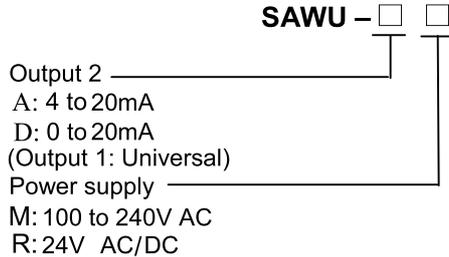


## Universal Transmitter (with indication function)

## MODEL SAWU

### Model



### How to order

Specify a model. (e.g.) SAWU-A-M

### Default value

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

### 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

#### 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°C	-328 to 2498°F
J	-200 to 1000°C	-328 to 1832°F
R	-50 to 1760°C	-58 to 3200°F
S	-50 to 1760°C	-58 to 3200°F
B	0 to 1820°C	32 to 3308°F
E	-200 to 800°C	-328 to 1472°F
T	-200 to 400°C	-328 to 752°F
N	-200 to 1300°C	-328 to 2372°F
PL-II	0 to 1390°C	32 to 2534°F
W5Re/W26Re	0 to 2315°C	32 to 4199°F
W3Re/W25Re	0 to 2315°C	32 to 4199°F

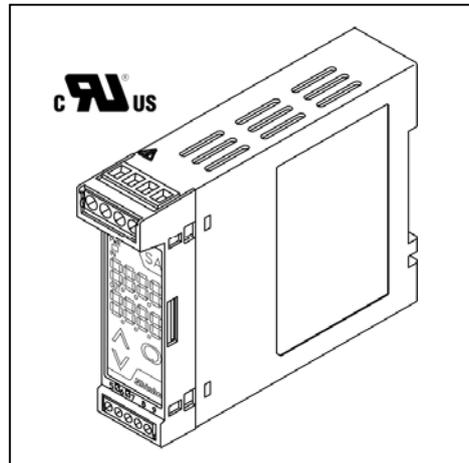
Minimum input span: 50°C (100°F)

### RTD (3-wire system)

Input detection current : Approx. 0.2mA  
Allowable lead wire resistance: 10Ω or less per wire  
Burnout : Upscale, Downscale

RTD	Input range	
Pt100	-200 to 850°C	-328 to 1562°F
JPt100	-200 to 500°C	-328 to 932°F

Minimum span: 50 (100°F)



### 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.

### DC voltage

Input range	Input resistance	Allowable signal source resistance
0 to 10mV DC	1MΩ	20Ω or less
-10 to 10mV DC		40Ω or less
0 to 50mV DC		200Ω or less
0 to 60mV DC		
0 to 100mV DC		
0 to 1V DC	2kΩ or less	

### 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%

# SAW series

## Performance

Accuracy:

- Thermocouple input: Within  $\pm 0.1\%$  of each input span  
R, S inputs,  $-50$  to  $200^{\circ}\text{C}$  ( $-58$  to  $392^{\circ}\text{F}$ ): Within  $\pm 6^{\circ}\text{C}$  ( $12^{\circ}\text{F}$ )  
B input,  $0$  to  $300^{\circ}\text{C}$  ( $32$  to  $572^{\circ}\text{F}$ ): Accuracy is not guaranteed.  
K, J, E, T, N inputs, Less than  $0^{\circ}\text{C}$  ( $32^{\circ}\text{F}$ ):  
Within  $\pm 0.4\%$  of each input span
- RTD input: Within  $\pm 0.1\%$  of each input span
- DC current input: Within  $\pm 0.1\%$
- DC voltage input: Within  $\pm 0.1\%$
- Output 1: Within  $\pm 0.1\%$
- Output 2: Within  $\pm 0.15\%$

Cold junction compensation accuracy: Within  $\pm 1^{\circ}\text{C}$  at  $-5$  to  $55^{\circ}\text{C}$

Display accuracy: Within input accuracy  $\pm 1$  digit

Response time: Output 1: 0.5 sec. (typical) ( $0 \rightarrow 90\%$ )

Output 2: 1.0 sec. (typical) ( $0 \rightarrow 90\%$ )

