

*Technical Specifications*  
*of*  
*Dual Source Energy Meter (EB / DG)*  
*(SPMG300)*



*Class 0.5S*

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## General Specifications

### **1) GENERAL:**

- Meter measures Active, Reactive, Apparent energy on 3 phase 4 wire system,
- Separate register for EB and DG to store MD, KWh, KVAh, KVArh (import lag and import lead),
- Shows separate running hours for DG and EB Powers,
- Parameters can be viewed through 7 segment LED (3 row),
- Soft Keys are provided to stop, scroll, edit and to view the parameters,
- RTC with battery backup is used for time keeping and has a calendar of 100 years,
- Power Line Communication can be done using RS485 communication with MODBUS RTU,

### **2) METER FEATURES:**

#### **2.1) Display Details:**

- 7 segment (3\*4 digits) LED type – The parameters are calculated by the meter are displayed,
- Selectable Parameters – Can select any out of 36 parameters.
- Scroll rate – The scroll rate of the display parameter scroll in steps of 4secs.
- Keys are provided to stop, scroll, edit and to view the particular parameter.

#### **2.1.1) Display Parameters:**

- Time,
- Date,
- Meter ID with Phase Sequence,
- CT Primary,
- Frequency (Hz.), Source Status EB / DG,
- Cumulative Import Active Energy (KWh – EB),
- Cumulative Import Apparent Energy (KVAh – EB),
- Cumulative Import Reactive Energy (Lag ILG – EB),
- Cumulative Import Reactive Energy (Lead ILD – EB),
- Cumulative Import Active Energy (KWh – DG),
- Cumulative Import Apparent Energy (KVAh – DG),
- Cumulative Import Reactive Energy (Lag ILG – DG),
- Cumulative Import Reactive Energy (Lead ILD – DG),
- Average Power Factor – EB,
- Average Power Factor – DG,
- Power ON hour – EB,

- Power ON hour – DG,
- Load ON hour – EB,
- Load ON hour – DG,
- Voltage L-N (R,Y,B) (V),
- Average Voltage (V),
- Phase to Phase Voltages L-L (RY,YB,RB)
- Line Current (R, Y, B),
- Instantaneous Average Current,
- Instantaneous Power Factor (R, Y, B),
- Combined Power Factor (RYB),
- Instantaneous Active Power – KW – R,Y,B,
- Instantaneous Reactive Power – KVA<sub>r</sub> – R,Y,B,
- Instantaneous Apparent Power – KVA – R,Y,B,
- Instantaneous Active Power – KW – RYB,
- Instantaneous Reactive Power – KVA<sub>r</sub> – RYB,
- Instantaneous Apparent Power – KVA – RYB,
- Rising Demand – EB (KW / KVA),
- Rising Demand – DG (KW / KVA),
- Maximum Demand – EB (KW / KVA),
- Maximum Demand – DG (KW / KVA)

## **2.2) Key Features:**

- The Parameter setup can be done through 4 nos. of soft keys on front fascia,
- Keys on the front panel is used to
  - ✓ scroll, increment, decrement through display parameter and
  - ✓ set the Meter ID,
  - ✓ CT Primary values,
  - ✓ Time & Date,
  - ✓ MD Reset (EB / DG),
  - ✓ Energy Reset(EB / DG),
  - ✓ Change Password.
- Press scroll key once the parameter set is completed, this allows to view the parameters one after the other automatically (change over time period is 4 secs). If this is not done auto scroll will not happen.

