

# DRR-CT-3P



## THREE PHASE 1/5A CT CONNECTED ENERGY METER

### KEY FEATURES

- True RMS measurement
- In-built 1/5A CT
- Four Buttons (for easy navigation)
- 1 Digital Input
- 2 Pulse Outputs
- Dual Tariff
- Programmable CT ratios
- 3P4W, 3P3W, 1 Phase 2 wire system types
- Din rail mounted

### OPTIONAL FEATURES

- Remote Communication
- Tariff Input
- Pulse Outputs

### 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

TE Connectivity's Crompton Instruments Three 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, three phase 3 wire and 3 phase 4 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 9999 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.

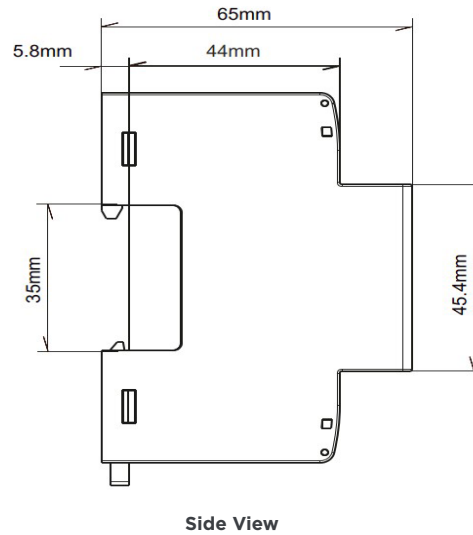
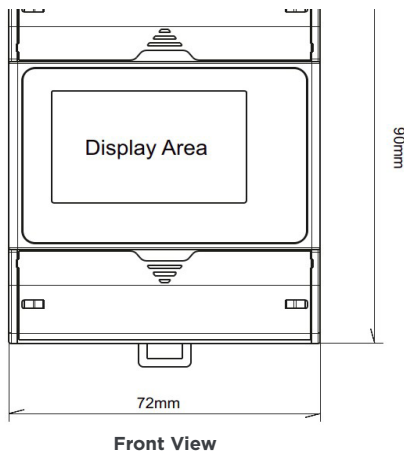
The meter supports bidirectional measurement of Active, Reactive, and Apparent Energy. It also accurately measures key electrical parameters such as Voltage, Current, Frequency, Active Power, Reactive Power, Apparent Power, and Power Factor in single-phase networks. All measured values are accessible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

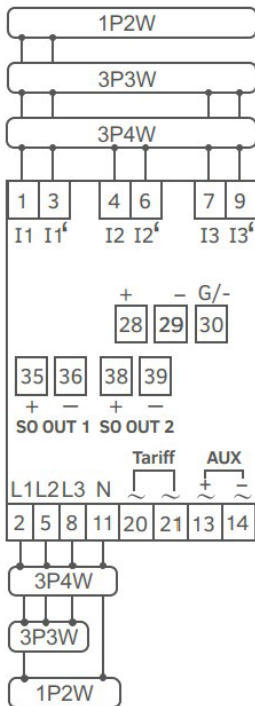
## PART NUMBERS

Product selection	
Product	Description
DRR-CT-3P-PLS-01	1A or 5A CT input, Aux Powered 100-550V AC/DC (230V Nominal), 1 x Digital Input, 2 x Pulsed Outputs
DRR-CT-3P-MOD-01	1A or 5A CT input, Aux Powered 100-550V AC/DC (230V Nominal), 1 x Digital Input, 2 x Pulsed Outputs, 1 x Modbus
DRR-CT-3P-MBUS-01	1A or 5A CT input, Aux Powered 100-550V AC/DC (230V Nominal), 1 x Digital Input, 2 x Pulsed Outputs, 1 x Mbus

## DIMENSIONAL INFORMATION



## WIRING DIAGRAMS



- 2,5,8 :L1,L2,L3
- 11 :Neutral
- 1 & 3 :L1 Current In & L1 Current Out
- 4 & 6 :L2 Current In & L2 Current Out
- 7 & 9 :L3 Current In & L3 Current Out
- 13 & 14 :Aux Terminal
- 35,36 & 38,39 :Pulse Output Terminal
- 20,21 :Tariff input Terminal
- 28,29,30 :RS485 Terminal (in Modbus Model)
- :Mbus Terminal (in Mbus Model)

Wiring Guideines	
Voltage / Current Solid with Pin type lugs (sq. mm)	1 to 2.5
Voltage / Current Stranded with pin types lugs (sq. mm)	1 to 2.5
Torque value (Nm)	0.4
1. Aux and Voltage terminals	0.4
2. Current Terminals	0.4
3. RS485, DI and Relay terminals	0.4
Length available for lug entry in terminal (mm)	9.5

It is recommended that the wires used for connections to the instrument should have insulated pin type lugs soldered at the end. That is, the connections should be made with Lugged wires for secure connections.

