



Metering Solutions for EV Charging Piles



We Measure Electricity

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Since 2012

Eastron Electronic Co.,Ltd.

As a professional manufacturer with decades experience, Eastron designs and produces high quality and cost-effective electronic energy meters for apply in solutions of AMR/AMI both at residential and industrial application fields. With years of fast development, Eastron have grown to a leading manufacturer of energy meter especially the DIN rail meters. Eastron devoted to develop and design ideal electronic energy meters and solution applications for customers. We have energetic and innovative development teams in both China and UK, which help us keep the competitive edge in the market. The collaboration with leading universities and institutions also brings many cutting-edge technology into our products. To make sure the reliability of the products, Eastron has setup own professional lab that can performs EMC, LVD, accuracy and environment tests according to IEC, EN, GB, UL standards.

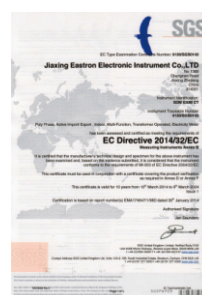
Our Mission

Our aim is to continue to develop and supply solutions that use the latest technology and offer benefits and features to the installers as well as the end client. 95% of our product range is fully MID certified and tested by a UK notified body, we also ensure that we comply with all the UK and EU regulatory standards. Our product facility is audited annually by the notified body and operates a comprehensive resource planning and manufacturing execution systems. Giving full traceability and quality control on all our products.



What is important to us is to insure we have created a reliable, enjoyable and friendly company to work for and to work with.

Our Certificates and Accreditations



AC EV Charger Metering

➤ SINGLE PHASE VERSION

The single-phase version bi-directional energy meter can handle direct current connection up to 45A or 100A, and higher using CT. The meter measures multi-parameters like voltage, current, frequency, power, power factor, etc. The energy was measured in terms of kWh/kVAh for total, imported and exported. The measurements and configurations are transmitted via the RS485 Modbus communications port.

SDM120M

- 0.25~5(45)A
- 230V AC
- 18mm width
- Pulse/Modbus
- MID certified

SDM18-M

- 0.5~10(100)A
- 230V AC
- 18mm width
- Pulse/Modbus
- MID certified

SDM230M-DI

- 0.5~10(65/100)A
- 100~240V AC
- 36mm width
- Digital Input/Modbus
- MID/ETL certified

SDM230-Modbus

- 0.5~10(100)A
- 230V AC
- 36mm width
- Pulse/Modbus
- MID/ETL certified



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➤ THREE PHASE VERSION

The three-phase models can handle direct current connection up to 100A, and higher using CT. The meter measures multi-parameters like current, voltage, power, power factor, frequency, etc. The energy was measured in terms of kWh/kVAh for total, imported and exported. The meter can operate with 3p3w or 3p4w supply systems(depends by model). The measurements and configurations are transmitted via the RS485 Modbus communications port.

SDM54-M

- 0.5~10(100)A
- 3X230/400V AC
- 54mm width
- Pulse/Modbus
- 3P3W/ 3P4W
- MID certified

SDM72D-M-2

- 0.5~10(100)A
- 3X230/400V AC
- 72mm width
- Pulse/Modbus
- 3P4W
- MID certified

SDM630M-DI

- 0.5~10(100)A
- 100-277V 3~ L-N, 100-480V 3~ L-L
- 72mm width
- Digital Input/Modbus
- 3P3W/3P4W
- MID/ETL certified

SDM630Modbus

- 0.5~10(100)A
- 100-277V 3~ L-N, 100-480V 3~ L-L
- 72mm width
- Pulse/Modbus
- 3P3W/3P4W
- MID/ETL certified

SDM630MCT

- 0.05~5(6)A
- 100-277V 3~ L-N, 100-480V 3~ L-L
- 72mm width
- Pulse/Modbus
- 3P3W/3P4W
- MID/ETL certified



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MID is a Measuring Instruments Directive(2014/32/EU). Chargers with a MID conform meter are accepted in EU for consumption-based billing. The ETL Mark is proof of product compliance to North American safety standards. Authorities Having Jurisdiction(AHJs) and code officials across the US and Canada accept the ETL Listed Mark as proof of product compliance to published industry standards.

AC-Eichrecht Energy Meter

➤ THREE PHASE VERSION

The AC Eichrecht energy meter can handle direct current connection up to 100A. It measures and displays the characteristics of single phase two wires (1p2w), three phase three wires (3p3w) and three phase four wires (3p4w) supplies, including voltage, frequency, current, power, active and reactive energy, imported or exported. Energy is measured in terms of kWh, kVAh.

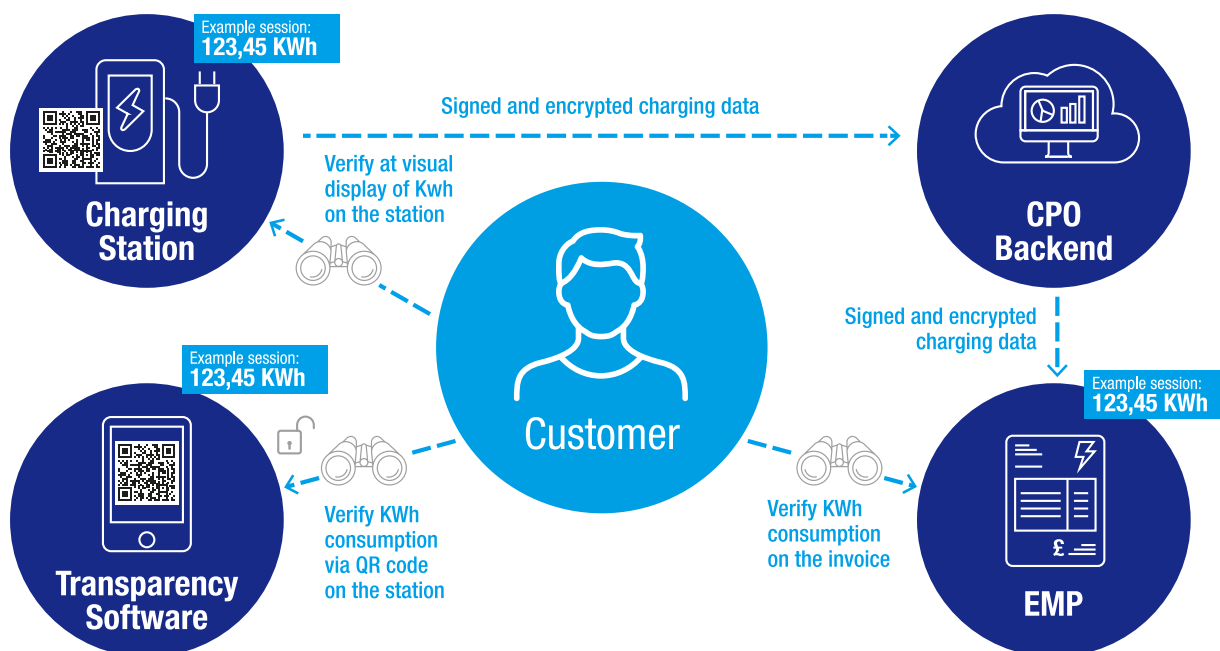
SDM630-EV

- 0.5~10(100)A
- 100-277V 3~ L-N, 100-480V 3~ L-L
- 72mm width
- 2 x RS485 (Modbus)
- 1P2W/3P3W/3P4W
- Eichrecht/MID certified



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Simplified Diagram for EV driver and how Eichrecht provides secured data transparency of the EV charging session



Eichrecht is a German calibration law that requires all components involved in the collection and processing of energy to operate in a trustworthy and transparent way. The aim of Eichrecht is to protect electricity consumers, including those who charge their EVs at stations across Germany.

DC-EV Charger Metering

➤ DC POWER ENERGY METERS

Eastron DC energy meters are designed for measuring and monitoring in DC systems. The din rail DC energy meters can measure of important DC parameters: Voltage, current, power and energy etc. It also support bi-directional measurement. All data in the meter are accessible via RS485 using Modbus RTU.

DCM230-1

- 85-300V AC Power supply
- 5-1000V DC
- 75mV shunt
- Pulse/Modbus

DCM230-2

- 9-40V DC Power supply
- 5-1000V DC
- 75mV shunt
- Pulse/Modbus



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➤ DOUBLE CHANNELS DC ENERGY METER

Eastron DCM232 is a dual channel DC energy meter designed for measuring and monitoring in DC systems. Especially the DC fast EV Chargers with two channels. The din rail DC energy meters can measure of important DC parameters: Voltage, current, power and energy etc. It also support bi-directional measurement. All data in the meter are accessible via RS485 using Modbus RTU.

