DRR-100-1P

SINGLE PHASE DIRECT CONNECTED AC ENERGY 100A METER

APPLICATIONS

- Internal Energy billing/ monitoring/auditing
- Sub-metering
- Genset, Test Benches & Laboratories

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

KEY FEATURES

- Direct Connection Meter
- Two Buttons (for easy navigation)
- Dual Tariff
- LCD & Backlit Display
- Impulse LED
- MID Approved
- Din rail mounted

OPTIONAL FEATURES

- Remote Communication
- Tariff Input
- Two Pulse Output

TE Connectivity's Crompton Instruments Single Phase Direct-Connected Energy Meter is designed for use in residential, commercial, and light industrial electrical energy metering applications.

Utilizing advanced microcontroller technology, the meter is ideal for measuring and monitoring electrical parameters in single-phase, two-wire networks. It supports direct connection with a maximum current measurement of up to 100 A. Tariff counters are selectable via digital input or MODBUS communication.

The meter provides bidirectional measurement of Active, Reactive, and Apparent Energy. In addition, it accurately measures key electrical parameters including Voltage, Current, Frequency, Active Power, Reactive Power, Apparent Power, and Power Factor in single-phase networks. These parameters are viewable both on the integrated display and remotely via MODBUS or MBUS.

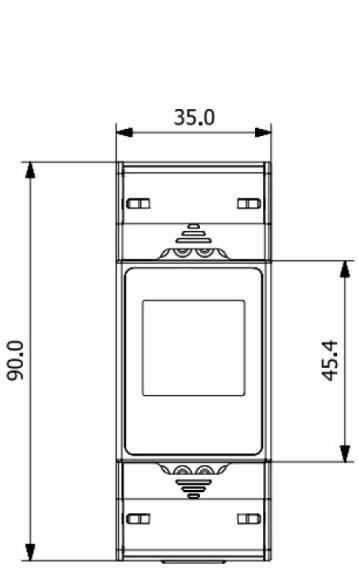
Demand parameters for Active Power (Import/Export), Reactive Power (Import/Export), Apparent Power, and Current are calculated based on a configurable demand integration time.

A bright, intuitive LCD display presents real-time data, complemented by pulse outputs and an impulse LED for energy monitoring. The meter includes built-in support for industry-standard MODBUS RTU communication for remote access. Housed in a standard DIN rail mount enclosure, it ensures easy and secure installation.

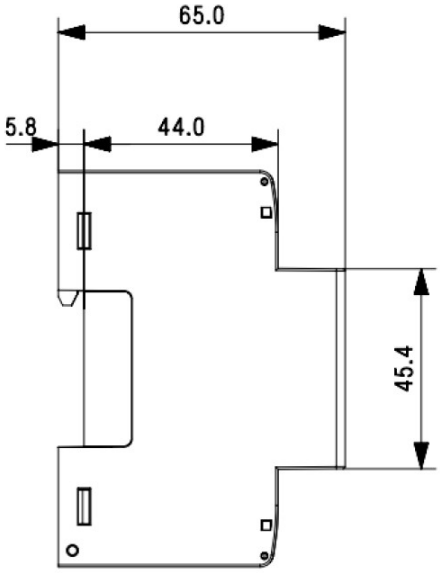
PART NUMBERS

Product selection	
Product	**Description**
DRR-100-1P-PLS-01	100A, Single Phase, Direct Connect, 1xDI, 2xSO
DRR-100-1P-MOD-01	100A, Single Phase, Direct Connect, 1xDI, 2xSO, 1xModbus
DRR-100-1P-MBUS-01	100A, Single Phase, Direct Connect, 1xDI, 2xSO, 1xMBus

DIMENSIONAL INFORMATION

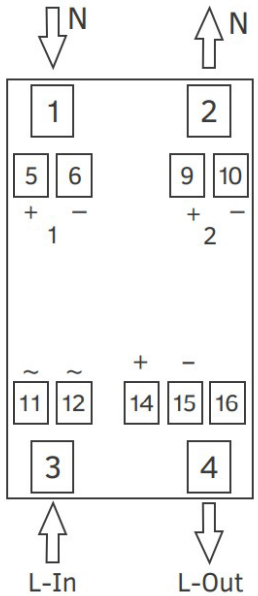


Front View



Side View

WIRING DIAGRAM



1 = Neutral IN
2 = Neutral Out
3 = L-In
4 = L-Out
5,6/9,10= Pulse Output 1 & Pulse Output 2 Terminal
11,12 = Tariff input Terminal
14,15,16 = RS485 Terminal (in Modbus model)
Mbus Terminal (in Mbus Model)

Wiring Guideines	
Current Input Wire Size	6-25 mm² (use with insulated pin type lug)
Current/Voltage Tightening Torque	2.5 - 3.0 Nm
RS485,MBUS,SO,Tariff Input Wire Size	1 to 2.5 mm² (Solid/Stranded with pin type lug)
RS485,MBUS,SO,Tariff Input Tightening Torque	0.4 Nm

Technical Specifications	
Input	
Reference Voltage (U_n)	230 VLN
Operating Voltage Range	184 - 276 VLN
Power consumption in Voltage Circuit	< 2 W (7 VA)
Starting Current (Ist = 0.04*I_{tr})	20 mA
Minimum Current (Imin = 0.5*I_{tr})	250 mA
Transitional Current (I_{tr})	0.5 A
Reference Current (I_{ref} = 10*I)	5 A
Maximum Current (I_{max} > 200*Itr)	100 A
Operating Current Range	0.25-5 A (100 A)
Short time Over-current	30*I_{max} for half-cycle at 50 Hz
Power consumption in Current Circuit	<1 VA per phase
Frequency	50Hz
Auxiliary Supply	
Type	Self Powered
Reference Conditions for Accuracy	
Reference Temperature	23°C ± 2°C
Input Voltage	Un ± 1%
Input Waveform	Sinusoidal (distortion factor <2%)
Input Frequency	50 Hz ± 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	± 1.0 %
Voltage	± 0.5% of of range max
Current	± 0.5% of Nominal value
Frequency	± 0.2% of Mid frequency
Active Power	± 1% of range max
Reactive Power	± 1% of range max
Apparent Power	± 1% of range max
Power Factor	±1% of unity
Pulse Outputs	
SO1 & SO2	Passive Opto-isolated
Contact Range	5-27V DC, 27 mA DC (max)
Pulse Duration	60, 100 and 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
Response Time	<200 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 kWh (& Autoranging further)
Reactive Energy	0.01-99999.99 kVARh & Autoranging further)
Apparent Energy	0.01-99999.99 kVAh & Autoranging further)
Active Power	0-99999 W
Reactive Power	0-99999 VAR
Apparent Power	0-99999 VA
Tariff Input :	
0 V	Low
230 V	High
Installation:	
Installation	Indoor
Enclosure	IP51 (front side) & IP20 (terminal side) (IEC 60529: 2001)
Housing	2 Module DIN 43880
Dimensions	35 mm X 90 mm X 65 mm
Weight	250 gm
Mounting	35 mm DIN Rail
Safety :	
Safety Standard	According to 62052-31:2015
Installation Category	III
Protective Class	II
Pollution Degree	2
AC Voltage Test	4 kV AC for 1 minute
Impulse Voltage Withstand	6.0 kV (1.2 mircosecond 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... 90% (Non Condensing)
Altitude	<2000 m max

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	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 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 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 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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