Automation for a Changing World

Delta Power Meter
DPM Series

www.deltaww.com

DELTA

Smarter. Greener. Together.

Product Introduction

Delta's Multifunction Power Meter DPM Series precisely measures various electrical energy and power quality parameters, including power factors, harmonics, and current/voltage unbalance, as well as provides off-limit alarms and history logs functions. The DPM Series offers a variety of communication protocols and monitoring functions that are especially suitable for sectors where power quality is critical.

Specifications

Model Name	DPM-C530	DPM-C530E	DPM-C520	DPM-C520W	DPM-C310
Product Appearance					
Accuracy Class					
Active Energy (IEC 62053-22)	Class 0.5S	Class 0.5S	Class 0.5S	Class 0.5S	Class 1
Measurement Accuracy					
Current	1 A / 5 A	1 A / 5 A	1 A / 5 A	1 A / 5 A	1 A / 5 A
Voltage	●	●	●	●	●
Frequency	●	●	●	●	●
Active, Reactive, and Apparent Power	●	●	●	●	●
Power Factor	●	●	●	●	●
Active, Reactive, and Apparent Energy	●	●	●	●	●
Demand Values					
Current	●	●			
Power	●	●			
Calculation Mode	Block	Sliding / Block			
Power Quality Measurement					
Current / Voltage Unbalance	●	●	●	●	●
Total Voltage Harmonic Distortion	●	●	●	●	●
Total Current Harmonic Distortion	●	●	●	●	●
Total Harmonic Distortion (THD)	●	●	●	●	●
Individual Current / Voltage Harmonics	Up to 31st	Up to 31st			
Advanced Functions					
Max. / Min. Instantaneous Values with Timestamp	●	●	●	●	●
Data Logs	17	17			
Data Logs Recording Duration	2 months	2 months			
Alarms History	500	500			
Parameter Grouping	35	35			
Auto-Recording	●	●			
Multi-Tariff (Interval Numbers)	8 groups	8 groups			
User Interface (UI)	4 languages	4 languages			
Alarms / Control					
Alarm Types	29	29	10	10	10
Digital Input / Digital Output					
Communication					
RS-485 Interface	●		●	●	●
Wireless Interface (802.11 b/g/n)				●	
Modbus	MODBUS RTU/ASCII	TCP	RTU	RTU/TCP	RTU
BACnet MS/TP	●				
Ethernet		2 Port			
Certifications					
Safety	CE/UL/RCM	CE/UL	CE/UL	CE/UL	CE/UL
Precision	CMA/IEC	CMA/IEC	CMA/IEC	CMA/IEC	CMA/IEC
WiFi				CE/FCC/JRF/KCC/ IC/NCC/NTC/IC	

* Min. / max. instantaneous : Phase voltage, line voltage, current, frequency, total 3 - phase active power, total 3 - phase reactive power, total 3 - phase apparent power, total power factor, total voltage harmonic distortion, total phase voltage harmonic distortion, total current harmonic distortion, phase voltage unbalance, 3 - phase voltage unbalance, 3 - phase current unbalance

* Alarm types: Over-current, under-current, over natural current, over line voltage, under line voltage, over phase voltage, under phase voltage, over voltage unbalance, over current unbalance, over active power, over reactive power, over apparent power, power factor (lead), power factor (lag), over current demand, over active power demand, over reactive power demand, over apparent power demand, over frequency, under frequency, over total voltage harmonic distortion, over total current harmonic distortion, phase lose, restore factory setting, phase sequence reversal, over DUI, over EU

Model Name	DPM-D520I	DPM-D530I	DPM-C501L	DPM-C502
Product Appearance				
Accuracy Class				
Active Energy (IEC 62053-22)	0.5%	Class 0.5S	0.5%	0.5%
Measurement Accuracy				
Current	63 A	100 A	1 A / 5 A	1 A / 5 A
Voltage	●	●	●	●
Frequency	●	●	●	●
Active, Reactive, and Apparent Power	●	●	●	●
Power Factor	●	●	●	●
Active, Reactive, and Apparent Energy	●	●	●	●
Demand Values				
Current	●	●		
Power	●	●		●
Calculation Mode	Block	Sliding / Block		Sliding
Power Quality Measurement				
Current / Voltage Unbalance	●	●	●	●
Total Voltage Harmonic Distortion	●	●	●	●
Total Current Harmonic Distortion	●	●	●	●
Total Harmonic Distortion (THD)	●	●	●	●
Individual Current / Voltage Harmonics	Up to 31st	Up to 31st		31st
Advanced Functions				
Max. / Min. Instantaneous Values with Timestamp	●	●	●	●
Data Logs	17	17		7
Data Logs Recording Duration	2 months	2 months		7 days
Alarms History	500	500		
Parameter Grouping	35	35		5
Auto-Recording	●	●		
Multi-Tariff (Interval Numbers)	8 groups	8 groups		4 groups
User Interface (UI)				
Alarms / Control				
Alarm Types	29	29	10	10
Digital Input / Digital Output		1DI/1DO	4DI/2DO	4DI/2DO
Communication				
RS-485 Interface	●	●	●	●
Wireless Interface (802.11 b/g/n)				
Modbus	RTU/ASCII	RTU/ASCII	RTU	RTU
BACnet MS/TP		●		
Ethernet				
Certifications				
Safety		CE/UL		
Precision	CMA	CMA/IEC	CMA	CMA
WiFi				

* Data log: Phase voltage, line voltage, current, natural current, power factor, displacement power factor, total active power, total reactive power, total apparent power, positive active energy, reversed active energy, positive reactive energy, reversed reactive energy, positive apparent energy, reversed apparent energy, total voltage harmonic distortion, total current harmonic distortion

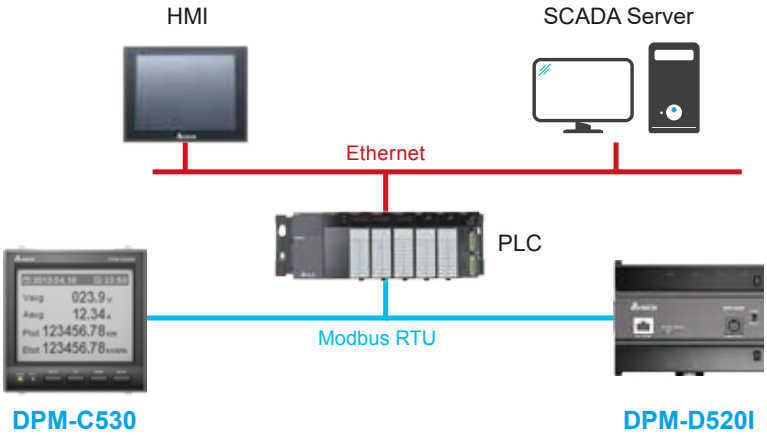
Features of All Models

▸ High Precision Power Measurement

- Precise measurement of bidirectional electrical energy and power parameters, meeting IEC62053 and CNS14607 standards
- Supports power quality measurement, including total and individual harmonic distortion, voltage and current unbalance, and more

