

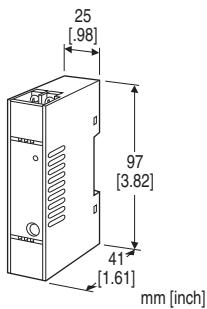
Super-mini Terminal Block Signal Conditioners M5X-UNIT

MULTI POWER TRANSDUCER

(self-powered, PC programmable, support harmonic distortion)

Functions & Features

- Super-mini power transmitter
- 5 to 600 A clamp CT use for current sensor
- Single-phase/2-wire, single-phase/3-wire and 3-phase/3-wire are available
- High-density mounting
- Power LED
- No auxiliary power source required



MODEL: M5XWTU-11[1][2]

ORDERING INFORMATION

- Code number: M5XWTU-11[1][2]
- Specify a code from below for each of [1] and [2].
(e.g. M5XWTU-113/Q)
- Specify the specification for option code /Q
(e.g. /C01/S01/SET)

CONFIGURATION

1: Single phase / 2-wire and 3-wire, 3-phase / 3-wire

INPUT

1: 240 V AC / CLSE
Clamp-on current sensor is selectable from below.
CLSE (5A, 50A, 100A, 200A, 400A, 600A)
5A is available as CT's secondary.

[1] EXTERNAL INTERFACE

- 1: Analog output -Field selectable
- DC current output: 0 - 20 mA DC
 - DC voltage output: -5 - +5 V DC
 - DC voltage output: -10 - +10 V DC
- 2: Pulse / alarm output
- 3: Modbus communication

[2] OPTIONS

blank: none
/Q: With options (specify the specification)

SPECIFICATIONS OF OPTION: Q (multiple selections)

COATING (For the detail, refer to our web site.)

/C01: Silicone coating
/C02: Polyurethane coating
/C03: Rubber coating

TERMINAL SCREW MATERIAL

/S01: Stainless steel

EX-FACTORY SETTING

/SET: Preset according to the Ordering Information Sheet
(No. ESU-2768)

RELATED PRODUCTS

- PC Configurator cable (model: COP-US)
- PC configurator software (model: PMCFG)
Downloadable at our web site.
- Clamp-on current sensor (model: CLSE)

GENERAL SPECIFICATIONS

Construction: Terminal block

Connection: M3.5 screw terminals (torque 0.8 N·m)

Screw terminal: Nickel-plated steel (standard) or stainless steel

Housing material: Flame-resistant resin (black)

Isolation: Current input or voltage input to analog output or pulse output or Modbus

Measured variables

Voltage: R-S, S-T, T-R

Current: R, S, T

Active power

Reactive power

Apparent power

Power factor

Frequency

Active energy: Incoming / outgoing

Reactive energy: Incoming / outgoing / lag (inductive) /lead (capacitive)

Apparent energy

Average active power (demand)

Average reactive power (demand)

Average apparent power (demand)

Average (demand) current: R, S, T

Harmonic distortion

Overall distortion ratio, content rate (2nd to 31st)

Voltage: R-S, S-T, T-R

Current: R, S, T

Max. and min. values

Simplified measurement mode: Calculates power from

current values with fixed voltage values and power factor.
Power indicator LED: Green LED; Blinking patterns indicate different operating status of the transmitter.

MODBUS COMMUNICATION

Communication: Half-duplex, asynchronous, no procedure
Standard: Conforms to TIA/EIA-485-A
Transmission distance: 500 meters max.
Baud rate: 1200, 2400, 4800, 9600, 19200, 38400 bps (default: 38400 bps)
Protocol: Modbus RTU
Node address: 1 to 247 (default: 1)
Parity: None, even or odd (default: odd)
Stop bit: 1 or 2 (default: 1)
Max. number of nodes: 31 (excluding master)
Transmission media: Shielded twisted-pair cable (CPEV-S 0.9 dia.)
Internal terminating resistor: 110 Ω

INPUT SPECIFICATIONS

Frequency: 50 / 60 Hz (45 - 66 Hz)
• Voltage Input
Rated voltage: 240 V AC
Input range: 80 - 260 V AC (Phase voltage range is 80 - 130 V for single-phase/3-wire)
Consumption VA:
• P1 - P2: ≤ 3 VA (power consumption of internal circuit)
• P2 - P3: voltage²/≤ 1. 5MΩ VA
Selectable primary voltage range: 50 - 400 000 V
• Current Input
CLSE-R5: 0 - 5 A AC
CLSE-05: 0 - 50 A AC
CLSE-10: 0 - 100 A AC
CLSE-20: 0 - 200 A AC
CLSE-40: 0 - 400 A AC
CLSE-60: 0 - 600 A AC
Input range: 0 - 120 % of the rating
Low-end cutout (current): 0 - 99.9 % (default setting: 1 %)
Selectable primary current range: 1 - 20 000 A (only with CLSE-R5, refer to the configurator settings)