Temperature coefficient: Output 1:  $\pm 0.015\%/^{\circ}\text{C}$

Output 2:  $\pm 0.015\%/^{\circ}\text{C}$

Insulation resistance:  $10\text{M}\Omega$  or more, at  $500\text{V DC}$   
(Input - Output 1 - Output 2 - Power)

Dielectric strength:  $2.0\text{kV AC}$  for 1 minute:  
(Input - Output 1 - Power),  
(Output 1 - Output 2 - Power)

$1.35\text{kV AC}$  for 1 minute:

(Between 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

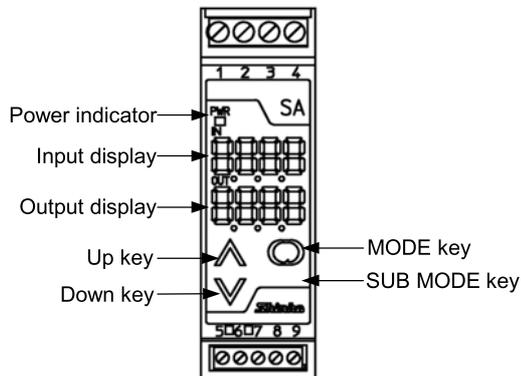
Character size,  $7.4 \times 4.0\text{mm}$  (H x W)

Output display:

7-segment, Green LED display 4-digit

Character size,  $7.4 \times 4.0\text{mm}$  (H x W)

Power indicator: Green LED



## Installation specifications

Power supply :  $100$  to  $240\text{V AC}$   $50/60\text{Hz}$   
 $24\text{V AC/DC}$   $50/60\text{Hz}$

Allowable voltage range:  $85$  to  $264\text{V AC}$   
 $20$  to  $28\text{V AC/DC}$

Power consumption : Approx.  $6\text{VA}$

Ambient temperature :  $-5$  to  $55^{\circ}\text{C}$

Ambient humidity :  $35$  to  $85\%\text{RH}$  (non-condensing)

Weight : Approx.  $120\text{g}$

Mounting : DIN rail

External dimensions :  $22.5$  (W)  $\times$   $75$  (H)  $\times$   $100$  (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 temperature 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) 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) Input range
- (4) Decimal point place
- (5) Output 0% value
- (6) Output 100% value
- (7) Filter time constant
- (8) Sensor correction
- (9) Output 1 output range
- (10) Output Normal/Reverse
- (11) Burnout selection
- (12) Display selection
- (13) Indication time

## Displays and indicators

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.

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 1 type is indicated on the Output display.

Output display: Indicates the output volume in percentage (%) form.

Power indicator: The green LED lights when power-on.

## Ferrules

Terminals from 1 to 4:

Insulation sleeve attached (Phoenix Contact GMBH & CO.)

A10.25-8YE  $0.2 - 0.25\text{mm}^2$

A10.34-8TQ  $0.25 - 0.34\text{mm}^2$

A10.5-8WH  $0.34 - 0.5\text{mm}^2$

A10.75-8GY  $0.5 - 0.75\text{mm}^2$

A11.0-8RD  $0.75 - 1.0\text{mm}^2$

A11.5-8BK  $1.0 - 1.5\text{mm}^2$

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  $0.2 - 0.25\text{mm}^2$

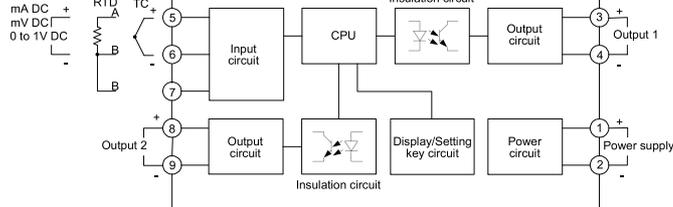
A10.34-8TQ  $0.25 - 0.34\text{mm}^2$

A10.5-8WH  $0.34 - 0.5\text{mm}^2$

Crimping pliers (Phoenix Contact GMBH & CO.)

CRIMPFOX ZA3, CRIMPFOX UD6

## Circuit configuration, terminal arrangement



## External dimensions (Scale: mm)

