



- Measures kWh Kvarh, KW, Kvar, KVA, P, F, PF, Hz, dmd, V, A, etc.
- Bi-directional measurement IMP & EXP
- Pulse output
- RS485 Modbus
- Din rail mounting 35mm
- 100A direct connection
- Better than Class 1 / B accuracy

1. Introduction

The SDM630-EV V2 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. Maximum demand current can be measured over preset periods of up to 60 minutes. In order to measure energy, the unit requires voltage and current inputs in addition to the supply required to power the product.

SDM630-EV V2 supports max. 100A direct connection, saves the cost and avoid the trouble to connect external CTs, giving the unit a cost-effective and easy operation. Built-in interfaces provides pulse and RS485 Modbus RTU outputs. Configuration is password protected.

1.2 Measured Parameters

The unit can monitor and display the following parameters of a single phase two wire(1p2w), three

phase three wire(3p3w) or four phase four wire(3p4w) supply.

1.3 Voltage and Current

Phase to neutral voltages 100 to 289V a.c. (not for 3p3w supplies)

Voltages between phases 173 to 500V a.c. (3p supplies only)

Percentage total voltage harmonic distortion (THD%) for each phase to N (not for 3p3w supplies)

Percentage voltage THD% between phases (three phase supplies only)

Current THD% for each phase

1.4 Power Factor and Frequency and Max. Demand

Frequency in Hz

Instantaneous power:

Power 0 to 99999 W

Reactive Power 0 to 99999 Var

Volt-amps 0 to 99999 VA

Maximum demanded power since last Demand reset Power factor

Maximum neutral demand current, since the last Demand reset (for 3p4w supply only)

1.5 Energy Measurements

- Imported active energy 0 to 999999.99 kWh
- Exported active energy 0 to 999999.99 kWh
- Imported reactive energy 0 to 999999.99 kVAh
- Exported reactive energy 0 to 999999.99 kVAh
- Total active energy 0 to 999999.99 kWh
- Total reactive energy 0 to 999999.99 kVAh

1.6 Measured Inputs

Voltage inputs through 4-way fixed connector with 25mm² stranded wire capacity. single phase two wire(1p2w), three phase three wire(3p3w) or four phase four wire(3p4w) unbalanced. Line frequency measured from L1 voltage or L3 voltage.

1.7 Accuracy

- Voltage 0-5% of range maximum
- Current 0-5% of nominal
- Frequency 0-2% of mid-frequency
- Power factor 1% of unity (0.01)
- Active power (W) ±1% of range maximum
- Reactive power (VAR) ±1% of range maximum
- Apparent power (VA) ±1% of range maximum
- Active energy (Wh) Class 1 IEC 62053-21 Class B EN50470-1/3 Class 2 IEC 62053-23
- Reactive energy (VAh) 1s, typical, to >99% of final reading, at 50 Hz.
- Response time to step input

1.8 Interfaces for External Monitoring

Three interfaces are provided:

- 2 RS485 communication channels via protocol remotely.
- Pulse output indicating real-time measured energy.

1.9 Pulse Output

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

1.10 RS485 Output for Modbus RTU

There 2 two channels of RS485 Modbus RTU.

For Modbus RTU, the following RS485 communication parameters can be configured from the

Set-up menu:

- 1st Modbus Output (configurable):
 - Baud rate 2400, 4800, 9600(default), 19200, 38400
 - Parity none (default)/odd/even
 - Stop bits 1 or 2
 - RS485 network address nnn – 3-digit number, 001 to 247
- 2nd Modbus Pitput (non-configurable):
 - Baud rate 9600
 - Parity none
 - Stop bits 1
 - Modbus™ Word order Hi/Lo byte order is set automatically to normal or reverse. It cannot be configured from the set-up menu.

1.11 Reference Conditions of Influence Quantities

Influence Quantities are variables that affect measurement errors to a minor degree. Accuracy is

verified under nominal value (within the specified tolerance) of these conditions.

- Ambient temperature 23°C ±1°C
- Input frequency 50Hz(MID) 50 or 60Hz ±2% (non- MID) Sinusoidal (distortion factor < 0.005)
- Input waveform Terrestrial flux
- Magnetic field of external origin

1.12 Environment

- Operating temperature 3K6(-25°C to +55°C*),Default 3K7(-40°C to +70°C*)
- Storage temperature -40°C to +70°C*
- Relative humidity 0 to 90%, non-condensing Up to 2000m
- Altitude Up to 2000m
- Warm up time 5S
- Vibration 10Hz to 50Hz, IEC 60068-2-6, 2g 30g in 3 planes
- Shock

* Maximum operating and storage temperatures are in the context of typical daily and seasonal variation.

