

*Technical Specifications*  
*of*  
*kWh Energy Meter*  
*(SPK301)*



*Class 1.0S*

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## General Specifications

### **1) GENERAL:**

- Meter measures Active Power and Active energy on 3 phase 4 wire system,
- All four quadrant measurement for KWh are measured and stored in energy accumulators,
- Parameters can be viewed through LCD (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:**

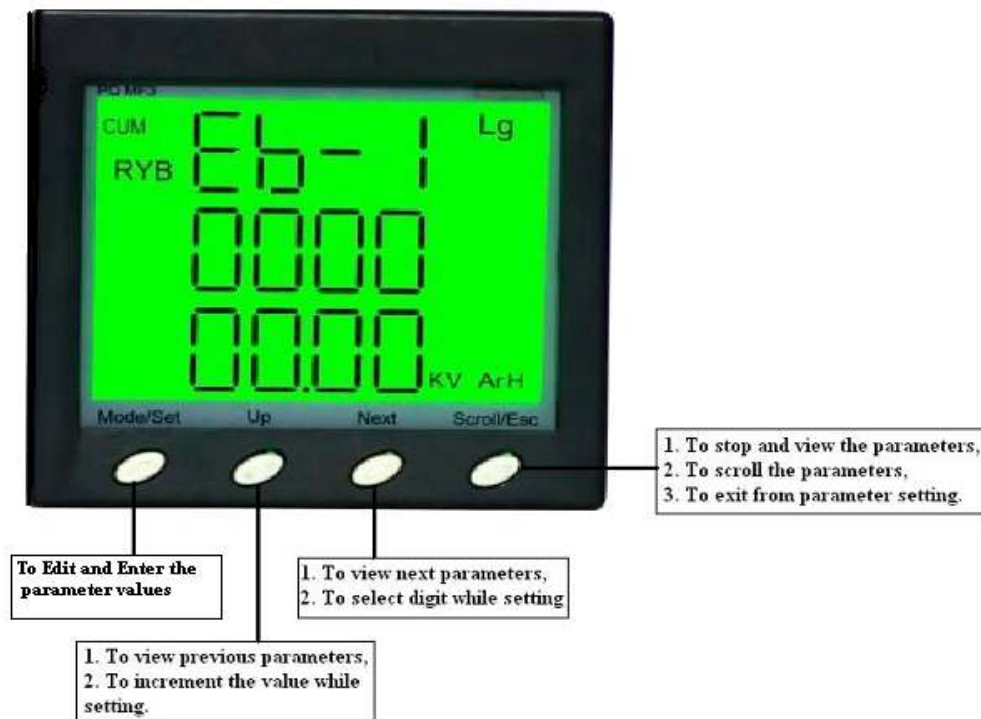
- LCD type – The parameters are calculated by the meter are displayed,
- Selectable Parameters – Can select any out of 7 parameters.
- Scroll rate – The scroll rate of the display parameter scroll in steps of 4secs.
- Keys are provided to stop, scroll, edit and to view the particular parameter.

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

- Time,
- Date,
- Meter ID with Phase Sequence,
- Frequency (Hz.),
- Cumulative – RYB – Active Energy (KWh),
- Instant Active Power – KW – R,Y,B,
- Instant – KW – RYB.


## 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,
  - ✓ to set the Meter ID,
  - ✓ Time, Date,
  - ✓ Energy Reset,
  - ✓ 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:

① S <sub>1</sub>	→ I <sub>R</sub>	② S <sub>2</sub>	③ S <sub>1</sub>	→ I <sub>Y</sub>	④ S <sub>2</sub>	⑤ S <sub>1</sub>	→ I <sub>B</sub>	⑥ S <sub>2</sub>	⑦	⑧
Primary CT Programmable ____ /1A or 5 A										
Manufactured by  Sai PowerZerve Chennai, India. <a href="http://www.spowerz.com">www.spowerz.com</a>										
Meter Name: kWh Energy Meter										
Model : SPK301										
Serial No :										
Volt Input			LN: 0-300V AC				Aux. Supply			
			LL : 0-600V AC				85 - 265 VAC			
V <sub>R</sub> ⑨	V <sub>Y</sub> ⑩	V <sub>B</sub> ⑪	V <sub>N</sub> ⑫	⑬	⑭	L ⑮	N ⑯			

## 2.4) Communication:

### 2.4.1) Communication Interface:

- Through RS485 Communication with MODBUS RTU,
- 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.
- Pay particular attention to the design of the power system.
- 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 kWh meter.
- Ensure that no wiring strands are straying outside after connecting wires.
- kWh 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 1.0S
System type	: 3 Phase 4 Wire
Resolution	: 0.01 (for Combined kWh)
Display	: LCD (3 ROW)
Auxiliary Supply	: 85 – 265 VAC
Current CT	: Whole Current (External) – (10 – 60) A
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.)