



This product is a power meter designed to measure electric power from AC voltage and AC current (via a dedicated CT) inputs. It displays measured data locally on-site and transmits it to higher-level devices through RS-485 (Modbus RTU) communication.

Features

- High-visibility LED (18mm character height) eliminates display flicker.
- Supports up to 99 units per master module.
- Supports multiple phase-wiring systems and multiple ratings.
- High accuracy ($\pm 1.0\%$ F.S.) capable of measuring standby power.
- Supports both Import and Export for unit pulse output.
- Supports pulse accumulation alarm and HI/LO alarms.
- Captive screw terminals improve safety during installation.
- Can be used as a remote I/O.
- IP66 waterproof construction included as standard.

Ordering Code

WLD-PEMR-□A□00

Series	Phase wire	Communication function	Configuration I/O	Power supply	Test report	Suffix code	Description	
WLD							Series	48 × 96 mm Digital Display
	PEM						Phase wire	Power Monitoring (Single-phase 2-wire / Single-phase 3-wire / Three-phase 3-wire)
		R					Communication function	Model with Communication Function (RS-485 Model)
			4				I/O Configuration	I/O Configuration Pattern 4
			5					I/O Configuration Pattern 5
			6					I/O Configuration Pattern 6
				A			Power supply	100–240 V AC $\pm 10\%$, 50/60 Hz
					0		Test report	None
					1			With test report
						00	Suffix code	Standard

I/O Configuration	Pulse input	Pulse input, Alarm output	Alarm output (HI · LO)	Energy Pulse Output (Import / Export)
Pattern 4	○	△	○	—
Pattern 5	○	○	△	—
Pattern 6	○	△	—	○

※△: Display function only (No open collector output)

Specifications

Common Specifications

Operating temperature and humidity range	-5 to +55°C, 90% RH or less (Non-condensing, Non-freezing)
Storage temperature and humidity range	-20 to +60°C, 90% RH or less (Non-condensing, Non-freezing)
Warm-up time	30 minutes after power-on
Power supply	100–240 V AC $\pm 10\%$ (50/60 Hz)
Power consumption	1) 100 V AC : 5.5 V 2) 240 V AC : 8 VA
Isolation	Isolation between below terminals. 1) Power supply terminal to Controls 2) Power supply terminal to Input / Pulse input / RS-485 / Output terminals 3) Input terminals to Pulse input / RS-485 / Output terminals 4) Pulse input / RS-485 terminals to Ouput terminals 5) RS-485 terminals
Dielectric strength	1) Above isolation terminals No.1/2/3 : 2000V AC / 1 min 2) Above isolation terminals No.4 : 500V DC / 1 min
Insulation resistance	100 MΩ or more at 500 V DC
Degree of protection	IP66 (Front), IP30 (Except front)
Transient overvoltage category	II
Measurement category	II
Dimensions	48(H)×96(W)×85.9(D) mm, 1/8 DIN size
Weight	Approx. 220 g or less
Mounting	Panel mount
Case material / color	Polycarbonate, Black UL94V-0

Power Measurement Specifications

Number of Inputs	Current (CT): 2 channels, Voltage (VT): 1 system
Phase / Wiring Configurations	1-phase 2-wire / 1-phase 3-wire / 3-phase 3-wire (Selectable via device operation)
Input Frequency	50/60 Hz (Shared)
Input Power Consumption	Voltage: 0.06 VA at 220V, Current: Approx. 0.1 VA
Measurement Parameters	Active power (Received/Transmitted) / Active energy (Received/Transmitted) / Reactive power (Received/Transmitted) / Reactive energy (Received/Transmitted) / Current / Voltage / Power factor / Pulse input integrated value (ON time, count) / Frequency
	Note 1: Reactive power/energy and frequency are RS485 only (No display). Note 2: Display shows instantaneous values only (Max/min via RS485).
Permissible Overload Input	Current: 120% continuous, 200% for 10 seconds, 1000% for 3 seconds Voltage: 110% continuous, 150% for 10 seconds
Shutdown	Voltage: Less than 10% of rated value
Low-cut	Current: Configurable between 0.0 to 120% of rated value
Backup at Power Failure	Various settings / Active energy (Received/Transmitted) / Integrated pulse input value