DCM232-1

- 85-300V AC Power supply
- 5-1000V DC
- 75mV shunt
- Pulse/Modbus

DCM232-2

- 9-40V DC Power supply
- 5-1000V DC
- 75mV shunt
- Pulse/Modbus



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➤ AC Metering on DC EV Charger

Eastron SDM630MCT is a CT operated three phase four wire AC energy meter. It measures multi-parameters like current, voltage, power, power factor, frequency, etc. The energy was measured in terms of kWh/kVAh for total, imported and exported. The measurements and configurations are transmitted via the RS485 Modbus communications port. This type of AC meter is widely used on the incoming side of DC EV Charging Piles to measure the AC current.

SDM630MCT

- 5(6)A/ 100-277V 3~ L-N, 100-480V 3~ L-L
- 72mm width
- Pulse/Modbus
- 3P3W/3P4W
- MID/ETL certified



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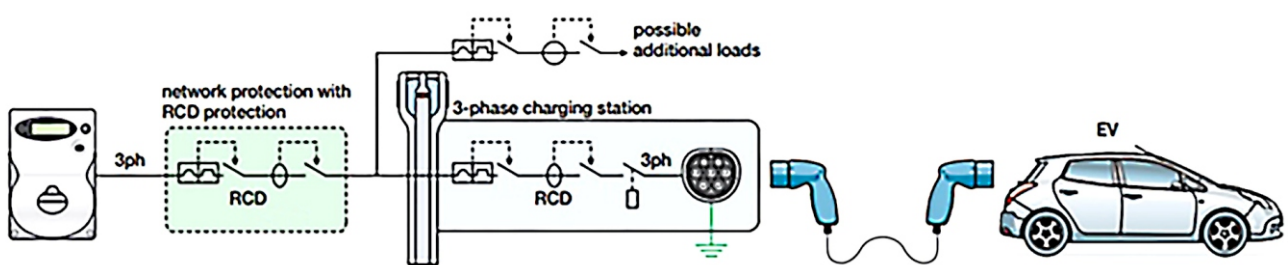
DC charging pile, also known as a “fast charging” pile, is a power supply device that can provide DC power for off-board electric vehicle power batteries. DC charging piles are more suitable for some public charging pile services, like commercial areas, service areas, parking lots, electric vehicle charging stations, etc. A DC energy meter helps users to determine accurately what portion of the total energy usage is derived from the EV chargers.

Leakage Current Sensor



Leakage current sensor, also known as a residual current device (RCD), is one of the most important electrical safety devices in EV charger solutions. To satisfy new standards including IEC 62955 and IEC 60364-7-722, the charging of electrical vehicles requires residual current sensors to avoid hazardous situations in cases where the vehicle battery (DC) is connected to the home power supply (AC). Generally, AC/DC sensitive residual current sensors can be used where direct current and alternating current circuits are directly connected and therefore AC/DC leakage currents can occur.

[More+](#)



High Reliability

Working temperature-40°C-105°C
Full humidity usage range
Automotive Grade≥100Vm Anti-interference ability



High Integration

Algorithm integration
Digital signal out put integrated by
multi-signal residual current waveform



High Precision

0.1m Aresidual current identification



Modularization

Integrately disassembled processing
circuit and transformer Universal interface



High Sensitivity

Fast response in 10ms

SDM120M – 7kW AC EV Charging Metering

- Single phase two wire load operation
- Direct Metering up to 45A, 1 din module compact size
- LCD display with 6 main digits
- True RMS metering provides accurate measurement
- Multi-parameters measurement (voltage, current, power, frequency, power factor, kWh, etc.)
- Bi-directional measurement (import and export kWh/kVArh)
- RS485 setting configurable by button on the nameplate
- Support 2 pulse outputs and RS485 Modbus RTU
- Accuracy Class 1 IEC62053-21/ Class B EN50470-3
- Available with MID certification



Specifications

Power Supply

- Power supplied from the voltage circuit
- Nominal measurement voltage $\pm 20\%$

RS485 Modbus RTU

- Port: RS485
- Protocol: Modbus RTU
- Baud rate: 1200, 2400, 4800, 9600bps
- Parity: None, Even, Odd
- Stop Bit: 1 or 2

Accuracy

- Active energy: Class B/ Class 1
- Reactive energy: Class 2 according to IEC/EN 62053-23
- Voltage/ Current: 0.5%
- Frequency: 0.2%
- Power: 1% of range maximum

Voltage & frequency

- Nominal values: 230V L-N $\pm 20\%$
- Frequency: 50/60Hz

S0 Pulse output

- Passive optoisolated
- Contact range: 5-27V DC
- Maximum current input: 27mA DC
- Pulse output 1: 1000/100/10/1 imp/kWh (configurable)
(The measuring unit changes according to the assigned counter(kWh/ kVArh)
- Pulse constant (2): 1000imp/kWh
- Pulse width (2) : 60mS

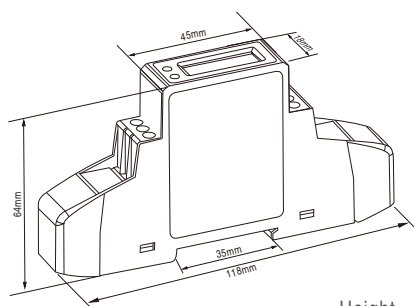
Current

- Starting current Ist: 20mA
- Minimum current Imin: 0.25A
- Reference current Iref(Ib): 5A
- Maximum current Imax: 45A

Environment conditions

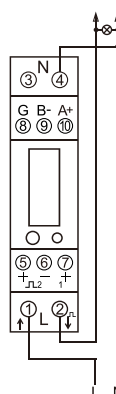
- Operating Temperature: $-25^{\circ}\text{C} \dots +55^{\circ}\text{C}$ (3K6) / $-40 \dots +70$ (3K7)
- Storage Temperature: $-40^{\circ}\text{C} \dots +70^{\circ}\text{C}$
- Humidity: $\leq 95\%$ non-condensing
- Protection degree: IP51 on front, IP 20 on terminals
- Altitude: 2000m

Dimension



Height 118mm
Width 18mm
Depth 64mm

Wiring



SDM18-M – 7kW/11kW AC EV Charging Metering

- Single phase two wire load operation
- Direct Metering up to 100A, 1 din module compact size
- LCD display with 6 digits
- True RMS metering provides accurate measurement
- Multi-parameters measurement (voltage, current, power, frequency, power factor, kWh, etc.)
- Bi-directional measurement (import and export kWh/kVArh)
- RS485 setting configurable by button on the nameplate or via Modbus
- Support RS485 Modbus RTU
- Accuracy Class 1 IEC62053-21/ Class B EN50470-3
- Available with MID certification



Specifications

Power Supply

- Power supplied from the voltage circuit
- Nominal measurement voltage $\pm 20\%$

RS485 Modbus RTU

- Port: RS485
- Protocol: Modbus RTU
- Baud rate: 1200, 2400, 4800, 9600bps
- Parity: None, Even, Odd
- Stop Bit: 1 or 2

Accuracy

- Active energy: Class B/ Class 1
- Reactive energy: Class 2 according to IEC/EN 62053-23
- Voltage/ Current: 0.5%
- Frequency: 0.2%
- Power: 1% of range maximum

Voltage & frequency

- Nominal values: 230V L-N $\pm 20\%$
- Frequency: 50/60Hz

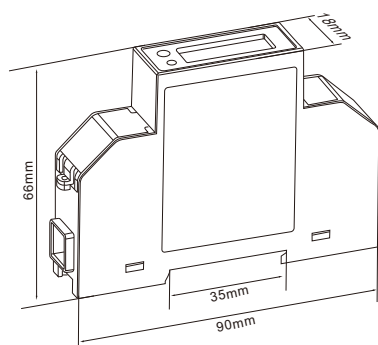
Current

- Starting current I_{st} : 40mA
- Minimum current I_{min} : 0.5A
- Reference current $I_{ref}(I_b)$: 10A
- Maximum current I_{max} : 100A

Environment conditions

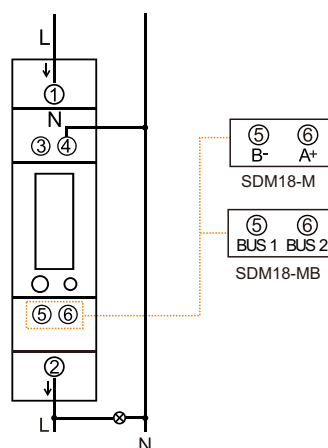
- Operating Temperature: $-25^{\circ}\text{C} \dots +55^{\circ}\text{C}$ (3K6) / $-40 \dots +70$ (3K7)
- Storage Temperature: $-40^{\circ}\text{C} \dots +70^{\circ}\text{C}$
- Humidity: $\leq 95\%$ non-condensing
- Protection degree: IP51 on front, IP 20 on terminals
- Altitude: 2000m