1.13 Unit Characteristics

The Unit can measure and display:

- Line voltage and THD% (total harmonic distortion) of all phases
- Line Frequency
- Currents, Current demands and current THD% of all phases
- Power, maximum power demand and power factor
- Active energy imported and exported
- Reactive energy imported and exported

The unit has password-protected set-up screens for:

- Changing password
- Supply system selection 1p2w, 3p3w,3p4w
- Demand Interval Time(DIT)
- Reset for demand measurements

The pulse output indicates real-time energy measurement. 2 RS485 outputs allows remote monitoring from another display or a computer.

2. Start-up Screens

Initial testing...	The interface performs a self-test and indicates the result if the test passes.
Software Version 41 01.00	The second screen indicates the firmware installed in the unit and its build number. *The build number(41 01.00) is for reference only. The actual build number changes according to product requirements.
Meter SN: 10000001 Modbus ID: 001 Baudrate: 19200	Meter SN, Modbus ID and baud rate setting

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

2.1 Measurements

The buttons operate as follows:

	Selects the Voltage and Current display screens In Set-up Mode, this is the "Left" or "Back" button.
	Select the Frequency and Power factor display screens In Set-up Mode, this is the "Up" button
	Select the Power display screens In Set-up Mode, this is the "Down" button
	Select the Energy display screens In Set-up mode, this is the "Enter" or "Right" button

2.2 Voltage and Current

Each successive pressing of the button selects a new range:

L1: 230.0 L2: 230.0 L3: 230.0	V	Phase to neutral voltages(3p4w)
L1-2: 400.0 L2-3: 400.0 L3-1: 400.0	V	Phase to neutral voltages(3p3w)
L1: 100.00 L2: 100.00 L3: 100.00	A	Current on each phase
N: 100.00	A	Neutral current

2.3 Frequency and Power Factor and Demand

Each successive pressing of the button selects a new range:

PF T: 1.000	L1: 1.000 L2: 1.000 L3: 1.000	Power Factor
L1: 100.00 L2: 100.00 L3: 100.00	A Max. Demand	Maximum Current Demand
L1: 69000 L2: 69000 L3: 69000	W Max. Demand	Maximum Power Demand

2.4 Power

Each successive pressing of the button selects a new range:

L1:690000 L2:690000 L3:690000	W	Instantaneous Active Power in W
L1:690000 L2:690000 L3:690000	Var	Instantaneous Reactive Power in VAR
L1:690000 L2:690000 L3:690000	VA	Instantaneous Volt-amps in VA
T: 690000 W T: 690000 Var T: 690000 VA		Total W, VAh, VA

2.5 Energy Measurements

Each successive pressing of the button selects a new range:

T: 0000000.00 kWh 2021-04-15 T15:50:50.52 +01:00	Total kWh and time will be showed when no charging
T: 0000000.00 kWh C: 0000000.00 kWh	Total kWh and charged kWh will be showed when charging
CS ID: 2021041500001 2021-04-15 T15:50:50.52 +01:00	CSID Numbers And current time will be showed when charging
T: 0000000.00 kWh Imp:0000000.00 Exp:0000000.00	Total active kWh, import active kWh, export active kWh
T: 0000000.00 kVarh Imp:0000000.00 Exp:0000000.00	Total reactive kWh, import reactive kWh, export reactive kWh

2.6 Set-up

To enter set-up mode, pressing the button for 3 seconds, until the password screen appears.

PASSWORD :
0 0 0 0

Setting up is password-protected so you must enter the correct password (default '1000') before processing. If an incorrect password is entered, the display will show: PASS Err

To exit setting-up mode, press repeatedly until the measurement screen is restored.

Setting - Button operation

3 Set-up Entry Methods

Some menu items, such as password, require a four-digit number entry while others, such as supply system, require selection from a number of menu options.

3.1 Menu Option Selection

- Use the and buttons to select the required item from the menu. Selection does not roll over between bottom and top of list.
- Press to confirm your selection.
- If an item flashes, then it can be adjusted by the and buttons. If not, there maybe a further layer.
- Having selected an option from the current layer press to confirm your selection. The SET indicator will appear.
- Having completed a parameter setting, press to return to a higher menu level. The SET indicator will be removed and you will be able to use the and buttons for further menu selection.
- On completion of all set-up, press repeatedly until the measurement screen is restored.

