

SDM630 MCT V2 Series

Three Phase Multifunction Energy Meter



DIN RAIL SMART METER FOR SINGLE AND THREE PHASE ELECTRICAL SYSTEMS

User Manual v5.0

Safety Instruction

The Installation instructions do not include a complete list of all safety measures necessary for operating the device. Special operating conditions may require additional measures. The installation instructions contain notes that must be observed for your personal safety to prevent property damage. Safety instructions in this document are highlighted with a warning triangle and are presented as follows depending on the level of risk.



The general warning symbol calls attention to possible risks of injury. Observe all the instructions listed under the symbol to prevent injuries or even death.



This additional symbol indicates any electrical danger that can result in serious injuries or death.

Attention

Warns of an imminently dangerous situation that can result in property damage or environmental damage in the event of noncompliance.

1. Introduction

This document provides operating, maintenance and installation instructions. This unit measures and displays the characteristics of single phase two wire(1p2w), three phase three wire(3p3w) and three phase four wire(3p4w) networks. The measuring parameters include voltage(V), frequency(Hz), current(A), power(kW/kVA/ kVAh), import, export and total Energy(kWh/kVAh). The unit can also measure Maximum demand of current and power. This is measured over preset periods of up to 60 minutes.

This unit is a 1A or 5A current transformer operated and can be configured to work with a wide range of CTs. Built-in pulse and Modbus or M-Bus outputs. Configuration is password protected.

This unit can be powered by a separate auxiliary (AC or DC) supply. Alternatively it can be powered from the monitored supply by linking the voltage reference and neutral reference to terminals 5 and 6 (Please refer to wiring diagram).

1.1 Unit Characteristics

This series includes 4 models:

SDM630MCT V2	SDM630MCT-Mbus V2	SDM630MCT-2T V2	SDM630MCT-2T-Mbus
Multi-parameter measurement	Multi-parameter measurement	Multi-parameter measurement	Multi-parameter measurement
Single Tariff	Single Tariff	2 Tariffs (dual source)	2 Tariffs (dual source)
RS485 Modbus	M-Bus EN13757-3	RS485 Modbus	M-Bus EN13757-3

1.2 RS485 Modbus RTU / M-Bus

SDM630MCT V2 and SDM630MCT-2T V2 have a RS485port with RTU protocol. SDM630MCT-Mbus V2 and SDM630MCT-2T-Mbus have a M-Busport complying with EN13757-3. Refers to section 4.2.

1.3 Current Transformer Primary Current

SDM630MCT V2 Series is CT operated. you will need to set the correct CT rate. Refers to section 4.3

1.4 Pulse Output

Two pulse outputs that pulse measured active and reactive energy. The Pulse 2 constant for active energy is fixed at 3200imp/kWh. The pulse output 1 is configurable. Refers to section 4.5

2. Start Up Screens

	The first screen lights up all display segments and can be used as a display check.
	Software version information (This information is for reference only, in kind prevail.)
	The interface performs a self-test and indicates the result if the test passes.

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

3. 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.
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3.1 Voltage and Current

Each successive press of the U/I button selects a new parameter:

	Phase to neutral voltages.
	Current on each phase.
	Neutral Current
	Phase to neutral voltage THD%.
	Current THD% for each phase.

3.2 Frequency and Power Factor and Demand

Each successive press of the M button selects a new range:

	Frequency and Power Factor (total).
	Power Factor of each phase.
	Maximum Current Demand.
	Maximum Power Demand.

3.3 Power

Each successive press of the P button selects a new range:

	Instantaneous Active Power in kW.
	Instantaneous Reactive Power in kVA.
	Total kW, kVA, kVAh.

3.4 Energy Measurements

Each successive press of the E button selects a new range:

	Total Active Energy in kWh.
	Total Reactive Energy in kVAh.
	Import Active Energy in kWh. *Not shown on SDM630MCT-2T
	Export Active Energy in kWh. *Not shown on SDM630MCT-2T

	Import Reactive Energy in kVAh. *Not shown on SDM630MCT-2T
	Export Reactive Energy in kVAh. *Not shown on SDM630MCT-2T
	T1 Active Energy in kWh *For SDM630MCT-2T and SDM630MCT-2T-Mbus only
	T2 Active Energy in kWh *For SDM630MCT-2T and SDM630MCT-2T-Mbus only
	T1 Reactive Energy in kVAh *For SDM630MCT-2T and SDM630MCT-2T-Mbus only
	T2 Reactive Energy in kVAh *For SDM630MCT-2T and SDM630MCT-2T-Mbus only

4. Set Up

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

	Setting up is password-protected. The user should 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 U/I repeatedly until the measurement screen is restored.

4.1 Set-up Entry Methods

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

4.1.1 Menu Option Selection

- Use the U/I and P buttons to scroll through the different options of the set up menu.
- Press E to confirm your selection
- If an item flashes, then it can be adjusted by the M and P buttons.
- Having selected an option from the current layer, press E to confirm your selection.
- Having completed a parameter setting, press U/I to return to a higher menu level. You will be able to use the M and P buttons for further menu selection.
- On completion of all setting-up, press U/I repeatedly until the measurement screen is restored.

4.1.2 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 M and P buttons.
- Press E to confirm each digit setting.
- After setting the last digit, press U/I to exit the number setting routine.

4.2 Communication

4.2.1 RS485/Mbus Primary Address

	From the set-up menu, use M and P buttons to select the address ID.
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(The range is from 001 to 247 for Modbus and 001 to 250 for Mbus)

	Press E button to enter the selection routine. The current setting will flash
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	Use M and P buttons to choose Modbus or Mbus primary address
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Procedure, press E button to confirm the setting and press U/I button to return the main set-up menu.

4.2.2 Mbus Secondary Address

	Secondary address: 00 00 00 01 to 99 99 99 99 From the set-up menu, use M and P buttons to find the setting page.
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	Press E to enter the selection routine. The current setting will flash.
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	Use M and P buttons to set the secondary address
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Press E to confirm the setting and press U/I to return to the main set up menu.

4.2.3 Baud Rate

Baud rate range for Modbus RTU: 2.4k, 4.8k, 9.6k, 19.2k, 38.4k. For Mbus: 0.3k, 0.6k, 2.4k, 4.8k, 9.6k.

	From the set-up menu, use M and P buttons to select the baud rate option.
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	Press E to enter the selection routine. The current setting will flash.
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	Use M and P buttons to choose baud rate 2.4k, 4.8k, 9.6k, 19.2k, 38.4k
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Press E to confirm the setting and press U/I to return to the main set-up menu.

4.2.4 Parity

	From the set-up menu, use M and P buttons to select the parity option.
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	Press E to enter the selection routine. The current setting will flash.
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	Use M and P buttons to choose parity (EVEN/ODD/NONE(default)).
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Press E to confirm the setting and press U/I to return to the main set-up menu.

4.2.5 Stop Bits

	From the set-up menu, use M and P buttons to select the stop bit option.
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	Press E to enter the selection routine. The current setting will flash.
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	Use M and P buttons to choose stop bit (2 or 1) Note: Default is 1, and only when the parity is NONE that the stop bit can be changed to 2.
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Press E to confirm the setting and press U/I to return to the main set-up menu.

4.3 CT

The CT option sets the secondary current (CT2 1A or 5A) of the current transformer (CT) that wires to the meter.

	From the set-up menu, use M and P buttons to select the CT option.
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	Secondary CT setting Press E to enter the CT Secondary current selection routine: 5A/1A
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