

# SA series

SPEC. SHEET

## Limiters (DC current input) (with indication function)

Model: **SAAL**

### Model

SAAL -

Power supply  
0: 100 to 240V AC  
1: 24V AC/DC

### How to order

Specify a model.  
(e.g.) SAAL-0

Default value

|        |              |
|--------|--------------|
| Input  | 4 to 20mA DC |
| Output | 4 to 20mA DC |

### Accessories (sold separately)

| Name           | Model       | Specification |
|----------------|-------------|---------------|
| Shunt resistor | RES-S02-050 | 50Ω ±0.1%     |
|                | RES-S02-100 | 100Ω ±0.1%    |
|                | RES-S02-200 | 200Ω ±0.1%    |
|                | RES-S02-01K | 1kΩ ±0.1%     |

### Input specifications

#### DC current

| Input range  | Shunt resistor |
|--------------|----------------|
| 4 to 20mA DC | 50Ω            |
| 0 to 20mA DC |                |
| 0 to 16mA DC |                |
| 2 to 10mA DC | 100Ω           |
| 0 to 10mA DC |                |
| 1 to 5mA DC  | 200Ω           |
| 0 to 1mA DC  | 1kΩ            |

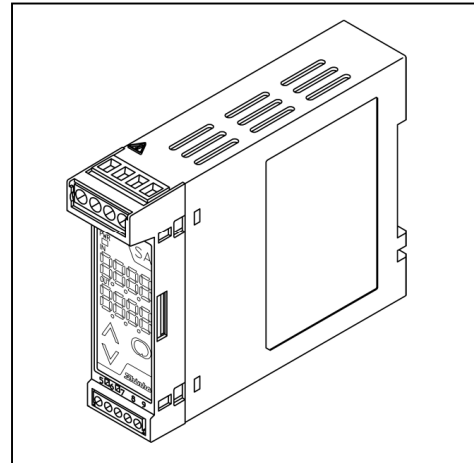
Connect a shunt resistor (sold separately) between input terminals.

### Output specifications

When the output range lower limit is zero, (even if zero adjustment results in a negative value), the output value will not be negative.

#### DC current

| Output range | Allowable load resistance | Zero adjustment range | Span adjustment range |
|--------------|---------------------------|-----------------------|-----------------------|
| 0 to 10mA DC | 1.2kΩ or less             | 0 to 5%               | 95 to 105%            |
| 0 to 12mA DC |                           |                       |                       |
| 0 to 20mA DC | 700Ω or less              | -5 to 5%              |                       |
| 4 to 20mA DC |                           |                       |                       |
| 1 to 5mA DC  | 2.4kΩ or less             |                       |                       |



### DC voltage

| Output range | Allowable load resistance | Zero adjustment range | Span adjustment range |
|--------------|---------------------------|-----------------------|-----------------------|
| 0 to 1V DC   | 100Ω or more              | 0 to 5%               | 95 to 105%            |
| 0 to 10V DC  | 1kΩ or more               |                       |                       |
| 0 to 5V DC   | 500Ω or more              |                       |                       |
| 1 to 5V DC   |                           | -5 to 5%              |                       |

#### Output limit function:

-5 to 105% (individual high limit, low limit setting)  
Limits the minimum, maximum value of the converted output.

### Performance

Accuracy: Input: Within ±0.1%, Output: Within ±0.1%

Display accuracy : Within input accuracy ±1 digit

Response time : 0.5 sec. (typical) (0 → 90%)

Temperature coefficient: ±0.015%/°C

Insulation resistance : 10MΩ or more, at 500V DC  
(Input - Output - Power)

Dielectric strength : 2.0kV AC for 1 minute  
(Input - Output - Power),

Isolation: 3-port isolation (between Input - Output - Power)

### General structure

Case : Flame-resistant resin Color: Light gray

Front panel: Membrane sheet

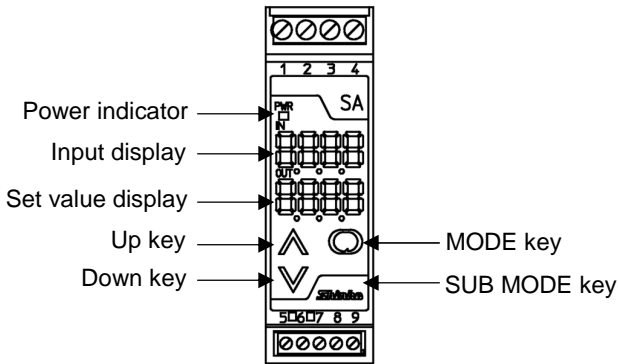
Setting : By the front keypad

Indication:

Power indicator : Green LED

Input display : 7-segment, Red LED display 4-digit,  
Character size, 7.4 x 4.0mm (H x W)

Output display : 7-segment, Green LED display 4-digit,  
Character size, 7.4 x 4.0mm (H x W)



**Installation specifications**

- Power supply : 100 to 240V AC 50/60Hz  
24V AC/DC 50/60Hz
- Allowable voltage range: 85 to 264V AC  
20 to 28V AC/DC
- Power consumption : Approx. 6VA
- Ambient temperature : -5 to 55°C
- Ambient humidity : 35 to 85%RH (non-condensing)
- Mounting : DIN rail mounting
- External dimensions : 22.5 (W) x 75 (H) x 100 (D)mm
- Weight : Approx. 120g

**Attached functions**

- Power failure countermeasure:  
The data is backed up in non-volatile IC memory.
- Self diagnosis:  
The CPU is monitored by a watchdog timer, and when an abnormal status is found on the CPU, the unit is switched to warm-up status with turning all outputs off.

**Environmental specification**

RoHS directive compliance

**Settings**

**Function keys**

- (1) Up key : Increases the numeric value.
- (2) Down key : Decreases the numeric value.
- (3) MODE key : Selects the setting mode.
- (4) SUB MODE key: Press with the MODE key to select the setting mode.

**Setting items**

- Setting by pressing the MODE key for 3 seconds
  - (1) Output zero adjustment
  - (2) Output span adjustment
- Setting by the MODE key and SUB MODE key
  - (1) Set value lock
  - (2) Input type
  - (3) Decimal point place
  - (4) Output 0% value
  - (5) Output 100% value
  - (6) Filter time constant
  - (7) Sensor correction
  - (8) Output type
  - (9) Output Normal/Reverse
  - (10) Display selection
  - (11) Indication time
  - (12) Output Low limit
  - (13) Output High limit

**Displays and indicators**

- Power indicator : The green LED lights when the power to the instrument is turned on.
- Input display : Indicates the input value. Indication of -2000 or less: The minus (-) sign and input value light alternately. Indication of 10000 or more: The lower 4 digits flash.
- Output display : Indicates the output volume in percentage (%) form.
- Under range : "----" flashes on the Input display.
- Over range : "----" flashes on the Input display.
- Warm-up indication:  
For approx. 3 seconds after power-on, the input type is indicated on the Input display, and Output type is indicated on the Output display.

**Ferrules**

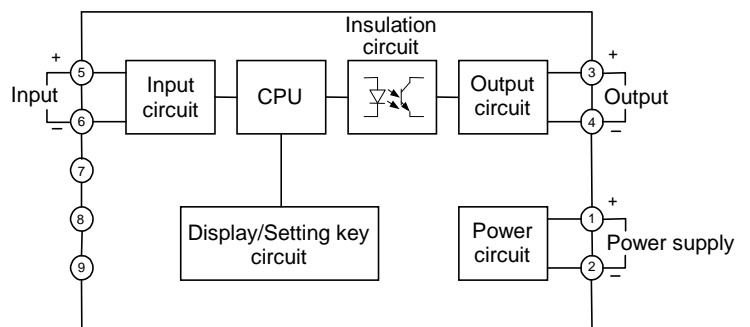
**Terminals from 1 to 4**

- Insulation sleeve attached (Phoenix Contact GMBH & CO.)
  - A10.25-8YE 0.2 – 0.25mm<sup>2</sup>
  - A10.34-8TQ 0.25 – 0.34mm<sup>2</sup>
  - A10.5-8WH 0.34 – 0.5mm<sup>2</sup>
  - A10.75-8GY 0.5 – 0.75mm<sup>2</sup>
  - A11.0-8RD 0.75 – 1.0mm<sup>2</sup>
  - A11.5-8BK 1.0 – 1.5mm<sup>2</sup>
- Crimping pliers (Phoenix Contact GMBH & CO.)  
CRIMPFOX ZA3, CRIMPFOX UD6

**Terminals from 5 to 9**

- Insulation sleeve attached (Phoenix Contact GMBH & CO.)
  - A10.25-8YE 0.2 – 0.25mm<sup>2</sup>
  - A10.34-8TQ 0.25 – 0.34mm<sup>2</sup>
  - A10.5-8WH 0.34 – 0.5mm<sup>2</sup>
- Crimping pliers (Phoenix Contact GMBH & CO.)  
CRIMPFOX ZA3, CRIMPFOX UD6

**Circuit configuration and terminal arrangement**



**External dimensions (Scale: mm)**