Display Specifications

Display Parameters	Current / Voltage / Active power (Received/Transmitted) / Power factor / Active energy (Received/Transmitted) / Pulse integration (ON time, total count) *Active energy transmission display is only supported on models with configuration pattern 6.
Display Element	Red 7-segment LED, 6 digits, Character height: 18 mm
Status Indicators	Energy pulse output (Received/Transmitted) / Alarm (HI/LO) / Pulse input detection / Pulse input alarm
Display Update Cycle	Configurable from 100 ms to 1500 ms (Default: 700 ms)
Dimming Function	3 levels of adjustment
Auto-off Function	Selectable from 00 to 99 minutes (Default: 00 minutes)
Hold Function	Freezes the display at any timing (via front panel operation)

RS-485 Communication

Protocol	Modbus (RTU)
Synchronization method	Start-stop synchronization
Communication method	2-wire halt duplex (Polling selection)
Communication rate	4800 / 9600 / 19200 / 38400 bps
Start bit	1 bit (Fixed)
Data length	8 bit (Fixed)
Parity	Even parity / Odd parity / No parity
Stop bit	1 bit (Fixed)
Signal name	Non-inverting (+), Inverting (-)
Number of connections	Max. 99 units (Slave)
Line length	Max. 1.2 km

Pulse Input Specifications (Equipment Patterns 4, 5, 6)

Isolation method	Photocoupler isolation
Input Signal	5V voltage pulse / Open collector
Control Method	Selectable from ON-time accumulation or pulse counting
Minimum Pulse Width	12.5 ms or more (for both ON and OFF)
Measurable Frequency	ON-time accumulation: 20 Hz or less
	Pulse counting: 40 Hz or less

Alarm Output Specifications (HI / LO Alarm) (Equipment Pattern 4)

Alarm Monitoring Element	Active Power (Receiving/Transmitting) or Representative Phase Current
Output Signal	Open Collector (NPN)
Number of Outputs	2 points (HI / LO)
Hysteresis	Configurable hysteresis width for alarm operation (Common to HI and LO)
Output OFF Delay	Configurable from 00.0 to 99.9s (Default: 00.0s)
Output Rating	30 VDC, 30 mA
Residual Voltage (ON)	1.5 V or less
Leakage Current (OFF)	100 µA or less

Alarm Output Specifications (Pulse Input Alarm) (Equipment Pattern 5)

Alarm Monitoring Element	Selectable from ON-time Integration or Pulse Count
Output Signal	Open Collector (NPN)
Number of Outputs	1 point (HI)
Output Rating	30 VDC, 30 mA
Output Saturation Voltage	1.5 V or less (Leakage current: 100 µA or less)

Electric Energy Pulse Output Specifications (Equipment Pattern 6)

Output Signal	Open Collector (NPN)
Number of Outputs	2 points (Receiving / Transmitting)
Output Pulse Width	100 ms / 250 ms / 500 ms / 1,000 ms, ±20% each (Configurable)
Output Rating	30 VDC, 30 mA
Output Saturation Voltage	1.5 V or less (Leakage current: 100 µA or less)

