

CPM-20 MULTIFUNCTION POWER METER

DESCRIPTION

The CPM-20 series Multifunction Power Meter provide high accuracy measurement, display and communication (Modbus RTU) of all electrical and power quality parameters, including harmonic measurement THD (Total Harmonic distortion)

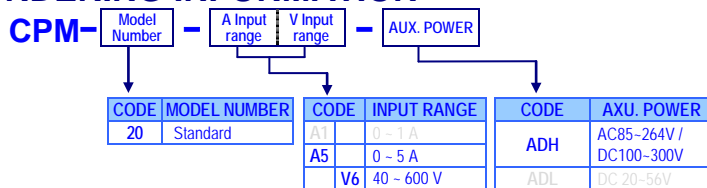
Provides electricity bill ratio (Cost) and carbon dioxide ratio (Co2) set can show cumulative electricity bills and carbon emissions, and suitable for the installation in the power management of remote communication, such as the use of demand.

APPLICATION

Control panels and Motor, Generator monitoring
Switchgear distribution systems, Energy Management
Power quality analysis



ORDERING INFORMATION



(PS: Grey wording part number not available at the moment)

PARAMETERS		CPM-20
Power Measurements	Voltage	●
	Current	●
	Active Power	●
	Reactive Power	●
	Apparent Power	●
	Power factor	●
	Frequency	●
	Active Energy	●
	Reactive Energy	●
	THD for voltage	●
	THD for current	●
	RS485 Port	●
	Cumulative electricity bills	●
	CO2 emissions	●
Date time	●	

Max. Input over

Voltage: 2 X rated continuous ; 2500V, 1 sec
Current: 2 X rated continuous ; 20 X rated 1 sec
Voltage : < 0.2VA ; Current : < 0.1VA

Input burden: Power Quality

THD:

Total harmonic distortion for Voltage and Current

RS485 communication (standard)

Protocol: Modbus RTU mode
Baud rate: 1200/2400/4800/9600/19200/38400
Data bits: 8 bits
Parity: None / Even / Odd
Stop bits: 1 or 2
Address: 1-255
Wiring: 1200M max,
Termination Res.: 120-300Ω/0.25W (typical: 150Ω)
Calibration: Through RS485

Electrical safety

Dielectric Strength: AC 2KV, 50/60Hz, 1 min. Between Input / Output / Power / Case
Surge test: 3KV, 1.2 x 50 μsec. Common mode & differential mode
Insulation Res: ≥100M ohm, DC 500V
Isolation: Between input / Output / Power
Input voltage terminal common ground non isolation
Input current terminal CT and external isolation
EMC: EN 55011:2002; EN 61326:2003
Safety(LVD): EN 61010-1:2001

Environmental

Operating Temp.: 0-60 °C
Operating Hum(%RH): 5-95 %RH, non-condensing
Temp. Coefficient: ≤100 PPM/°C
Storage Temperature: -10-70 °C
Enclosure: Front panel: IEC 529 (IP50) ; Housing: IP20

Power

Power supply: AC 85-265V / DC 100-300V
Power consumption: AC: ≤ 10W / DC: ≤ 3W @ 230V
Back up memory: By EEPROM

Mechanical

Dimension: 96mm(W) x 96mm(H) x 71mm(D)
Panel cutout: 90mm(W) x 90mm(H)
Case material: Black PC (non-flammable)

Accuracy & Resolutions

PARAMETERS	ACCURACY	RESOLUTION	INPUT RANGE
Voltage	0.25%	0.1%	40-600Vac(VL-N)
Current	0.25%	0.02%	1%-120% Rated
Neutral Current	1.0%	0.1%	1%-120% Rated
Active Power	0.5%	0.1%	0-9999MW
Reactive Power	0.5%	0.1%	0-9999MVar
Apparent Power	0.5%	0.1%	0-9999MVA
Power factor	0.5%	0.1%	±0.02-1.00
Frequency	0.2%	0.01Hz	45-65Hz
Active Energy	0.5%	0.1KWh	0-9999999.9KWh
Reactive Energy	0.5%	0.1KVarh	0-9999999.9KVarh
THD	1.0%	0.01%	0-100%

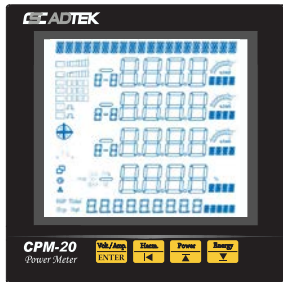
TECHNICAL SPECIFICATION

Input

Measurement: True rms measurement
Sampling: 128point/Cycle
Connection: 1P2W - 1P3W - 3P3W(2 - 3CT) - 3P4W ; Balanced/ Unbalance.
Programmable by front buttons (Actual wiring must be same)
Input range: Voltage : 40-600 V L-N
PT Primary range : 100-500000V
PT Secondary range : 100-600V
Current : 0-5A, (Optional:0-1A)
CT Primary range : 5-10000A
Frequency : 45-65Hz

