UtilityPal

PRODUCT DATASHEET
V1.0 · November 2026

THREE PHASE · CT OPERATED

RX-33CT

Three Phase Multifunction Energy Meter

CT-connected DIN rail energy meter with harmonics, RS485 Modbus, pulse output and a digital output.

CT operated 1A / 5A | Class 0.5S | RS485 Modbus RTU | THD V & I | Digital output | 4-module DIN



Overview

The UtilityPal RX-33CT is a three phase, external-CT connected multifunction energy meter. It measures voltage, current, four-quadrant power, power factor and total harmonic distortion, and records bi-directional active and reactive energy. It works on 1P2W, 3P3W and 3P4W networks, with direct voltage input or through voltage transformers. An RS485 port with Modbus RTU or DL/T645 allows remote reading at up to 38400 bps, and a digital output is available for external control.

1A / 5A
CT input, 1 to 9999A primary

Class 0.5S
Active energy accuracy

RS485
Modbus RTU / DL/T645

72 mm
4 modules on DIN rail

Key Features

- CT operated. 1A or 5A secondary CTs, with mV / mA CT and Rogowski coil inputs available.
- Full parameter set. V, A, W, var, VA, kWh, kvarh, power factor, phase angle and frequency.
- Harmonics. Total harmonic distortion on both voltage and current.
- Bi-directional energy. Import and export active and reactive energy across four quadrants.
- Flexible networks. 1P2W, 3P3W and 3P4W, direct or through voltage transformers.
- CT reverse correction. Corrects a reversed CT connection in the meter settings.
- RS485 communication. Modbus RTU or DL/T645-2007, up to 64 meters on one bus over 1000 m.
- Pulse and digital output. Configurable pulse output plus one digital output for external control.
- Backlit LCD. Large screen with 1 second refresh and manual or automatic scrolling.
- Touch buttons. Four-button operation with password-protected settings.

Typical applications: Solar PV, EV charging and wind generation systems, bulk and tenant metering, power monitoring, SCADA and other energy management systems.

ACCURACY	
Active energy	Class 0.5S (IEC 62053-22)
Reactive energy	Class 2 (IEC 62053-23)
Voltage / current	Class 0.5 (IEC 61557-12)
Power factor	Class 1 (IEC 61557-12)
Frequency	Class 0.2 (IEC 61557-12)
Data update	1 s (100 ms optional)

VOLTAGE INPUT	
Rated voltage	3 x 230 V AC (L-N) / 400 V AC (L-L)
Measuring range	30 to 300 V AC (L-N), 30 to 500 V AC (L-L)
PT input	Up to 500 000 V AC primary
Frequency	45 to 65 Hz

CURRENT INPUT	
CT secondary	1 A / 5 A (default), 100 mA / mV optional
CT primary	1 to 9999 A
Measuring range	0.003 to 6 A, rated 5 A
Overload	20 x max. current for 0.5 s

AUXILIARY SUPPLY	
Voltage	80 to 300 V AC or 100 to 420 V DC
Consumption	< 4 VA / 0.5 W

OUTPUTS	
Pulse output	Open collector optocoupler, 5 to 27 V DC
Pulse constant	0.001 to 100 kWh / kvarh per pulse
Pulse width	60, 100 (default) or 200 ms
Pulse LED	5000 imp/kWh (secondary side)
Digital output	1 output, 5 A at 240 V AC or 30 V DC

COMMUNICATION	
Interface	2-wire RS485, half duplex
Protocol	Modbus RTU (default) or DL/T645-2007
Baud rate	1200 to 38400 bps (9600 default)
Parity / stop bit	None, even or odd / 1 or 2
Response time	< 100 ms
Bus length	Up to 1000 m
Bus load	Up to 64 meters

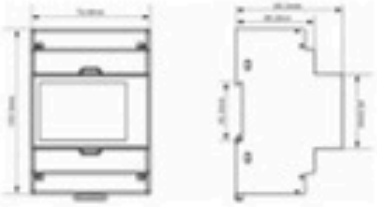
MECHANICAL & ENVIRONMENT	
Mounting	TH35-7.5 DIN rail
Protection	IP51 display (indoor), IP30 whole meter
Housing	UL 94 V-0 flame retardant
Operating temp.	-25 to +55 °C
Storage temp.	-40 to +80 °C
Humidity	< 90 %, non-condensing
Altitude	< 2000 m
Pollution degree	2

SAFETY & EMC	
Category	CAT III, double insulation (IEC 61010-1)
AC withstand	4 kV AC for 1 minute
Impulse withstand	6 kV, 1.2/50 µs waveform
EMC immunity	IEC 61000-4-2/3/4/5/6/8/11 (IEC 61326-1)
Emissions	EN 55011 Class B, IEC 61000-3-2

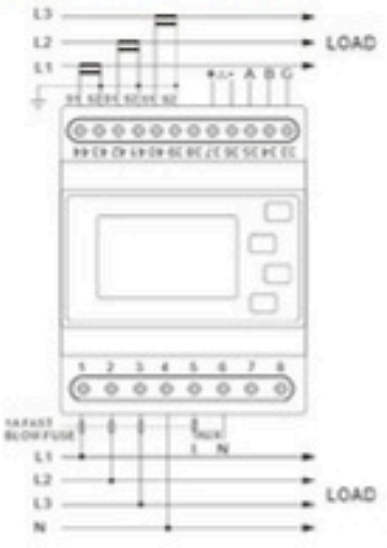
TERMINALS	
All terminals	26 to 12 AWG, 0.5 N·m max.

Dimensions and wiring

DIMENSIONS (MM)



WIRING: THREE PHASE 4 WIRE



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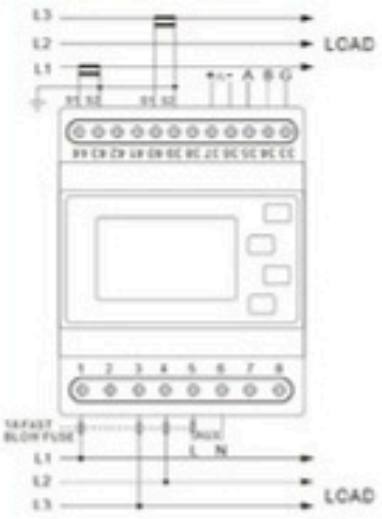

Specifications are subject to change without notice. Install by qualified personnel only. More wiring modes (2P3W, 1P2W, PT, digital output) are in the user manual.