

Universal Transmitter (with indication function)

MODEL SAU

Model

SAU -

Power supply
M: 100 to 240V AC
R: 24V AC/DC

How to order

Specify a model. (e.g.) SAU-M
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:

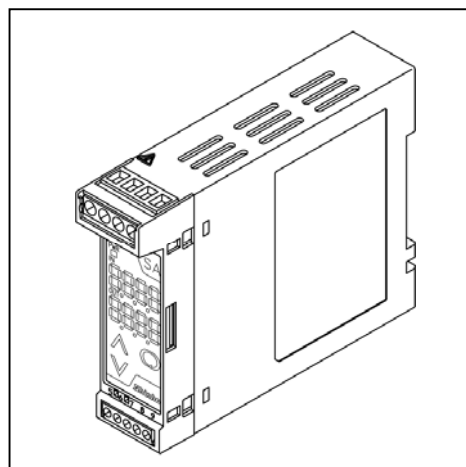
RTD	Input range	
Pt100	-200 to 850°C	-328 to 1562°F
JPt100	-200 to 500°C	-328 to 932°F

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%

SA series

■ 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

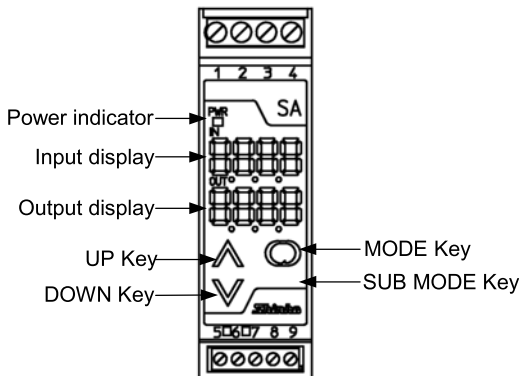
Indication : Input display:

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:

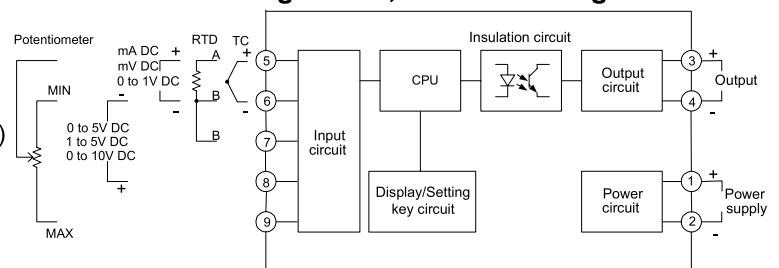
Insulation sleeve attached (Phoenix Contact GMBH & CO.)

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)

