

CPT Multifunction Power Transducer

DESCRIPTION

CPT Power transducer provide single phase, 3 phase multiple parameters (such as voltage, current, active power, reactive power, apparent power, power factor, frequency, effective energy) input conversion, display and remote communication function.

Standard equip with 1 RS485 communication output (Modbus RUT Mode), 1 Relay and 2 pulse outputs, optional 2 sets /4 sets of analogue output, comply to the needs in power management, remote input and output, alarm, remote controls applications.



CPT

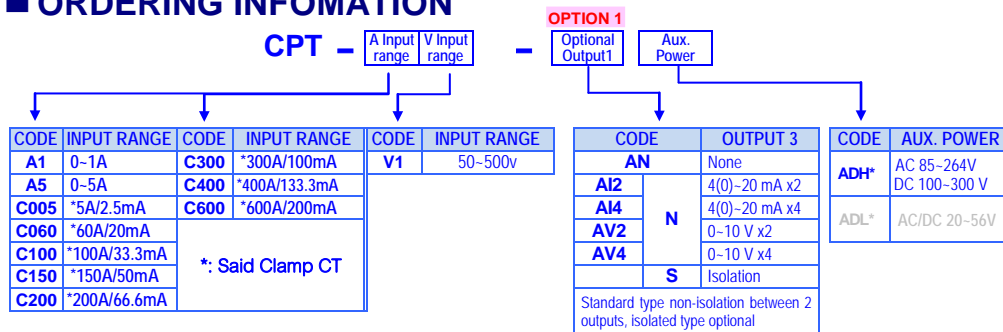
FEATURE

- Input 1P2W, 1P3W; 3P3W, 3P4W (Balanced/Unbalanced) load system's active power, reactive power, apparent power and electric energy (Watts-Hr) etc parameters.
- 1 set relay (SPDT) output, with 3 variable setting (R1.1/R1.2/R1.3), each react to setting parameters V.AVG/I.AVG/FREQ/P.TL/Q.TL/S.TL/PF.AVG/AE.TL/RE.TL/VA/VB/VC/IA/IB/IC/PF-A/PF-B/PF-C/P-A/P-B/P-C/Q-A/Q-B/Q-C/S-A/S-B/S-C, having relay function: Hi/Lo/Hi Hold/Lo Hold/Do/OFF; further advance function, start delay, hysteresis, time delay, reset delay etc.
- 4 analogues output same as relay setting parameters.
 - ▶ Output range: Current 0~10mA / 0~20 mA / 4~20 mA / 4~12~20 mA / ±10 mA / ±20 mA
 - ▶ Output range: Voltage 0~5V / 1~5 V / 0~10 V / 0~2.5~5 V / 1~3~5 V / 0~5~10 V / ±5 V / ±10 V
- 2 set of open collector pulse for Kilowatt-Hour and Kvar-hour output, maximum frequency 1000Hz.
- Outer case wall mounting or din rail mounting (EN50022)
- Product design according to CE.

APPLICATIONS

- Motor control
- panel power monitoring
- power consumption monitor and control
- power distribution system
- intelligent building & automation power management system
- power testing equipment

ORDERING INFORMATION



TECHNICAL SPECIFICATION

Measurement and connection

System	Input range			Input consumption
	Voltage	Amp	Freq	
1P2W	50~500Vac(VL-N)	1A 5A	45~65 Hz	Voltage: ≤0.5VA/Phase or Current: ≤0.1VA/Phase
1P3W				
3P3W				
3P4W				

*Max input 500V (L-L), 5A, if exceed please use PT or CT

Accuracy and resolution (Accuracy add 1.0 % when selected the Clamp Type)

Parameters	Accuracy	Max. Resolution	Range
Voltage	0.2%	0.1 V	0~2999.9
Current	0.2%	0.02 A	0~2999.9
Active	0.5%	0.001 kW	-19999~29999
Reactive	0.5%	0.001 kVar	-19999~29999
Apparent	0.5%	0.001 kVA	-19999~29999
Power factor	0.5%	0.01	-0.020~1.000~+0.020
Frequency	0.2%	0.01 Hz	45.00~65.00
Effective	0.5%	0.001 kWh	0~9999999999
Ineffective	0.5%	0.001 kVarh	0~9999999999

Input

- Measurement:** True RMS Value
- Ripple effect:** ≤ 0.2% of F.S. at 30% distortion
- A/D converter:** 16 bits A/D converter

Sampling rate:

128point/Cycle

Response time:

≤100 ms (Average value set as "2")

System:

1P2W, 1P3W, 3P3W, 3P4W (Balanced/Unbalanced)

Input range:

Voltage: 50~500V L-N

Primary shunt unit setting: V and KV

PT Primary setting: 50.0V~100KV

PT Secondary setting: 50.0~500.0V

Direct Input: Primary = Secondary < 500V

Current: 0 ~ 1/ ~ 5A (max.)