Dimension



Height 90mm
Width 18mm
Depth 66mm

Wiring



SDM230-Modbus – 7kW/11kW AC EV Charging Metering

- Single phase two wire load operation
- Direct Metering up to 100A, 2 din module compact size
- LCD display with 7 digits
- True RMS metering provides accurate measurement
- Multi-parameters measurement (voltage, current, power, frequency, power factor, kWh, etc.)
- Bi-directional measurement (import and export kWh/kVArh)
- RS485 setting configurable by button on the nameplate or via Modbus
- Support 2 pulse outputs and RS485 Modbus RTU
- Accuracy Class 1 IEC62053-21/ Class B EN50470-3
- Available with MID/ETL/SAA certification



Specifications

Power Supply

- Power supplied from the voltage circuit
- Nominal measurement voltage $\pm 20\%$

RS485 Modbus RTU

- Port: RS485
- Protocol: Modbus RTU
- Baud rate: 1200, 2400, 4800, 9600, 19200, 38400bps
- Parity: None, Even, Odd
- Stop Bit: 1 or 2

Accuracy

- Active energy: Class B/ Class 1
- Reactive energy: Class 2 according to IEC/EN 62053-23
- Voltage/ Current: 0.5%
- Frequency: 0.2%
- Power: 1% of range maximum

Voltage & frequency

- Nominal values: 230V L-N $\pm 20\%$
- Frequency: 50/60Hz

S0 Pulse output

- Passive optoisolated
- Contact range: 5-27V DC
- Maximum current input: 27mA DC
- Pulse output 1: 1000/100/10/1 imp/kWh(configurable)
(The measuring unit changes according to the assigned counter(kWh/ kVArh)
- Pulse output 2: 1000imp/kWh
- Pulse width 2 : 100mS

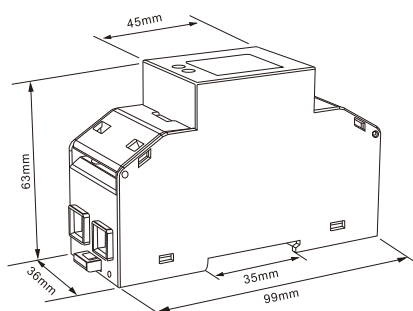
Environment conditions

- Operating Temperature: $-25^{\circ}\text{C} \dots + 55^{\circ}\text{C}$ (3K6)
- Storage Temperature: $-40^{\circ}\text{C} \dots + 70^{\circ}\text{C}$
- Humidity: $\leq 95\%$ non-condensing
- Protection degree: IP51 on front, IP 20 on terminals
- Altitude: 2000m

Current

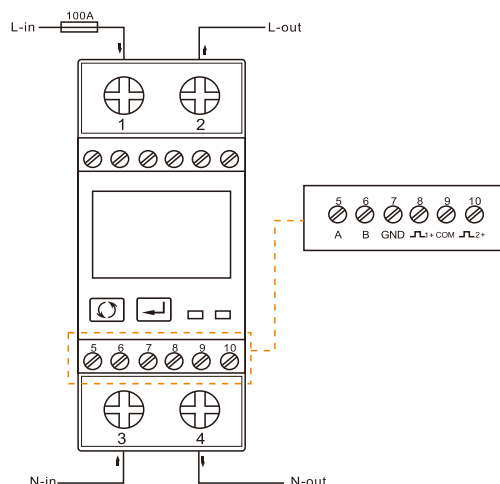
- Starting current Ist: 40mA
- Minimum current Imin: 0.5A
- Reference current Iref(Ib): 10A
- Maximum current Imax: 100A

Dimension



Height	99mm
Width	36mm
Depth	63mm

Wiring



SDM230M-DI – 7kW/11kW AC EV Charging Metering

- Single phase two wire load operation
- Direct Metering up to 100A, 2 din module compact size
- LCD display with 7 main digits
- True RMS metering provides accurate measurement
- Multi-parameters measurement (voltage, current, power, frequency, power factor, kWh, etc.)
- Bi-directional measurement (import and export kWh/kVarh)
- RS485 setting configurable by button on the nameplate or via Modbus
- Support RS485 Modbus RTU
- Support 2x Digital Inputs
- Accuracy Class 1 IEC62053-21/ Class B EN50470-3
- Available with MID/ETL certification



Specifications

Power Supply

- Power supplied from the voltage circuit
- Nominal measurement voltage $\pm 20\%$

RS485 Modbus RTU

- Port: RS485
- Protocol: Modbus RTU
- Baud rate: 1200, 2400, 4800, 9600, 19200bps
- Parity: None, Even, Odd
- Stop Bit: 1 or 2

Accuracy

- Active energy: Class B/ Class 1
- Reactive energy: Class 2 according to IEC/EN 62053-23
- Voltage/ Current: 0.5%
- Frequency: 0.2%
- Power: 1% of range maximum

Voltage & frequency

- Nominal values: 100-240V L-N $\pm 20\%$
- Frequency: 50/60Hz

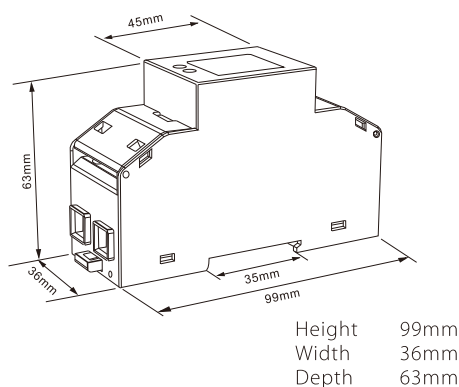
Current

- Starting current I_{st} : 40mA
- Minimum current I_{min} : 0.5A
- Reference current $I_{ref}(I_b)$: 10A
- Maximum current I_{max} : 65/100A

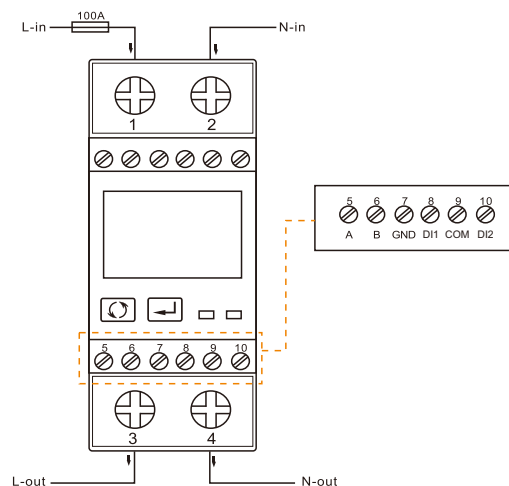
Environment conditions

- Operating Temperature: $-25^{\circ}\text{C} \dots +55^{\circ}\text{C}$ (3K6) / $-40^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (3K7)
- Storage Temperature: $-40^{\circ}\text{C} \dots +70^{\circ}\text{C}$
- Humidity: $\leq 95\%$ non-condensing
- Protection degree: IP51 on front, IP 20 on terminals
- Altitude: 2000m

Dimension



Wiring



SDM72D-M – 22kW AC EV Charging Metering

- 1P2W, 3P4W load operation
- Direct Metering up to 100A, 4 din module compact size
- LCD display with 7 digits
- True RMS metering provides accurate measurement
- Multi-parameters measurement (voltage, current, power, frequency, power factor, kWh, etc.)
- Bi-directional measurement (import and export kWh/kVArh)
- RS485 setting configurable by button on the nameplate or via Modbus
- Support Pulse output and RS485 Modbus RTU
- Accuracy Class 1 IEC62053-21/ Class B EN50470-3
- Available with MID certification



Specifications

Power Supply

- Power supplied from the voltage circuit
- Nominal measurement voltage $\pm 20\%$

RS485 Modbus RTU

- Port: RS485
- Protocol: Modbus RTU
- Baud rate: 1200, 2400, 4800, 9600, 19200, 38400bps
- Parity: None, Even, Odd
- Stop Bit: 1 or 2

Accuracy

- Active energy: Class B/ Class 1
- Reactive energy: Class 2 according to IEC/EN 62053-23
- Voltage/ Current: 0.5%
- Frequency: 0.2%
- Power: 1% of range maximum

Voltage & frequency

- Nominal values: $3 \times 230/400V \pm 20\%$
- Frequency: 50/60Hz

S0 Pulse output

- Passive optoisolated
- Contact range: 5-27V DC
- Maximum current input: 27mA DC
- Pulse output 1: 1000/100/10/1 imp/kWh (configurable)
(The measuring unit changes according to the assigned counter(kWh/ kVArh))

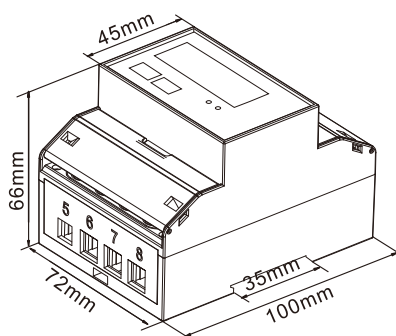
Current

- Starting current Ist: 40mA
- Minimum current Imin: 0.5A
- Reference current Iref(Ib): 10A
- Maximum current Imax: 100A

