

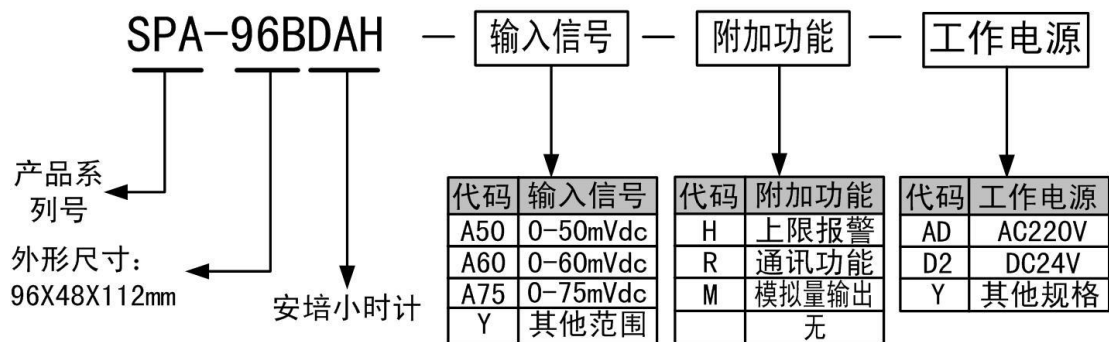
## 1. INTRODUCTION

Suzhou Quick Peng ampere hour meters well developed ahead for many years in national sales. **SPA-96BDAH** Series amp-hour meter for DC power measurement, the unit of measurement for " Ampere hour ( AH ) ", is widely used in the chemical industry, electroplating, batteries charging/discharging and electro-technical industries related to the production management; such as nickel screen, laser mark making, plate-making and the precious metals electroplating brightener applications.

## 2. FEATURES

- Measurement and display the ampere-hour cumulative value, real time current, single row of eight-digit digital tube display, position of the decimal point and measuring range on-demand settings;
- Optional RS485 RS232 Interface (Modbus-RTU Protocol) address, the baud rate from the device can be set by any of the front panel buttons;
- Shunt-current values can be set, SPA-96BDAH DC system is available for different current levels;
- Auxiliary power default to AC220V, optional DC24 or AC/DC220V;
- Configurable relay alarm output and analog on;
- Small and light size with enhanced anti-interference ability.

## 3. SELECTION CODES



Example

Model: SPA-96BDAH-A75-H-AD

Input: 0~2000Adc/0~75mVdc (Bus current can be set)

Display: 0.00~99999999Ah

Outputs: relay (dosing time can be set up)

Input power: AC220V

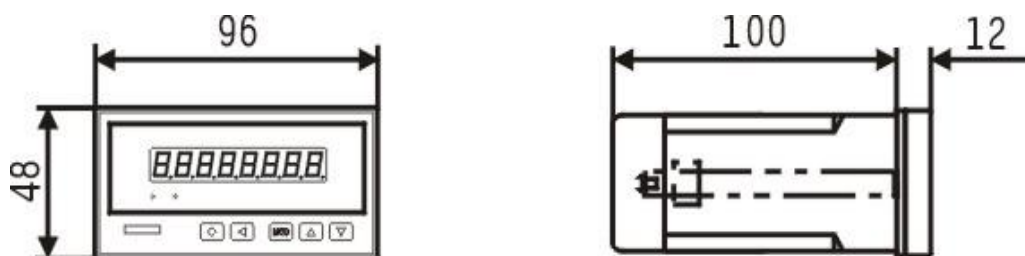
Description: this product is 0~2000Adc converting the DC current signal splitter 0~75mVdc. As DC current signal input signal, 8 LED display accumulated values, press the key to switch 4 LED real-time current, ampere hours limit alarm relay output; Auxiliary power supply for AC220V。

