

Product description

Unicorn series of multi-loop power meters are designed for multi-loop power measurement requirements, with single-phase 12-loop or three-phase 4-loop input, can be applied to diversify the use of a variety of different power circuit applications, significantly reducing costs. At the same time with standard RS485 Modbus communication, demand, data recording and other functions, with internal 2MB Flash memory capacity, use more diversified. The body adopts DIN Rail rail design, making it easy to install, use elastic and so on.

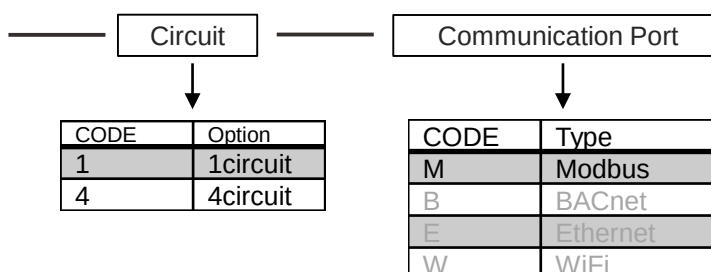


Application

- Electric billing management for rental buildings/apartments
- Marketing food stalls and mobile homes billing management
- School dormitory/exhibition booth electricity billing management
- Store rental booth electricity management

Ordering Information

Model Number	Description
U-PM-1-M	1 Circuit Power Meter
U-PM-4-M	4 Circuit Power Meter



Technical Specification

Measurement

Voltage	Per phase, per line and average voltage
Current	Per phase, neutral and average current
Active Power	Per phase and total active power
Reactive Power	Per phase and total reactive power
Apparent Power	Per phase and total apparent power
Power Factor	Phase and average power factor
Frequency	frequency
Active Energy	Import, export, net value and total value
Reactive Energy	Import, export, net value and total value
Apparent Energy	Total value
THD Voltage	Per phase, per line and average voltage
THD Current	Per phase, per line and average current
Demand	Per phase, average current and power
Max Demand	Current and power maximum demand and timestamp
Unbalance	Current and voltage
Max/Min value	Per phase and 3-phase of parameters values
Data Logging	record interval can be set, 50 out of 254 parameters can be recorded at the same time.
Pulse Output	Test pulse output
TOU	4 seasons and 8 tariff
Time	Year, month, day, hour, minute, second

Accuracy and Resolution

Parameter	Accuracy	Resolution	Measuring Range
Voltage	0.5%	0.1V	40.0~400.0V(L-N)
Current	0.5%	0.001A	1%~120% CT rating current
Neutral Current	1.5%	0.001A	1%~120% CT rating current
Active Power	1.0%	1W	-999999999~999999999W
Reactive Power	1.0%	1Var	-999999999~999999999Var
Apparent Power	1.0%	1VA	0~999999999VA
Power Factor	1.0%	0.001	-0.020~+1.000~0.020
Frequency	0.2%	0.01Hz	45.00~65.00Hz
Active Energy	1.0%	0.1kWh	0~99999999.9kWh
Reactive Energy	1.0%	0.1kVarh	0~99999999.9kVarh
Apparent Energy	1.0%	0.1kVAh	0~99999999.9kVAh
THD	1.0%	0.1%	0~100.0%
Unbalance	1.0%	0.1%	0~300.0%

*Accuracy non-include clamp CT ratio error

Electrical Characteristics

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

Data Logging

Setting	50 parameters 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

TOU (Time of Use)

4 Seasons	1~4 seasons per year
8 Tariff setting	1~8 Tariff/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	Tariff setting for 1 year or set up to 5 years

Pulse Output(PO)

Output mode	Open collector(O.C.) Output: 30Vdc, 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

Operating temp	-25~70℃
Humidity rating	5~95%RH, Non-condensing
Temp. coefficient	≤ 100 PPM/℃
Storage temp	-30~75℃
Storage humidity	~95%, Non-condensing

Power Quality

THD	Total harmonic distortion per phase, per line, average of voltage and per circuit, average of current
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Panel light

Indicator light	Power / Communication / System indicator
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Demand