Environment conditions

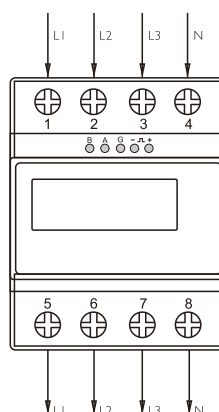
- Operating Temperature: $-25^{\circ}\text{C} \dots +55^{\circ}\text{C}$ (3K6) / $-40^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (3K7)
- Storage Temperature: $-40^{\circ}\text{C} \dots +70^{\circ}\text{C}$
- Humidity: $\leq 95\%$ non-condensing
- Protection degree: IP51 on front, IP 20 on terminals
- Altitude: 2000m

Dimension



Height 100mm
Width 72mm
Depth 66mm

Wiring



Terminals 1 & 2 & 3: L-in
Terminal 4: N-in

Terminal 5 & 6 & 7: L-out
Terminal 8: N-out

SDM54-M – 22kW AC EV Charging Metering

- 3P3W, 3P4W load operation
- Direct Metering up to 100A, 3 din module compact size
- LCD display with 9 digits
- True RMS metering provides accurate measurement
- Multi-parameters measurement (voltage, current, power, frequency, power factor, kWh, etc.)
- Bi-directional measurement (import and export kWh/kVarh)
- RS485 setting configurable by button on the nameplate or via Modbus
- Support 2 Pulse outputs and RS485 Modbus RTU
- Accuracy Class 1 IEC62053-21/ Class B EN50470-3
- Available with MID certification



Specifications

Power Supply

- Power supplied from the voltage circuit
- Nominal measurement voltage $\pm 20\%$

RS485 Modbus RTU

- Port: RS485
- Protocol: Modbus RTU
- Baud rate: 2400, 4800, 9600, 19200, 38400bps
- Parity: None, Even, Odd
- Stop Bit: 1 or 2

Accuracy

- Active energy: Class B/ Class 1
- Reactive energy: Class 2 according to IEC/EN 62053-23
- Voltage/ Current: 0.5%
- Frequency: 0.2%
- Power: 1% of range maximum

Voltage & frequency

- Nominal values: 3x230/400V
- Operating voltage: 100 to 276V L-N, 173 to 480V L-L
- Frequency: 50/60Hz

S0 Pulse output

- Passive optoisolated
- Contact range: 5-27V DC
- Maximum current input: 27mA DC
- Pulse output 1: 1000/100/10/1 imp/kWh (configurable)
(The measuring unit changes according to the assigned counter(kWh/ kVarh))
- Pulse output 2: 400imp/kWh
- Pulse Width 2: 60mS

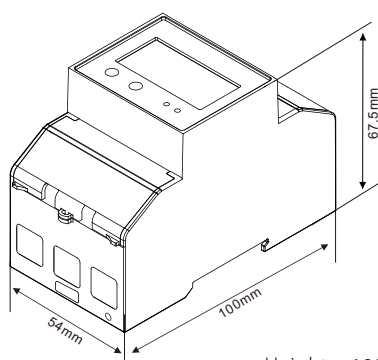
Environment conditions

- Operating Temperature: $-40^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (3K7)
- Storage Temperature: $-40^{\circ}\text{C} \dots +70^{\circ}\text{C}$
- Humidity: $\leq 95\%$ non-condensing
- Protection degree: IP51 on front, IP 20 on terminals
- Altitude: 2000m

Current

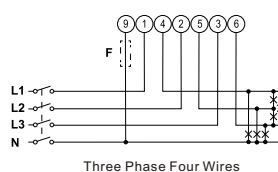
- Starting current Ist: 40mA
- Minimum current Imin: 0.5A
- Reference current Iref(Ib): 10A
- Maximum current Imax: 100A

Dimension

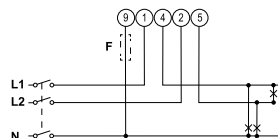


Height 100mm
Width 54mm
Depth 67.5mm

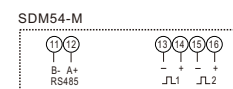
Wiring



Three Phase Four Wires



Single Phase Three Wires



Single Phase Two Wires

SDM630-Modbus – 22kW AC EV Charging Metering

- 3P3W, 3P4W load operation
- Direct Metering up to 100A, 4 din module compact size
- LCD display with 8 digits
- True RMS metering provides accurate measurement
- Multi-parameters measurement (voltage, current, power, frequency, power factor, kWh, etc.)
- Bi-directional measurement (import and export kWh/kVarh)
- RS485 setting configurable by button on the nameplate or via Modbus
- Support 2 Pulse outputs and RS485 Modbus RTU
- Accuracy Class 1 IEC62053-21/ Class B EN50470-3
- Available with MID/ETL certification



Specifications

Power Supply

- Power supplied from the voltage circuit
- Nominal measurement voltage $\pm 20\%$

RS485 Modbus RTU

- Port: RS485
- Protocol: Modbus RTU
- Baud rate: 2400, 4800, 9600, 19200, 38400bps
- Parity: None, Even, Odd
- Stop Bit: 1 or 2

Accuracy

- Active energy: Class B/ Class 1
- Reactive energy: Class 2 according to IEC/EN 62053-23
- Voltage/ Current: 0.5%
- Frequency: 0.2%
- Power: 1% of range maximum

Voltage & frequency

- Nominal values: 3x230/400V
- Operating voltage: 100 to 276V L-N, 173 to 480V L-L
- Frequency: 50/60Hz

Current

- Starting current I_{st} : 40mA
- Minimum current I_{min} : 0.5A
- Reference current $I_{ref}(I_b)$: 10A
- Maximum current I_{max} : 100A

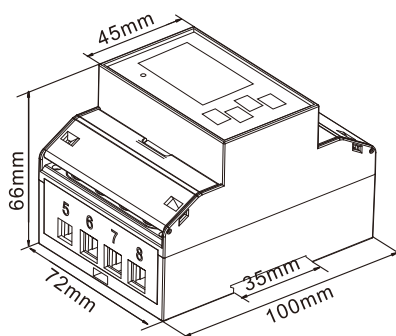
S0 Pulse output

- Passive optoisolated
- Contact range: 5-27V DC
- Maximum current input: 27mA DC
- Pulse output 1: 1000/100/10/1 imp/kWh (configurable)
(The measuring unit changes according to the assigned counter(kWh/ kVarh))
- Pulse output 2: 400imp/kWh
- Pulse Width 2: 100mS

Environment conditions

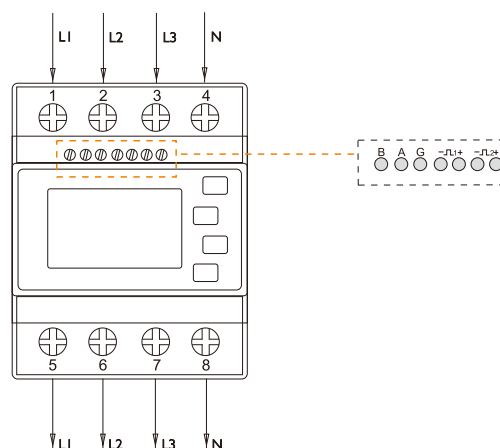
- Operating Temperature: $-25^{\circ}\text{C} \dots +55^{\circ}\text{C}$ (3K6) / $-40^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (3K7)
- Storage Temperature: $-40^{\circ}\text{C} \dots +70^{\circ}\text{C}$
- Humidity: $\leq 95\%$ non-condensing
- Protection degree: IP51 on front, IP 20 on terminals
- Altitude: 2000m

Dimension



Height 100mm
Width 72mm
Depth 66mm

Wiring



SDM630M-DI – 22kW AC EV Charging Metering

- 3P3W, 3P4W load operation
- Direct Metering up to 100A, 4 din module compact size
- LCD display with 8 digits
- True RMS metering provides accurate measurement
- Multi-parameters measurement (voltage, current, power, frequency, power factor, kWh, etc.)
- Bi-directional measurement (import and export kWh/kVarh)
- RS485 setting configurable by button on the nameplate or via Modbus
- Support RS485 Modbus RTU
- Support 2x Digital inputs
- Accuracy Class 1 IEC62053-21/ Class B EN50470-3
- Available with MID/ETL certification



Specifications

Power Supply

- Power supplied from the voltage circuit
- Nominal measurement voltage $\pm 20\%$

RS485 Modbus RTU

- Port: RS485
- Protocol: Modbus RTU
- Baud rate: 2400, 4800, 9600, 19200, 38400bps
- Parity: None, Even, Odd
- Stop Bit: 1 or 2

Accuracy

- Active energy: Class B/ Class 1
- Reactive energy: Class 2 according to IEC/EN 62053-23
- Voltage/ Current: 0.5%
- Frequency: 0.2%
- Power: 1% of range maximum