3.2 Number Entry Procedure

When setting up the unit, some screens require the entering of a number. In particular, on entry to the setting up section, a password must be entered. Digits are set individually, from left to right.

The procedure is as follows:

- The current digit to be set flashes and is set using the and buttons.
- Press to confirm each digit setting. The SET indicator appears after the last digit has been set.
- After setting the last digit, press to exit the number setting routine.

3.3 Main set

1.Main
1.1System Type 3P4W
1.2Password 1000
1.3Reset DMD

System type	From the Set-up menu, use and buttons to select the System option. The screen will show the currently selected system type.
Password	Use the and to choose the change password option.
Reset	Press to enter the selection routine. If succeed, the cursor will jump back to Reset.

Press to exit the number setting routine and return to the Set-up menu. SET will be removed.

3.4 Communication set

2.Communication
2.1Addr 002
2.2Baud 9600
2.3Parity NONE

Addr	From the Set-up menu, use and buttons to select the Address ID.
Baud	From the Set-up menu, use and buttons to select the Baud Rate option.
Parity	From the Set-up menu, use and buttons to select the Parity option.

3.5 Time set

4.1Data 4.Time 14-01-30
4.2Time 08-15-14
4.3DMD 60
4.4ZONE 4.Time +08
4.5Backlight 060

Data	From the Set-up menu, use and buttons to select the data. Use to move cursor
Time	From the Set-up menu, use and buttons to select the data. Use to move cursor
DMD	From the Set-up menu, use and buttons to select the dmd. Setting options: 0, 5, 8, 10, 15, 20, 30, 60
ZONE	From the Set-up menu, use and buttons to select the ZONE. Setting range:-12-12
Backlight	From the Set-up menu, use and buttons to select the Backlight. Setting options: on,10, 30, 60, 120, off

Use and buttons to select the time interval. Press to confirm the set-up.

3.6 Record

5.Record
CSID:20140130000005
T: 00:00:03
C: 000006wh

Record	From the Set-up menu, use and buttons to select record data. Max.: latest 10 records
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Use and buttons to select the time interval.

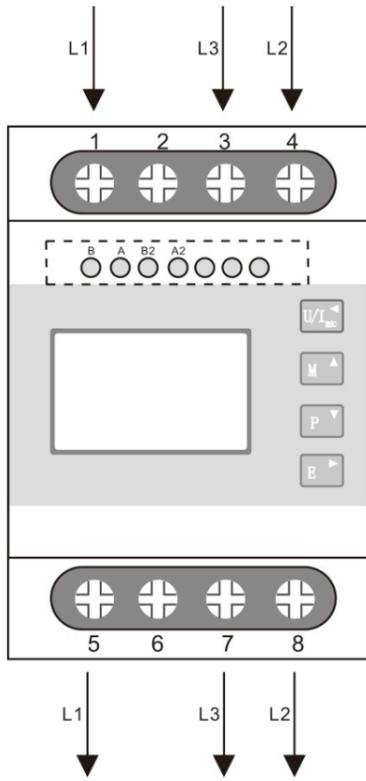
Warnings

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:

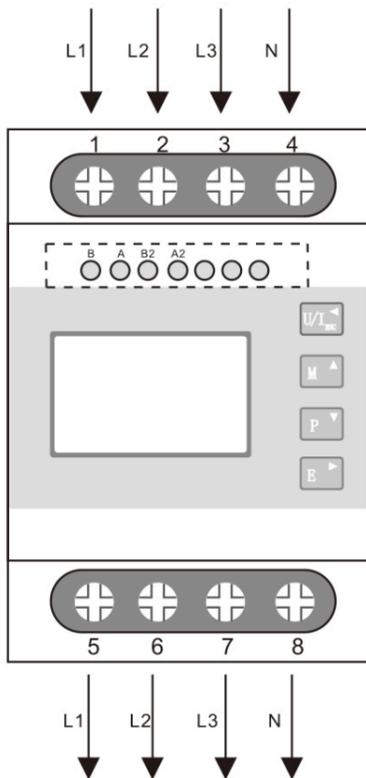
- Risk of Danger:** These instructions contain important safety information. Read them before starting installation or servicing of the equipment.
- Caution: Risk of Electric Shock**

