



1. Introduction

The SDM54 measures and displays the characteristics of single phase two wires (1p2w) and three phase four wires(3p4w) supplies, including voltage, frequency, current, power, power factor, active and reactive energy, imported or exported.

Energy is measured in terms of kWh and kVarh. Maximum demand on power and current can be measured over preset periods of up to 60 minutes. SDM54 supports max. 100A direct loads per phase, with dual tariff management availability. The meter is designed for DIN-rail mounting, with IP51 front protection. The meter is optionally equipped with pulse outputs, RS485 Modbus port or M-bus port. Configuration can also be done via keypad, which is password protected.

1.1 Unit Characteristics

The SDM54 Series are smart three phase energy meters, covering 3 models with following features and differences:

Model	Measurements	Outputs	Tariff Control
SDM54--2T	kWh, kVarh, W, Var, VA, PF, Hz, V,	2x Pulse outputs; RS485 Modbus	Double tariffs
SDM54-M	A, Max.dmd. Etc.	2x Pulse outputs; RS485 Modbus	Single tariff
SDM54-DI	kWh, kVarh, W, Var, VA, PF, Hz, V,	2x Digital inputs; RS485 Modbus	Single tariff
SDM54-MB-2T	A, Max.dmd. Etc.	2x Pulse outputs; M-Bus	Double tariffs
SDM54-MB	kWh, kVarh, W, Var, VA, PF, Hz, V,	2x Pulse outputs; M-Bus	Single tariff
SDM54-P	A, Max.dmd. Etc.	2x Pulse outputs	Single tariff

1.2 RS485 Serial-Modbus RTU

The RS485 serial port with Modbus RTU protocol provides a means of remotely monitoring and controlling the unit. Set-up screens are provided for setting up the RS485 port. D/LT645 protocol is optionally available on request.

1.3 M-Bus

The M-Bus port complying with EN13757-3 protocol provides a means of remotely monitoring and controlling the meter. Set-up screens are provided for setting up the M-Bus port.

1.4 Pulse outputs

Two pulse outputs that clock up the measured active and reactive energy. The constant of pulse output 2 for active energy is 400imp/kWh (unconfigurable), its width is fixed at 100ms.

The default constant of configurable pulse output 1 is 400imp/kWh, default pulse width is 100ms. The configurable pulse output 1 can be set from the set-up menu.

1.5 Double Tariffs

The meter has double tariffs function for the cost allocation management. There are two terminal to monitor voltage input from external device. Once there are voltage detected within 230V (80~120%), the energy will be counted in another registers.

2. Start-up Screens

	The interface performs initial testing.
	The second screen indicates the software version.
	Meter serial number; Modbus ID; Baudrate info are provided.

After a short delay, the screen will display active energy measurements.

3. Measurements

3.1 Buttons

There are two buttons on the front panel.

	> Scroll the display for data-check. > Change option at Set-up mode > Exit the Set-up mode
	> Set-up mode entry > Confirmation

3.2 Measured parameters

Each successive pressing of the button shows different parameters measured:

	Total kWh Import kWh Export kWh
	Total kVarh Import kVarh Export kVarh
	(Available in SDM54-2T only) Tariff 1's active energy Total kWh Import kWh Export kWh The " " under T1 means tariff 1 is running at the moment.
	(Available in SDM54-2T only) Tariff 1's reactive energy Total kVarh Import kVarh Export kVarh
	(Available in SDM54-2T only) Tariff 2's active energy Total kWh Import kWh Export kWh
	(Available in SDM54-2T only) Tariff 2's reactive energy Total kVarh Import kVarh Export kVarh
	L1-N Voltage L2-N Voltage L3-N Voltage
	L1-2 Voltage L2-3 Voltage L3-1 Voltage
	Frequency
	L1 Current L2 Current L3 Current
	Neutral Current
	Total PF (Power Factor) L1 PF L2 PF L3 PF
	Total PF (Power Factor)
	Max. Current Demand of L1 L2 L3
	Max. Active Power Demand of L1 L2 L3
	Active Power Reactive Power Apparent Power
	Active Power of L1 L2 L3
	Reactive Power of L1 L2 L3
	Apparent Power of L1 L2 L3

4. Set-up

Keep pressing the button , the meter will get into Set-up mode.