Voltage & frequency

- Nominal values: 3x230/400V
- Operating voltage: 100 to 276V L-N, 173 to 480V L-L
- Frequency: 50/60Hz

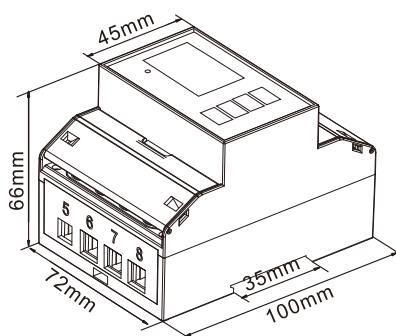
Current

- Starting current Ist: 40mA
- Minimum current Imin: 0.5A
- Reference current Iref(Ib): 10A
- Maximum current Imax: 100A

Environment conditions

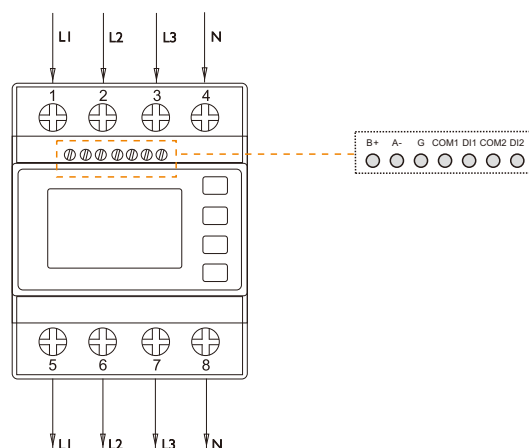
- Operating Temperature: $-25^{\circ}\text{C} \dots +55^{\circ}\text{C}$ (3K6) / $-40^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (3K7)
- Storage Temperature: $-40^{\circ}\text{C} \dots +70^{\circ}\text{C}$
- Humidity: $\leq 95\%$ non-condensing
- Protection degree: IP51 on front, IP 20 on terminals
- Altitude: 2000m

Dimension



Height 100mm
Width 72mm
Depth 66mm

Wiring



SDM630-EV – Eichrecht Approved Meter for AC EV Charger Piles

- 3P3W, 3P4W load operation
- Direct Metering up to 100A, 4 din module compact size
- LCD display with 9 digits True RMS metering provides accurate measurement
- Multi-parameters measurement (voltage, current, power, frequency, power factor, kWh, etc.)
- Bi-directional measurement (import and export kWh/kVarh)
- RS485 setting configurable by button on the nameplate or via Modbus
- Support 2 x RS485 ports for Modbus
- RTU Accuracy Class 1 IEC62053-21/ Class B EN50470-3
- Available with Eichrecht / MID certification



Specifications

Power Supply

- Power supplied from the voltage circuit
- Nominal measurement voltage $\pm 20\%$

RS485 Modbus RTU

- Port: 2x RS485
- Ports Protocol: Modbus RTU
- 1st Modbus output (Configurable):
Baud rate: 2400, 4800, 9600, 19200, 38400bps
Parity: None, Even, Odd
Stop bit: 1 or 2
- 2nd Modbus output (non-configurable):
Baud rate: 9600bps
Parity: none
Stop bit: 1

Accuracy

- Active energy: Class B/ Class 1
- Reactive energy: Class 2 according to IEC/EN 62053-23
- Voltage/ Current: 0.5%
- Frequency: 0.2%
- Power: 1% of range maximum

Voltage & frequency

- Nominal values: 3x230/400V
- Operating voltage: 100 to 276V L-N, 173 to 480V L-L
- Frequency: 50/60Hz

Current

- Starting current Ist: 40mA
- Minimum current Imin: 0.5A
- Reference current Iref(Ib): 10A
- Maximum current Imax: 100A

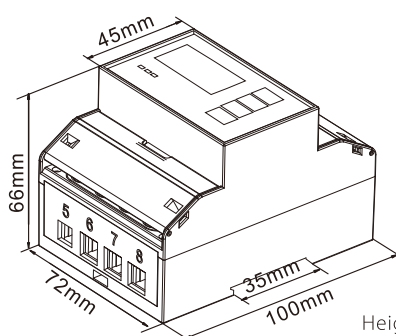
S0 Pulse output

- Passive optoisolated
- Contact range: 5-27V DC
- Maximum current input: 27mA DC
- Pulse output 1: 1000/100/10/1 imp/kWh (configurable)
(The measuring unit changes according to the assigned counter(kWh/ kVarh))

Environment conditions

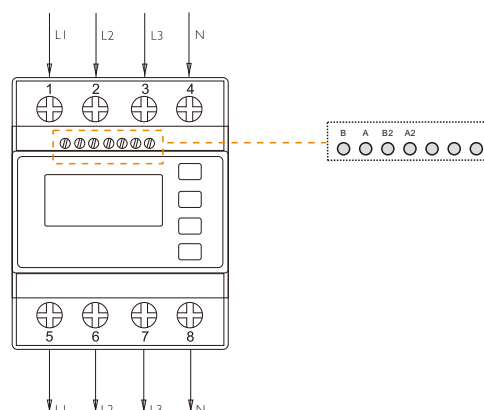
- Operating Temperature: $-25^{\circ}\text{C} \dots +55^{\circ}\text{C}$ (3K6) / $-40^{\circ}\text{C} \dots +70^{\circ}\text{C}$ (3K7)
- Storage Temperature: $-40^{\circ}\text{C} \dots +70^{\circ}\text{C}$
- Humidity: $\leq 95\%$ non-condensing
- Protection degree: IP51 on front, IP 20 on terminals
- Altitude: 2000m

Dimension



Height 100mm
Width 72mm
Depth 66mm

Wiring



DCM230- DC EV Charger Metering



- Measuring and monitoring DC power systems
- 75mV shunt, 4 din module compact size
- LCD display with 8 digits
- True RMS metering provides accurate measurement
- Multi-parameters measurement (voltage, current, power, kWh, etc.)
- Bi-directional measurement (import and export kWh)
- RS485 setting configurable by button on the nameplate or via Modbus
- Support Pulse output and RS485 Modbus RTU
- Shunt connection support both positive and negative types
- Accuracy Class 1

Specifications

Aux. Power Supply

- 85~300V AC (DCM230-1)
- 9~40V DC (DCM230-2)

RS485 Modbus RTU

- Port: RS485
- Protocol: Modbus RTU
- Baud rate: 1200, 2400, 4800, 9600, 19200bps
- Parity: None, Even, Odd
- Stop Bit: 1 or 2

Accuracy

- Active energy: Class B or C / Class 1 or 0.5S
- Reactive energy: Class 2 according to IEC/EN 62053-23
- Voltage/ Current: 0.5%
- Frequency: 0.2%
- Power: 1% of range maximum

Voltage & frequency

- Voltage input: 5-1000V DC
- Frequency: 50/60Hz

Shunt

- 45mV/ 60mV/ 75mV optional

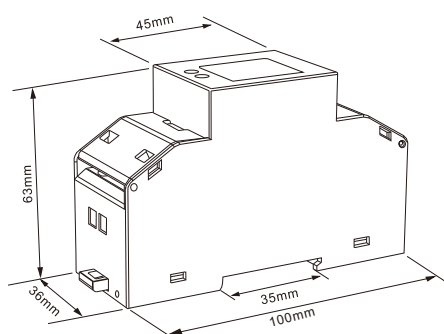
S0 Pulse output

- Passive optoisolated
- Contact range: 5-27V DC
- Maximum current input: 27mA DC
- Pulse output: 10000/1000/100/10/1imp/kWh (configurable)
- Pulse Width: 60, 100, 200mS (configurable)

Environment conditions

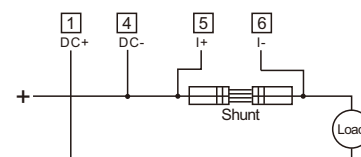
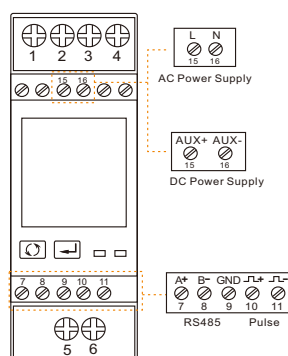
- Operating Temperature: -25°C... + 55°C
- Storage Temperature: -40°C...+70°C
- Humidity: ≤95% non-condensing
- Protection degree: IP51 on front, IP 20 on terminals
- Altitude: 2000m

Dimension

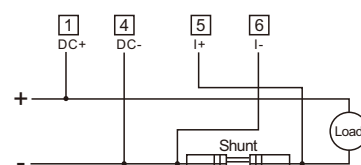


Height 100mm
Width 36mm
Depth 63mm

Wiring



Shunt Connection: Positive Type



Shunt Connection: Negative Type

DCM232- Dual Channels DC EV Charger Metering

- Measuring and monitoring DC power systems
- 75mV shunt, 2 din module compact size
- LCD display with 7 digits
- True RMS metering provides accurate measurement
- Multi-parameters measurement (voltage, current, power, kWh, etc.)
- Bi-directional measurement (import and export kWh)
- RS485 setting configurable by button on the nameplate or via Modbus
- Support Pulse output and RS485 Modbus RTU
- Support Multi-tariff function (RTC)
- Shunt connection support both positive and negative types
- Accuracy Class 1