Calculation method	Slide / Fix
Calculation cycle	1~60 minutes

Power Supply

Range	DC 10~60V
Power consumption	DC 5W

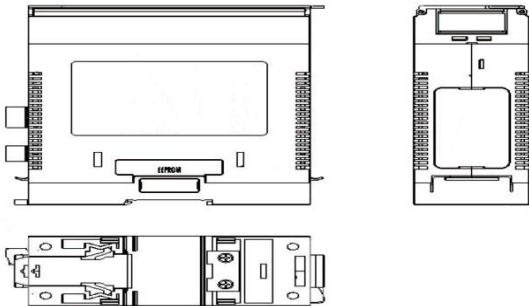
Mechanical Characteristics

Dimensions	129.6mm(L)x47.2mm(W)x135mm(H)
Material	ABS, Blue (with fire-retardant)
Mounting	35mm DIN Rail (EN50022)
IP Enclosure	IP20

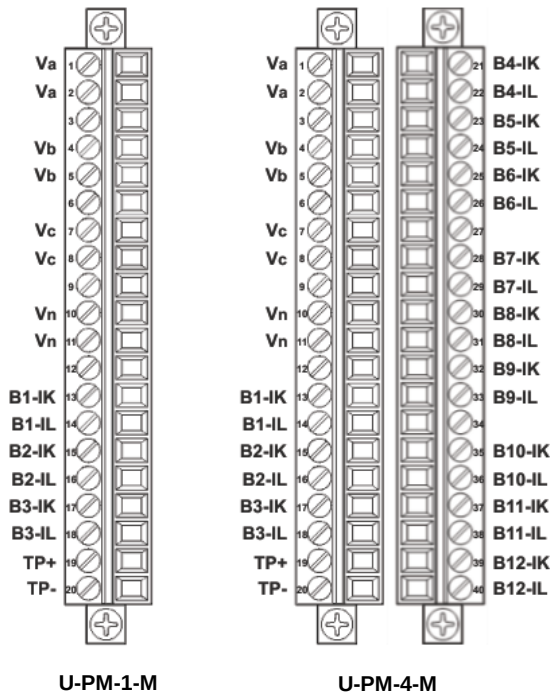
Safety

Isolation	AC 2KV, 50/60Hz, for 1 min. Between Power / Input / Output / Case
Insulation resistance	≥100MΩ @ 500Vdc
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
Accuracy of energy	IEC 62053-21(kWh Class 1.0) ;IEC 62053-23(kVARh Class 2.0)