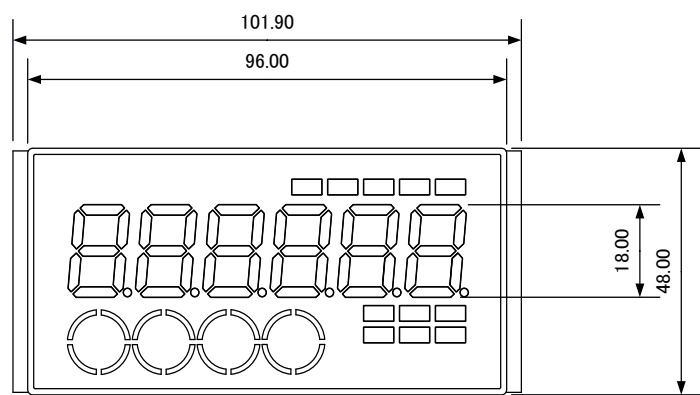
Item	Input Rating		Tolerance (Excluding VT/CT errors)	Conditions	Remarks
Current	AC5A/AC50A/AC100A/AC200A/AC400A/AC600A		±1.0%fs	Balanced state Measurable from low-cut set value up to 120% of input rating	
Voltage	1-phase 2-wire	AC110V/220V/440V	±1.0%fs	Balanced state Measurable from 10% to 120% of input rating	
	1-phase 3-wire	AC110V/220V(1-2間 AC440V)			
	3-phase 3-wire	AC110V/220V/440V			
Power Factor	− 0.00 %~ 100.0 %~+ 0.00 %		±2.0%fs	cosφ=0.5~1 Power factor is set to 100% when unmeasured	
Active Power	1-phase 2-wire	Rated primary current×Rated primary voltage	±1.0%fs	cosφ=0.5~1 ※Both lead and lag Rated 0% to 144% ※Less than ±0.4% is treated as 0	
	1-phase 3-wire	Rated primary current×Rated primary voltage×2			
	3-phase 3-wire	Rated primary current×Rated primary voltage×√3			
Active Energy	Integrates up to 999,999,999.999 kWh for both receiving and transmitting power ※The display for transmitting power is signed, up to -199,999,999.999 kWh		±1.0%fs [±1.5%fs]	cosφ=1 [cosφ=0.5] Resumes from 0.000 kWh upon overflow ※Does not integrate if the frequency is outside the measurement range	
Reactive Power	1-phase 2-wire	Rated primary current×Rated primary voltage	±1.0%fs	cosφ=0.5~1 ※Both lead and lag Rated 0% to 144% ※Less than ±0.4% is treated as 0	No display Acquired via RS-485 communication
	1-phase 3-wire	Rated primary current×Rated primary voltage×2			
	3-phase 3-wire	Rated primary current×Rated primary voltage×√3			
Reactive Energy	Integrates up to 999,999,999.999 kVarh for both receiving and transmitting power ※The display for transmitting power is signed, up to -199,999,999.999 kVarh		±1.0%fs [±1.5%fs]	cosφ=0 [cosφ=0.866] Resumes from 0.000 kVarh upon overflow ※Does not integrate if the frequency is outside the measurement range	No display Acquired via RS-485 communication
Frequency	44.2~65.8Hz		±1.0%		No display Acquired via RS-485 communication

Pulse Weight Setting

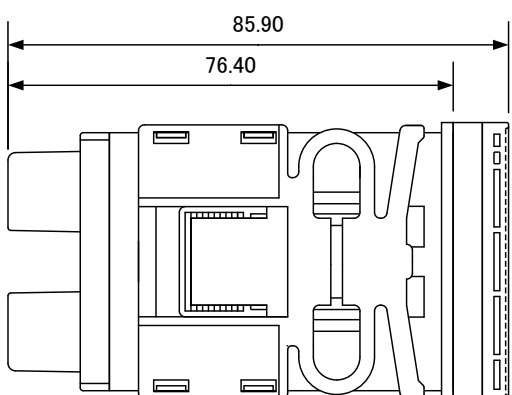
Rated Power (kW)	Configurable Pulse Unit (kWh/p)			
	Type 1	Type 2	Type 3	Type 4
0 or more less than 10	0.001	0.01	0.1	1
10 or more less than 100	0.01	0.1	1	10
100 or more less than 1,000	0.1	1	10	100
1,000 or more less than 10,000	1	10	100	1,000
10,000 or more less than 100,000	10	100	1,000	10,000
100,000 or more	100	1,000	10,000	100,000