	Password is needed be checked before any further operation. The default password is 1000.
	The left screen shows the set-up menu of the meter, including main, communication, time, and pulse.
	System type: the network type where the meter is installed and working. Options: 3P4W(default), 3P3W, 1P3W, 1P2W.
	Password: allows user to set a new password.
	Reset: to reset the max. Dmd / DI DMD: information of current and active power. DI: digital input counts
	Com.: configure the communication parameters
	Addr: communication MODBUS Address, range from 001~247
	Baud: communication baudrate Options: 2400~38400bps; Default: 9600bps
	Parity: Communication Parity Options: None, Even, Odd Default: None
	Stop: Stop bit of communication Options: 1 or 2 Default: 1
	Time information setting
	Backlight: to set the backlight duration time after button operation. Options: on, off, 5, 10, 15, 30, 60, 120 minutes. Default: 60 minutes
	Scroll: automatic screen scroll time interval. Options: off, 5,10,15, 30,60 seconds. Default: off
	DMD: demand interval time Options: 0, 5, 8, 10, 15, 20, 30, 60 minutes. Default: 60 minutes
	Pulse output 1 parameter setting The meter pulse output 1 is configurable. Note: Pulse output 2 is fixed to
	Type: the type of energy that pulse output is refer to. Options: kWh; Imp-kWh; Exp-kWh kVarh; Imp-kVarh; Exp-kVarh Default: Exp-kWh
	Constant: Pulse output constant Options: 1000; 100; 10; 1 Default: 400
	Width: Pulse width Options: 60,100,200mS Default: 100mS

Connection Data	SDM54
Measurement connection	Screw connection
Conductor cross section solid/stranded/AWG	4-25mm2
Tightening torque	2.5Nm
Other connections (COM and Pulse)	Screw connection
Conductor cross section solid/stranded/AWG	0.5-1.5mm2
Tightening torque	0.4Nm

5. Specifications

5.1 Electrical specifications

• Power:	self power supply (via measured voltage) <1W, 8VA
• Consumption:	10A
• Basic current:	100A
• Max. current :	0.5A
• Min. current:	0.02A
• Starting current :	30 x Imax for 0.01s
• Over-current:	100 to 289V a.c. (not for 3p3w supplies)
• L-N voltage:	173 to 500V a.c. (3p supplies only) 50Hz (MID version) 50/60Hz (non-MID version)
• L-L Voltage:	
• Frequency:	

Accuracy	Class 1(IEC62053-21)/Class B(EN50470-3)
active energy	Class 2 (IEC62053-23)
Reactive energy	0.5% of range maximum
Voltage	0.5% of nominal
Current	0.2% of mid-frequency
Frequency	1% of unity (0.01)
Power factor	±1% of range maximum
Active power (W)	±1% of range maximum
Reactive power (VAr)	±1% of range maximum
Apparent power (VA)	±1% of range maximum

5.2 Environmental specifications

• Operating temperature	-25°C to +55°C
• Storage temperature	-30°C to +80°C
• Relative humidity	0 to 90%, non-condensing @40°C
• Altitude	Up to 2000m
• Mechanical environment	M2
• Electromagnetic environment	E2

5.3 Output specifications

Three interfaces are available:

- Modbus RS485 port output ... (SDM54-M, SDM54-2T, SDM54-DI)
- M-Bus port output ... (SDM54-MB, SDM54-MB-2T)
- two Pulse outputs

5.3.1 Modbus RS485 port output

Baud rate:	2400, 4800, 9600(default), 19200, 38400
Parity:	none /odd/even
Stop bits:	1 or 2
RS485 address:	001 to 247
Response time:	<80mS
Transmission distance:	1000m

5.3.2 M-Bus port output

Baud rate:	300, 600, 1200, 2400, 4800, 9600
Parity:	even/odd
Stop bits:	1 or 2
M-Bus primary address:	001 to 250
M-Bus Secondary address:	same as the serial number of the meter.