4. Wiring diagram

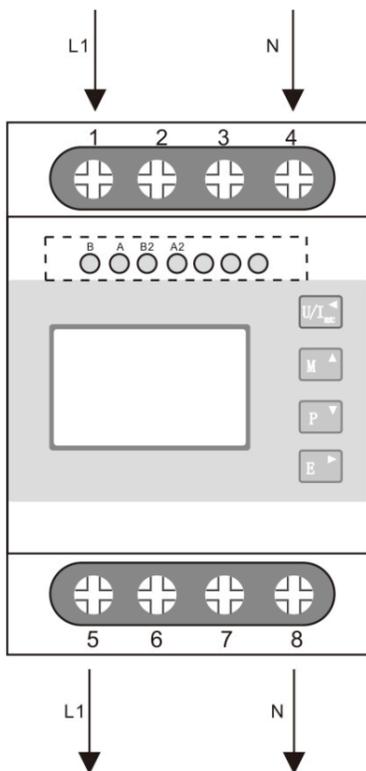
• Three Phase Three Wires



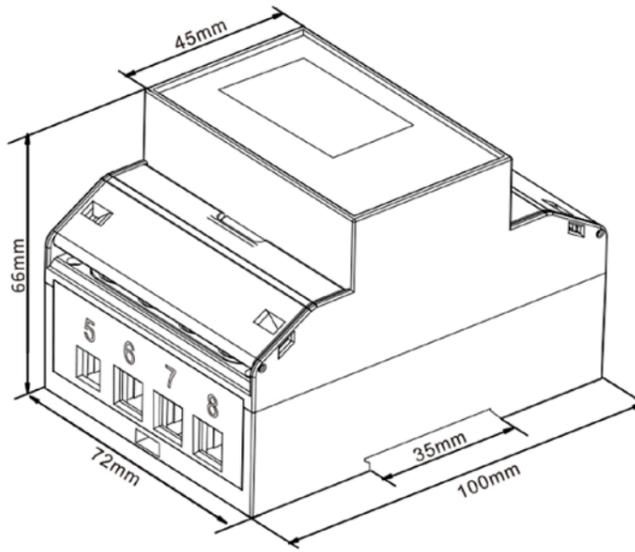
• Three Phase Four Wires



• Single Phase Two Wires



5. Dimensions



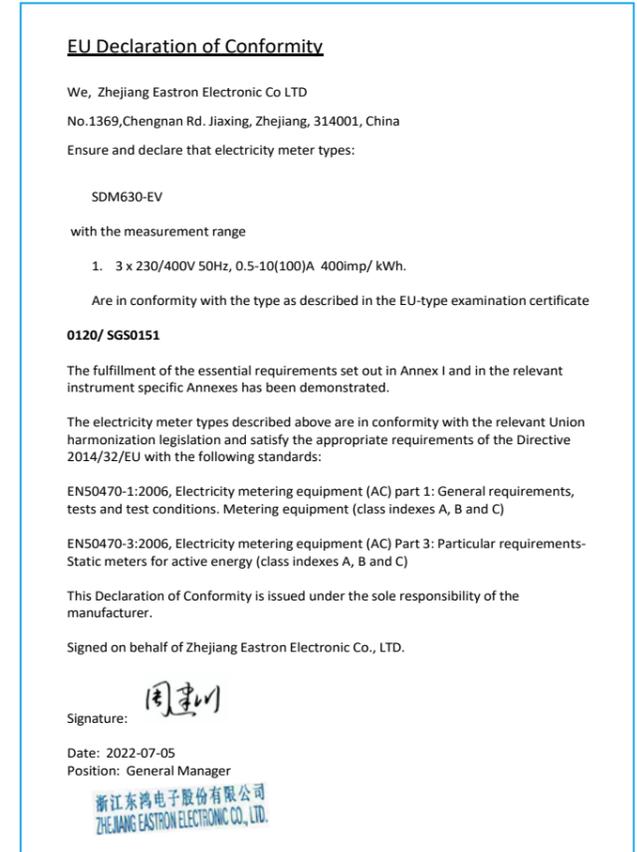
6. Wiring Torque

Terminals		
COMM/Pulse/2T	0.5~1.5mm ²	0.4Nm
Load	4~25mm ²	3Nm

7. MID Certificate



8. EU Declaration of Conformity



CONTACT US

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