Installation: Panel mounting
Wiring terminal: Screw terminal, Plastic NYLON 66 (UL 94V-0)
 Current/Voltage input(#1-#10): 1.5-2.5mm²(AWG15-10)
 Other terminal: 0.5-1.3mm²(AWG22-16)
Weight: Around 400g

Front Panel



Display: LCD 65(W)x58(H)mm ; White backlight ; Blue wording
 Visible under direct sunlight
LCD LED: Backlight on time1~15Min ("0" is always light)
Reading: Upper row 20 digits: Display date, time
 8.8.8.8 4 Digitsx 4 rows, 10.0mm Display V, A, Power, Hz, PF, THD...
 8.8.8.8.8.8.8 8 Digits x 1 row, 6.0mm Display Energy parameters(kWh , kVarh)
 □ :RS485 communication status ; 2 square status icons
 Display Master and Slave status ; Both square on for normal communication

Load status indication:
 IND :On when load is inductive
 CAP :On when load is capacitive
 LOAD% :Display load percentage
 ↗ :Display load quadrant

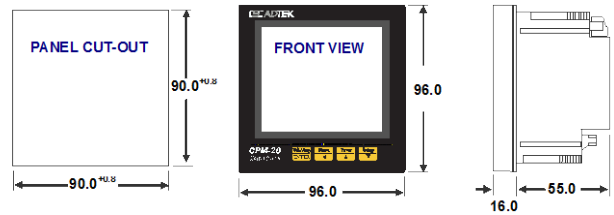
Reading variety symbols:
 R-b, b-C, C-R :When on ,value showing Line-Line
 R, b, C : When on ,value showing in Phase
 N : When on ,value showing in Neutral
 Total : When on ,value showing Total value
 Avg : When on ,value showing Average
 MAX MIN : When on ,value showing Maximun/Minimum
 THD : When on ,value showing Total harmonics distortion
 V, A, KW, MVar.. LED-16 byte display parameters Unit

Display value update: 0.5 sec
Control button: 4 control buttons

- Enter Key / Voltage /Current display page
- Shift Key / Main electric parameters display page
- Up Key / Electric parameters display page
- Down Key / Energy parameters display page

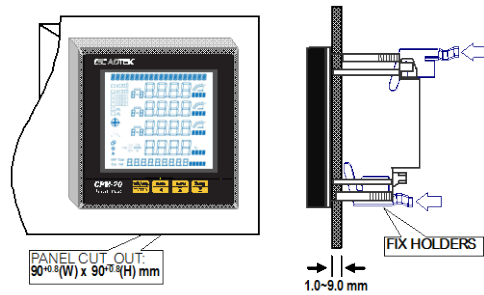
Passwords: 4 digits passwords ; Range : 0000-9999 (Default 1000)

Dimensions



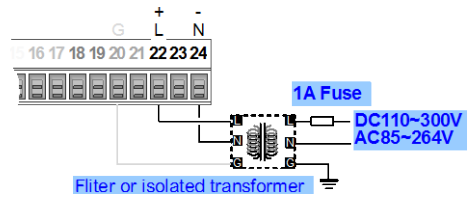
Unit: mm

Installation



Connection diagram

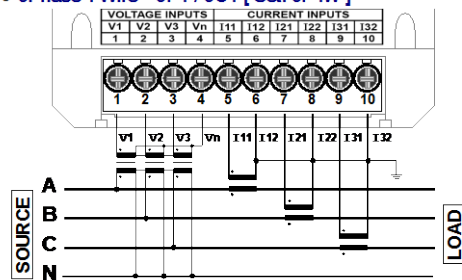
Aux Power (Terminal Block 2)



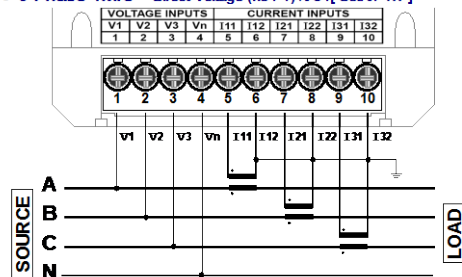
Voltage and Current input (Terminal block1)

Voltage wire: AWG16~12(1.3~2.0mm²)
Current wire: AWG15~10(1.5~2.5mm²)

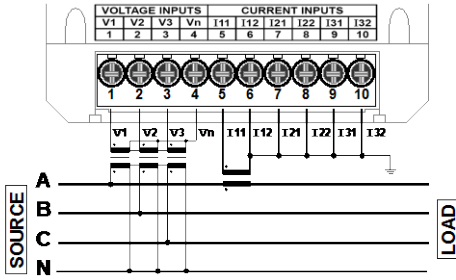
● 3Phase 4 Wire – 3PT / 3CT [Set: 3P4W]



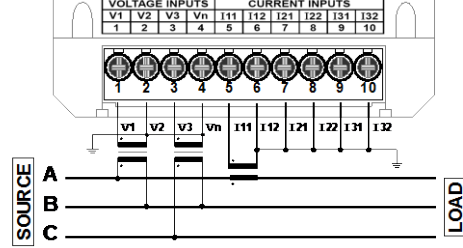
● 3 Phase 4wire – Direct Voltage (no PT) /3CT [Set: 3P4W]



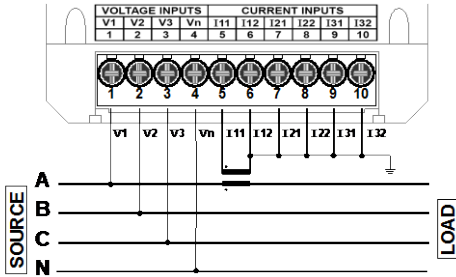
● 3 Phase 4 Wire(Balanced load) – 3PT/ 1CT [Set:3P4Wb]



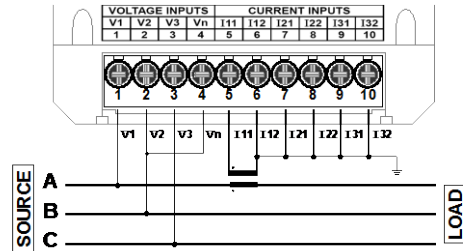
● 3 Phase 3Wire(Balanced load) – 2PT / 1CT [Set: 3P3Wb]



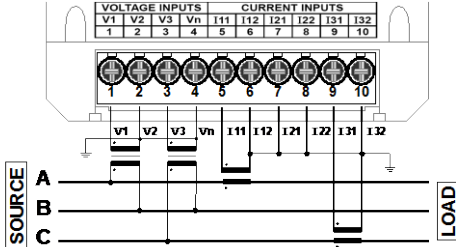
● 3 Phase 4 Wire(Balanced load) – Direct Voltage(No PT) / 1CT [Set: 3P4Wb]



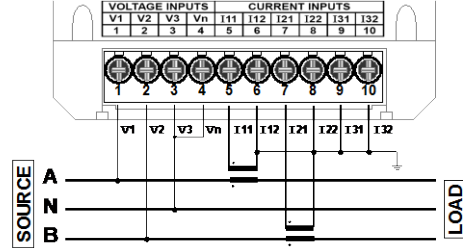
● 3 Phase 3Wire(Balanced load) – Direct Voltage (No PT) / 1CT [Set: 3P3Wb]



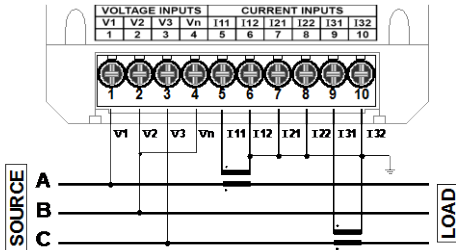
● 3 Phase 3 Wire – 2PT / 2CT [Set: 3P3W]



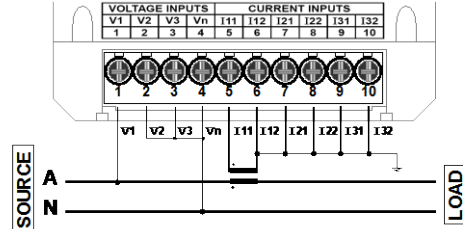
● 1 Phase 3 Wire – [Set: 1P3W]



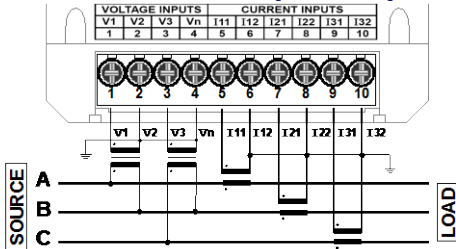
● 3 Phase 3 Wire – Direct voltage(No PT) / 2CT [Set: 3P3W]



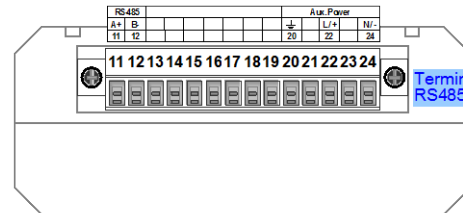
● 1 Phase 2 Wire – [Set: 1P2W]



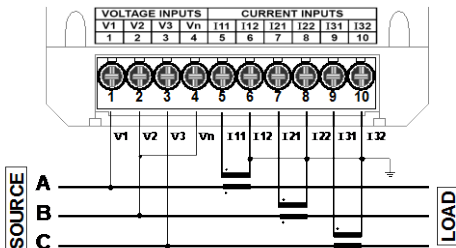
● 3 Phase 3 Wire 3CT – 2PT / 3CT [Set: 3P3W3]



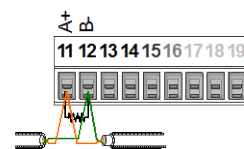
RS485 / (Terminal Block 2)
Wire diameter: AWG22~16(0.5~1.3mm²)



● 3 Phase 3 Wire 3CT – Direct voltage (No PT) / 3CT [Set: 3P3Wb]



RS485 Port



Distance Max.: 1200M
Terminator: 120~300Ω/ 0.25W
(Standard: 150Ω)