Dimensions

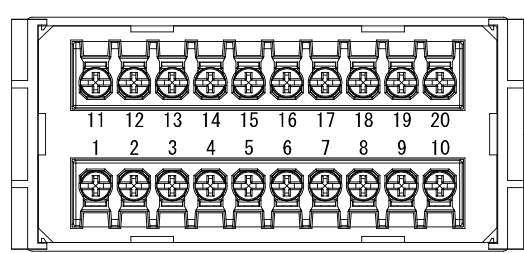
《Front view》



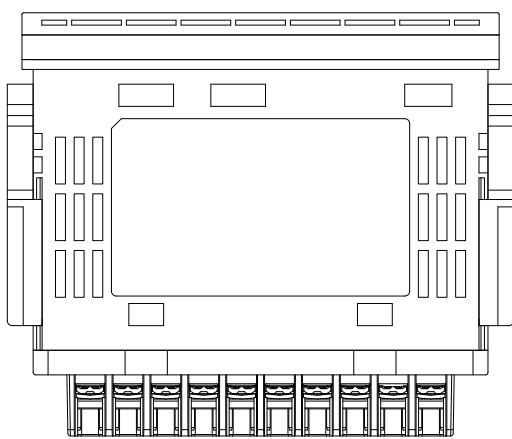
《Side view》



《Rear view》

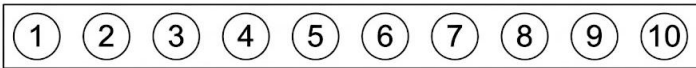
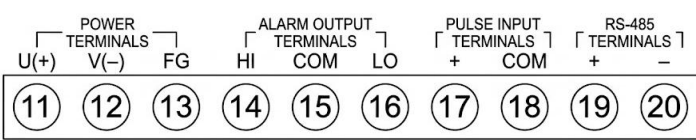
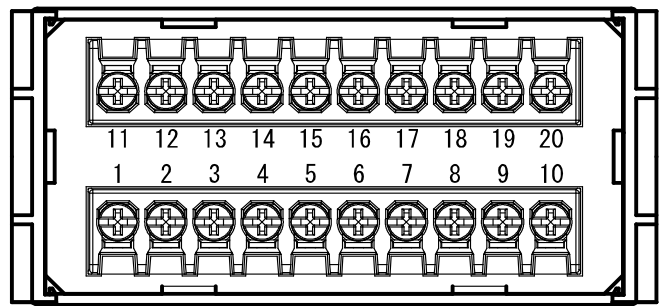


《Top view》



端子配列とパネル表示

《Equipment pattern 4》

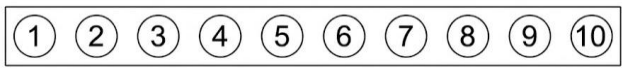
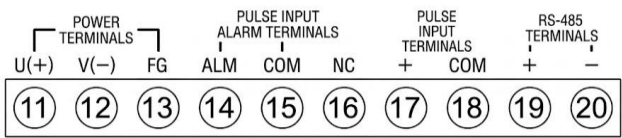


1-phase 2-wire	P1	P2(N)	NC	NC	1S	1L	NC	NC	NC	NC
1-phase 3-wire	P1	P2(N)	P3	NC	1S	1L	3S	3L	NC	NC
3-phase 3-wire	R	S	T	NC	1S	1L	3S	3L	NC	NC

INPUT VOLTAGE
TERMINALS

INPUT CURRENT
TERMINALS

《Equipment pattern 5》

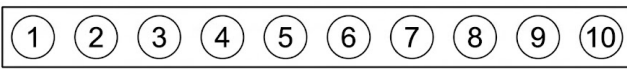
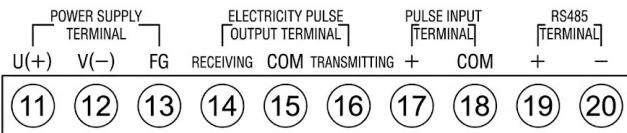


1-phase 2-wire	P1	P2(N)	P3	NC	1S	1L	NC	NC	NC	NC
1-phase 3-wire	P1	P2(N)	P3				3S	3L		
3-phase 3-wire	R	S	T							