5.3.3 Pulse Output

The unit provides two pulse outputs indicating real-time measured energy. Pulse output 1 is configurable; Pulse output 2 is fixed with constant 400imp/kWh.. Both pulse outputs are passive type.

Pulse output 1 is configurable. Default setting is exp-kWh; 100mS, constant 400imp/kWh

Pulse output 2 is non-configurable. It is fixed up with active kWh. The constant is 400imp/kWh.

5.4 Safety and EMC

- Measurement category IEC 61010-1 CAT III
- Current input Direct connect
- Over-voltage category CAT III
- Dielectric withstand IEC 61010-1 double insulated II
- Protective class IEC 61326-1:2013 ; IEC 61326-2-3:2013
- EMC

5.5 Mechanics specifications

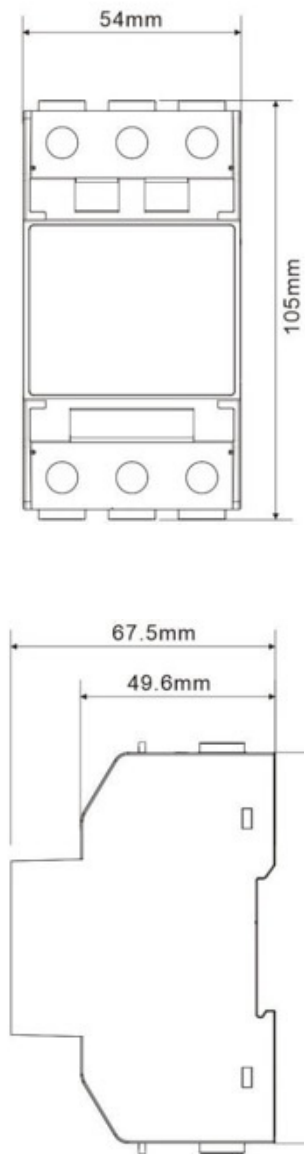
- DIN rail dimensions 54x100x67.5mm(WxHxD)
- Mounting DIN Rail 35mm
- Ingress protection IP51 front panel (indoor)
- Material Self-extinguishing UL94 V-0
- Weight 265g

Warnings

Important Safety Information is contained in the Maintenance section. Familiarize yourself with this information before attempting installation or other procedures. Symbols used in this document:

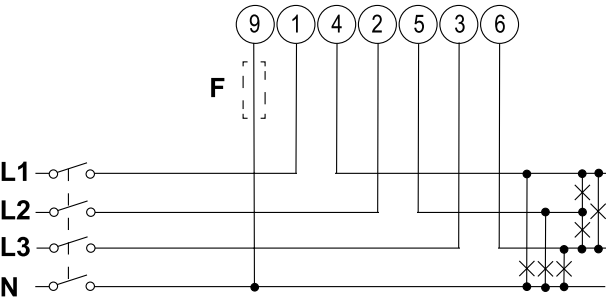
	Risk of Danger: These instructions contain important safety information. Read them before starting installation or servicing of the equipment.
	Caution: Risk of Electric Shock

