SAW series

Thermocouple Transmitter (with indication function)

Model: **SAWE**

c ®U US

■ Model

SAWE – ☐ ☐

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

Output 2 (Output 1: Universal)
0: 4 to 20mA DC
1: 0 to 20mA DC
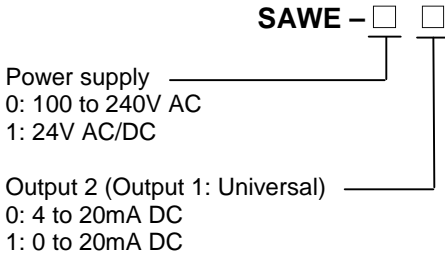
■ How to order
Specify a model. (e.g.) SAWE-00
Default value

Input	K -200 to 1370℃
Output 1	4 to 20mA DC
Output 2	Fixed range

■ Input specifications
Thermocouple

Input resistance : 1MΩ or more
External resistance: 100Ω or less, however, B: 40Ω or less
Burnout : Upscale, Downscale
Input:

Thermocouple	Input range	
K	-200 to 1370℃	-328 to 2498℉
J	-200 to 1000℃	-328 to 1832℉
R	-50 to 1760℃	-58 to 3200℉
S	-50 to 1760℃	-58 to 3200℉
B	0 to 1820℃	32 to 3308℉
E	-200 to 800℃	-328 to 1472℉
T	-200 to 400℃	-328 to 752℉
N	-200 to 1300℃	-328 to 2372℉
PL-II	0 to 1390℃	32 to 2534℉
W5Re/W26Re	0 to 2315℃	32 to 4199℉
W3Re/W25Re	0 to 2315℃	32 to 4199℉

Minimum span: 50℃(100℉)

■ 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.
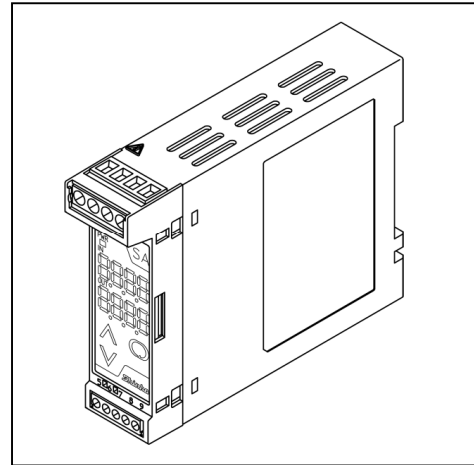
Output 1 (Universal)
DC current

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

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 5V DC	500Ω or more	0 to 5%	95 to 105%
1 to 5V DC	500Ω or more	-5 to 5%	95 to 105%
0 to 10V DC	1kΩ or more	0 to 5%	95 to 105%

Output 2 (Fixed range)
DC current

Output range	Allowable load resistance	Zero adjustment range	Span adjustment range
4 to 20mA DC	300Ω or less	-5 to 5%	95 to 105%
0 to 20mA DC	300Ω or less	0 to 5%	95 to 105%

■ Performance
Accuracy:
• Input:
    Within ±0.1% of each input span
        R, S inputs, -50 to 200℃ (-58 to 392℉):
            Within ±6℃ (12)℉
        B input, 0 to 300℃ (32 to 572℉):
            Accuracy is not guaranteed.
        K, J, E, T, N inputs, Less than 0℃(32℉):
            Within ±0.4% of each input span
• Output 1: Within ±0.1%
• Output 2: Within ±0.15%
Cold junction compensation accuracy:
    Within ±1℃ at -5 to 55℃
Display accuracy:
    Within input accuracy ±1 digit
Response time:
    Output 1: 0.5 sec. (typical) (0 → 90%)
    Output 2: 1.0 sec. (typical) (0 → 90%)
Temperature coefficient:
    Output 1: ±0.015%/ ℃
    Output 2: ±0.015%/ ℃
Insulation resistance: 10MΩ or more, at 500V DC
                (Input - Output 1 - Output 2 - Power)
Dielectric strength: 2.0kV AC for 1 minute:
                (Input - Output 1 - Power),
   (Output 1 - Output 2 - Power)
            1.35kV AC for 1 minute:
                (Input - Output 2)