INPUT VOLTAGE
TERMINALS

INPUT CURRENT
TERMINALS

《Equipment pattern 6》

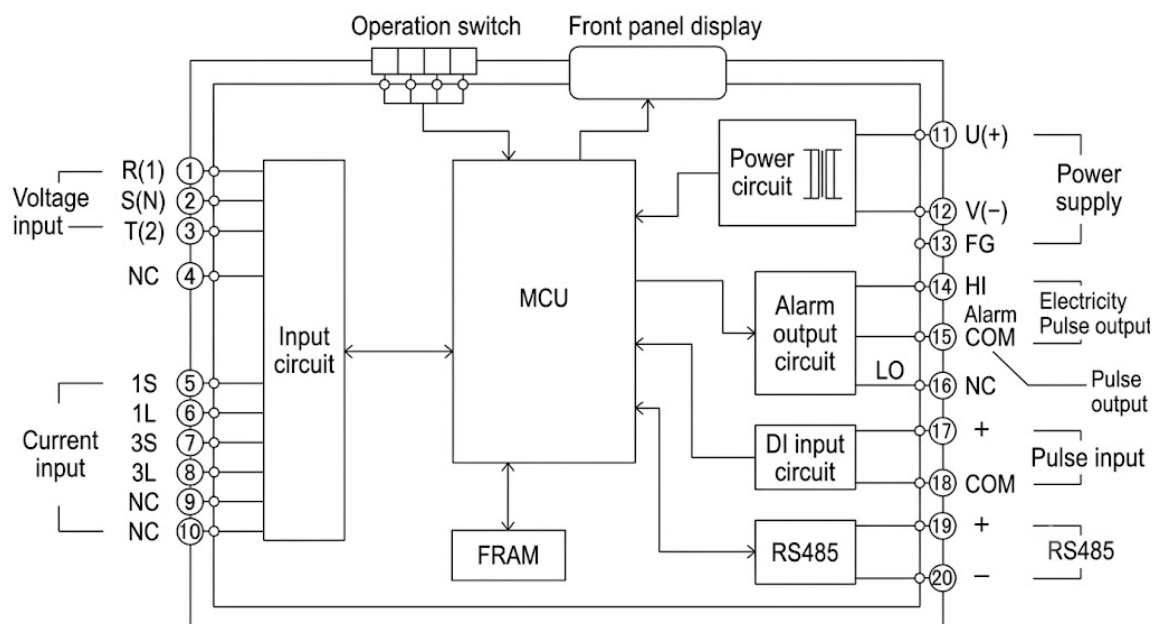


1-phase 2-wire	P1	P2(N)	NC	NC	1S	1L	NC	NC	NC	NC
1-phase 3-wire	P1	P2(N)	P3				3S	3L		
3-phase 3-wire	R	S	T							

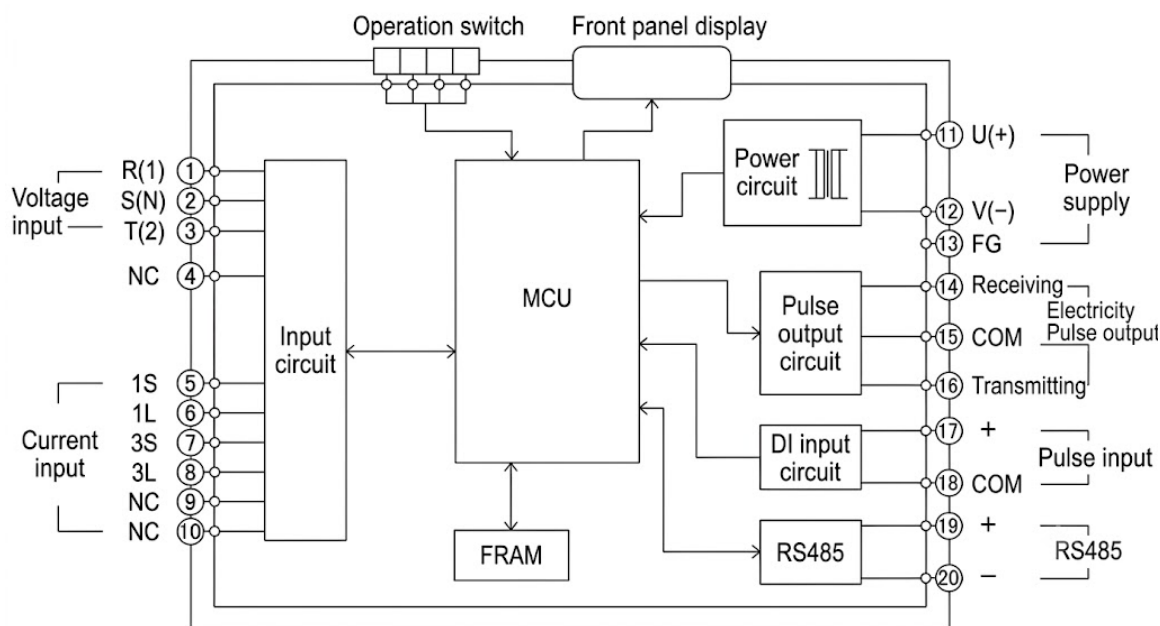
INPUT VOLTAGE
TERMINAL

INPUT CURRENT
TERMINAL

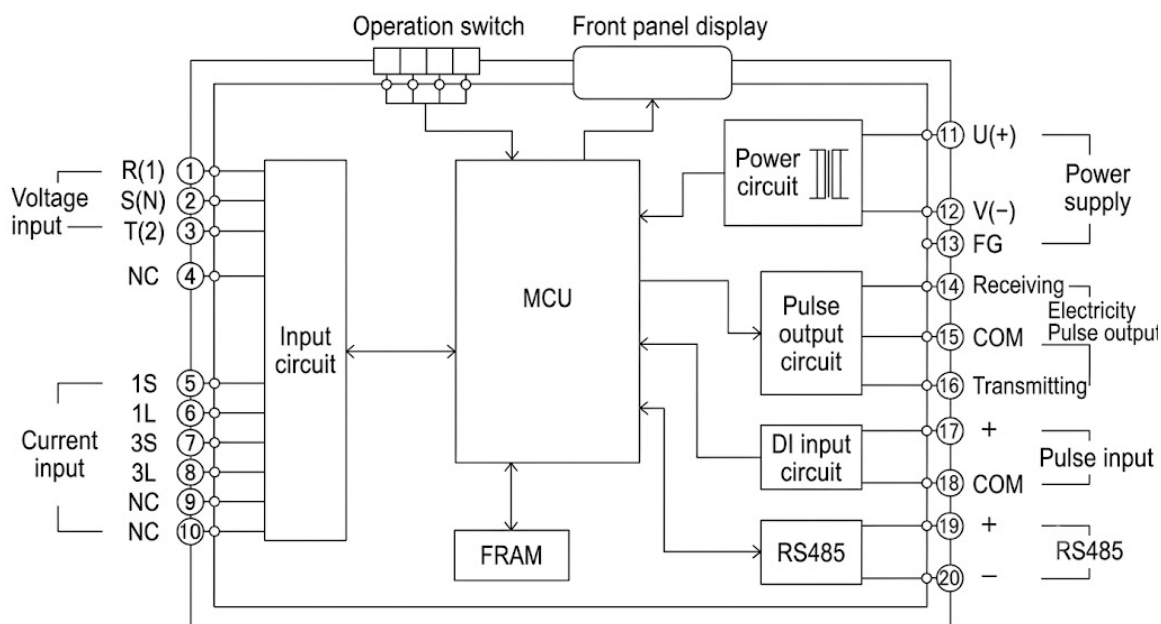
《Equipment pattern4》



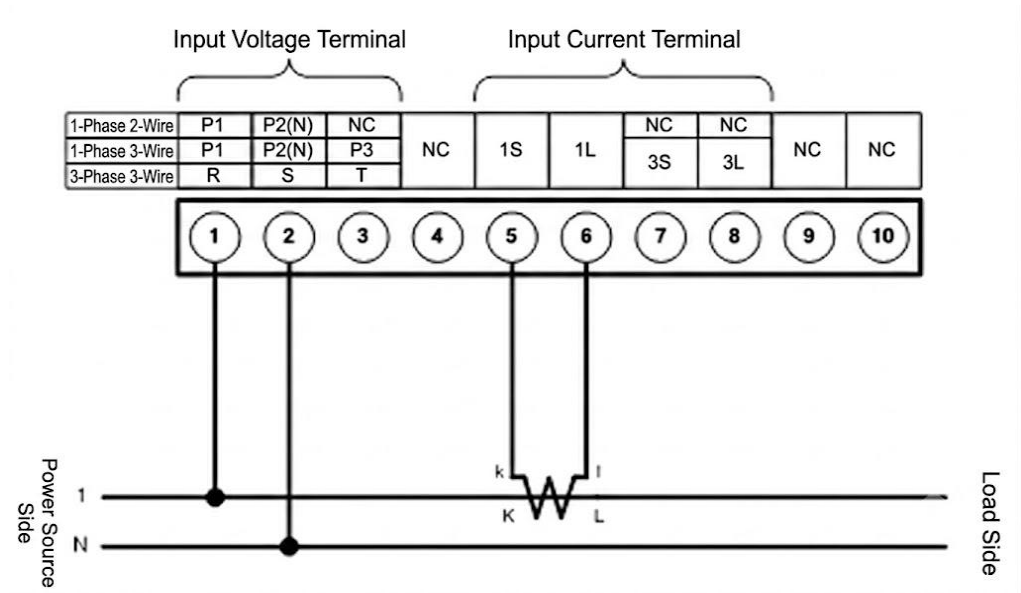
《Equipment pattern5》