OUTPUT SPECIFICATIONS

■Analog output
 Default setting is DC current output 4 - 20 mA
 Types
 • DC current output: 0 - 20 mA DC
 • DC voltage output: -10 - +10 V DC
 • DC voltage output: -5 - +5 V DC (3 types can be switched by DIP switch and PC)
 Outputs: Voltage, current, various powers, power factor, frequency, harmonic current and harmonic voltage

●DC current output
 Output range 0 - 20 mA DC
 Output available range: 0 - 23 mA DC
 Minimum span: 1 mA
 Load resistance: 550 Ω
 ●DC voltage output
 Output range -10 - +10 V DC
 Output available range: -11.5 - +11.5 V DC
 Minimum span: 1 V
 Load resistance: Output drive 1 mA max. (e.g. When 0 - 10 V DC, 10 V÷1 mA = 10kΩ)
 ●DC voltage output
 Output range -5 - +5 V DC
 Output available range: -5.75 - +5.75 V DC
 Minimum span: 500 mV
 Load resistance: Output drive 1 mA max. (e.g. When 1 - 5 V DC, 5 V÷1 mA = 5000Ω)
 ■Pulse / alarm output
 Outputs assignable to pulse: various energy
 Outputs assignable to alarm: Voltage, current, various powers, power factor, frequency, various energy average, current average, harmonic current and harmonic voltage
Output type: Photo MOSFET relay
Rated load: 160 V 150 mA AC/DC at peak
ON resistance: 8 Ω max.
Leakage current during opening: 2 μA max.

INSTALLATION

Operating temperature: -20 to +65°C (-4 to +149°F)
Operating humidity: 30 to 90 %RH (non-condensing)
Atmosphere: No corrosive gas or heavy dust
Mounting: DIN rail
Weight: 80 g (2.8 oz)

PERFORMANCE

Input Accuracy^{*1}
Voltage: ±0.5 %^{*2}
Current: ±0.5 %^{*2}
Power: ±0.5 %^{*2}
Power factor: ±1.5 %
Frequency: ±0.5 Hz
Energy: ±2 % (power factor ≥ 0.5, input ≥ 10%)
 *1. Sensor error margin not included. Add sensor error margin when using with the combination of the sensor.
 *2. An accuracy for rated input. The described accuracy levels are ensured at the input 1% or more for neutral current in a single-phase/3-wire circuit and phase-S current in an 3-phase/3-wire circuit.
 Analog output accuracy:
 Output accuracy for the setting value span is shown as following formula.

Output accuracy = (output range ÷ output setting value span) × 0.02%

For current output,

Output accuracy = (output range ÷ output setting value span) × 0.04%

Ex1: DC current output 4 - 20 mA

Output accuracy = (20 mA ÷ 16A) × 0.04% = 0.05%

Input accuracy and sensor error are added to total accuracy.

Temp. coefficient: ±0.0075 %/°C (0.004 %/°F)

Sampling time: ≤ 500 msec.

Analog output response time: ≤ 1.5 sec. (0 to 99%)

Insulation resistance: ≥ 100 MΩ with 500 V DC

Dielectric strength: 2000 V AC @ 1 minute

(current input or voltage input to analog output or pulse output or Modbus to ground)

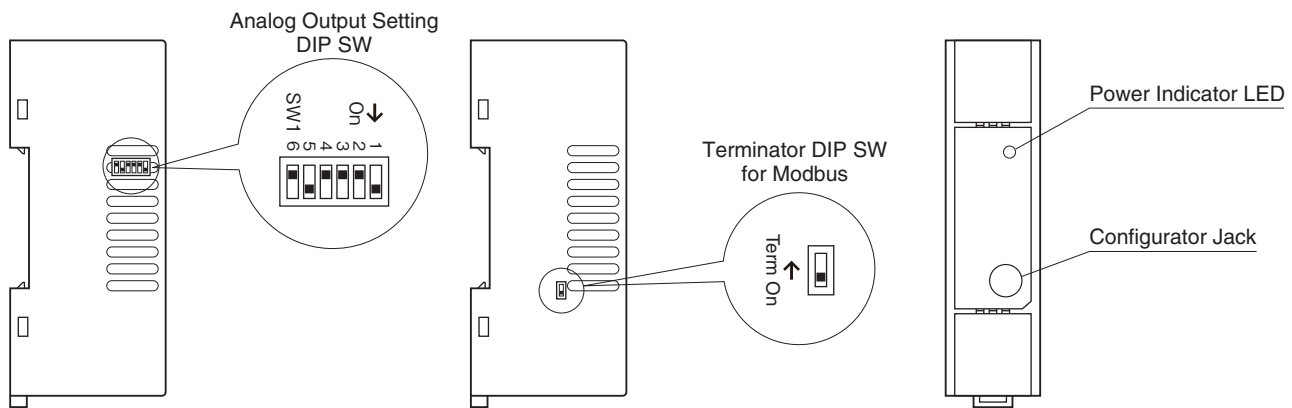
EXTERNAL VIEW

LEFT VIEW

Analog output

Modbus

FRONT VIEW



TERMINAL CONNECTIONS

System/ Application	Terminal	System/ Application	Terminal
Single-phase/ 2-wire		Single-phase/ 3-wire	

