3.1 Voltage and Current

Each successive press of the \( \text{A} \) button selects a new parameter.

- **Phase to neutral voltages.**
- **Current on each phase.**
- **Phases to neutral volts.**
- **Neutral volts.**
- **Neutral volts 1/6th of line to line.**
- **Each phase Current 1/6th of line to line.**

Each phase Current is 1/6th of line to line. The parameters of data and error can only be sent via RS485 communication.

3.2 Frequency and Power Factor and Demand

Not for SDM300-Standard V2

Each successive press of the \( \text{A} \) button selects a new range.

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

3.3 Power

Not for SDM300-Standard V2

Each successive press of the \( \text{A} \) button selects a new range.

- **Instantaneous Active Power in W.**
- **Instantaneous Reactive Power in VAR.**
- **Instantaneous Active Power in KVA.**
- **Instantaneous reactive Power in KVAR.**
- **Instantaneous Active Power in KVAR.**
- **Total KVAR, KVA.**

3.4 Energy Measurements

Each successive press of the \( \text{A} \) button selects a new range.

- **Import active energy.**
- **Export active energy.**
- **Import reactive energy.**
- **Export reactive energy.**
- **Total active energy in KWH.**
- **Total reactive energy in KVAR.**
- **Total active energy in KVAR.**
- **Total reactive energy in KVAR.**

3.5 Measurements

The buttons operate as follows:

- **V/ESC**
  - Selects the Voltage and Current display screens. In Set-up Mode, this is the "Left" or "Back" button.

- **MD/PW**
  - Selects the Power display screens in Set-up Mode. this is the "Up" or "Down" button.

- **PW/ESC**
  - Selects the Energy display screens in Set-up Mode. this is the "Enter" or "Right" button.

3.6 Set Up

To enter set-up mode, press the \( \text{A} \) button for 3 seconds, until the password screen appears.

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

3.7 Set Up Menu Entries

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.

3.8.1 Menu Option Selection

- Use the \( \text{A} \) and \( \text{B} \) buttons to select the different options of the set up menu.
- Press \( \text{C} \) to confirm your selection.

3.8.2 Set Up Menu Entries

- To set up menu, use the \( \text{A} \) and \( \text{B} \) buttons to select the system option.
- Press \( \text{C} \) to confirm your selection.
- The selected option will be saved.

3.8.3 Set up Menu Entries

To exit set-up mode, press \( \text{A} \) repeatedly until the measurement screen is received.

4.1 Supply System

The unit has a default setting of 3Ph3w 440V (3PH). Use this section to set the type of electrical system.

- From the set up menu, use the \( \text{A} \) and \( \text{B} \) buttons to select the SET option.
- Press \( \text{C} \) to confirm your selection.

4.2 Backlight Set Up

Backlight setting is semi default setting time is 60 minutes.

- If it is set to 60 minutes, the backlight will be on for 5 minutes.
- If it is turned off, the backlight will be off for 5 minutes.
- If it is turned off, the backlight will be on for 5 minutes.

4.3 Power Output

This option allows you to configure the power output. The power output can be set to provide either a defined amount of energy active or reactive. Use this section to set the power output:

- \( \text{T} \) for active energy.
- \( \text{R} \) for reactive energy.

4.4 Change Password

Use the \( \text{A} \) and \( \text{B} \) button to change the password option.

- Press \( \text{C} \) to enter the change password mode.
- The new password screen will appear with the first digit flashing.

- Press \( \text{D} \) and \( \text{E} \) to change the selected digit.

- Press \( \text{F} \) to confirm your selection.

- Repeat the procedure for the remaining digits.

- After selecting the last digit, \( \text{G} \) will show.

4.5 Demarcation Integration Time

Not for SDM300-Standard V2

The setup period in minutes over which the current and power measurements are integrated for maximum and minimum power measurements. The options are: 0, 5, 10, 20, 30, 60 minutes.
4.6.1 Pulse rate

Use this to set the energy represented by each pulse rate. Rate can be set to 1 pulse per:
- 1000 0.1/1/10/100 kWh/volts.

4.6.2 Pulse Duration

The pulse width can be selected as 200 usec (50Hz version only), 100 (default) or 50usec.

4.6.3 Chose baud rate

From the setup menu, use the buttons to select the baud rate option.

Press and buttons to choose baud rate.

On completion of the entry procedure, press to confirm the setting and press to return to the main set menu.

4.7 Parity

From the setup menu, use the buttons to select the baud rate option.

Press to enter the selection routine. The current setting will flash.

Use buttons to choose parity (EVEN / ODD / NONE).

On completion of the entry procedure, press to confirm the setting and press to return to the main set menu.

4.7.5 Stop bits

From the setup menu, use the buttons to select the baud rate option.

Press to enter the selection routine. The current setting will flash.

Use buttons to choose stop bit (1 or 2 on or 2 on 1 off).

On completion of the entry procedure, press to confirm the setting and press to return to the main set menu.