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 : 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)
  Power indicator: Green LED

Power indicator
Input display
Output display
Up key
Down key
MODE key
SUB MODE key
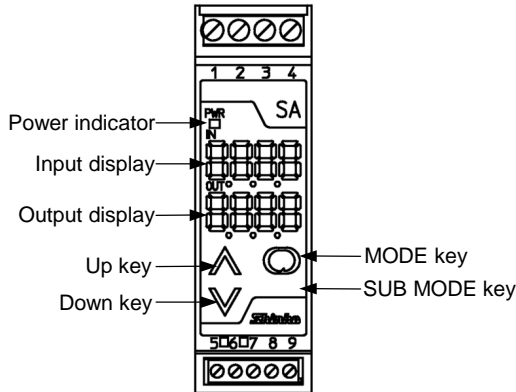
■ Installation specifications

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℃
Ambient humidity : 35 to 85%RH (non-condensing)
Weight : Approx. 120g
Mounting : DIN rail mounting
External dimensions : 22.5 (W) x 75 (H) x 100 (D)mm

■ 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.
Cold junction compensation: Available

■ 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 1 zero adjustment
    (2) Output 1 span adjustment
    (3) Output 2 zero adjustment
    (4) Output 2 span adjustment
  Setting by the MODE key and SUB MODE key
    (1) Set value lock
    (2) Input selection
    (3) Decimal point place
    (4) Output 0% value
    (5) Output 100% value
    (6) Filter time constant
    (7) Sensor correction

  (8) Output 1 output range
  (9) Output Normal/Reverse
  (10) Burnout selection
  (11) Display selection
  (12) Indication time

■ Displays and indicators

Input display : Indicates the input value.
  Indication of -200.0 or less:
    The minus (-) sign and input value
    light in turn.
  Under range: " " flashes on the Input display.
  Over range : " " flashes on the Input display.
  Warm-up indication:
    For approx. 3 seconds after the power
    to the instrument is turned on, the input
    type is indicated on the Input display,
    and Output1 type is indicated on the
    Output display.
Output display : Indicates the output volume in
  percentage (%) form.
Power indicator : The green LED lights when the power
  to the instrument is turned on.

■ Ferrules

Terminals from 1 to 4
  Insulation sleeve attached (Phoenix Contact GMBH & CO.)
    AI0.25-8YE   0.2 – 0.25mm^2
    AI0.34-8TQ   0.25 – 0.34mm^2
    AI0.5-8WH   0.34 – 0.5mm^2
    AI0.75-8GY   0.5 – 0.75mm^2
    AI1.0-8RD   0.75 –1.0mm^2
    AI1.5-8BK   1.0 – 1.5mm^2
  Crimping pliers (Phoenix Contact GMBH & CO.)
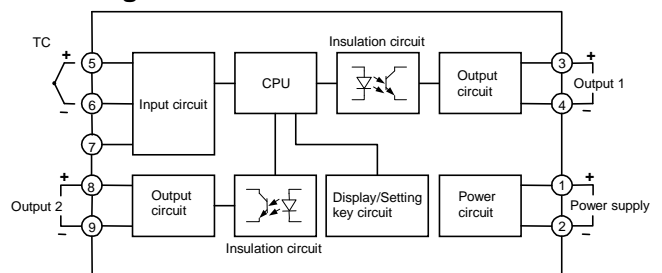   CRIMPFOX ZA3
    CRIMPFOX UD6
Terminals from 5 to 9
  Insulation sleeve attached (Phoenix Contact GMBH & CO.)
    AI0.25-8YE   0.2 – 0.25mm^2
    AI0.34-8TQ   0.25 – 0.34mm^2
    AI0.5-8WH   0.34 – 0.5mm^2
  Crimping pliers (Phoenix Contact GMBH & CO.)
    CRIMPFOX ZA3
    CRIMPFOX UD6

■ Circuit configuration and terminal arrangement

■ External dimensions (Scale: mm)