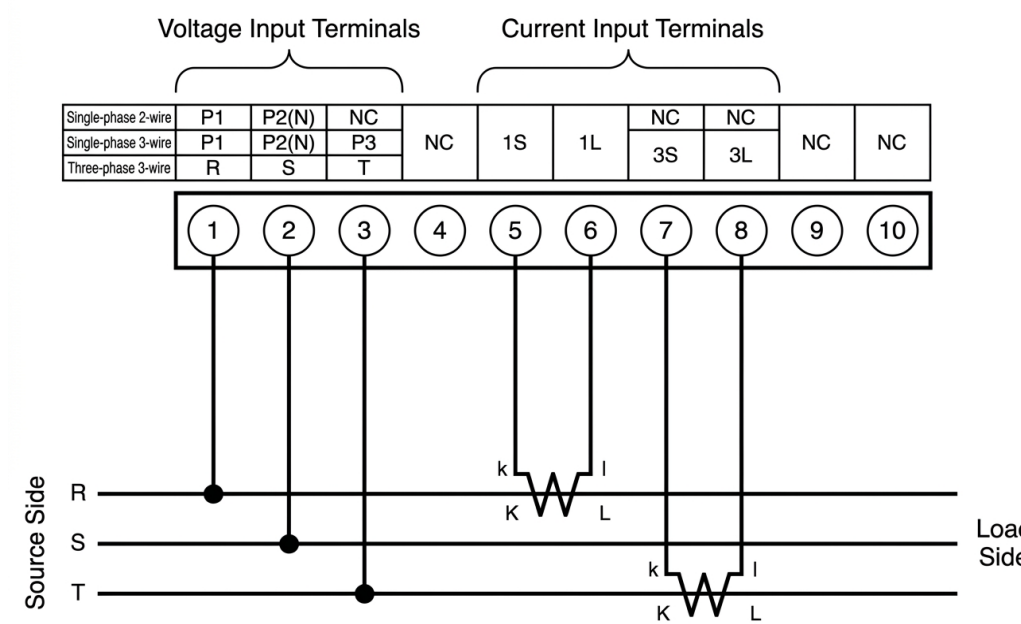
《Equipment pattern6》



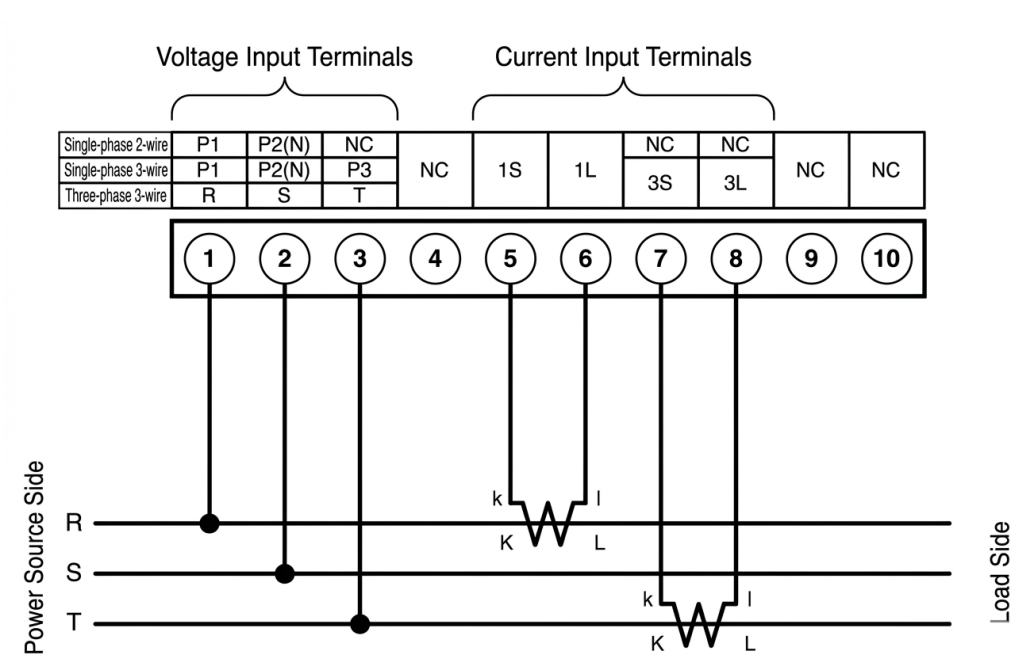
Single-phase 2-wire



Single-phase 3-wire



Three-phase 3-wire



Measurement item list (displayed values)

