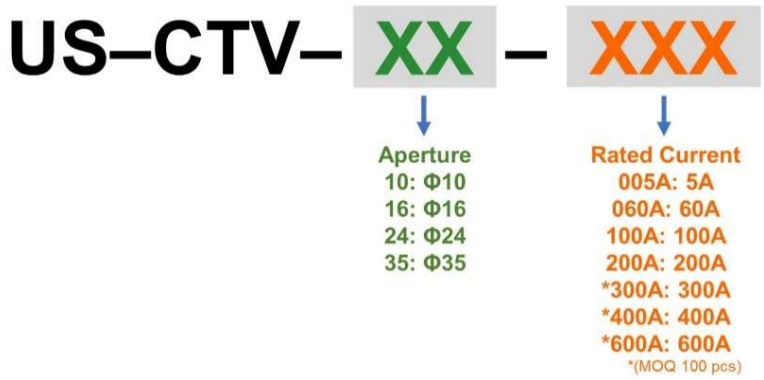
EMC	EN 61326-1:2013
	EN 55011 Class A
	EN61000-3-2:2014
	EN61000-3-3:2013
	IEC61000-4-2:2008
	IEC61000-4-3:2006+A1:2007+A2:2010
	IEC61000-4-4:2012
	IEC61000-4-5:2014
	IEC61000-4-6:2013
	IEC61000-4-8:2009
	IEC61000-4-11:2004
LVD	EN61010-1:2010
FCC	FCC PART15 SUBPART B2013

Selection Guide

Power Meter



External Current Transformer



Type	Primary Current	Accuracy	Change Ratio	Weight
US-CTV-10-005A	5 A	1.0%	2000 : 1	60 g
US-CTV-16-060A	60 A	0.5%	3000 : 1	100 g
US-CTV-16-100A	100 A	0.5%	3000 : 1	100 g
US-CTV-24-200A	200 A	0.5%	3000 : 1	200 g
US-CTV-35-300A	300 A	0.5%	3000 : 1	375 g
US-CTV-35-400A	400 A	0.5%	3000 : 1	375 g
US-CTV-35-600A	600 A	0.5%	3000 : 1	375 g

Ordering Information

Power Meter

U-PM-1-M

Single Loop Circuit Power Transducer

U-PM-4-M

4-Circuit Power Transducer

External Current Transformer

US-CTV-10-005A

AC 5A, DC 333mv, Φ10 1% CT

US-CTV-16-060A

AC 60A, DC 333mv, Φ16, 0.5% CT

US-CTV-16-100A

AC 100A, DC 333mv, Φ16, 0.5% CT

US-CTV-24-200A

AC 200A, DC 333mv, Φ24, 0.5% CT

US-CTV-35-300A

AC 300A, DC 333mv, Φ35, 0.5% CT

US-CTV-35-600A

AC 600A, DC 333mv, Φ35, 0.5% CT