Specifications

Aux. Power Supply

- 85~300V AC (DCM232-1)
- 9~40V DC (DCM232-2)

RS485 Modbus RTU

- Port: RS485
- Protocol: Modbus RTU
- Baud rate: 1200, 2400, 4800, 9600, 19200 bps
- Parity: None, Even, Odd
- Stop Bit: 1 or 2

Accuracy

- Active energy: Class B or C / Class 1 or 0.5S
- Reactive energy: Class 2 according to IEC/EN 62053-23
- Voltage/ Current: 0.5%
- Frequency: 0.2%
- Power: 1% of range maximum

Voltage & frequency

- Voltage input: 5-1000V DC
- Frequency: 50/60Hz

Shunt

- 45mV/ 60mV/ 75mV optional

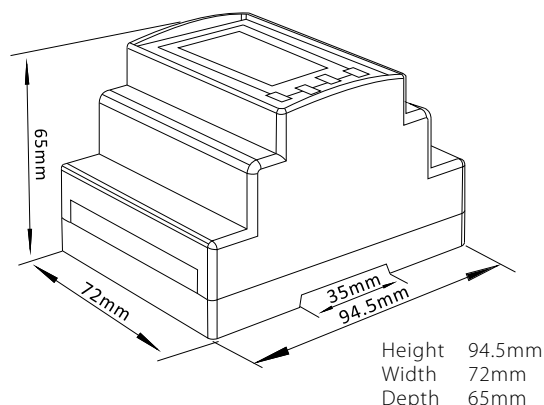
S0 Pulse output

- Passive optoisolated
- Contact range: 5-27V DC
- Maximum current input: 27mA DC
- Pulse output: 10000/1000/100/10/1imp/kWh (configurable)
- Pulse Width: 60, 100, 200mS (configurable)

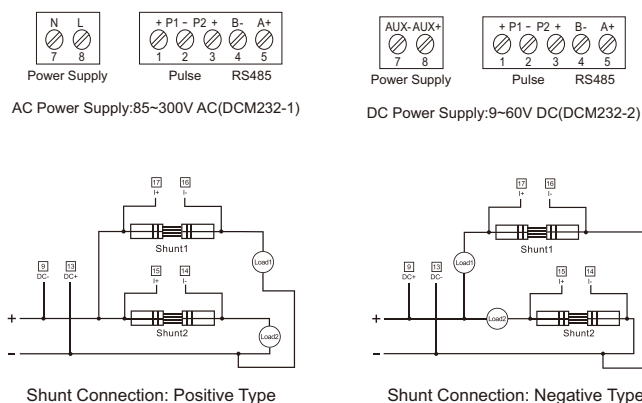
Environment conditions

- Operating Temperature: -25°C... + 55°C
- Storage Temperature: -40°C...+70°C
- Humidity: ≤95% non-condensing
- Protection degree: IP51 on front, IP 20 on terminals
- Altitude: 2000m

Dimension



Wiring



SDM630MCT – DC EV Charger Metering-Incoming side (AC current)

- 3P3W, 3P4W load operation
- 1/5A CT operated, 4 din module compact size
- LCD display with 8 digits
- True RMS metering provides accurate measurement
- Multi-parameters measurement (voltage, current, power, frequency, power factor, kWh, etc.)
- Bi-directional measurement (import and export kWh/kVarh)
- RS485 setting configurable by button on the nameplate or via Modbus
- Support 2 Pulse outputs and RS485 Modbus RTU
- Accuracy Class 1 IEC62053-21/ Class B EN50470-3
- Available with MID/ETL certification



Specifications

Aux. Power Supply

- 85 to 275V AC or 120 to 380V DC
- 2.5mm² stranded wire capacity

RS485 Modbus RTU

- Port: RS485
- Protocol: Modbus RTU
- Baud rate: 2400, 4800, 9600, 19200, 38400bps
- Parity: None, Even, Odd
- Stop Bit: 1 or 2

Accuracy

- Active energy: Class B or C/ Class 1 or 0.5S
- Reactive energy: Class 2 according to IEC/EN 62053-23
- Voltage/ Current: 0.5%
- Frequency: 0.2%
- Power: 1% of range maximum

Voltage & frequency

- Nominal values: 3x230/400V
- Operating voltage: 100 to 276V L-N, 173 to 480V L-L
- Frequency: 50/60Hz

S0 Pulse output

- Passive optoisolated
- Contact range: 5-27V DC
- Maximum current input: 27mA DC
- Pulse output 1: 100/10/1/0.1/0.01/0.001 imp/kWh (configurable)
(The measuring unit changes according to the assigned counter(kWh/ kVarh))
- Pulse output 2: 3200imp/kWh
- Pulse Width 2: 90mS

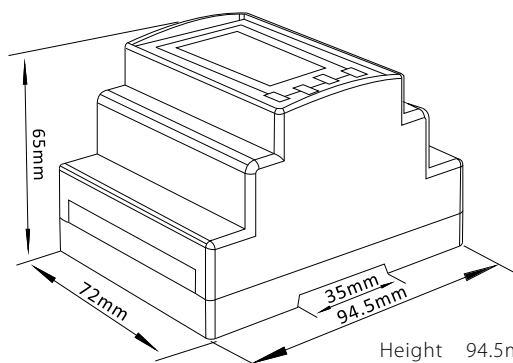
Environment conditions

- Operating Temperature: -25°C... + 55°C(3K6)/ -40°C...+70°C (3K7)
- Storage Temperature: -40°C...+70°C
- Humidity: ≤95% non-condensing
- Protection degree: IP51 on front, IP 20 on terminals
- Altitude: 2000m

Current

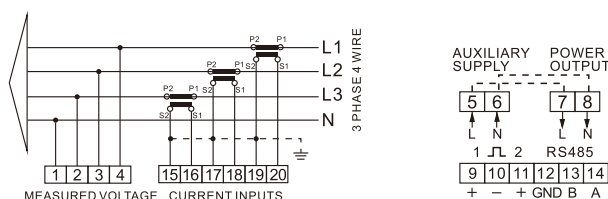
- Starting current Ist: 10mA
- Minimum current Imin: 0.05
- AReference current Iref(Ib): 5A
- Maximum current Imax: 6A

Dimension



Height 94.5mm
Width 72mm
Depth 65mm

Wiring



Quick selection table

➤ Multi-function meters with RS485 Modbus RTU

Product code	Single phase	Three phase	Current Input	Voltage	RS485 Modbus	Certificate
SDM120M	✓		45A	230V L-N AC	✓	MID
SDM18-M	✓		100A	230V L-N AC	✓	MID
SDM230M	✓		100A	230V L-N AC	✓	MID/ETL/SAA
SDM230M-DI	✓		100A/65A	100-277V L-N AC	✓	MID/ETL
SDM72D-M		✓	100A	230V L-N AC	✓	MID
SDM54-M		✓	100A	230V L-N AC	✓	MID
SDM630-Modbus		✓	100A	100-277V L-N AC	✓	MID
SDM630M-DI		✓	100A/65A	100-277V L-N AC	✓	MID/ETL
SDM630MCT		✓	1/5A CT	100-277V L-N AC	✓	MID
SDM630-EV		✓	100A	100-277V L-N AC	✓	MID/Eichrent
DCM230	✓		75mV shunt	5-1000V DC	✓	CE
DCM232	✓		75mV shunt	5-1000V DC	✓	CE

