*Technical Specifications*

*of*

*Dual Source Energy Meter (EB / Solar)*

*(SPMSr300)*


*Class 0.5S*

**Sai PowerrZerve**
**29/3B , Rajalakshmi Nagar, 1st Main Road,**
**Velachery Bye Pass, Chennai – 600 042.**
**Website :www.spowerz.com**
**Email : info@spowerz.com**
**Phone : 044-43192660**

# 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 – KVAr – R,Y,B,
- Instantaneous Apparent Power – KVA – R,Y,B,
- Instantaneous Active Power – KW – RYB,
- Instantaneous Reactive Power – KVAr – 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.

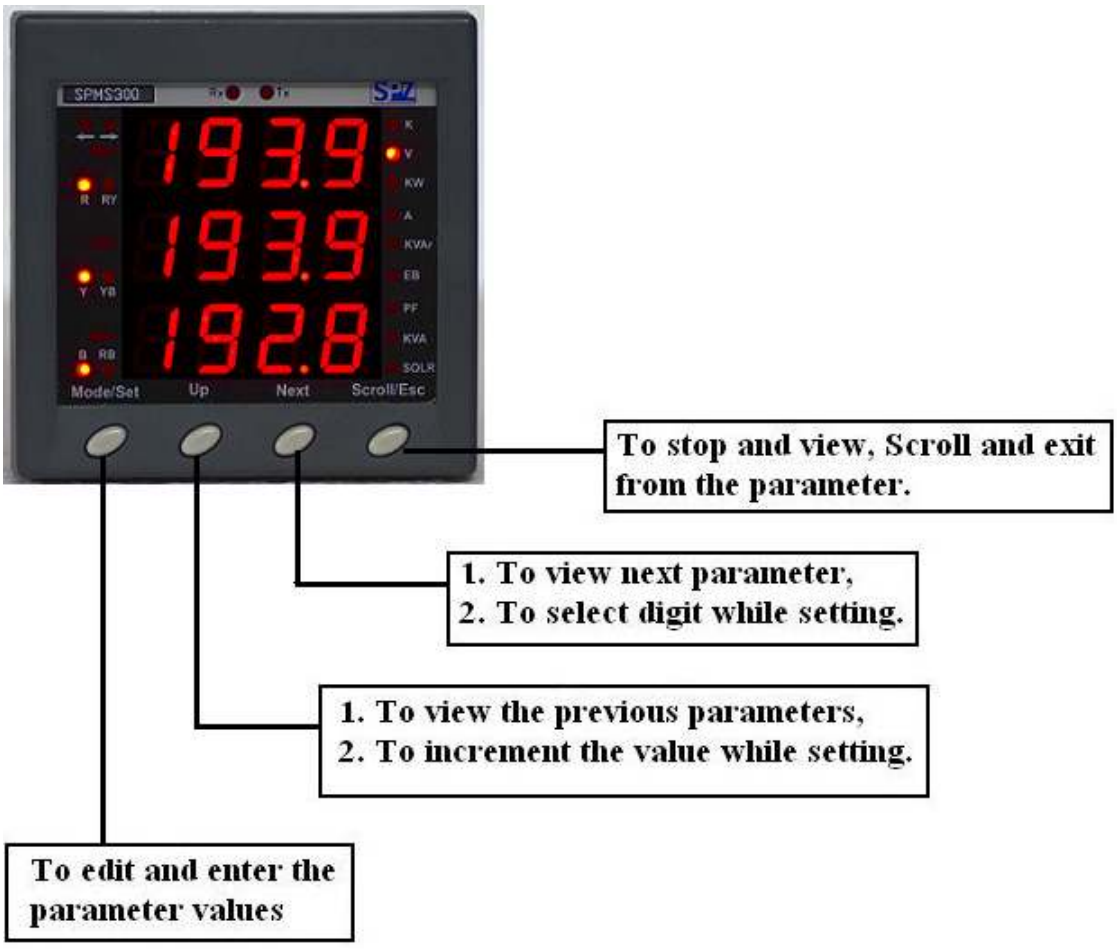
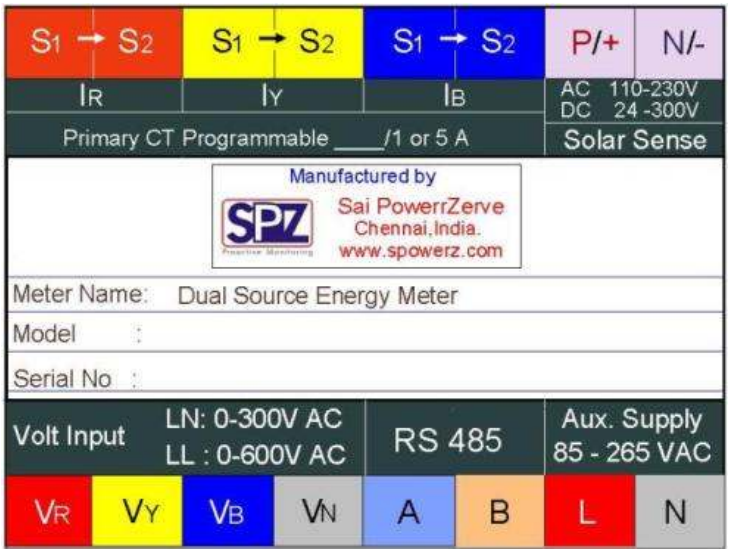



*Fig.: Key Feature Description*

## *2.3) Rear Terminal Details:*



## *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, ±5% |
| Communication | : | RS485 Communication with MODBUS RTU in external integration with Power Line Communication |
| Temperature | : | Operating Temp. – (-10 to 55)°C<br>Storage Temp. – (-20 to 70)°C<br>Humidity 5 to 95% RH at 50°C<br>(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. |