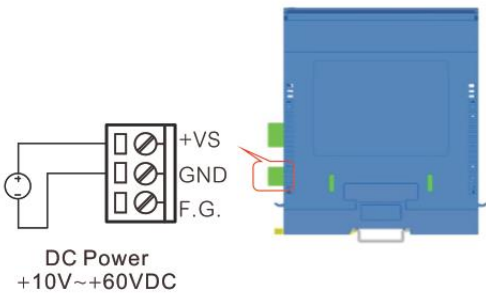
Dimensions



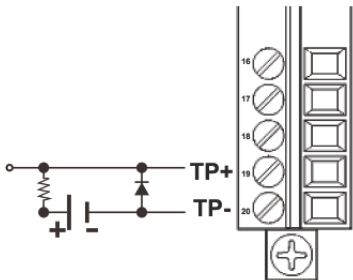
Device Connection Assignment



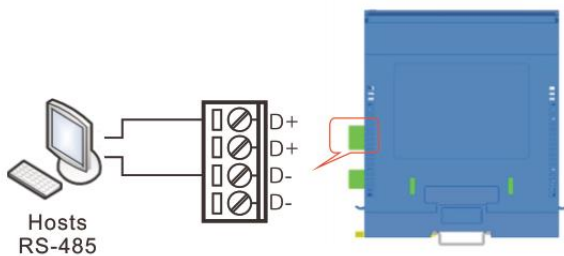
Power Supply



Pulse Output

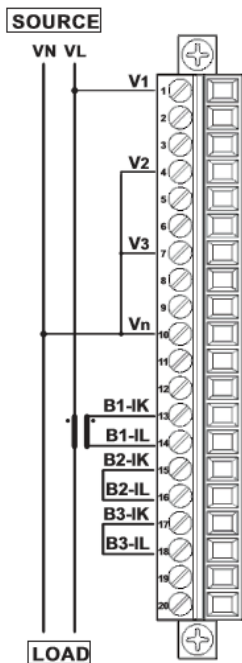


RS485 Communication



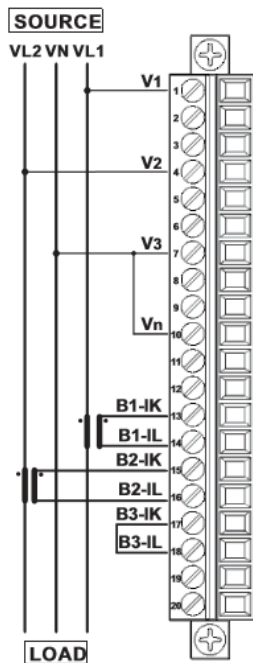
1P2W

without PT/1CT



1P3W

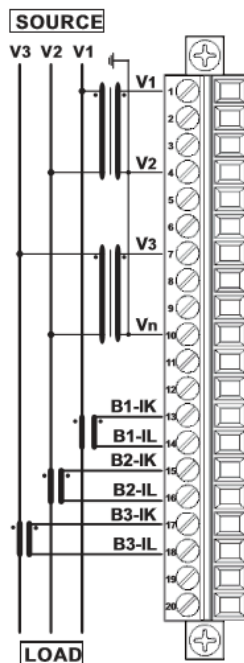
without PT/2CT



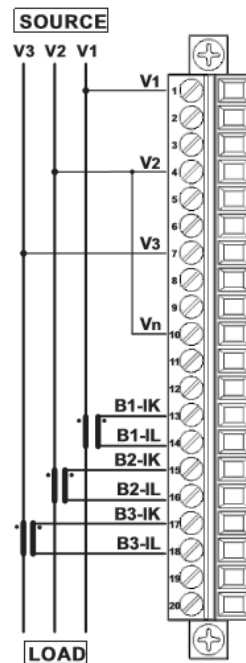
3P3W

1P(Inverter load should be connected by 3P3W with 3CT.)