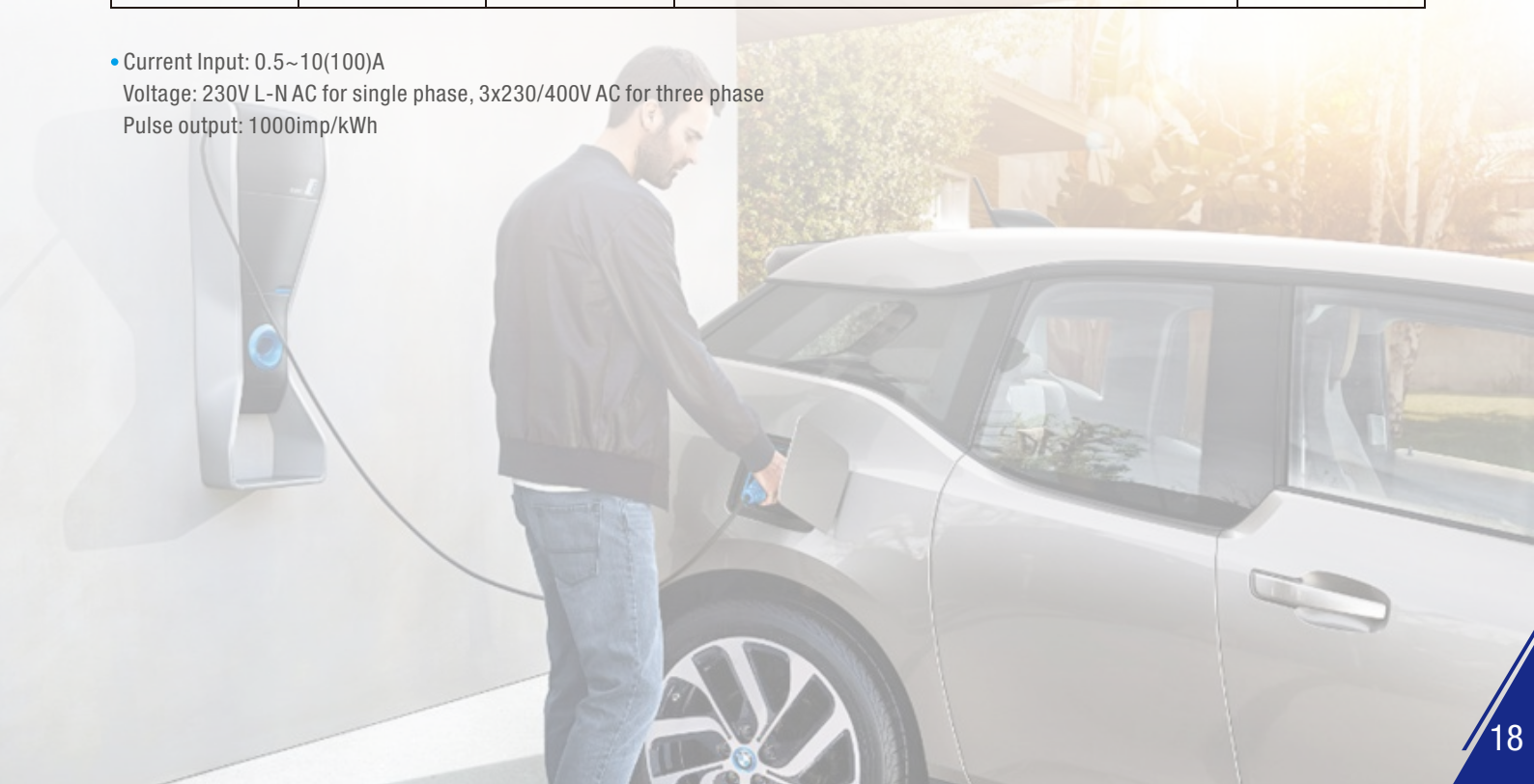
➤ kWh Meters with Pulse output

Product code	Single phase	Three phase	Measurement	Certificate
SDM230DR	✓		kWh + Power	MID
SDM230Bi	✓		Bi-directional kWh + Power	MID
SDM72D		✓	kWh	MID
SDM72DR		✓	kWh + Power	MID
SDM72Bi		✓	Bi-directional kWh +Power	MID

- Current Input: 0.5~10(100)A

Voltage: 230V L-N AC for single phase, 3x230/400V AC for three phase

Pulse output: 1000imp/kWh



Single phase 16A RCD-Threading type

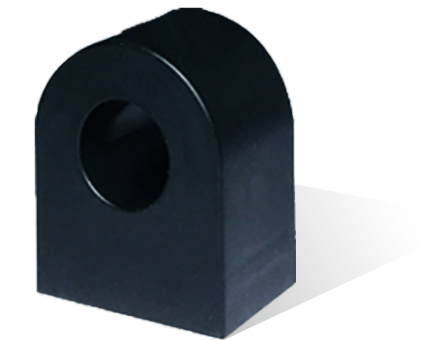
➤ ESCS-A1: Horizontal type

Product Features

- Type-A+6mA residual current module for EV charging pile protection
Mounted on PCB board
- All-in-One highly integrated digital residual current action indication

International Standards

- IEC 62757 residual current requirements for mode 2 charging
- GB/T 22794 basic residual current requirements, adapting to DC 6mA test requirements



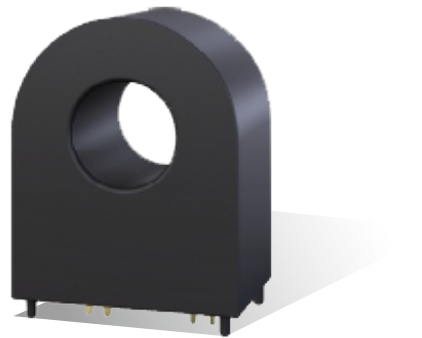
➤ ESCS-A2: Vertical type

Product Features

- Type-A+6mA residual current module for EV charging pile protection
Mounted on PCB board
- All-in-One highly integrated digital residual current action indication

International Standards

- IEC 62757 residual current requirements for mode 2 charging
- IEC 62955 residual current requirements for RDC-PD
- GB/T 22794 basic residual current requirements, adapting to DC 6mA test requirements



Specifications

Voltage

- VDD: 4.85-5.15 VDC (recommend 4.9-5.10VDC)
- Voltage input/output: Low level: 0-0.6V DC, High level: 4.2-5V DC

Environment

- Operating Temperature: -40°C... + 105°C
- Storage Temperature: -40°C...+105°C
- Humidity: ≤95% non-condensing
- FIT: 25°C= TBD, 80°C= TBD
- MTBF: ≥ 20 years
- Altitude: ≤ 4000m

Order code	Current Input	Digital Input	Standard
ESCS-A1-E1	DC 6mA/ AC 30mA	0V/5V	IEC62752
ESCS-A2-E1	DC 6mA/ AC 30mA	0V/5V	IEC62752/IEC62955 RDC-PD



Three phase 32A RCD- Threading type

➤ ESCS-B1: Horizontal type

Product Features

- Type-A+6mA/ DC 6mA/CCID20 residual current module for EV charging pile protection
Mounted on PCB board
- All-in-One highly integrated digital residual current action indication

International Standards

- IEC 62955 residual current requirements for RDC-PD / RDC-MD
- UL2231 residual current requirements and TRIP time testing relevant requirements
- GB/T 22794 basic residual current requirements, adapting to DC 6mA test requirements



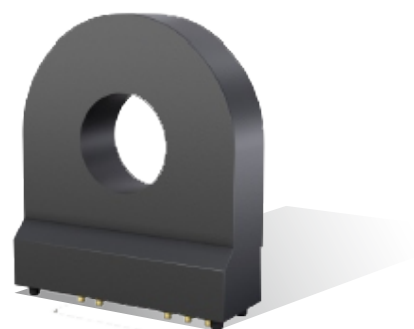
➤ ESCS-B2: Vertical type

Product Features

- Type-A+6mA/ DC 6mA/CCID20 residual current module for EV charging pile protection
Mounted on PCB board
- All-in-One highly integrated digital residual current action indication
- Dual mutually exclusive logic residual current active indication, with higher level of safety, providing a way of effectively identifying failures
- Integrated with self-test and calibration functions, saving hardware resources

International Standards

- IEC 62757 residual current requirements for mode 2 charging
- IEC 62955 residual current requirements for RDC-PD
- GB/T 22794 basic residual current requirements, adapting to DC 6mA test requirements



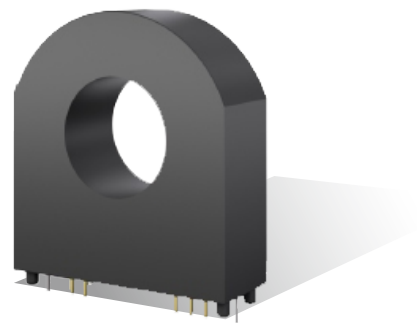
➤ ESCS-B3: Vertical type

Product Features

- Type-A+6mA/ DC 6mA/CCID20 residual current module for EV charging pile protection
Mounted on PCB board
- All-in-One highly integrated digital residual current action indication

International Standards

- IEC 62955-2018 residual current requirements for RDC-PD
- GB/T 22794 basic residual current requirements, adapting to DC 6mA test requirements



Specifications

Voltage

- VDD: 4.85-5.15 VDC (recommend 4.9-5.10VDC)
- Voltage input/output: Low level: 0-0.6V DC, High level: 4.2-5V DC

Environment

- Operating Temperature: -40°C... +105°C
- Storage Temperature: -40°C...+105°C
- Humidity: ≤95% non-condensing
- FIT: B1/B2: 25°C= 48.755, 80°C= 213.13
- B3: 25°C= TBD, 80°C= TBD
- MTBF: ≥ 20 years
- Altitude: ≤ 4000m



