

*Technical Specifications*  
*of*  
*Dual Source Energy Meter (EB / Solar)*  
*(SPMSr300)*



*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 Solar to store MD, KWh, KVAh, KVArh (import lag  
and import lead),

Shows separate running hours for Solar 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 / Solar,

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 – Solar),

Cumulative Import Apparent Energy (KVAh – Solar),

Cumulative Import Reactive Energy (Lag ILG – Solar), Cumulative  
Import Reactive Energy (Lead ILD – Solar),

Average Power Factor – EB,

Average Power Factor – Solar,

Power ON hour – EB,  
Power ON hour – Solar,  
Load ON hour – EB,  
Load ON hour – Solar,  
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 – R,Y,B, Instantaneous Apparent  
Power – KVA – R,Y,B,  
Instantaneous Active Power – KW – RYB,  
Instantaneous Reactive Power – KVA – RYB, Instantaneous  
Apparent Power – KVA – RYB,  
Rising Demand – EB (KW / KVA),  
Rising Demand – Solar (KW / KVA),  
Maximum Demand – EB (KW / KVA), Maximum  
Demand – Solar (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 / Solar), Energy

Reset(EB / Solar),

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.

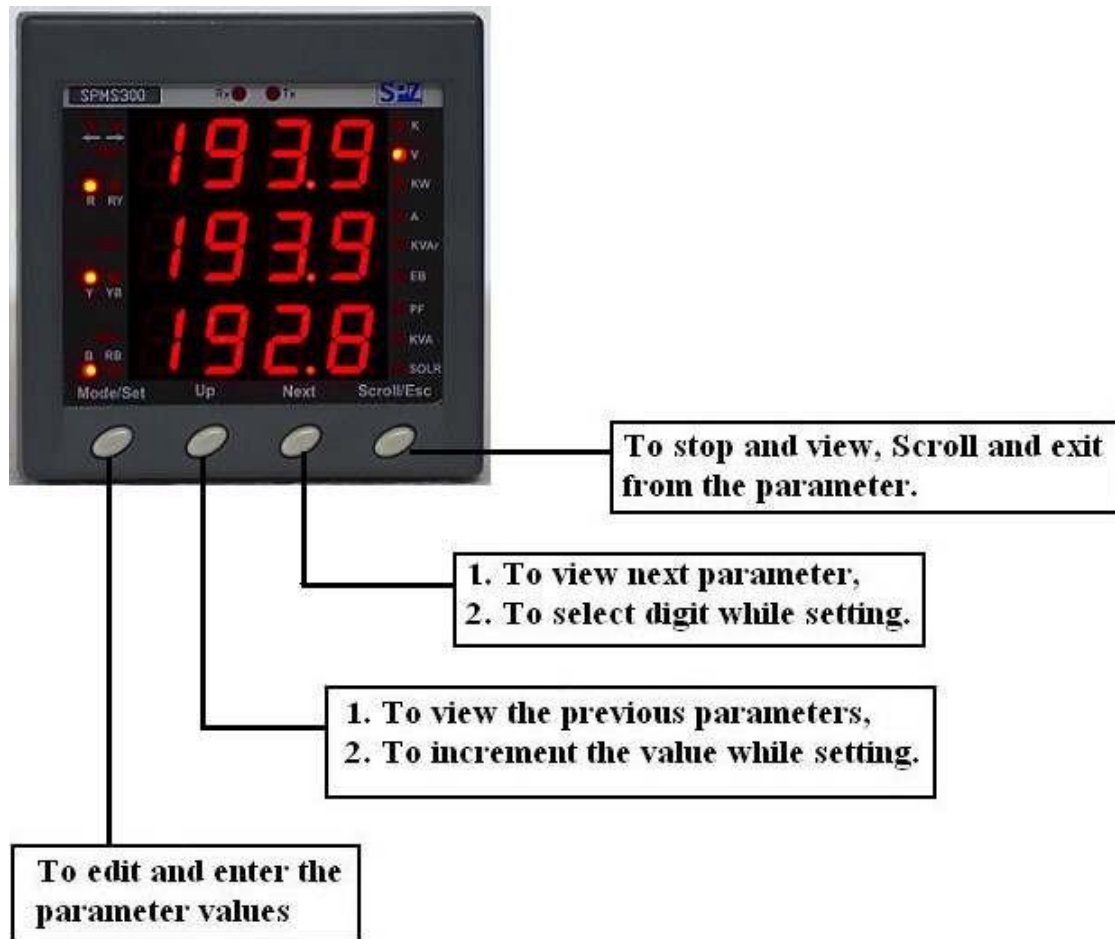


Fig.: Key Feature Description **2.3)**

**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						Solar Sense	
Manufactured by  Sai PowerZerve Chennai, India. <a href="http://www.spowerz.com">www.spowerz.com</a>							
Meter Name: Dual Source Energy Meter							
Model :							
Serial No :							
Volt Input		LN: 0-300V AC LL : 0-600V AC		RS 485		Aux. Supply 85 - 265 VAC	
VR	VY	VB	VN	A	B	L	N

## 2.4) Communication:

### 2.4.1) Communication Interface:

Through RS485 Communication with MODBUS RTU with 9600bps.  
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)°C Storage Temp. – (-20 to 70)°C Humidity 5 to 95% RH at 50°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.