CT Primary setting: 1~2999.9A

CT Secondary setting: 1.000 or 5.000A (by Order)

Frequency: 45/65Hz ± 3Hz,

Max. input capability:

Voltage: 2 X rated voltage continuous

4 X rated voltage continuous 2 minutes

Current: 3 X rated current continuous

10 X rated current continuous 10 seconds

50 X rated current 1 second (5A input type)

Control function

Setting point:

3 sets (1 contact output for 3 set values)

Relay output:

1set SPDT, 1A/230Vac, 3A/115V

Relay settings:

Up to 27 parameters relay setting

Relay mode:

Hi / Lo / Hi.HLd / Lo.HLd / do / oFF

Function:

Start delay/Start band/ Hysteresis /Relay hold

Start band: 0~9999 counts
 Start delay time: 0:00.0~9(Minutes):59.9(Second)
 Run delay time: 0:00.0~9(Minutes):59.9(Second)
 Off delay time: 0:00.0~9(Minutes):59.9(Second)
 Hysteresis: 0~5000 counts

Analogue(Optional)

Output 2 sets or 4sets isolated analogue output
Accuracy: $\leq \pm 0.1\%$ of F.S.; 16 bits DA converter
Ripples: $\leq \pm 0.1\%$ of F.S.
Step response time: ≤ 500 m-sec. (Input 10%~Output 90%)
Isolation between output: Insulation 500Vdc between output 1 & 2
Output range: **Voltage :** 0~5V / 0~10V / 1~5V
 0~2.5~5V / 1~3~5V / 0~5~10V / $\pm 5V$ /
Current: 0~10mA / 0~20mA / 4~20mA
 4~12~20 mA / ± 10 mA / ± 20 mA
Output load capability: **Voltage output:** $\geq 1000 \Omega$; **Current output:** $\leq 530 \Omega$
 (Non-isolated; no negative output to the voltage and current functions)

Function: **[A_{OH}5]** Maximum output value display setting
 Setting range: -19999~29999
[A_{OL}5] Minimum output value display setting
 Setting range: -19999~29999
[A_{OL}Hi] (Output Hi): Output from 0.00~110.00%
[A_{Pr}o] Setting range:-32768~+32767
[A_{SP}n]: Setting range: -32768~+32767

RS485 communication

Protocol: Modbus RTU mode
Baud rate: 1200/2400/4800/9600/19200/38400 bps selectable
Bits: 8 Bits
Parity check: Odd \ even or none (with 1 or 2 stop bit) selectable
Address: 1 ~ 255 selectable
Wire distance: 1200M max
Terminal resistance: 150 Ω .

Pulse output
Output mode: 2 contacts open collector · DC 30V, 100mA
Output parameters: Effective energy : (AE.TL / -AE.TL)
 Ineffective energy : (RE.TL / -RE.TL)
 Max frequency: 1000Hz ; duty cycle 50%

Output range: 1 Pulse/1~9999 Count selectable
Pulse/Count:
Power supply
Working voltage: ADH:AC 85~264V · DC 100~300V
 ADL:AC/DC 20~56V

Power consumption: AC Power $\leq 12VA$ · DC Power $\leq 6.0W$
Data storing: By EEPROM

Safety
Insulation: AC 2.0 KV for 1 min, Power/Input/Output/Casing
Isolation resistance: $\geq 100M$ ohm at 500Vdc, Power/Input/Output/Casing
Signal isolation: Power/Input/Relay/RS485/Analogue output/Pulse output
EMC: EN 55011:2002; EN 61326:2003
LVD: EN 61010-1:2001

Working environment
Temperature.: 0~60 °C
Humidity(%RH): 20~95 %RH, Non condensing
Temp. coefficient: ≤ 100 PPM/°C
Storage : -10~70 °C
Protection: Front panel: IEC 529 (IP52); Case: IP30

Mechanical
Dimension: 100mm(W) x 75mm(H) x 118mm(D)
Case material: ABS Non-flammable (UL 94V-0)
Installation: Wall mounting or Din rail (EN 50022)
Terminal: Plastic NYLON 66 (UL 94V-0)
 10A 300Vac, M2.6, 16~22AWG
Weight: 650g 以下(Aux. Power : ADH, ADL)

FRONT PANEL



Display:
Rate display: 5 Digits; 0.28"(0.71cm) Red LED (Watt)
Accumulative display: 8 Digits; 0.28"(0.71cm) Red LED
 (Hi 4 Digits "8888" - "and low 4 digits"- 8888")scroll
Display unit: 2 square red LED for K / M

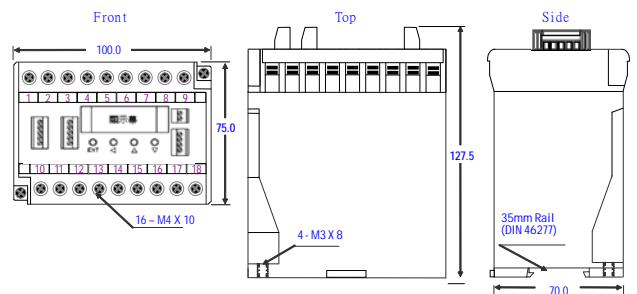
I/O status:
Po1 & Po2 **Pulse output display:** 2 square red LED
 During pulse transmission, LED will blink ; when
 It blink faster mean Watt-Hr. accumulate more
COM **RS 485 communication:** 1 square orange LED
 RS485 signal send/receive data · LED will blink
 When COM blink faster, data transfer speed is higher
RL1 **Relay output LED:** 1 square red LED
 LED on when relay output;
E.C.I **E.C.I input LED:** 1 square green LED
 DI input LED on

Control button: 4 control buttons: Enter, function./ Shift / Up / Down
Up key: Value increase / return to previous level
Down key: Value decrease / enter next level
Shift key: Move decimal point / return to up level / escape setting
Enter/Fun key: Enter setting status / save and enter next function parameters

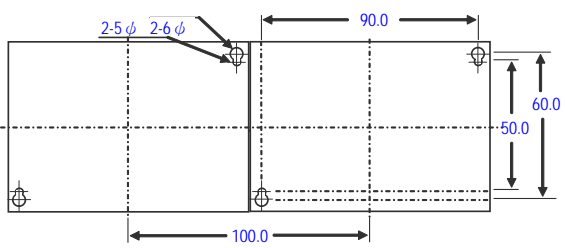
Password function: 4 digits password setting ; range 0000~9999
 Password for parameters setting level needed.
 Password can be change at **Engineer Level**
 Please contact us if password lost.

Lock function: 4 lock modes, No lock/User level lock/Parameters Setting lock/Lock all
None: No lock · all function and parameters selectable
User Level: Open for viewing level, not able to change any setting if locked
Engineer Level: Open for viewing level, not able to change any setting if locked
All: Locked all level.

DIMENSIONS



PANEL MOUNTING HOLES

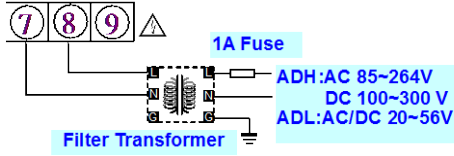


WIRING DIAGRAM

Please check input operating voltage before sending power, terminal connection to right number. Advise adding fuse/switch in front of power.

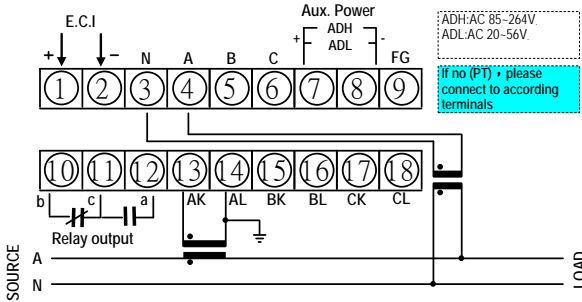
RS485 / Pulse / AO wiring: AWG22~16(0.5~1.3mm²)
 Other: Wiring: AWG15~10(1.5~2.5mm²)