4.8 CLR

The meter provides a function to reset the maximum demand value of current and power.

Press buttons to enter the selection routine. The MD will flash.

Press to confirm the setting and press to return to the main set menu.

5.1.1 Voltage and Current

Not for SDM30-Standard V2 only.

- Three phase voltage 160 to 260V a.c. (for 36v supplies only)
- Input voltage: 173 to 500V a.c. (38v supplies only)
- Percentage total harmonic distortion (THD) for each phase in % (for 36v supplies only)
- Percentage voltage deviations between phases (phase supplies only)
- Power factor (% of current in each phase)

5.1.2 Power factor and Frequency and Max. Demand

Not for SDM30-Standard V2 only.

- Frequency for
  - Harmonic power
  - Power Factor
  - Power (3 kVA or more)
- Maximum demand power
- Current

5.2 Measured Inputs

Voltage inputs through 4-way fixed connector with 12mm square single phase two wire (16A), three phase three wire (160A) or three phase four wire (240A), unbalanced. Line frequency measured from L1 voltage or L1 voltage.

5.1.3 Energy Measurements

- Active power
- Reactive power
- Real power
- Total active power
- Total reactive power
- Energy from 0.0000 kWh to 99999.99 kWh

5.3 Interfaces for External Monitoring

Three interfaces are provided:

- R/S485: Modbus communication channel that can be programmed via protocol several (not for SDM50-Standard V2)
- Pulse output (pulse/s) indicating real-time measured energy (configurable)
- Pulse output (pulse/s) 4000pulses/kWh (not configurable)

The Modbus configuration (baud rate etc) and the pulse output assignments (KWh/pulse, mains/pulse etc) are configured through the setup menu.

5.3.1 Pulse Output

The pulse output can be set to generate 1 pulses per:
- 0.1/1/10/100 kWh (default Val).
- N pulses can be set to generate 1 pulses per:
  - 0.1/1/10/100 kWh (default)
  - 0.1/1/10/100 kWh (default)
  - 0.1/1/10/100 kWh (default)
  - 0.1/1/10/100 kWh (default)
  - 0.1/1/10/100 kWh (default)

The pulse output is not configurable it is fed up with active kWh. Its current is 4000pulses/kWh.

5.3.2 R/S485/Modbus Outputs for Modbus RTU V2 only

For Modbus RTU V2, the following R/S485 communication parameters can be configured from the setup menu:
- Baud rate: 2400, 4800, 9600, 19200, 38400
- Parity none / odd / even
- Stop bits: 1 or 2
- RS485 network address: 0-63 or digit number 001 to 347

For Modbus V2 only:

For Modbus, the following communication parameters can be configured from the setup menu:
- Baud rate: 2400, 4800, 9600, 19200, 38400
- Parity none / odd / even
- Stop bits: 1 or 2
- Network address: 0-63 or digit number 001 to 347

If the Modbus/Modbus protocol document is required, please contact us for it.

5.4 Accuracy

- Voltage: 0.5% of range maximum
- Current: 0.5% of nominal
- Frequency: 0.5% of nominal
- Power factor: 1% of nominal
- Active power (W): ±1% of range maximum
- Reactive power (VAR): ±1% of range maximum
- Active energy (Wh): Class 1 (EC 825-2-21 Class 2)
- Reactive energy (VARh): ±1% of range maximum
- Response time to step input: 1s, typical, to 98% of final reading, at 50Hz

5.5 Reference Conditions of Influence Quantities

Influence Quantities are variables that affect measurement errors to a minor degree. Accuracy is verified under nominal values in the specified tolerances of these conditions:
- Ambient temperature: 23°C ± 2°C
- Input frequency: 50 Hz ± 5Hz
- Input waveform: Sinusoidal (unaffected factor < 0.1%)
- Magnetic field of external origin: temporal flux

5.6 Environment

- Operating temperature: -5°C to 55°C
- Storage temperature: -40°C to 70°C
- Relative humidity: 0 to 95%, non-condensing
- Altitude: Up to 2000m
- Humidity: 1 minute
- Vibration: 10Hz to 50Hz (IEC 60068-2, 2,9)
- Shock: 32g for 3s

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

5.7 Mechanics

- DIN rail dimensions: 72 x 100 mm (Width) x 43 mm (Height)
- Mounting: DIN rail (DIN 43858)
- Sealing: IP54 (Indoor)
- Materials: Stainless steel 1.4404 / 1.4401 / 1.4404 / 1.4404

5.8 Declaration of Conformity (for the MID approved versions meter only)

We, Jiangxi Eastern Electronic Instruments Co., Ltd declare under our sole responsibility at the manufacturer that the poly phase multifunction electrical meter "SDEM50010A V2 series" correspond to the production model described in the EC type examination certificate and in accordance to the Directive 2014/30EU (EMC low-voltage directive 2014/35EU). Declaration number: 23525000015. Identification number of the MID: 133401018.