Menu			Setting				Applicable equipment pattern		
No	Name	Display	No	Name	Display	Setting content	4	5	6
AA	Power measurement	AA.ELEC	B1	Wiring system	B1.LINE	Single-phase 2-wire / Single-phase 3-wire / Three-phase 3-wire	●	●	●
			B2	Voltage input rating	B2.VOLT	110V/220V/440V	●	●	●
			B3	Rated primary voltage (VT ratio)	B3.□□VT	110V~77000V (18 steps)	●	●	●
			B4	Current input rating	B4.AMP	5A/50A/100A/200A/400A/600A	●	●	●
			B5	Rated primary current (CT ratio)	B5.□□□CT	5.00A~8000A (38 steps)	●	●	●
A1	Function	A1.FUNC	B1	Setup save	B1.S-UP		●	●	●
			B2	Initialization	B2.□INI		●	●	●
			B3	Current cutoff	B3.□CUT	00.0~99.9% (numeric input)	●	●	●
A2	Pulse output operation	A2.PULS	B1	Received-power unit	B1.UT-J	Select pulse weight, type 1~4 (variable by rated power)			●
			B2	Sent-power unit	B2.UT-S	Select pulse weight, type 1~4 (variable by rated power)			●
			B3	Output pulse width (received)	B3.PW-J	100ms/250ms/500ms/1000ms			●
			B4	Output pulse width (sent)	B4.PW-S	100ms/250ms/500ms/1000ms			●
A3	Alarm operation	A3.□ALM	B1	Alarm HI setpoint	B1.AL-H	Active power -99999~99999 / Rep. phase current 0~9999 (numeric input)	●	●	
			B2	Alarm LO setpoint	B2.AL-L	Active power -99999~99999 / Rep. phase current 0~9999 (numeric input)	●	●	
			B3	Hysteresis width	B3.□HYS	Active power 0~10000 / Rep. phase current 0000~1000 (numeric input)	●	●	
			B4	Output OFF delay	B4.OFFD	00.0~99.9 sec	●	●	
			B5	Alarm judgment target	B5.ALSL	Active power / Representative-phase current (selection)	●	●	
A4	Pulse input operation	A4.P-IN	B1	Detection mode	B1.TYPE	Count detection / Time detection / Count detection (endless)	●	●	●
			B2	Display coefficient	B2.COEF	000.001~100.000 (numeric input)	●	●	●
			B3	Pulse input judgment value	B3.AL-P	000000~999999 (numeric input)	●	●	●
A6	RS485	A6.□485	B1	Baud rate	B1.□BPS	4800bps/9600bps/19200bps/38400bps (selection)	●	●	●
			B2	Device (station) number	B2.S-ID	01~99 (selection)	●	●	●
			B3	Parity	B3.PRTY	None/Even/Odd (selection)	●	●	●
			B4	Tx/Rx switching time	B4.SWTM	000~999ms (numeric input)	●	●	●
A7	Display measurement items	A7.D-SL	B1	Received active energy	B1.WH-J	OFF/ON (selection)	●	●	●
			B2	Sent active energy	B2.WH-S	OFF/ON (selection)		●	●
			B3	Active power	B3.□□□W	OFF/ON (selection)	●	●	●
			B4	Current	B4.□□□A	OFF/ON representative phase only/ON all phases (selection)	●	●	●
			B5	Voltage	B5.□□□V	OFF/ON representative phase only/ON all phases (selection)	●	●	●
			B6	Power factor	B6.□COS	OFF/ON (selection)	●	●	●
			B7	Pulse input accumulated value	B7.P-IN	OFF/ON (selection)	●	●	●
A8	Display function	A8.D-FN	B1	Display update cycle	B1.CYCL	0.1~1.5 sec (numeric input)	●	●	●
			B2	Brightness adjustment	B2.BRIL	Bright/Standard/Dark (selection)	●	●	●
			B3	Auto display-off	B3.□OFF	00~99 min (numeric input)	●	●	●
			B4	Received-power lighting cycle	B4.CY-J	Select type 1~5			●
			B5	Sent-power lighting cycle	B5.CY-S	Select type 1~5			●
A9	Output function	A9.O0FN	B1	Alarm HI output logic	B1.LOGH	Negative logic/Positive logic (selection)	●		
			B2	Alarm LO output logic	B2.LOGL	Negative logic/Positive logic (selection)	●		
			B3	Pulse input alarm output logic	B3.LOGP	Negative logic/Positive logic (selection)		●	
			B4	Received-pulse output logic	B4.LOGJ	Negative logic/Positive logic (selection)			●
			B5	Sent-pulse output logic	B5.LOGS	Negative logic/Positive logic (selection)			●