## 4. TECHNICAL SPECIFICATIONS

|                        |                     | Technical specifications                                                                                                        |
|------------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Input signal           | Current Flow        | Current input: 0~75mVdc, or other special custom specifications                                                                 |
|                        |                     | Current 4 LED Display, display range 0~9999.<br>The decimal point and measuring range on-demand settings                        |
|                        | Precision           | ≤ 0.2%                                                                                                                          |
| Ampere hour            | Measurement display | Ampere hour 8 LED Display, 0.00~99999999, the decimal point automatically move                                                  |
|                        | Precision           | ≤ 0.2%                                                                                                                          |
| Alarm                  |                     | Accumulate as an upper limit alarm, alarm value, and auto-recover time can be set up                                            |
|                        | Relay output        | Relay output, contact capacity 220V AC, 3A                                                                                      |
| Optional features      | Communications      | RS485/RS232 Communication interface, Modbus-RTU Protocol, address 0~99 can be set up, transfer rate 2400~19200bps can be set up |
|                        | Analog output       | Instantaneous current transmitting output, optional current or voltage output signal, transmission range can be set             |
| Auxiliary power supply |                     | AC/DC220V, DC24V; Power consumption < 7VA<br>Special power supply can be customized                                             |
| Isolation voltage      |                     | 2kV/min                                                                                                                         |
|                        |                     | > 50MΩ                                                                                                                          |
| External environment   |                     | Operating temperature: 0 °C ~50°C                                                                                               |
|                        |                     | Relative humidity: 90%RH 40°C<br>(No condensation, no corrosive gases)                                                          |

## 5. INSTALLATION

### 5.1 Overall dimensions



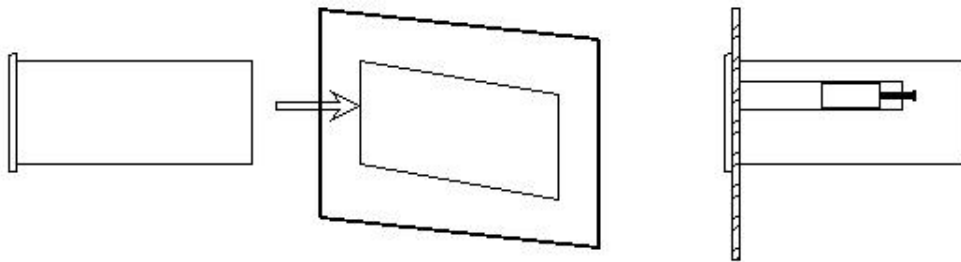
Overall dimensions: 96mmx48mmx112mm (length x width x depth)

Installation: Panel hole installation, minimal installation depth: 100 mm

Open size: 92mm×45mm

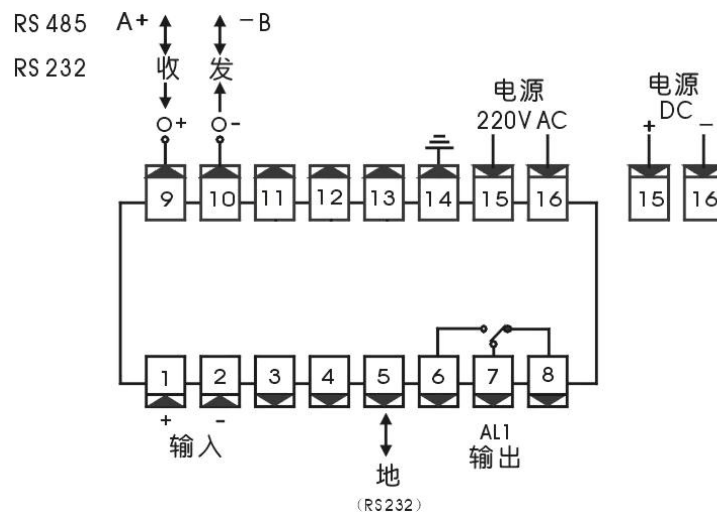
Weight: about 600g

## 5.2 Installation methods



1. Open the cabinets hole on a size for 92x45mm;
2. From the package, take out the box SPA-96BDAH, mounting brackets and mounting screws;
3. Insert the SPA-96BDAH into the opened cabinets;
4. On the inside of the switch cabinet installation is fixed on the bracket and tighten the mounting screws;

## 6. TERMINALS SETTING



1. To ensure safety, the wiring must be carried out after the power.
2. Make sure earthed and do not connect with other terminal

This manual provides the basic connection diagrams. The interpretation please subject to the Chinese operation manual.