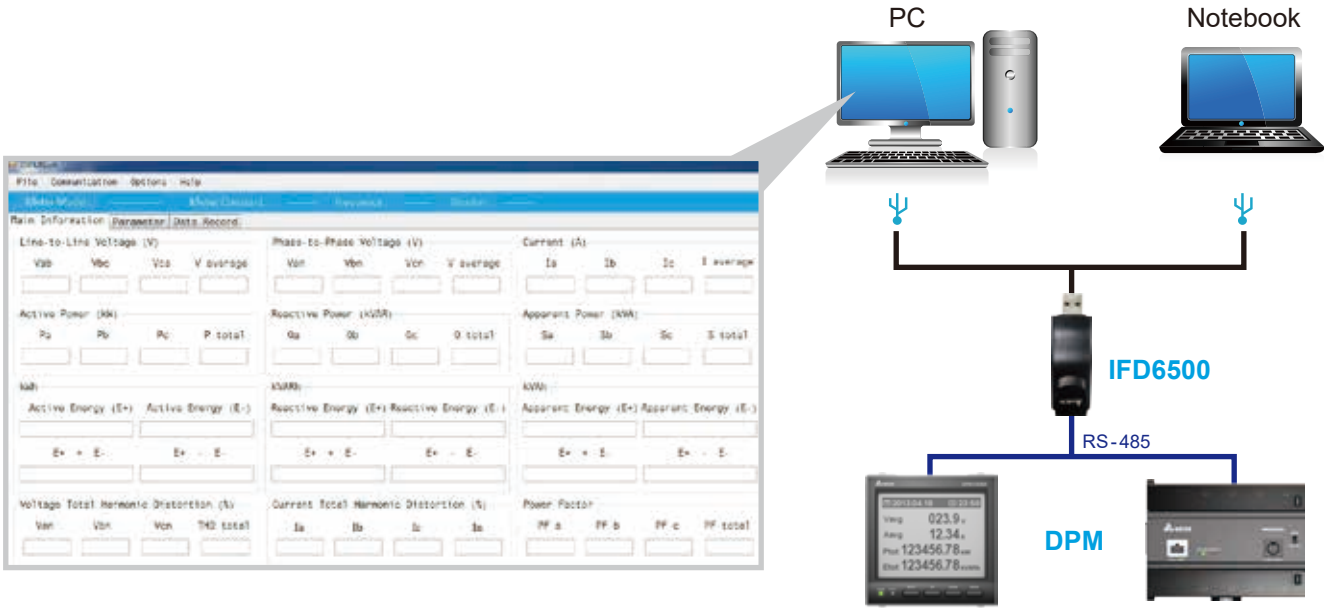
▸ Easy Operation and Installation

- Easy installation and disassembling with two fixing mounts, no screws or extra tools required
- Built-in RS-485 communication port supports Modbus for transmission of all measurement values to the PLCs, PCs and monitoring software



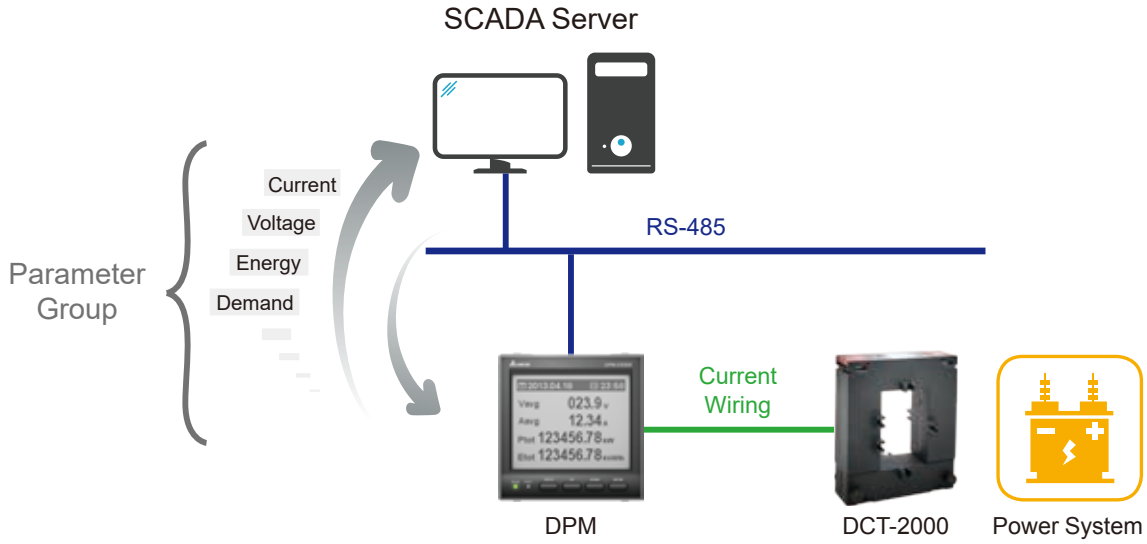
▸ PC-based Configuration Software

- The power meter configuration software DPMSoft collects electricity data and sets up meters via Modbus communication, achieving easy power management and analysis



▶ Parameter Grouping

- All electricity data can be combined as a parameter group that allows master controllers to access, enhancing real-time data accessibility and reducing editing time



Features of Specific Models

▶ Multi-Language Display

DPM-C530 / DPM-C530E

- Large dot matrix LCD (198 x 168 dots), high font recognition
- Multi-language display: English (capital and small letters), Chinese, Japanese and other languages

- DPM-C530: higher visibility with dot matrix LCD display than segment LCD display

Ptot 123456.78 kW
Etot 123456.78 kVARh

Features of Specific Models

▶ Event Alarms and History Logs

The DPM-C530 adopts data record and demand functions that make the model suitable for summation metering as well as overall circuit energy analysis. Users may select the DPM-C520 or the DPM-C501L for branch electric circuit metering.

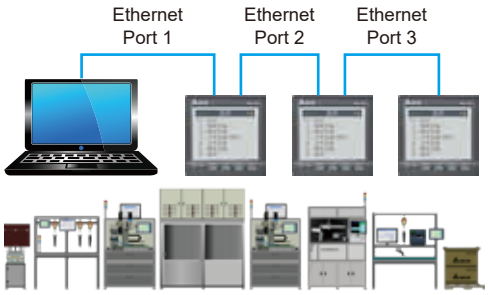
DPM-C530 / DPM-D520I / DPM-C530E / DPM-D530I

- Keeps max. 2 months of power and electricity energy measurement values for history analysis; up to 17 power parameters selectable for recording different time intervals (e.g. recording 17 electricity parameters every 5 minutes, for up to 2 months); 29 types of built-in event alarms for up to 500 event records
- Front LED indicators for real-time alarm:
  Reads alert message and event log functions via communication protocols

DPM-C520 / DPM-C520W / DPM-C501L / DPM-C502 / DPM-C310

- 10 types of built-in event alarms
- Front LED indicators for real-time alarm:
  reads alert messages and event log functions via communication protocols

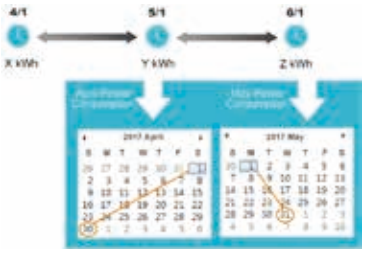
▶ Ethernet Communication



DPM-C530E

- Dual Ethernet protocols, supports Modbus TCP
- Easy connection with PCs to achieve serial applications without large amount of gateways
- Fast integration with general systems

▶ Auto-Recording



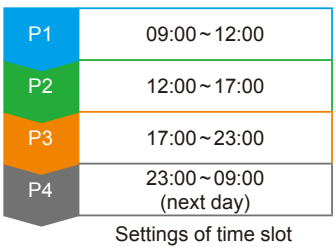
DPM-C530 / DPM-C530E / DPM-D520I / DPM-D530I

- Automatic calculation of monthly energy consumption
- Allows users to setup specific date for monthly calculation

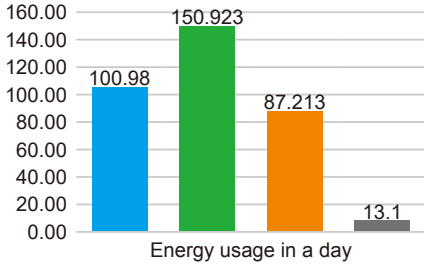
▶ Multi-Tariff

DPM-C530 / DPM-C530E / DPM-D520I / DPM-D530I / DPM-C502

- Automatic measurement & calculation of power consumption during a specific time period
- Multiple interval groups setting to measure power consumption in different periods of time



Settings of time slot

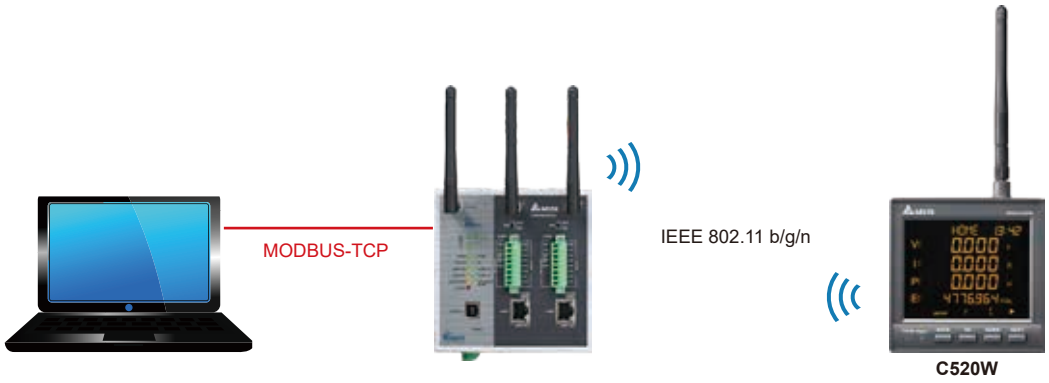


Energy usage in a day

► Wireless Data Transmission

DPM-C520W

- The Wireless Multifunction Power Meter DPM-C520W adopts bidirectional wireless transmission to remotely monitor real-time electric parameters and energy consumption. This feature helps to build up a complete energy management system that replaces manual and wiring meter reading
- The DPM-C520W features:
  1. Reduced wiring cost and time
  2. High-speed data exchange and data transmission capability (speed much faster than RS-485)
  3. More secure wireless data protection
- Applications: Elevators, high-technology factories, warehouses, areas containing plenty of physical barriers, hospitals, and public offices that require data security



► DI/DO Digital Input and Output Functions

DPM-C501L / DPM-C502

- The Basic DI/DO Relay Multifunction Power Meter DPM-C501L adopts digital input / output functions that connect with control equipment or management computers to remotely control and analyze energy quality. The DI/DO relay is also used as signals for displaying alerts
- Adopts built-in power source to input alert signals with dry contact for saving wiring cost. The optoelectronic isolation functions ensure cable safety
- For output, offers normally open (NO) relay and dry contact (2A / 30VDC or 2A / 250VAC), broadly applied in alert control output

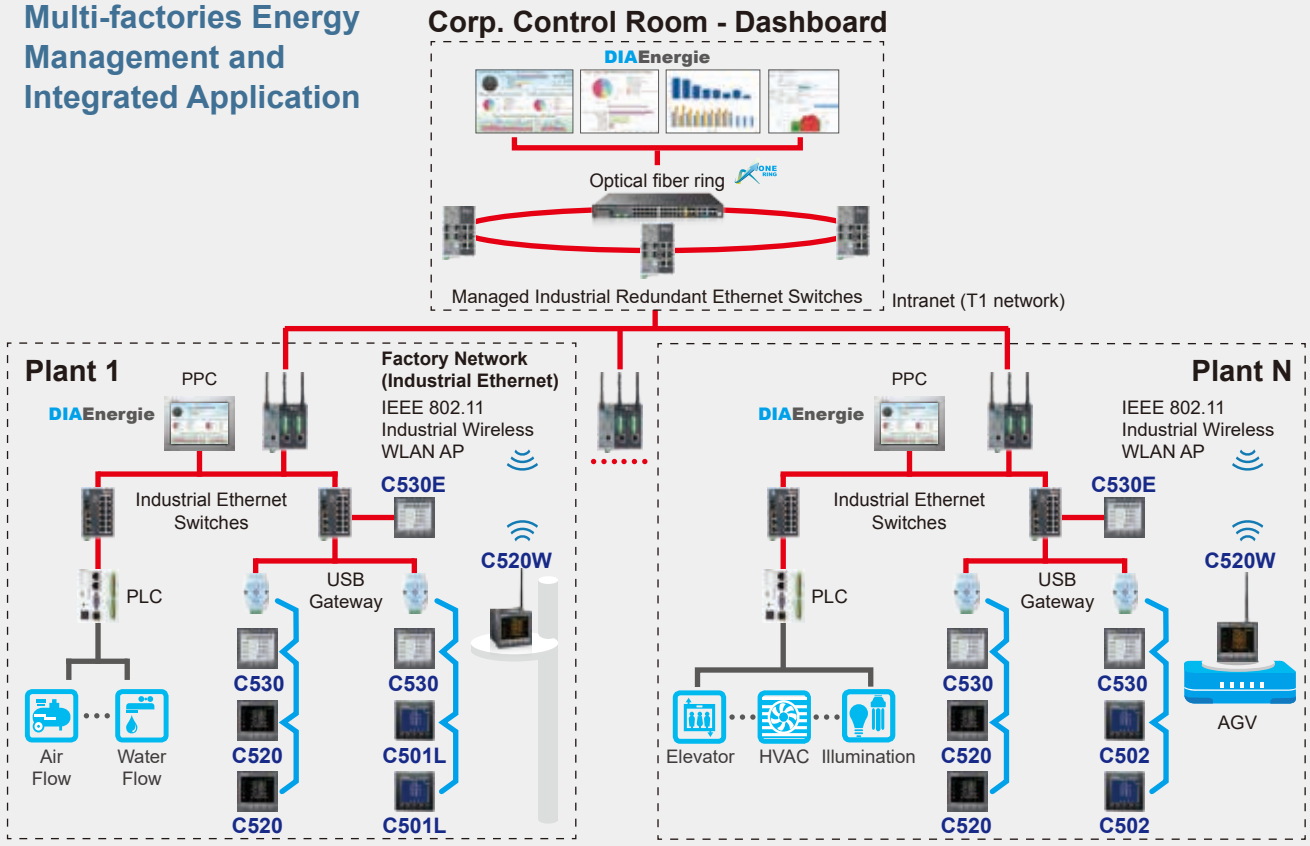

4DI Built-in power source with dry contact input. Optoelectronic isolation


2DO NO Relay and dry contact for alert function

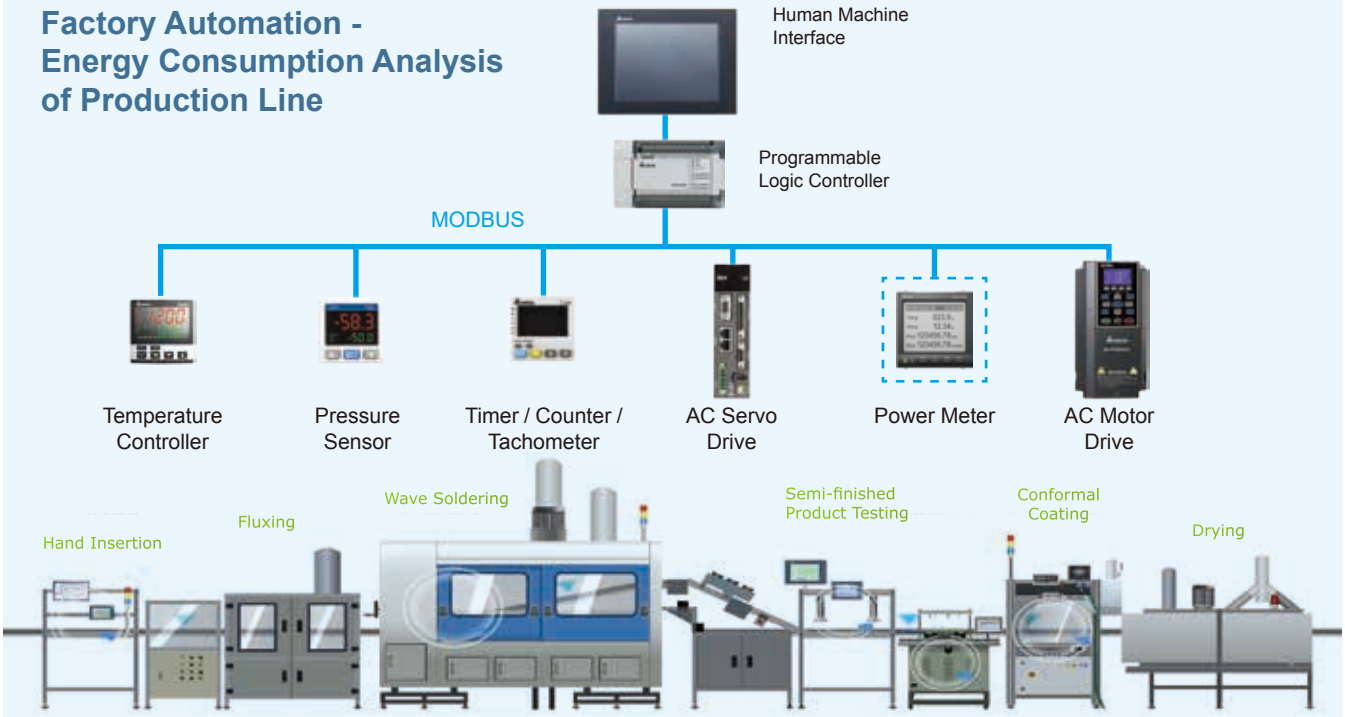
Applications

- The DPM-C530 / C520 / C501L are suitable for: energy management, medium or low voltage distribution system, smart switch cabinet, energy management system, factory automation system, building automation system, railway energy management system, electric heating system, wind power system, energy storage system, electric grid measurement, and energy quality analysis

Multi-factories Energy Management and Integrated Application

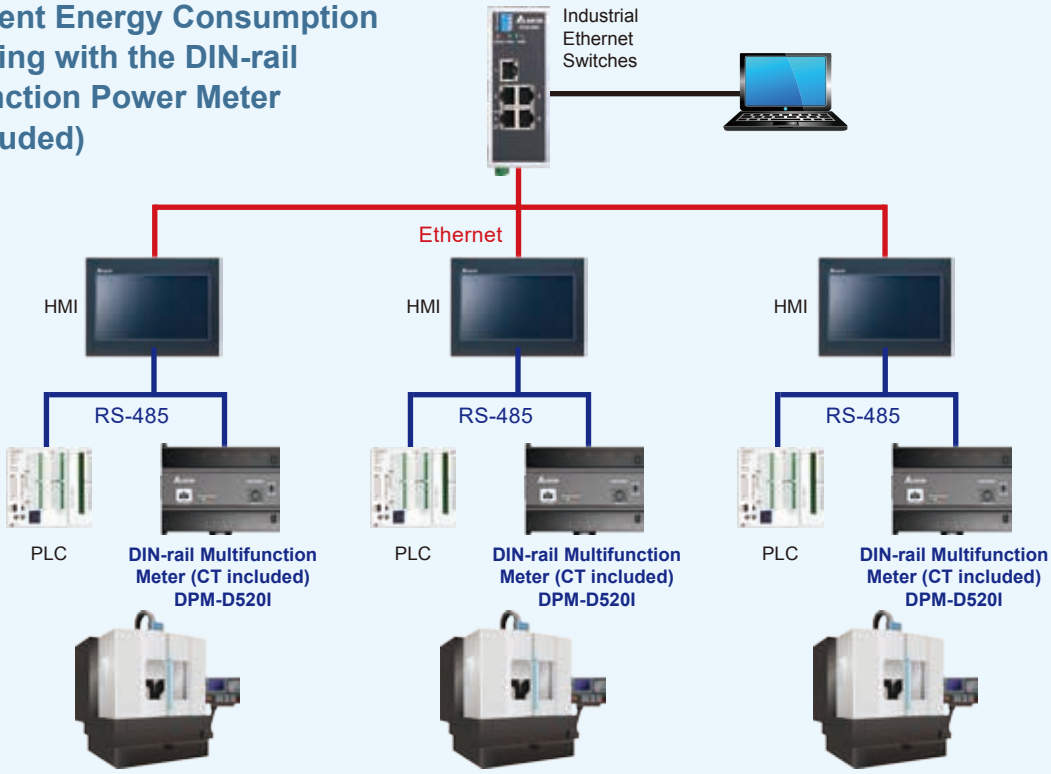


Factory Automation - Energy Consumption Analysis of Production Line

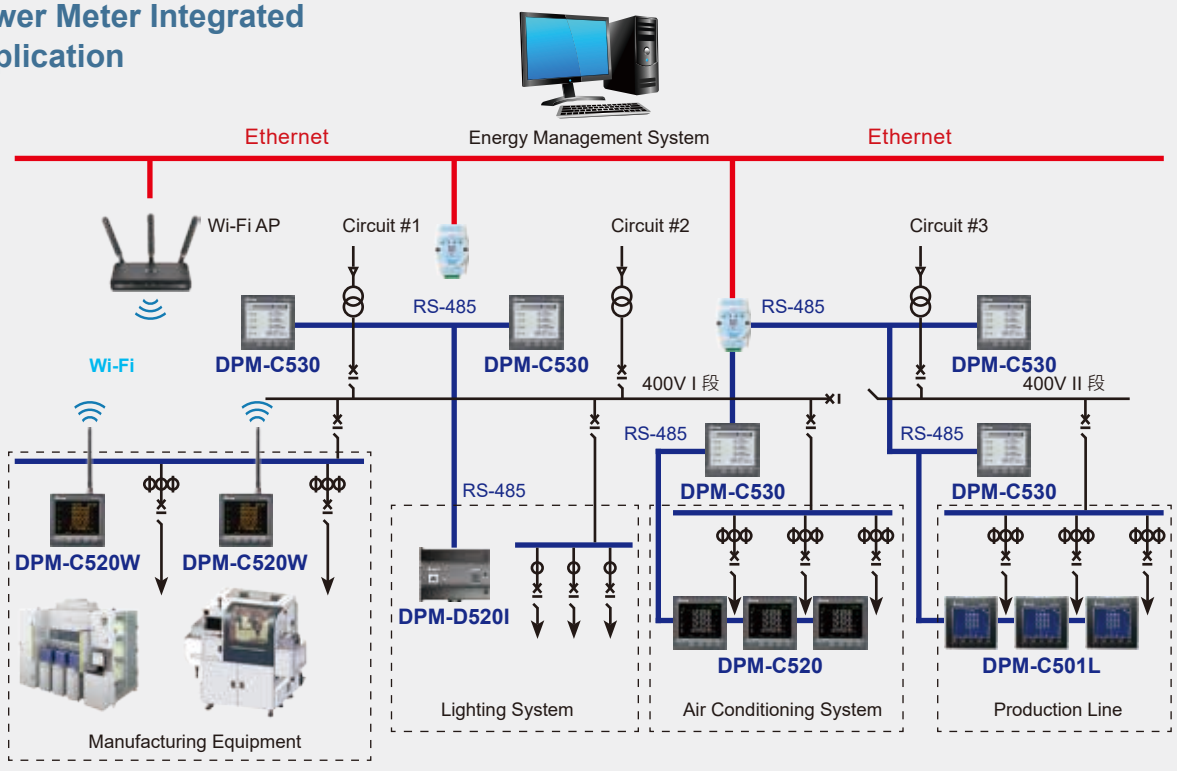


- The DPM-C520W is suitable for: elevators, warehouses, semiconductor plants, high-ceiling plants, hospitals, and equipment with mobility
- The DPM-D520I is suitable for: industrial machines, communication base station, IIoT equipment, and areas where CT is difficult to install with current lower than 63A

Equipment Energy Consumption Monitoring with the DIN-rail Multifunction Power Meter (CT included)



Power Meter Integrated Application



Technical Specifications

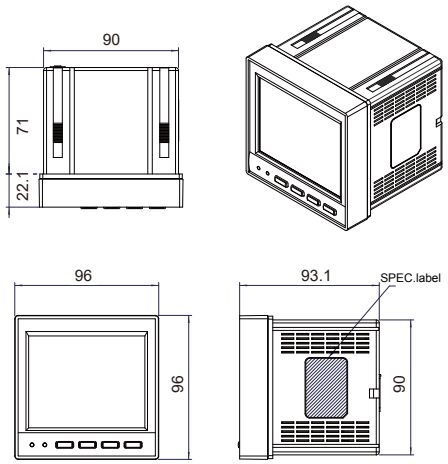
Model Name		DPM-C530	DPM-C530E	DPM-C520	DPM-C520W	DPM-C310
Electrical Characteristics						
Measurement Accuracy	Current	±0.5%				±1%
	Voltage	±0.5%				±1%
	Power	±0.5%				±1%
	Active Energy	IEC 62053-22 Class 0.5S				
	Reactive Energy	±0.5%				±1%
	Power Factor	±0.5%				±1%
	Frequency	±0.5%				±1%
Input	Wiring Method	1-phase 2-wire / 1-phase 3-wire / 3-phase 3-wire / 3-phase 4-wire				
	Voltage	Wire voltage : 35~690 V_{AC} (L-L) Phase voltage : 20~400 V_{AC} (L-N)				
	Current	1A/5A				
	Frequency Range	45~70 Hz				
	Power Supply	80~265 V_{AC} (Max. power consumption 4.6 W) 100~300 V_{DC}				
Communication						
Protocol (Interface)		Modbus RTU/ASCII (RS-485) BACnet MS/TP (RS-485)	Modbus TCP (Ethernet)	Modbus RTU (RS - 485)	Modbus RTU (RS-485) / Modbus TCP (WiFi, IEEE802.11 b/g/n)	Modbus RTU (RS - 485)
Mechanical Characteristics						
IP Protection	Front Display	IP54			IP52	IP54
	Meter Body	IP20				
Dimensions (W x H x D)		96x96x95.4 mm				72x72x101 mm
Environmental Conditions						
Operating Temperature		-20℃ ~ +70℃		-20℃ ~ +60℃		
Storage Temperature		-30℃ ~ +80℃		-30℃ ~ +70℃		
Relative Humidity		~95% RH				
Altitude		Below 2000 meters				
Electromagnetic Compatibility						
Electrostatic Discharge		IEC 61000-4-2				
Immunity to Radiated Fields		IEC 61000-4-3				
Immunity to Fast Transients		IEC 61000-4-4				
Immunity to Impulse Waves		IEC 61000-4-5				
Conducted Immunity		IEC 61000-4-6				
Immunity to Magnetic Fields		IEC 61000-4-8				
Immunity to Voltage Dips		IEC 61000-4-11				
Radiated Emissions		FCC part 15 EN 55011 Class A				
Conducted Emissions		FCC part 15 EN 55011 Class A				
Harmonics Emissions		IEC 61000-3-2				
Flicker Emissions		IEC 61000-3-3				
Safety						
Safety		UL/CE/RCM	UL/CE			
Precision		IEC61010/CMA				
WiFi					CE/FCC/JRF/KCC/IC /NCC/NTC/IC	

Model Name		DPM-D520I	DPM-D530I	DPM-C501L	DPM-C502
Electrical Characteristics					
Measurement Accuracy	Current	±0.5%			
	Voltage	±0.5%			
	Power	±0.5%			
	Active Energy	IEC 62053-22 Class 0.5S			
	Reactive Energy	±0.5%			
	Power Factor	±0.5%			
	Frequency	±0.5%			
Input	Wiring Method	3-phase 3-wire / 3-phase 4-wire		1-phase 2-wire / 1-phase 3-wire / 3-phase 3-wire / 3-phase 4-wire	
	Voltage	Wire voltage : 35~690 V_{AC} (L-L) Phase voltage : 20~400 V_{AC} (L-N)			
	Current	63A	100A	1A/5A	
	Frequency Range	45~70 Hz			
	Power Supply	80~265 V_{AC} (Max. power consumption 4.6 W) 100~300 V_{DC}			
Communication					
Protocol (Interface)		Modbus RTU / ASCII (RS - 485)		Modbus RTU (RS - 485)	
Mechanical Characteristics					
IP Protection	Front Display	-		IP52	
	Meter Body	IP20			
Dimensions (W x H x D)		126x90x67.4 mm	176x99.6x75.2 mm	96 x 96 x 95.4 mm	
Environmental Conditions					
Operating Temperature		-20℃ ~ +60℃		-20℃ ~ +50℃	
Storage Temperature		-30℃ ~ +70℃		-30℃ ~ +60℃	
Relative Humidity		~95% RH		~95% RH	
Altitude		Below 2000 meters		Below 2000 meters	
Electromagnetic Compatibility					
Electrostatic Discharge		IEC 61000-4-2			
Immunity to Radiated Fields		IEC 61000-4-3			
Immunity to Fast Transients		IEC 61000-4-4			
Immunity to Impulse Waves		IEC 61000-4-5			
Conducted Immunity		IEC 61000-4-6			
Immunity to Magnetic Fields		IEC 61000-4-8			
Immunity to Voltage Dips		IEC 61000-4-11			
Radiated Emissions		FCC part 15 EN 55011 Class A			
Conducted Emissions		FCC part 15 EN 55011 Class A			
Harmonics Emissions		IEC 61000-3-2			
Flicker Emissions		IEC 61000-3-3			
Safety					
Safety			CE/UL		
Precision		CMA	IEC61010/CMA	CMA	CMA
WiFi					

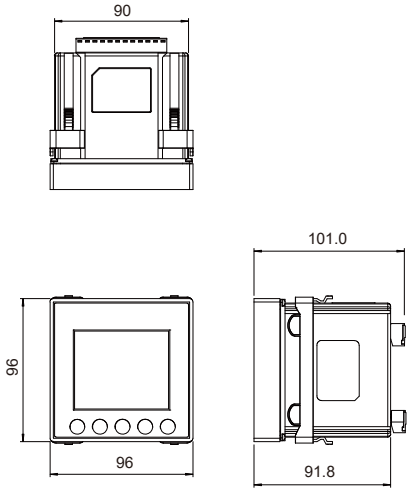
Dimensions (Units: mm)

Panel Type

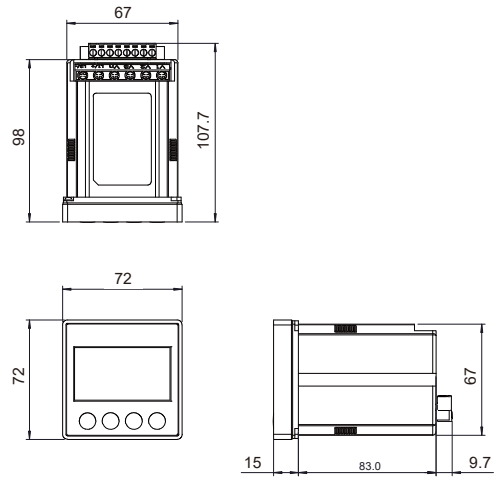
• DPM-C530/C530E/C520/C520W



• DPM-C501L/C502

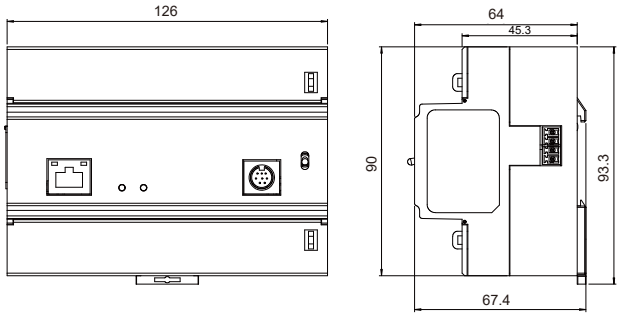


• DPM-C310

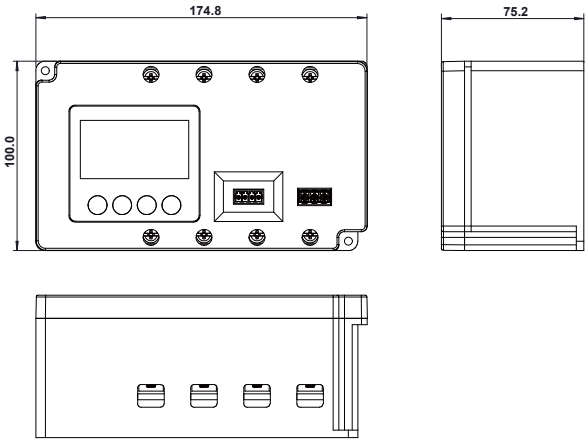


DIN Rail Mount Type

• DPM-D520I



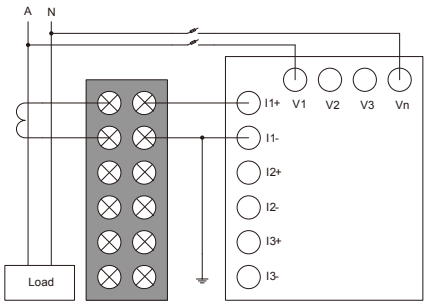
• DPM-D530I



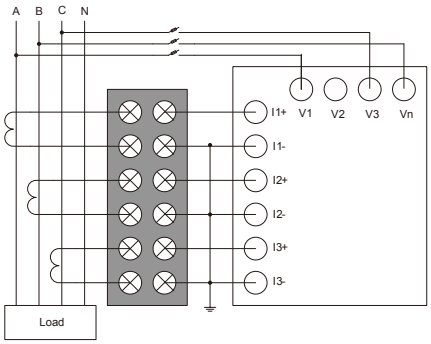
Wiring Diagrams

Panel Type (DPM-C530/C530E/C520/C520W/C310/C501L/C502)

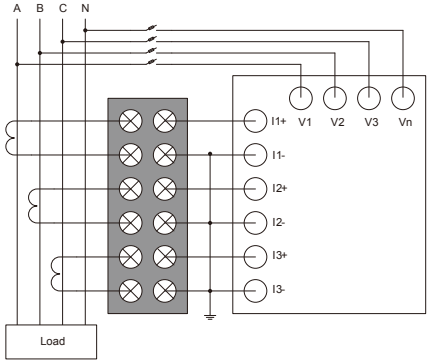
- **1-Phase 2-Wire (1CT)**



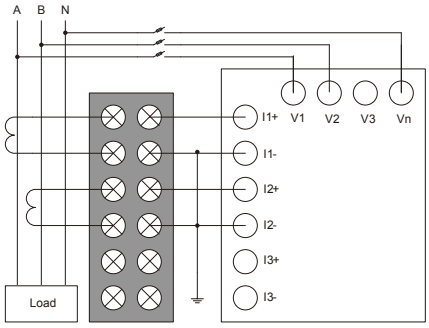
- **3-Phase 3-Wire, Δ-Connection (3CT, no PT)**



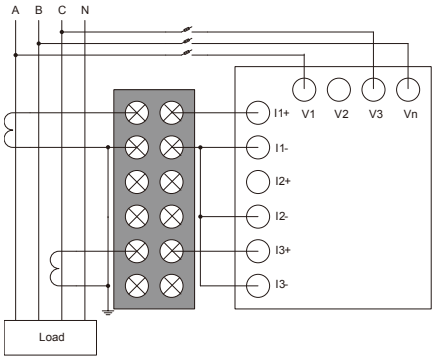
- **3-Phase 4-Wire, Y-Connection (3CT, no PT)**



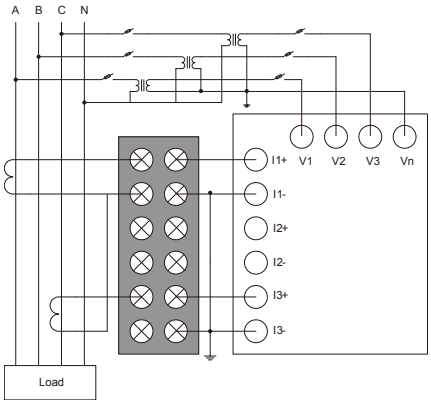
- **1-Phase 3-Wire (2CT)**



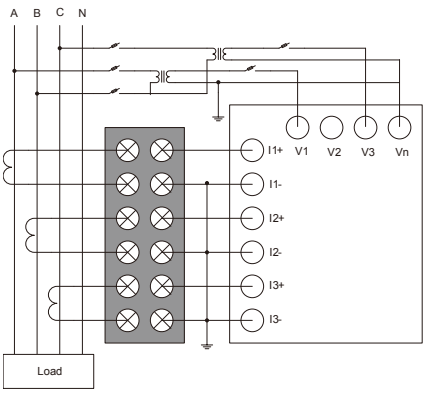
- **3-Phase 3-Wire, Δ-Connection (2CT, no PT)**



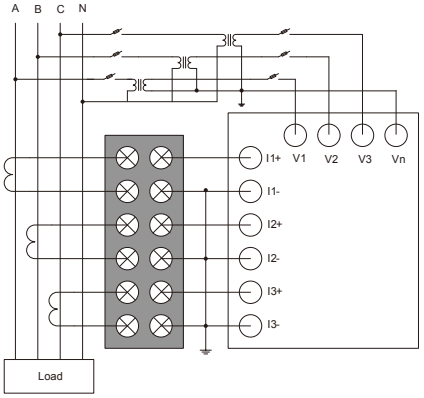
- **3-Phase 4-Wire, Y-Connection (2CT, 3 PT)**



