

SA series

SPEC. SHEET

Universal Transmitter (with indication function)

Model: **SAU**

Model

SAU -

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

How to order

Specify a model. (e.g.) SAU-0
Default value

Input	K -200 to 1370°C
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

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
Input:

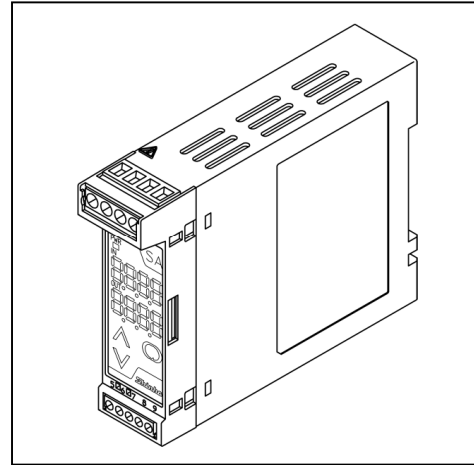
RTD	Input range	
Pt100	-200 to 850°C	-328 to 1562°F
JPt100	-200 to 500°C	-328 to 932°F

Minimum span: 50°C (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		
0 to 5V DC		2kΩ or less
1 to 5V DC		
0 to 10V DC		

Potentiometer

Total resistance : 100Ω to 10kΩ
Reference voltage: 1.0V DC

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
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%

■ Performance

Accuracy:

- Thermocouple input: Within $\pm 0.1\%$ of each input span
 R, S inputs, -50 to 200°C (-58 to 392°F): Within $\pm 6^{\circ}\text{C}$ (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 $\pm 0.4\%$ 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 $\pm 0.1\%$
- Potentiometer input: Within $\pm 0.1\%$
- Output: Within $\pm 0.1\%$

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

Display accuracy: Within input accuracy ± 1 digit

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

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

Insulation resistance: $10\text{M}\Omega$ or more, at 500V DC

(Input - Output - Power)

Dielectric strength: 2.0kV AC for 1 minute:

(Input - Output - Power)

■ General structure

Case : Flame-resistant resin Color: Light gray

Front panel: Membrane sheet

Setting : By the front keypad

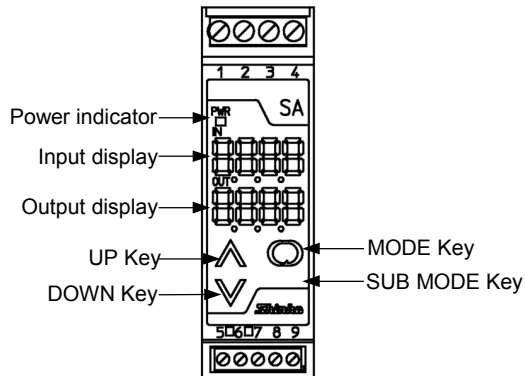
Indication : Input display:

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 240V AC $50/60\text{Hz}$
 24V AC/DC $50/60\text{Hz}$

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 $85\%\text{RH}$ (non-condensing)

Weight : Approx. 120g

Mounting : DIN rail

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 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

Set by pressing the MODE Key for 3 seconds

(1) Output zero adjustment (2) Output span adjustment

(3) Potentiometer input zero adjustment

(4) Potentiometer input span adjustment

Set by the MODE Key and SUB MODE Key

(1) Set value lock (2) Input type

(3) Input range (4) Decimal point place

(5) Output 0% value (6) Output 100% value

(7) Filter time constant (8) Sensor correction

(9) Output type/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 -200.0 or less (ranges with decimal point):

The minus (-) sign and input value light in turn.

DC input: 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 the Output 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.)

AI0.25-8YE $0.2 - 0.25\text{mm}^2$

AI0.34-8TQ $0.25 - 0.34\text{mm}^2$

AI0.5-8WH $0.34 - 0.5\text{mm}^2$

AI0.75-8GY $0.5 - 0.75\text{mm}^2$

AI1.0-8RD $0.75 - 1.0\text{mm}^2$

AI1.5-8BK $1.0 - 1.5\text{mm}^2$

Crimping pliers (Phoenix Contact GMBH & CO.)

CRIMPFOX ZA3, CRIMPFOX UD6

Terminals from 5 to 9:

Insulation sleeve attached (Phoenix Contact GMBH & CO.)

AI0.25-8YE $0.2 - 0.25\text{mm}^2$

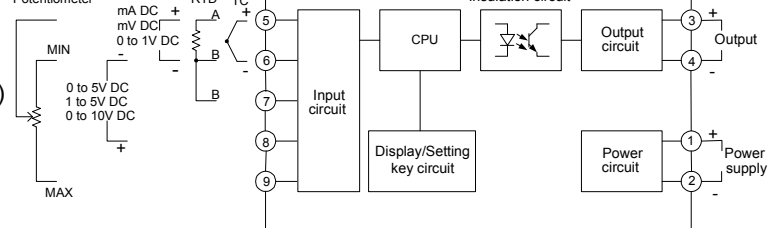
AI0.34-8TQ $0.25 - 0.34\text{mm}^2$

AI0.5-8WH $0.34 - 0.5\text{mm}^2$

Crimping pliers (Phoenix Contact GMBH & CO.)

CRIMPFOX ZA3, CRIMPFOX UD6

■ Circuit configuration, terminal arrangement



■ External dimensions (Scale: mm)