## 7. DISPLAY AND CONTROLLING BUTTONS



|                          |                     | Says Ming                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Display</b>           | ① Accumulated value | <ul style="list-style-type: none"> <li>ÿ Displays the value of accumulated ampere hours, display range 0.00~99999999Ah, starting point for 2, the accumulated value increases automatically shift the decimal point</li> <li>ÿ Display the current value, display range 0-9999</li> <li>ÿ In the parameter set state, displays the parameter symbol and parameter values</li> </ul> |
| ② LEDs                   |                     | ÿ Alarm status indicator                                                                                                                                                                                                                                                                                                                                                            |
| <b>The Function Keys</b> | ③ Set key           | <ul style="list-style-type: none"> <li>ÿ Setting mode; press and hold 2 seconds without releasing</li> <li>ÿ In setting mode, the parameter symbol is displayed, press and hold 2 seconds without releasing into the next set of parameters or return to mode</li> </ul>                                                                                                            |
|                          | ④ The left Key      | <ul style="list-style-type: none"> <li>ÿ In the measurement condition is not valid</li> <li>ÿ In a mode of settings:① redeployed the original parameter value</li> <li>ÿ Move to modify</li> </ul>                                                                                                                                                                                  |
|                          | ④ Confirm button    | <ul style="list-style-type: none"> <li>ÿ Display cumulative value and current value</li> <li>ÿ while ins mode of setting. modify parameter values</li> </ul>                                                                                                                                                                                                                        |
|                          | ⑥ Add key           | <ul style="list-style-type: none"> <li>ÿ longer than 6 seconds an accumulated value to zero</li> <li>ÿ Increase the parameter value, or change the type setting</li> </ul>                                                                                                                                                                                                          |
|                          | ⑦ Decrease key      | ÿ Reduce the parameter values, or change the type setting                                                                                                                                                                                                                                                                                                                           |

## 8. PARAMETERS SETTING

### 8.1 Parameters list

1 Set of parameters alarm setting value (no alarm, no parameters this group)

| Symbol | The name | Content                 | Address | Range of values | Reference |
|--------|----------|-------------------------|---------|-----------------|-----------|
| AL1H   | AL1H     | When an alarm value set | 00H     | 0~9999          | 1         |

2 Set of parameters Alarm configuration (no alarm, no alarm parameters)

| Symbol | The name | Content             | Address | Range of values | Reference |
|--------|----------|---------------------|---------|-----------------|-----------|
| oA     | oA       | Password            | 10H     | 0~9999          | 2         |
| tYA1   | tYA1     | Alarm recovery time | 1EH     | 0~9999          | 3         |

3 Set of parameters measurement and display

| Symbol | The name | Content                                         | Address | Range of values | Reference |
|--------|----------|-------------------------------------------------|---------|-----------------|-----------|
| incH   | incH     | Input signal selection                          | 30H     |                 | --        |
| in-d   | in-d     | Current position of the decimal point selection | 31H     | 0 ~ 3           | 4         |
| u-r    | u-r      | Current range lower limit                       | 32H     | 0               | --        |
| F-r    | F-r      | Current range upper limit                       | 33H     | 0~9999          | --        |
| cHo    | cHo      | Resect of small signal threshold                | 39H     | 0 ~25           | 5         |
| in-A   | in-A     | Zero point correction                           | 3CH     | -1999~9999      | 6         |
| Fi     | Fi       | Full scale correction                           | 3DH     | 0.5-1.500       | 7         |
| FLtr   | FLtr     | Digital filter time constant                    | 3EH     | 1 ~ 20          | 8         |
| F-H    | F-H      | Measurement time selection                      | 3FH     | 0 ~ 2           | 9         |