Aux. power connection

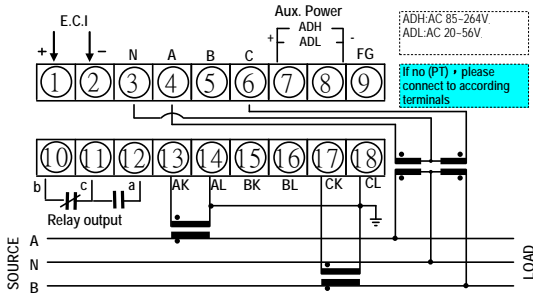


Input connection

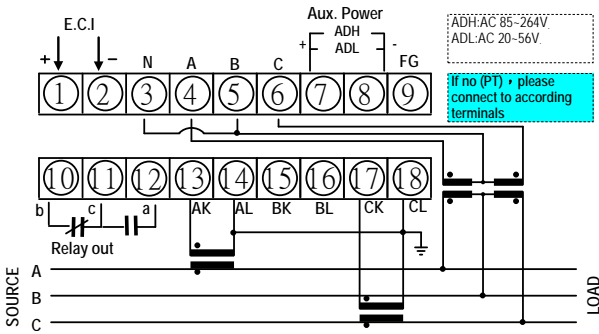
1 Phase 2 wire (Unbalanced load)



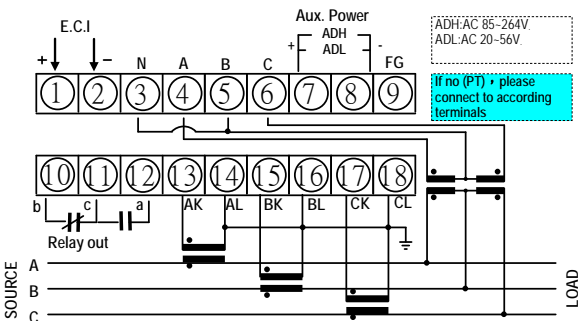
1 Phase 3 wire (Unbalanced load)



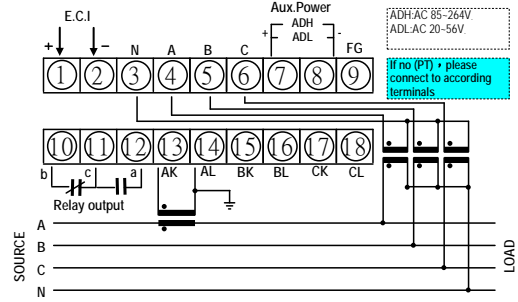
3 Phase 3 wire (Unbalanced load 2CT)



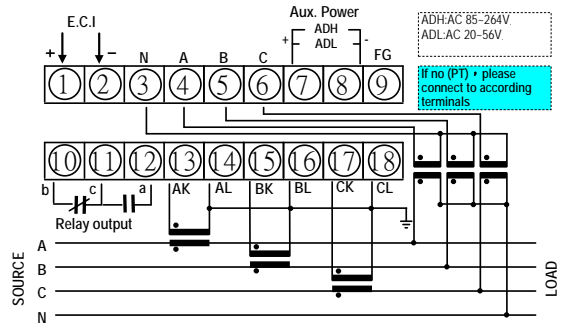
3 Phase 3 wire (Unbalanced load 3CT)



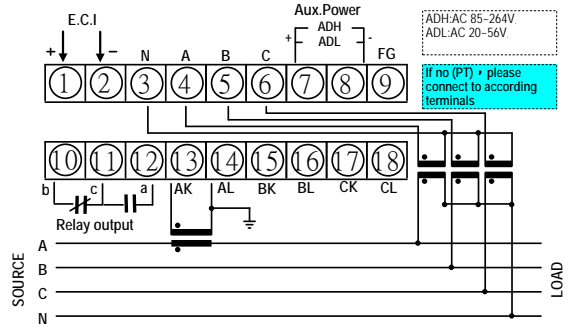
3 Phase 3 wire (Balanced load 1CT)



3 Phase 4 wire (Unbalanced load 3CT)



3 Phase 4 wire (Balanced load 1CT)

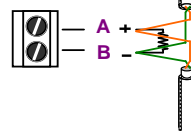


Output signal connection

Please follow product code, specification on label and connection according to given on product.

RS485 output

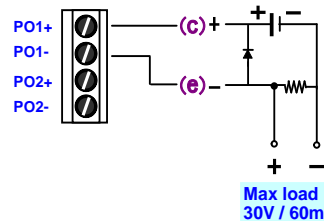
RS485



Max Distance: 1200M
 End terminal resistance (at latest unit):
 120~300ohm/0.25W
 (typical: 150ohm)

Pulse output

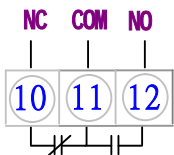
Open collector output:



Relay output

Relay output:

Contact load
 1A/230V • 3A/115V



Analogue output