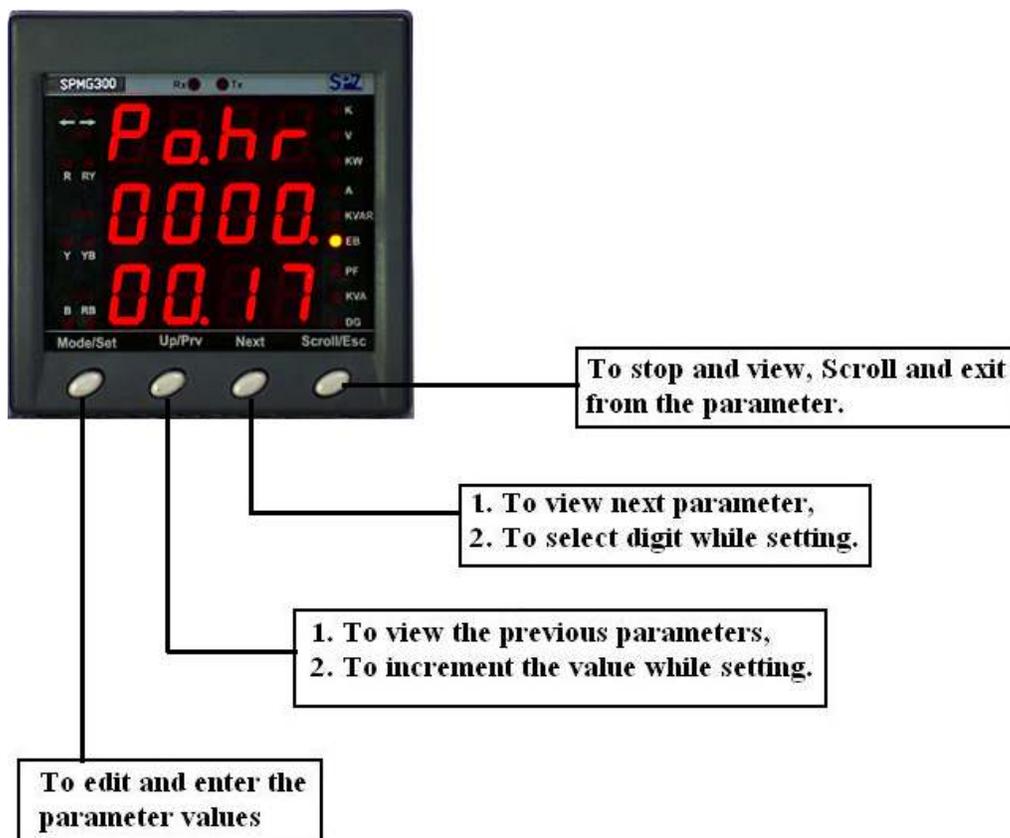


Fig.: Key Feature Description

### 2.3) Rear Terminal Details:

S1 → S2		S1 → S2		S1 → S2		P/+	N/-
IR		IY		IB		AC 110-230V DC 24-300V	
Primary CT Programmable ___/1 or 5 A						DG Sense	
Manufactured by: <b>Sai PowerZerve</b> Chennai, India <a href="http://www.spowerz.com">www.spowerz.com</a>							
Meter Name: Dual Source Energy Meter						Ver:	
Model:						Class: 0.5 1.0	
Serial No:							
Volt Input		LN: 0-300V AC LL: 0-600V AC		RS 485		Aux. Supply 85 - 265 VAC	
V <sub>R</sub>	V <sub>Y</sub>	V <sub>B</sub>	V <sub>N</sub>	A	B	L	N

## **2.4) Communication:**

### **2.4.1) Communication Interface:**

- Through RS485 Communication with MODBUS RTU with 9600 bps,
- Power Line Communication using Power Line Node and Concentrator.

**Note:**

- (i) Field Programmability of the meter is optional based on the customer requirement,
- (ii) Each meter is given a unique number at the factory.

## **2.5) Safety Precautions:**

### **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.
- Only qualified electrical workers should install this equipment. Such work should be performed only after reading this entire set of instructions.
- If the equipment is not used in a manner specified by the manufacturer, the protection provided by the equipment may be impaired.
- NEVER work alone.
- Before performing visual inspections, tests, or maintenance on this equipment, disconnect all sources of electric power.
- Assume that all circuits are live until they have been completely de-energized, tested, and tagged.
- Consider all sources of power, including the possibility of back feeding.
- Turn off all power supplying the dual energy meter and the equipment in which it is installed before working on it.
- Always use a properly rated voltage sensing device to confirm that all power is off.
- Before closing all covers and doors, inspect the work area for tools and objects that may have been left inside the equipment.
- When removing or installing panels do not allow them to extend into the energized bus.
- The successful operation of this equipment depends upon proper handling, installation, and operation.
- Neglecting fundamental installation requirements may lead to personal injury as well as damage to electrical equipment or other property.
- NEVER bypass external fusing.
- NEVER short the secondary of a PT.
- NEVER open circuit a CT
- High voltage testing may damage electronic components contained in the dual energy meter.
- Ensure that no wiring strands are straying outside after connecting the wires.
- Dual Source Energy Meter should be installed in a suitable electrical enclosure.

**Failure to follow these instructions will result in death or serious injury**

### **Technical Specifications**

Accuracy	: Class 0.5S
System type	: 3 Phase 4 Wire
Resolution	: 0.01 (for Combined Kwh, KVAh)
Display	: Multi Parameter LED (3 ROW)
Auxiliary Supply	: 85 – 265 VAC
Current CT	: Primary side – Programmable (5A – 6000A) : Secondary side – 1 or 5A
Starting Current	: 10mA
Power Factor	: 4 quadrant operation
Frequency	: 50Hz, $\pm 5\%$
Communication	: RS485 Communication with MODBUS RTU in external integration with Power Line Communication
Temperature	: Operating Temp. – (-10 to 55) $^{\circ}$ C Storage Temp. – (-20 to 70) $^{\circ}$ C Humidity 5 to 95% RH at 50 $^{\circ}$ C (Non-Condensing)
Dimension	: (96 x 96 x 48) mm (Inclusive of connector)
Panel Cutout	: 92 x 92 mm (-0.5mm)
Mounting	: Panel Mountable
Connector Type	: Screw type terminals (U Lug 2.5mm)
Weight	: 350gms. (app.)