

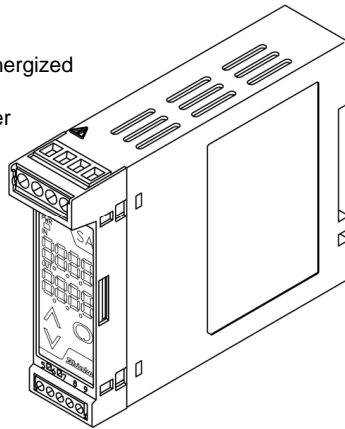
## Alarm Detector (Thermocouple)

Model: **SAEA**

(with indication function)

### ■ Features

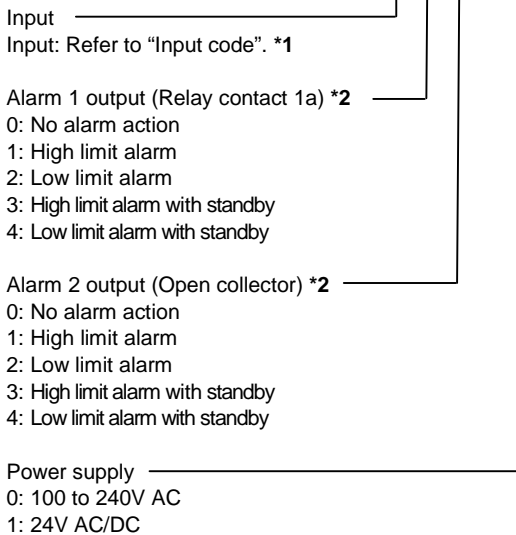
- Alarm Energized/De-energized
- Alarm Hold function
- Alarm action delay timer
- Set value lock



### ■ How to order

Specify a model. (e.g.) SAEA-0111-0

Model: SAEA - □ □ □ - □



### \*1: Input code

Thermocouple	Input range	
01	K	-200 to 1370°C
02	K	-199.9 to 400.0°C
03	J	-200 to 1000°C
04	R	-50 to 1760°C
05	S	-50 to 1760°C
06	B	0 to 1820°C
07	E	-200 to 800°C
08	T	-199.9 to 400.0°C
09	N	-200 to 1300°C
10	PL-II	0 to 1390°C
11	W5Re/W26Re	0 to 2315°C
12	W3Re/W25Re	0 to 2315°C
51	K	-328 to 2498°F
52	K	-199.9 to 752.0°F
53	J	-328 to 1832°F
54	R	-58 to 3200°F
55	S	-58 to 3200°F
56	B	32 to 3308°F
57	E	-328 to 1472°F
58	T	-199.9 to 752.0°F
59	N	-328 to 2372°F
60	PL-II	32 to 2534°F

Thermocouple	Input range	
61	W5Re/W26Re	32 to 4199°F
62	W3Re/W25Re	32 to 4199°F

\*2: The alarm type can be selected by keypad from No alarm action, High limit alarm, Low limit alarm, High limit alarm with standby and Low limit alarm with standby.

### ■ Input specifications

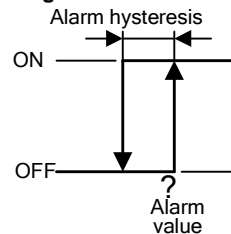
#### Thermocouple

- Input resistance : 1MΩ or more
- External resistance : 100Ω or less (B: 40Ω or less)
- Burnout : Upscale
- Input : Thermocouple (Refer to "Input code".)

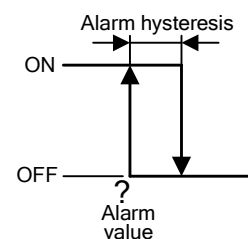
### ■ Output specifications

For Alarm 1 and Alarm 2, the alarm type can be selected respectively from High limit alarm, Low limit alarm, High limit alarm with standby, Low limit alarm with standby and No alarm.

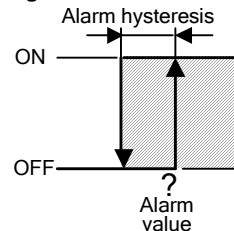
#### • High limit alarm



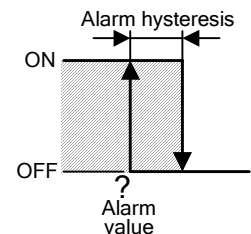
#### • Low limit alarm



#### • High limit alarm with standby



#### • Low limit alarm with standby



▨ Standby functions.

Alarm action: ON/OFF action, Alarm hysteresis: 0.1 to 100.0%FS, Delay timer: 0 to 9999sec, Energized/De-energized Alarm Holding/Not holding, Selectable

Alarm 1 output: Relay contact 1a, Control capacity; 3A 250V AC (Resistive load), 1A 250V AC (Inductive load cosφ=0.4) Electric life 100,000 cycles

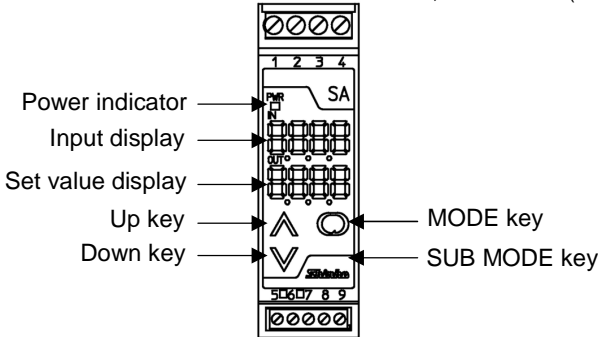
Alarm 2 output: Open collector, Control capacity; 0.1A 24V DC

### ■ Performance

- Setting accuracy : The same as the Display accuracy
- Reference accuracy : Within ±0.2% of each input span  
 R, S inputs, -50 to 200°C (-58 to 392°F): Within ±6°C (12°F)  
 B input, 0 to 300°C (32 to 572°F): Accuracy is not guaranteed.  
 K, J, E, T, N inputs, Less than 0°C (32°F): Within ±0.4% of each input span
- Display accuracy : Within Reference accuracy ±1 digit
- Cold junction compensation accuracy: Within ±1°C at -5 to 55°C
- Temperature coefficient: ±0.015%/°C
- Response time : 1 sec or less
- Insulation resistance : 10MΩ or more, at 500V DC (Input - Output - Power)
- Dielectric strength: 1500V AC for 1 minute (Input - Alarm 1 output - Alarm 2 output - Power)
- Isolation: 3-port isolation (between Input - Output - Power)

## General structure

Case: Flame-resistant resin Color: Light gray  
 Front panel: Membrane sheet Setting: Using 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)  
 Set value 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 if an abnormal status is found on the CPU, the unit is switched to warm-up status with turning all outputs off.
- Cold junction compensation: Built-in

## 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) Alarm 1 value (2) Alarm 2 value
- Setting by the MODE key and SUB MODE key
  - (1) Set value lock
  - (2) Filter time constant
  - (3) Sensor correction
  - (4) Alarm 1 type
  - (5) Alarm 2 type
  - (6) Alarm 1 Energized/De-energized
  - (7) Alarm 2 Energized/De-energized
  - (8) Alarm 1 Hold function
  - (9) Alarm 2 Hold function
  - (10) Alarm 1 hysteresis
  - (11) Alarm 2 hysteresis
  - (12) Alarm 1 action delay timer
  - (13) Alarm 2 action delay timer
  - (14) Display selection
  - (15) Indication time

## Displays and indicators

Power indicator : The green LED lights when power-on.  
 Input display : Indicates the input value.  
 Under range : " - - - - " flashes on the Input display.  
 Over range : " - - - - " flashes on the Input display.  
 Warm-up indication: For approx. 3sec after power-on, the input type is indicated on the Input display, and input range high limit value is indicated on the Set value display.

Set value display: Indicates the one which has been selected during "Display selection" mode.  
 Indicates Alarm 1 value or Alarm 2 value.  
 Indicates characters shown below while alarm output is on.

Alarm output status	Set value display
Alarm 1 output ON	U 1 0 0
Alarm 2 output ON	0 0 U 2
Alarm 1, 2 outputs ON	U 1 U 2

## Ferrules

### Terminals from 1 to 4

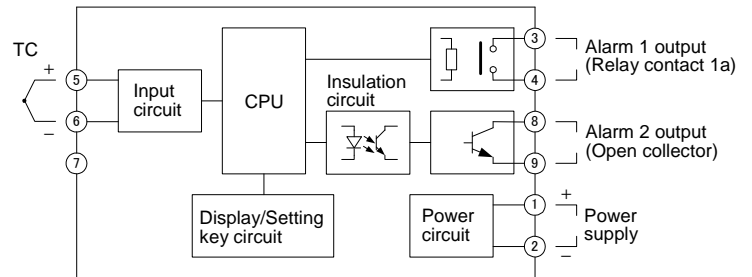
- Insulation sleeve attached (Phoenix Contact GMBH & CO.)
  - A10.25-8YE 0.2 – 0.25mm<sup>2</sup>
  - A10.34-8TQ 0.25 – 0.34mm<sup>2</sup>
  - A10.5-8WH 0.34 – 0.5mm<sup>2</sup>
  - A10.75-8GY 0.5 – 0.75mm<sup>2</sup>
  - A11.0-8RD 0.75 – 1.0mm<sup>2</sup>
  - A11.5-8BK 1.0 – 1.5mm<sup>2</sup>

- Crimping pliers (Phoenix Contact GMBH & CO.)  
 CRIMPFOX ZA3, CRIMPFOX UD6

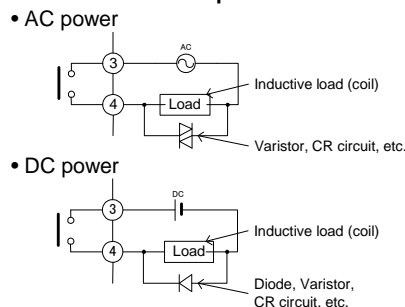
### Terminals from 5 to 9

- 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

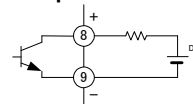
## Circuit configuration and terminal arrangement



### Alarm 1 output: Take measures for relay protection and noise prevention as shown below.



### Alarm 2 open collector output connection example



## External dimensions (Scale: mm)