- **3-Phase 3-Wire, Δ-Connection (3CT, 2PT)**



- **3-Phase 4-Wire , Y-Connection (3CT, 3 PT)**

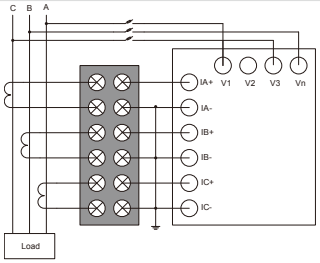


Wiring Diagrams

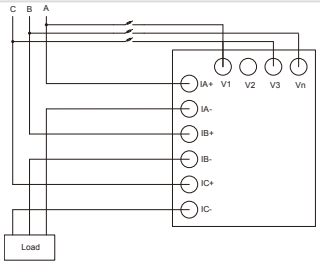
DIN Rail Mount Type

DPM-D520I

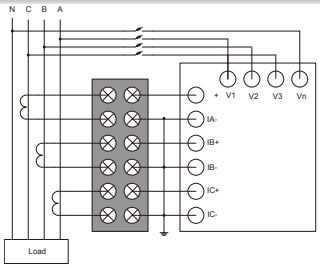
- 3-phase 3-wire, CT connection



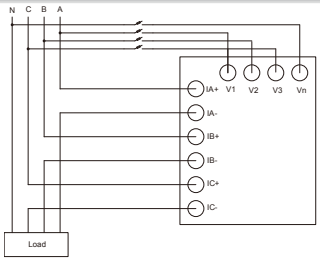
- 3-phase 3-wire, direct connection



- 3-phase 4-wire, CT connection

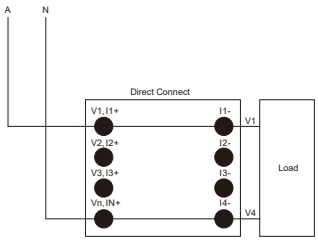


- 3-phase 4-wire, direct connection

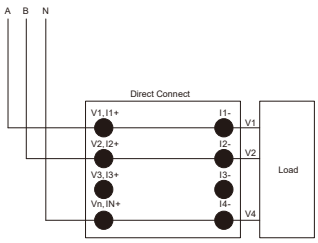


DPM-D530I

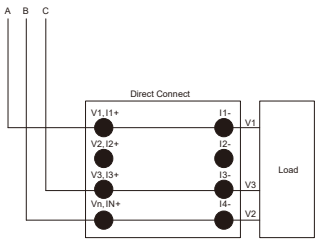
- 1-phase 2-wire, 1CT



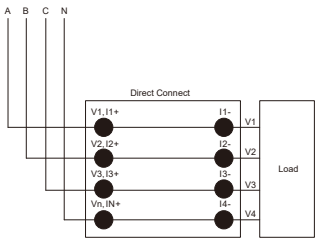
- 1-phase 3-wire, 2 CT



- 3-phase 3-wire, Δ connection

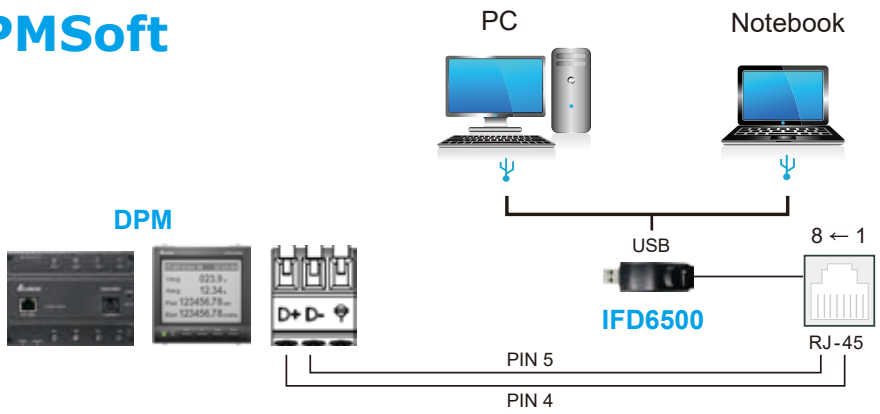


- 3-phase 4-wire, Y connection



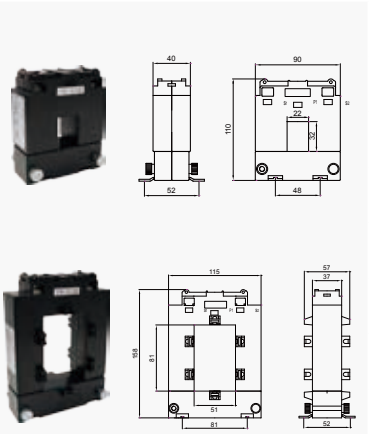
Connection to DPMSoft

PIN	Definition
4	D+
5	D-

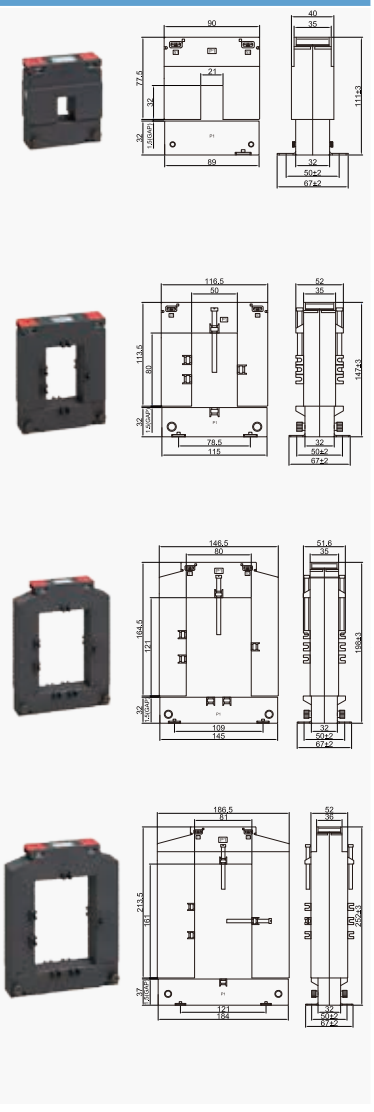


Optional Accessories

Model	Certification	Primary Current	Secondary Current	Max. Load	Measurement Accuracy	Dimensions (Unit: mm)
DCT - S201B	UL	100A	5A	1.0VA	1.0%	Outer: 90 x 40 x 110 Inner: 30 x 20
DCT - S211B	UL	200A	5A	1.0VA	0.5%	
DCT - S221B	UL	300A	5A	1.5VA	0.5%	
DCT - S231B	UL	400A	5A	1.5VA	0.5%	Outer: 115 x 37 x 159 Inner: 80 x 50
DCT - S241B	UL	500A	5A	2.5VA	0.5%	
DCT - S251B	UL	600A	5A	2.5VA	0.5%	
DCT - S261B	UL	750A	5A	2.5VA	0.5%	
DCT - S2C1B	UL	800A	5A	3.75VA	0.5%	
DCT - S271B	UL	1000A	5A	5VA	0.5%	



Model	Certification	Primary Current	Secondary Current	Max. Load	Measurement Accuracy	Dimensions (Unit: mm)
DCT - S301C	CE	100A	5A	1.5VA	1.0%	Outer: 89 x 40 x 115 Inner: 32 x 21
DCT - S211C	CE	200A	5A	1.0VA	0.5%	
DCT - S221C	CE	300A	5A	1.5VA	0.5%	
DCT - S231C	CE	400A	5A	2.5VA	0.5%	
DCT - S241C	CE	500A	5A	2.5VA	0.5%	Outer: 116 x 51 x 145 Inner: 80 x 50
DCT - S251C	CE	600A	5A	2.5VA	0.5%	
DCT - S261C	CE	750A	5A	2.5VA	0.5%	
DCT - S271C	CE	1000A	5A	5VA	0.5%	
DCT - S281C	CE	1500A	5A	7.5VA	0.5%	Outer: 146 x 51.6 x 196 Inner: 80 x 122
DCT - S291C	CE	2000A	5A	10VA	0.5%	Outer: 186 x 67 x 250 Inner: 81 x 160.5
DCT - S2A1C	CE	2500A	5A	15VA	0.5%	
DCT - S2B1C	CE	3000A	5A	20VA	0.5%	



Smarter. Greener. Together.

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