2PT/3CT

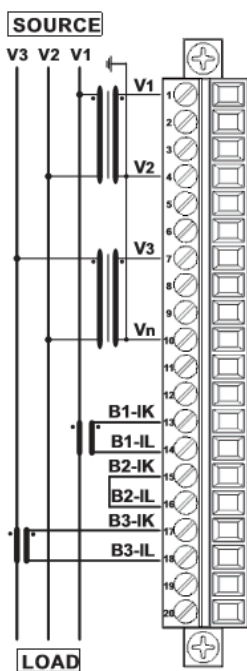


without PT/3CT

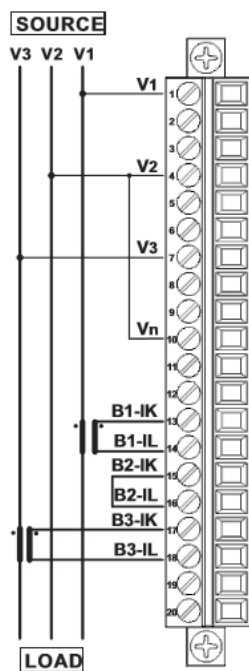


3P3W

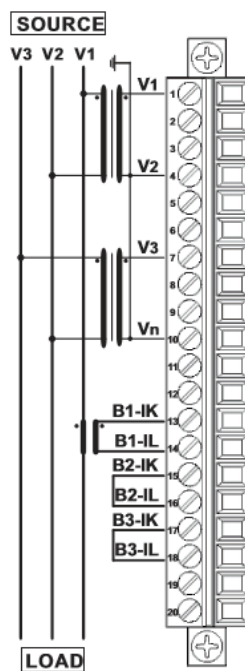
2PT/2CT



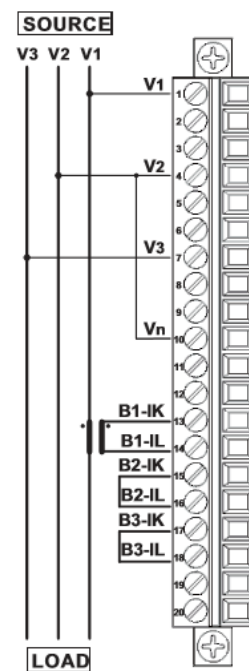
without PT/2CT



2PT/1CT

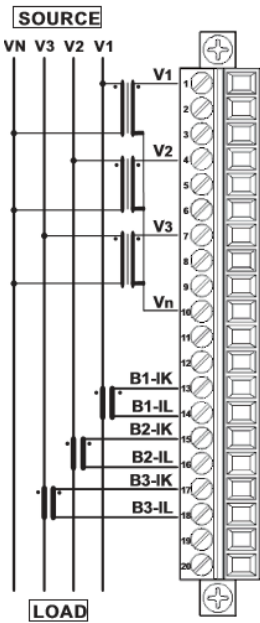


without PT/1CT

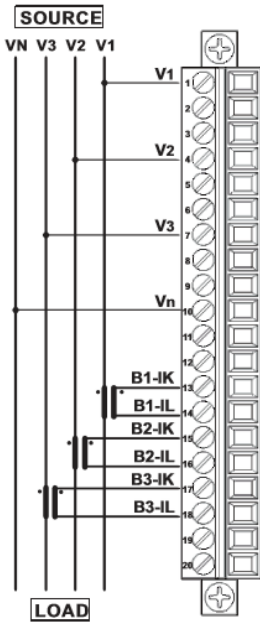


3P4W

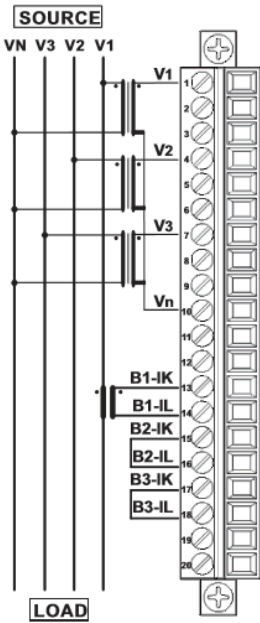
3PT/3CT



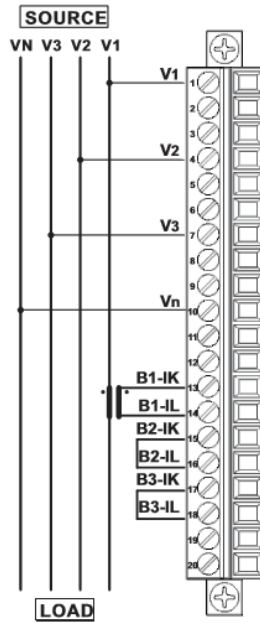
without PT/3CT



3PT/1CT

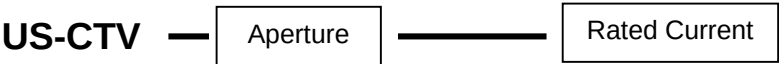


without PT/1CT



External CT ordering information

(The output line of the secondary side of the sub-circuit dedicated CT must be independently wired and not grounded for protection.)



CODE	Option
10	φ10
16	φ16
24	φ24
*35	φ35

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



Type	Primary Current(A)	Secondary Output Voltage(mV)	Accuracy %F.S.	Change Ratio	Weight(g)
US-CTV-10-005A	5	333	1.0	2000:1	60
US-CTV-16-060A	60	333	0.5	3000:1	100
US-CTV-16-100A	100	333	0.5	3000:1	100
US-CTV-24-200A	200	333	0.5	3000:1	200
US-CTV-35-300A	300	333	0.5	3000:1	375
US-CTV-35-400A	400	333	0.5	3000:1	375
US-CTV-35-600A	600	333	0.5	3000:1	375