## Technical Specifications

Accuracy:	
Active Energy	Class B as per EN 50470-3 Class 1 as per IEC 62053 - 21
Apparent Energy	+/- 1%
Reactive Energy	+/- 2%
Active Power	±0.2% of nominal value
Re-Active Power	±1.0% of nominal value
Apparent Power	±0.2% of nominal value
Power Factor	±1%
Voltage	±0.2% of nominal value
Current	±0.2% of nominal value
Frequency	±0.1% of nominal value
THD (V/ I)	w.r.t fundamental ±5% (upto 31st Harmonics)
Safety:	
Safety Standard	According to 62052-31:2015
Installation Category	III
Protective Class	II
AC Voltage Test	4kV for 1 Minute
Impulse Voltage Withstand	6 kV (1.2 microsecond waveform)
Housing flame Resistance	Flammability Class V-0 acc to UL-94, Self Extinguishing, Non-Dripping, Free of Halogen
Environmental:	
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
Installation:	
Installation	Indoor
Enclosure	IP51 (Front side) and IP 20 (Terminal side) (IEC 60529 : 2001)
Housing	(4 Module DIN 43880)
Dimensions	72 mm X 90 mm X 65 mm
Weight	300 grams approx
Mounting	35 mm DIN Rail
Pulse Outputs :	
SO1 and SO2	Passive Opto-isolated
Contact Ranges	5-27V DC, 27 mA DC (max)
Pulse Duration	60, 100 and 200 millisecond
Pulse Rate	1 pulse per kWh/kVARh
Communication Interface (MODBUS) :	
Protocol	RS485 MODBUS
Baudrate	4.8 / 9.6 / 19.2 / 38.4 / 57.6 kbps
Data Width	8
Parity- Stop Bits	None -1 / None -2 / Even -1 / Odd -1
Response Time	<200 milliseconds @ 9.6 Kbps Baudrate (<1000ms @ 2.4 / 4.8Kbps 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		
<b>Input Voltage:</b>		
Nominal input voltage (Vn)	230 VLN (400VLL)	
System PT primary values	100VLL to 1200kVLL programmable on site.	
Measuring Range	57.7VLN to 289 VLN (100VLL to 500 VLL)	
Overload Withstand	2 x rated value for 1 second, repeated 10 times at 10 second intervals	
Nominal Frequency	50Hz	
Nominal input voltage burden	< 0.3VA approx. per phase(at nominal 230V)	
<b>Input Current:</b>		
Current Measurement Parameters	1A	5A
Starting Current (Ist = 0.04*Itr)	2 mA	10 mA
Minimum Current (Imin = 0.2*Itr)	10 mA	50 mA
Transitional Current (Itr)	50 mA	250 mA
Nominal Current (In = 20*Itr)	1A	5A
Maximum Current for 1A ( $I_{max}=120*Itr$ ) for 5A ( $I_{max}=24*Itr$ )	6A	6A
Operating Current Range	10 mA - 1 A (6 A)	50 mA - 5 A (6 A)
Short time Over-current	$20*I_{max}$ for 0.5 Second	
Power consumption in Current Circuit	<1VA per phase	
System CT Primary Values	From 1A to 9999A	
Nominal Input Current Burden	< 0.05VA approx. per phase	
<b>Auxiliary Supply:</b>		
Voltage Range	100-550V AC/DC (230V AC/DC nominal)	
Frequency Range	50Hz	
Auxiliary Supply burden	< 6VA approx. (at nominal value)	
<b>Reference Conditions for Accuracy:</b>		
Reference temperature	23°C +/- 2°C	
Influence of temperature	0.01% / °C for Voltage 0.025% / °C for Current	
Input Waveform	Sinusoidal (distortion factor 0.005)	
Input frequency	50 Hz ± 2%	
Auxiliary supply frequency	50 Hz ± 1%	
Total Harmonic Distortion	THDv <= 50% upto 31st at Vn THDi <= 60% upto 31st at In	
<b>Display</b>		
Impulse LED	Impulse Rate 6400 pulse per kWh	
Display Range (Active Energy)	0.01-9999999.99 kWh.	
Display Range (Reactive Energy)	0.01-9999999.99 kVARh	
Display Range (Apparent Energy)	0.01-9999999.99 kVAh	
<b>Tariff Input</b>		
Status Change	0V Low / 230V High	