4 Set of parameters communications and the transmitter output


| Symbol | The name | Content                            | Address | Range of values | Reference |
|--------|----------|------------------------------------|---------|-----------------|-----------|
| Add    | Add      | Communication address              | 40H     | 0 ~ 99          | --        |
| bAud   | bAud     | Communication speed selection      | 41H     | 0 ~ 3           | 10        |
| ccLr   | ccLr     | Zero out communications parameters | 42H     | 0~9999          | 11        |
| ctd    | ctd      | Alarm output control options       | 44H     | 0, 1            | 12        |
| ctA    | ctA      | Transmitter output control         | 45H     | 0, 1            | 13        |


|      |      | right select                        |     |        |    |
|------|------|-------------------------------------|-----|--------|----|
| oA1  | oA1  | Alarm set password select           | 46H | 0, 1   | 14 |
| JocS | JocS | Calibration mode                    | 47H | 0~2    | 15 |
| Ac   | Ac   | Totalizer value zero to select      | 4BH | 0, 1   | 16 |
| oP   | oP   | Transmitter output signal selection | 4DH | 0 ~ 2  | 17 |
| bA-L | bA-L | Transmitter output lower limit      | 4EH | 0~9999 | -- |
| bA-H | bA-H | Transmitter output ceiling          | 4FH | 0~9999 | -- |

## Reference:


1. When an upper limit alarm output, if the parameter is set to 0, The instrument does not determine the alarm;
2. The instrument factory password 1111. The parameters  $\text{oA}$  cannot be entered when no password has been set. Password on the instrument is powered on or when 1 minutes when there is no key operation is automatically cleared;
3. When an accumulated value reaches the alarm set value, the relay outputs, delay Alarm recovery time Hou, automatic recovery; Alarm recovery time Parameter in seconds. When set to 0 , alarm is not automatically restored;
4. 0 ~ 3 Corresponds to the order 0.000, 00.00, 000.0, 0000;
5. Setting range 0~25,  $\text{F-r}$  represents (Current range limit) of 0%~25%, if the current is less than the threshold, according to 0 Processing;
6. Display values = Before the zero point correction of the display value +  $\text{c n - R}$ ;
7. Display values = Amendments before the display value  $\times \text{F}$ ;
8. Used to overcome the instability is displaying fluctuations, set the value of the larger, then stronger, but reflected the slower to changes in input signal;
9. 0 for  $\text{---F}$  (In minutes), 1 for  $\text{---H}$  (In hour), 2 for  $\text{---S}$  (Measured in seconds);
10. 0 ~ 3 Corresponds to the order 2400, 4800, 9600, 19200;
11. By means of communication, after setting to this parameter 2222, accumulated value to zero;
12. 0 is OFF, 1 is ON, parameter  $\text{c t d}$  set to ON, alarm output controlled by communication command;
13. 0 is OFF, 1 is ON, parameter  $\text{c t R}$  set to ON, transmitting output controlled by communication command;
14. 0 is OFF, 1 is ON, parameter set to ON, alarm parameters controlled by password, will be able to view, but changes cannot be saved;
15. 0 is No parity, 1 is Odd parity, 2 is the corresponding parity;
16. 0 is OFF, 1 is ON, only when this parameter is set to ON, the instrument can be zero;
17. 0 is output 4mA-20mA (or 1 V-5V), 1 is output 0mA-10mA, 2 is output for 0mA-20mA (or 0V-5V) ;



### 8.2 Parameter setting flow chart


Press and hold the set key  for 2 seconds, go to main settings to display parameter 1st symbol;

Key  to select other parameters in this group;

Key  to set for the current parameter value flashes as amended through

Key  to move to modify,

Key , or Key , to modify the parameters to the values that you want;

Key  to save the setting and go to the next parameter;

After entering the setting mode, if 1 Minutes without operation, the instrument will automatically exit the setting mode

Flow chart of instrument specific parameters set as follows:

