

DRR-CT-1P



SINGLE PHASE CURRENT TRANSFORMER OPERATED AC ENERGY METER

KEY FEATURES

- CT Connection Meter
- Programmable CT ratios
- One Button (for easy navigation)
- Dual Tariff
- MID Approved
- LCD & Backlit Display
- Impulse LED
- Din rail mounted

OPTIONAL FEATURES

- One Pulse Output
- Remote Communication
- Tariff Input

TE Connectivity's Crompton Instruments Single Phase CT-Connected AC Energy Meter is designed for residential, commercial, and light industrial applications requiring accurate electrical energy metering.

Built with advanced microcontroller technology, the meter is suitable for measuring and monitoring electrical parameters in single-phase, two-wire networks. It supports external current transformer (CT) connections with 1 A or 5 A input, enabling flexible integration into various systems.

Tariff counters are selectable via MODBUS, MBUS, or tariff input, allowing for customized energy tracking. The meter features a bright LCD display, pulse output, and impulse LED for real-time energy monitoring. It also includes built-in support for MODBUS RTU and MBUS protocols for remote communication.

CT primary and secondary values can be programmed via the front panel keys. The configurable range includes:

CT Primary: 1 A to 1000 A
CT Secondary: 1 A or 5 A

These parameters must be set on-site within the first 15 minutes of entering CT configuration mode and are locked in accordance with MID standards to ensure compliance and data integrity.

The meter supports bidirectional measurement of Active, Reactive, and Apparent Energy. It also accurately measures key electrical parameters such as Voltage, Current, Frequency, Active Power, Reactive Power, Apparent Power, and Power Factor in single-phase networks. All measured values are accessible via the display and remotely through MODBUS or MBUS.

Demand parameters for Active Power (Import/Export), Reactive Power (Import/Export), Apparent Power, and Current are calculated based on a configurable demand integration time.

APPLICATIONS

- Residential, commercial & light industrial electrical energy metering
- Sub-metering

RELEVANT STANDARDS AND TEST REPORTS

Accuracy Standard :

- EN50470-3: 2022
- IEC62053-21

IP for water & dust:

- IEC 60529

Plastic Flammability Standard:

- UL 94

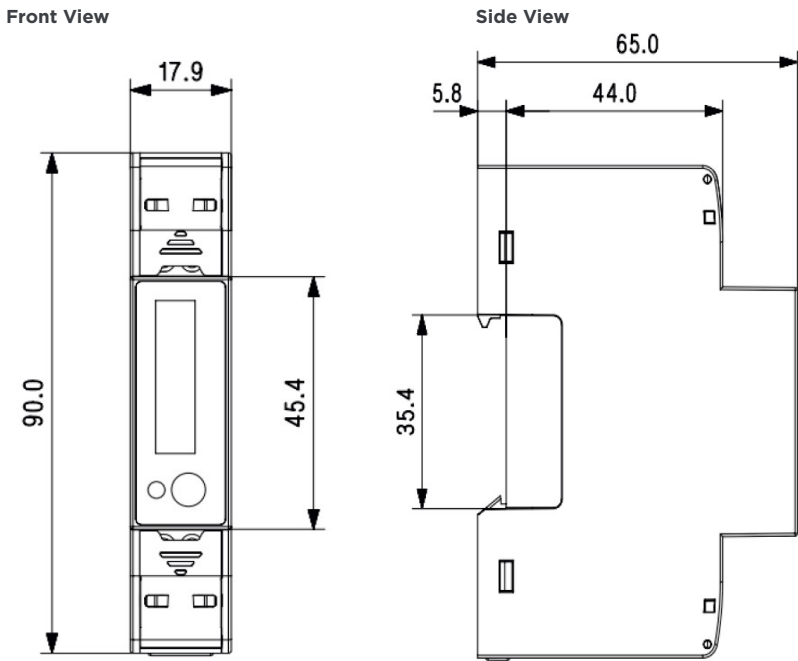
Safety Standard:

- 62052-31: 2015

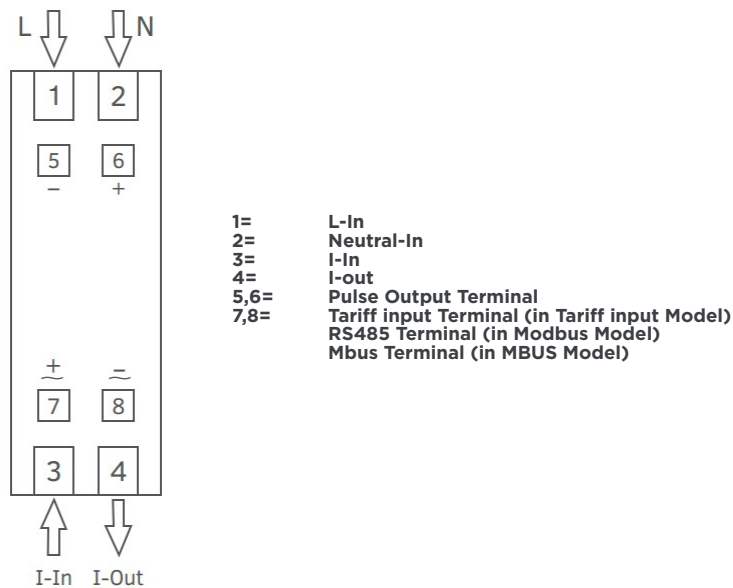
PART NUMBERS

Product selection	
Product	Description
DRR-CT-1P-PLS-01	Single Phase, 1/5A CT Connected,1xDI, 1xSO
DRR-CT-1P-MOD-01	Single Phase, 1/5A CT Connected,1xSO, 1xModbus
DRR-CT-1P-MBUS-01	Single Phase, 1/5A CT Connected,1xSO, 1xMbus

DIMENSIONAL INFORMATION



WIRING DIAGRAM



Wiring Guideines	
Current / Voltage input Wire size	1 to 2.5 ² (use insulated pin type lug)
Current/Voltage Tightening Torque	0.4 Nm
RS485,MBUS,SO,Tariff Inputs Wire Size	1 to 2.5 mm ² (Solid/Stranded with pin type lug)
RS485,MBUS,SO,Tariff Inputs Tightening Torque	0.4 Nm

Technical Specifications		
Input		
Reference Voltage (U_n)	230 VLN	
Operating Voltage Range	193 - 253 VLN	
Power consumption in Voltage Circuit	< 2 W (10 VA)	
Current Measurement Parameter	1A	5A
Starting Current ($I_{st} = 0.04 \cdot I_{tr}$)	2 mA	10 mA
Minimum Current ($I_{min} = 0.2 \cdot I_{tr}$)	10 mA	50 mA
Transitional Current (I_{tr})	50 mA	250 mA
Reference Current ($I_{ref} = 20 \cdot I_{tr}$)	1 A	5 A
Maximum Current for 1A($I_{max}=120 \cdot I_{tr}$) for 5A($I_{max}=24 \cdot I_{tr}$)	6 A	6 A
Operating Current Range	10 mA-1A (6A)	50 mA-5 A (6A)
Short time Over-current	20 $\cdot$ I _{max} for 0.5 seconds	
Power consumption in Current Circuit	<1 VA	
Nominal Frequency	50 Hz	
Auxiliary Supply		
Type	Self Powered	
Reference Conditions for Accuracy		
Reference Temperature	23°C $\pm$ 2°C	
Input Voltage	$U_n \pm 1\%$	
Input Waveform	Sinusoidal (distortion factor <2%)	
Input Frequency	50 Hz $\pm$ 0.3%	
Accuracy		
Active Energy (Import/Export)	Class B as per EN50470-3: 2022 Class 1 as per IEC 62053-21	
Reactive Energy (Import/Export)	+/- 2%	
Apparent Energy	$\pm 1.0\%$	
Voltage	$\pm 0.5\%$ of of range max	
Current	$\pm 0.5\%$ of Nominal value	
Frequency	$\pm 0.2\%$ of Mid frequency	
Active Power	$\pm 1\%$ of range max	
Reactive Power	$\pm 1\%$ of range max	
Apparent Power	$\pm 1\%$ of range max	
Power Factor	$\pm 1\%$	
Pulse Outputs		
SO	Passive Opto-isolated	
Contact Range	5-27V DC, 27 mA DC (max)	
Pulse Duration	60, 100, 200 millisecond	
Pulse Rate	1, 10, 100, 1000 pulse per kWh/kVARh/kVAh	
Communication Interface (MODBUS)		
Protocol	RS485 MODBUS	
Baudrate	2.4 /4.8 / 9.6 /19.2/38.4 kbit	
Data Width	8	
Parity- Stop Bits	None -1 / None -2/ Even -1 / Odd -1	
Device Address	1- 247	
Response Time	<250 millisecond @ 9.6 kbps Baudrate (<1000 millisecond for 2.4/4.8 Kbit Baudrate)	
Communication Interface (MBUS)		
Protocol	EN13757-3 MBUS	
Baudrate	0.3/ 0.6/ 1.2/ 2.4/ 4.8/ 9.6 kbps	
Data Width	8	
Parity - Stop Bits	Even-1	
Address	1 250	