6. Dimensions

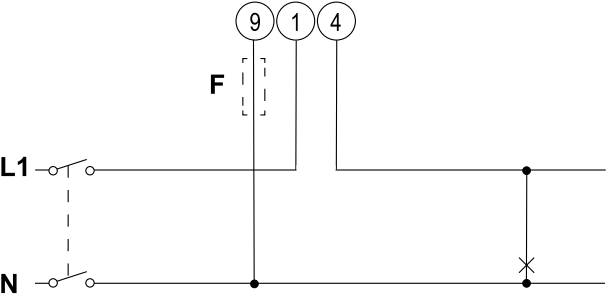


7. Wiring diagram

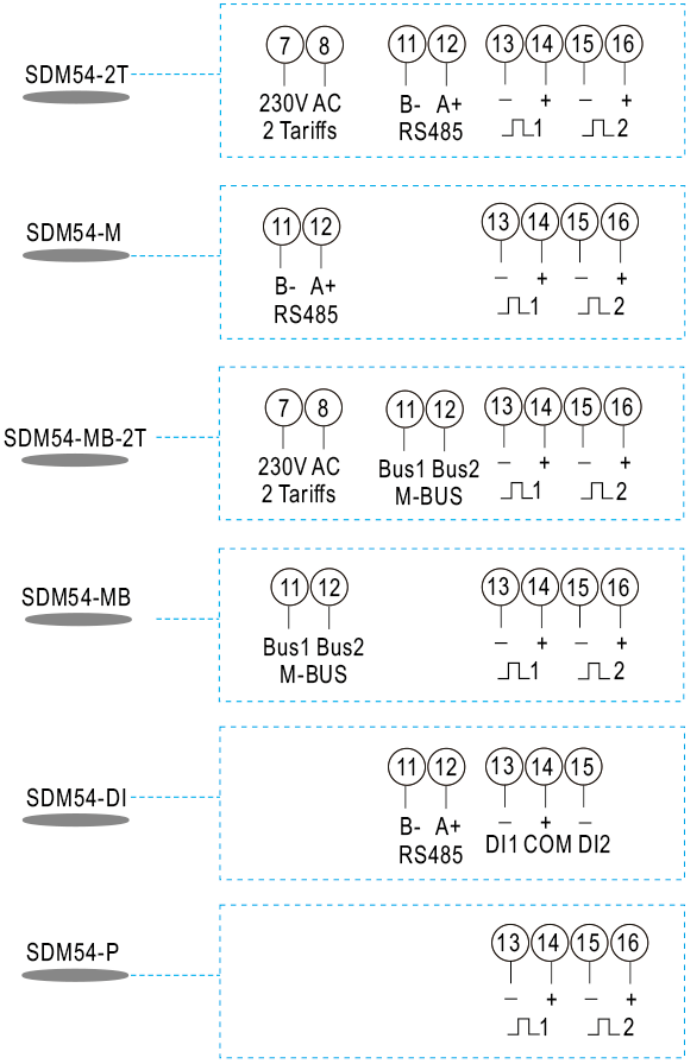
• Three Phase Four Wires:



• Single Phase Two Wires:



• Other terminals



8. EU Declaration of Conformity

EU Declaration of Conformity

We, Zhejiang Eastron Electronic Co LTD
No.1369,Chengnan Rd. Jiaxing, Zhejiang, 314001, China
Ensure and declare that electricity meter types:

SDM54-2T
SDM54M
SDM54-DI
SDM54-MB-2T
SDM54-MB
SDM54-P

with the measurement range

1. 3 x 230/400V 50Hz, 0.5-10(100)A 400imp/ kWh.

Are in conformity with the type as described in the EU-type examination certificate

0120/ SGS0533

The fulfillment of the essential requirements set out in Annex I and in the relevant instrument specific Annexes has been demonstrated.

The electricity meter types described above are in conformity with the relevant Union harmonization legislation and satisfy the appropriate requirements of the Directive 2014/32/EU with the following standards:

EN50470-1:2006, Electricity metering equipment (AC) part 1: General requirements, tests and test conditions. Metering equipment (class indexes A, B and C)

EN50470-3:2006, Electricity metering equipment (AC) Part 3: Particular requirements-Static meters for active energy (class indexes A, B and C)

This Declaration of Conformity is issued under the sole responsibility of the manufacturer.

Signed on behalf of Zhejiang Eastron Electronic Co., LTD.

Signature:

Date: 2022-2-23
Position: General Manager

浙江东鸿电子股份有限公司
ZHEJIANG EASTRON ELECTRONIC CO., LTD.

9. MID certificate



CONTACT US

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