Technical Specifications				
Sr No.	Parameters	3 Phase 4 Wire	3 Phase 3 Wire	1 Phase 2 Wire
1	System Import Active Energy	✓	✓	✓
2	System Export Active Energy	✓	✓	✓
3	System Total Active Energy	✓	✓	✓
4	System Import Reactive Energy	✓	✓	✓
5	System Export Reactive Energy	✓	✓	✓
6	System Total Reactive Energy	✓	✓	✓
7	System Apparent Energy	✓	✓	✓
8	Tariff 1 & 2 Import Active Energy	✓	✓	✓
9	Tariff 1 & 2 Export Active Energy	✓	✓	✓
10	Tariff 1 & 2 Total Active Energy	✓	✓	✓
11	Tariff 1 & 2 Import Reactive Energy	✓	✓	✓
12	Tariff 1 & 2 Export Reactive Energy	✓	✓	✓
13	Tariff 1 & 2 Total Reactive Energy	✓	✓	✓
14	L1, L2, L3 Import Active Energy	✓	X	X
15	L1, L2, L3 Export Active Energy	✓	X	X
16	L1, L2, L3 Total Active Energy	✓	X	X
17	L1, L2, L3 Import Reactive Energy	✓	X	X
18	L1, L2, L3 Export Reactive Energy	✓	X	X
19	L1, L2, L3 Total Reactive Energy	✓	X	X
20	L1, L2, L3 Apparent Energy	✓	X	X
21	Current Demand	✓	✓	✓
22	kVA Demand	✓	✓	✓
23	Import kW Demand	✓	✓	✓
24	Export kW Demand	✓	✓	✓
25	Import Var Demand	✓	✓	✓
26	Export Var Demand	✓	✓	✓
27	Max Current Demand	✓	✓	✓
28	Max kVA Demand	✓	✓	✓
29	Max Import kW Demand	✓	✓	✓
30	Max Export kW Demand	✓	✓	✓
31	Max Import Var Demand	✓	✓	✓
32	Max Export Var Demand	✓	✓	✓
33	System Voltage	✓	✓	✓
34	L1, L2, L3 Voltage	✓	X	X
35	L12, L23, L31 Voltage	✓	✓	X
36	System Current	✓	✓	✓
37	L1, L2, L3 Current	✓	✓	X
38	Neutral Current (Calculated)	✓	X	X
39	Frequency	✓	✓	✓
40	System Active Power (kW)	✓	✓	✓
41	L1, L2, L3 Active Power (kW)	✓	X	X
42	System Total Re-active Power (kVAR)	✓	✓	✓
43	L1, L2, L3 Total Re-active Power (kVAR)	✓	X	X
44	System Apparent Power (kVA)	✓	✓	✓
45	L1, L2, L3 Apparent Power (kVA)	✓	X	X
46	System Power Factor	✓	✓	✓
47	L1, L2, L3 Power Factor	✓	X	X
48	System Phase Angle	✓	✓	✓
49	L1, L2, L3 Phase Angle	✓	X	X

50	System Voltage THD	✓	✓	✓
51	L1, L2, L3 Voltage THD	✓	✓	X
52	System Current THD	✓	✓	✓
53	L1, L2, L3 Current THD	✓	✓	X
54	Run Hour	✓	✓	✓
55	On Hour	✓	✓	✓
56	Number of Interruptions	✓	✓	✓
57	Phase Sequence Indication	✓	✓	X
58	Current Reversal Indication	✓	X	✓
59	Phase (V-I) Absent Indication	✓	X	X

[crompton-instruments.com](https://crompton-instruments.com)

Learn more: [TE.com/energy](https://TE.com/energy)

© 2024 TE Connectivity. All Rights Reserved. EPP-4527-DDS-10/25-DRR-CT-3P

TE, TE Connectivity, TE connectivity (logo), EVERY CONNECTION COUNTS, are trademarks owned or licensed by TE Connectivity. Other logos, product and company names mentioned herein may be trademarks of their respective owners. While TE has made every reasonable effort to ensure the accuracy of the information in this brochure, TE does not guarantee that it is error-free, nor does TE make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. TE reserves the right to make any adjustments to the information contained herein at any time without notice. TE Connectivity's obligations shall only be as set forth in TE Connectivity's Standard Terms and Conditions of Sale for this product and in no case will TE Connectivity be liable for any incidental, indirect or consequential damages arising out of the sale, resale, use or misuse of the product. TE expressly disclaims all implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. The dimensions, specifications, and/or information contained herein are for reference purposes only and are subject to change without notice. Consult TE for the latest dimensions, specifications, and/or information. Users of TE Connectivity products should make their own evaluation to determine the suitability of each such product for the specific application.

Connect with us:

[TE.com/energy](https://TE.com/energy)