Technical Specifications	
Impulse LED :	
Impulse Rate	1000 pulse per kWh
Display Ranges :	
Active Energy	0.01-99999.99
Reactive Energy	0.01-99999.99
Apparent Energy	0.01-99999.99
Active Power	0-300 KW
Reactive Power	0-300 KVAR
Apparent Power	0-300 KVA
Installation:	
Installation	Indoor
Enclosure	IP51 (Front side) & IP20 (terminal - IEC 60529: 2001)
Housing	1 Module DIN 43880
Dimensions	17.9 mm X 90 mm X 65 mm
Weight	150 gm
Mounting	35 mm DIN Rail
Safety :	
Safety Standard	According to 62052-31:2015
Installation Category	III
Protective Class	II
Pollution Degree	2
High Voltage Test	4 kV AC, 50Hz for 1 minute between all electrical circuits
Impulse Voltage Withstand	6.0 kV (1.2 microsecond waveform)
Housing flame Resistance	Flammability Class V-0 acc to UL-94, Self Extinguishing, Non-Dripping, Free of Halogen
Environmental Conditions :	
Mechanical Environment	M1
Electromagnetic Environment	E2
Operating Temperature	-25°C to +55°C
Storage/Transport Temperature	-40°C to +70°C
Relative Humidity	0... 95% (Non Condensing)
Altitude	< 2000 m max
Shock	Half sine wave, peak acceleration 30gn (300 m/s ²), pulse duration 18msec
Vibration	10...150Hz, f<60 Hz 0.075mm constant amplitude, f>60Hz 1g _r constant acceleration 10 sweep cycles per axis
Tariff Input:	
0 V	Low
230 V	High

Technical Specifications		
Sr No.	Parameters	1 Phase 2 Wire
1	Import Active Energy	✓
2	Export Active Energy	✓
3	Total Active Energy	✓
4	Import Reactive Energy	✓
5	Export Reactive Energy	✓
6	Total Reactive Energy	✓
7	Total Apparent Energy	✓
8	Tariff 1 Import Active Energy	✓
9	Tariff 1 Export Active Energy	✓
10	Tariff 1 Total Active Energy	✓
11	Tariff 1 Import Reactive Energy	✓
12	Tariff 1 Export Reactive Energy	✓
13	Tariff 1 Total Reactive Energy	✓
14	Tariff 1 Total Apparent Energy	✓
15	Tariff 2 Import Active Energy	✓
16	Tariff 2 Export Active Energy	✓
17	Tariff 2 Total Active Energy	✓
18	Tariff 2 Import Reactive Energy	✓
19	Tariff 2 Export Reactive Energy	✓
20	Tariff 2 Total Reactive Energy	✓
21	Tariff 2 Total Apparent Energy	✓
22	Partial Import Active Energy	✓
23	Partial Export Active Energy	✓
24	Partial Total Active Energy	✓
25	Partial Import Reactive Energy	✓
26	Partial Export Reactive Energy	✓
27	Partial Total Reactive Energy	✓
28	Partial Total Apparent Energy	✓
29	Max Import kVA Demand	✓
30	Max Current Demand	✓
31	Max Export kVA Demand	✓
32	Max Import kW Demand	✓
33	Max Export kW Demand	✓
34	Max Import kVAR Demand	✓
35	Max Export kVAR Demand	✓
36	Voltage	✓
37	Current	✓
38	Frequency	✓
39	Active Power	✓
40	Reactive Power	✓
41	Apparent Power	✓
42	Power Factor	✓
43	Number of Interruptions	✓

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