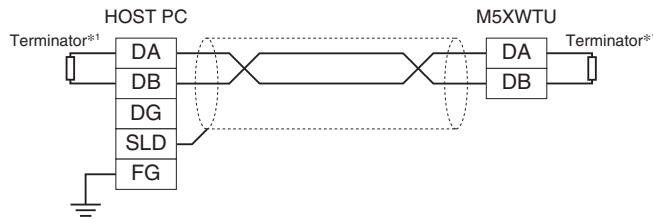
Note: Use CLSE for CT.

Grounding is unnecessary for low-voltage circuit.

Apply voltage to P1 - P2 to generate internal power when using simplified measuring mode (fixed voltage value and power factor).

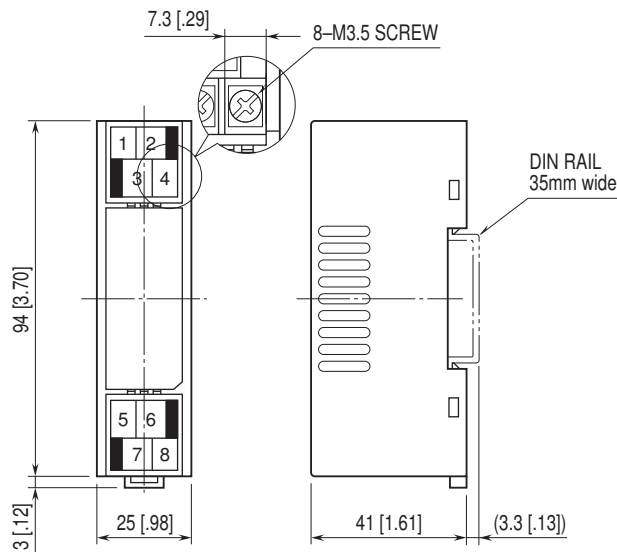
MODBUS WIRING CONNECTION

■ HOST PC WIRING



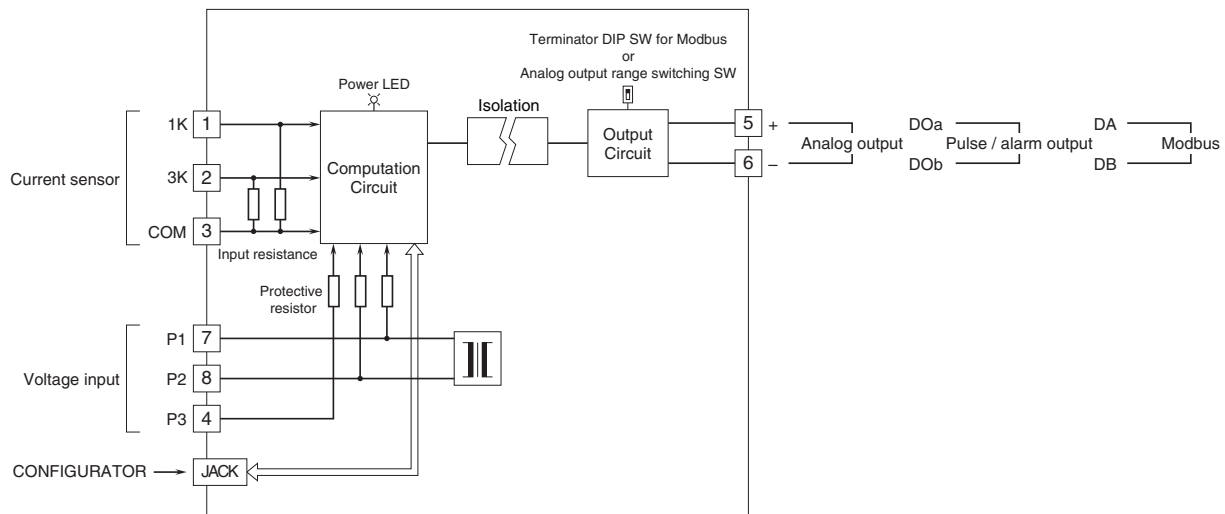
*1. Turn the terminator DIP SW ON to use internal terminator.

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



• When mounting, no extra space is needed between units.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM





Specifications are subject to change without notice.