Order code	Current Input	Digital Input	Standard
ESCS-B1/B2-E1	DC 6mA/ AC 30mA	0V/5V	IEC62955 RDC-PD
ESCS-B1/B2-E2	DC 6mA	0V/5V	IEC62955 RDC-MD
ESCS-B1/B2-U3	DC 6mA/AC 20mA	/	UI2231
ESCS-B3	DC 6mA/ AC 30mA	0V/5V	IEC62955 RDC-PD

Three phase 32A RCD- With main circuit type

➤ ESCS-C1: Horizontal type

Product Features

- Type-A+6mA/DC 6mA residual current module for EV charging pile protection
Mounted on PCB board
- Dual digital open-drain output, 30mA AC/6mA DC trip indication
- 3-phase primary conductors on module (typ. 32A, max. 40A)
- PWM output for DC residual current value indication (0~30mA)
- Error output for system fault indication
- High-frequency response up to 2kHz (ESCS-C1-E3)*

International Standards

- IEC 62955-2018 residual current requirements for RDC-PD/RDC-MD
- GB/T 22794 basic residual current requirements, adapting to DC 6mA test requirements



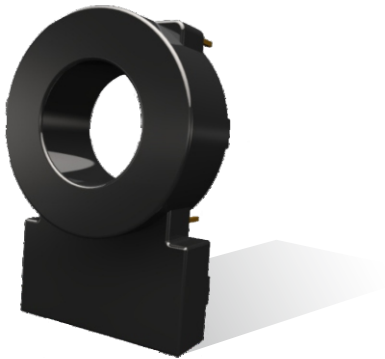
➤ ESCS-C2: Horizontal type

Product Features

- Type-A+6mA residual current module for EV charging pile protection
Mounted on PCB board
- Dual digital open-drain output, 30Ma AC/6mA DC trip indication
- PWM output for DC residual current value indication (0~30mA)
- Error output for system fault indication
- High-frequency response up to 2kHz

International Standards

- IEC 62955 residual current requirements for RDC-PD
- GB/T 22794 basic residual current requirements, adapting to DC 6mA test requirements



Specifications

Voltage

- VDD: 4.85-5.15 VDC (recommend 4.9-5.10VDC)
- Voltage input/output: Low level: 0-0.6V DC, High level: 4.2-5V DC

Clearance

- Primary-Primary: ≥ 6.5mm
- Primary-Secondary: ≥ 10mm

Creepage

- Primary-Primary: ≥ 8mm
- Primary-Secondary: ≥ 10mm

Environment

- Operating Temperature: -40°C... +105°C
- Storage Temperature: -40°C...+105°C
- Humidity: ≤95% non-condensing
- FIT: B1/B2: 25°C= 48.755, 80°C= 213.13
- B3: 25°C= TBD, 80°C= TBD
- MTBF: ≥ 20 years
- Altitude: ≤ 4000m

Order code	Current Input	Digital Input	Digital Input	Standard
ESCS-C1-E3	DC 6mA/ AC 30mA	0V/5V	√	IEC62955 RDC-PD
ESCS-C1-E5	DC 6mA	0V/5V	√	IEC62955-2018
ESCS-C2-E3	DC56mA/AC 30mA	0V/5V	√	IEC62955 RDC-PD



Three phase 32A RCD- With main circuit type

➤ ESCS-D1: Horizontal type

Product Features

- Type-A+6mA residual current module for EV charging pile protection
Mounted on PCB board
- All-in-One highly integrated digital residual current action indication
- 1-phase/3-phase rated current capacity on module (typ. 32A)
- High level of safety, providing a way of effectively identifying of failures*
- Residual current value reported, achieving refined management*
- Ingrated with self-test and calibration functions, saving hadware resources*
- Primary conductors on module (single/three phase) 32A*



International Standards

- IEC 62955 residual current requirements for RDC-PD
- GB/T 22794 basic residual current requirements, adapting to DC 6mA test requirements

Specifications

Voltage

- VDD: 4.85-5.15 VDC (recommend 4.9-5.10VDC)
- Voltage input/output: Low level: 0-0.6V DC, High level: 4.2-5V DC

Environment

- Operating Temperature: -40°C... +105°C
- Storage Temperature: -40°C...+105°C
- Humidity: ≤95% non-condensing
- FIT: 25°C= 48.755, 80°C= 213.13
- MTBF: ≥ 20 years
- Altitude: ≤ 4000m

Order code	Current Input	Digital Input	Digital Input	Standard
ESCS-D1-E1	DC 6mA/ AC 30mA	0V/5V	/	IEC62955 RDC-PD
ESCS-D2-E3	DC 6mA/ AC 30mA	0V/5V	√	IEC62955 RDC-PD

(*Available on ESCS-D1-E3 only)

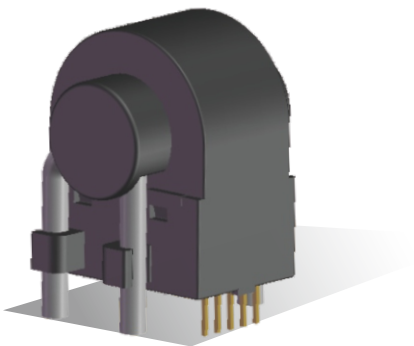


Three phase 32A RCD- With main circuit type

➤ ESCS-G1-Vertical Type

Product Features

- Type-A+6mA residual current module for EV charging pile protection
- All-in-One highly integrated digital residual current action indication
- Ingrated with self-test and calibration functions, saving hadware resources
- Primary conductors on module 40A RMS
- High level of safety, providing a way of effectively identificating of failures*
- Residual current value reported, achieving refined management*



International Standards

- IEC 62955-2018 residual current requirements for RDC-PD
- GB/T 22794 basic residual current requirements, adapting to DC 6mA test requirements

Specifications

Clearance

- Primary-Primary: $\geq 8.2\text{mm}$
- Primary-Secondary: $\geq 5.8\text{mm}$

Creepage

- Primary-Primary: $\geq 8.2\text{mm}$
- Primary-Secondary: $\geq 5.8\text{mm}$

Environment

- Operating Temperature: $-40^{\circ}\text{C} \dots +105^{\circ}\text{C}$
- Storage Temperature: $-40^{\circ}\text{C} \dots +105^{\circ}\text{C}$
- Humidity: $\leq 95\%$ non-condensing
- FIT: $25^{\circ}\text{C} = 48.755, 80^{\circ}\text{C} = 213.13$
- MTBF: ≥ 20 years
- Altitude: $\leq 4000\text{m}$

Order code	Current Input	Digital Input	Digital Input	Standard
ESCS-G1-E1	DC 6mA/ AC 30mA	0V/5V	/	IEC62955 RDC-PD
ESCS-G1-E3	DC 6mA/ AC 30mA	0V/5V	√	IEC62955 RDC-PD

(*Available on ESCS-G1-E3 only)



Three phase 32A RCD- Plug-in Type

➤ ESCS-E1: Vertical type

Product Features

- Type-A+6mA residual current module for EV charging pile protection
- All-in-One highly integrated digital residual current action indication
- High level of safety, providing a way of effectively identifying of failures*
- Residual current value reported, achieving refined management*
- Ingrated with self-test and calibration functions, saving hadware resources*

International Standards

- IEC 62955-2018 residual current requirements for RDC-PD/RDC-MD
- GB/T 22794 basic residual current requirements, adapting to DC 6mA test requirements



➤ ESCS-E2-Vertical Type

Product Features

- Type-A+6mA residual current module for EV charging pile protection
- All-in-One highly integrated digital residual current action indication

International Standards

- IEC 62955 residual current requirements for RDC-PD
- GB/T 22794 basic residual current requirements, adapting to DC 6mA test requirements



Specifications

Voltage

- VDD: 4.85-5.15 VDC (recommend 4.9-5.10VDC)
- Voltage input/output: Low level: 0-0.6V DC, High level: 4.2-5V DC

Environment

- Operating Temperature: -40°C... +105°C
- Storage Temperature: -40°C...+105°C
- Humidity: ≤95% non-condensing
- FIT: B1/B2: 25°C= 48.755, 80°C= 213.13
- B3: 25°C= TBD, 80°C= TBD
- MTBF: ≥ 20 years
- Altitude: ≤ 4000m

Order code	Current Input	Digital Input	Digital Input	Standard
ESCS-E1-E1	DC 6mA/ AC 30mA	0V/5V	/	IEC62955 RDC-PD
ESCS-E1-E2	DC 6mA	0V/5V	/	IEC62955 RDC-MID
ESCS-E1-E3	DC 6mA/AC 30mA	0V/5V	√	IEC62955 RDC-PD
ESCS-E2-E1	DC 6mA/AC 30mA	0V/5V	/	IEC62955 RDC-PD
ESCS-E2-E4	DC56mA/AC 30mA	0V/5V	/	IEC62955 RDC-PD

(*Available on ESCS-E1-E3 only)



Eastron®



Web: www.eastrongroup.com

E-mail: sales@eastrongroup.com

Tel: +86 573 83698881

Add: No.1369, Chengnan Rd, Jiaxing, Zhejiang, 314001, China