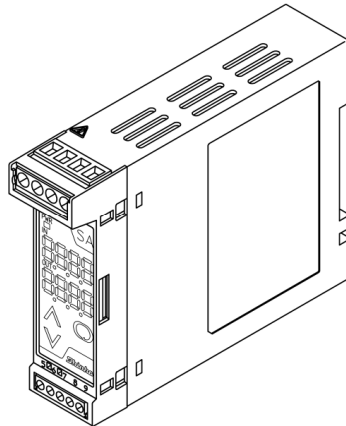
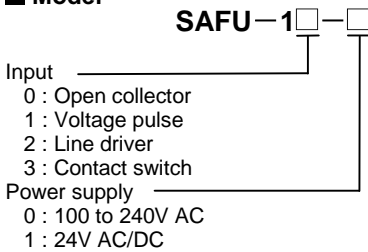


Ultra Low Frequency Transmitter

Model : **SAFU**

(With indication function & sensor power)

Model



How to order

Specify a model and frequency.

(e.g.) SAFU-10-0 (Frequency 9.999Hz)

Default value (If not specified, shipped as the following default value)

Input frequency	0.001 to 9.999Hz
Output	4 to 20mA DC

Input specifications

Open collector

Frequency range	: 0.001 to 0.01Hz 0.001 to 9.999Hz
Minimum pulse width	: 4μs or more (for ON and OFF)
Input detection voltage/current	: ON: Max. 30mA (30V or less) OFF: Residual voltage, 0.5V or less
Action input conditions	: ON: 200Ω or less OFF: 100kΩ or more

Voltage pulse

Frequency range	: 0.001 to 0.01Hz 0.001 to 9.999Hz
Minimum pulse width	: 4μs or more (for High and Low)
Waveform	: Rectangular, sine waveform or similar
Detection level	: Low: 1V DC or less High: 2V DC or more
Input impedance	: 10kΩ or more
Input amplitude	: 2 to 50V _{p-p}

Line driver

AM26LS31 or equivalent
Receiver: AM26LS32 or equivalent

Contact switch

Frequency range	: 0.001 to 5Hz
Minimum pulse width	: 10ms or more (for ON and OFF)
Action input conditions	: ON: 200Ω or less OFF: 100kΩ or more

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	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

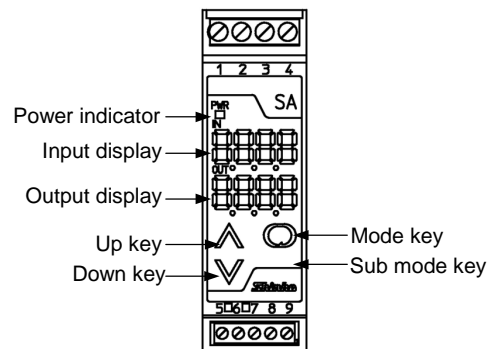
Output	Allowable load resistance	Zero adjustment range	Span adjustment range
0 to 1V DC	100Ω or more	0 to 5%	95 to 105%
0 to 5V DC	500Ω or more	0 to 5%	95 to 105%
1 to 5V DC	500Ω or more	-5 to 5%	95 to 105%
0 to 10V DC	1kΩ or more	0 to 5%	95 to 105%

Performance

Reference accuracy	: Within ±0.1%
Output accuracy	: Within ±0.1%
Display accuracy	: Within Reference accuracy ±1 digit
Response time	: 200ms + Pulse cycle
Temperature coefficient	: ±0.015%/°C
Insulation resistance	: 10MΩ or more, at 500V DC (Input - Output - Power)
Dielectric strength	: 2.0kV AC for 1 minute (Input - Output - Power)
Frequency sampling period	: 500ms

General structure

Case	: Flame-resistant resin	Color: Light gray
Front panel	: Membrane sheet	
Setting	: By the front keypad	
Displays, Indicator	: 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	



■ 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. 9VA
Power supply for sensor	: 12V DC±5%, 25mA
Ambient temperature	: -5 to 55°C (23 to 131°F)
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 after turning all outputs off.
- Unconnected sensor detection:
If pulses are not detected for a constant period (1000sec), the unit will revert to the initial status (0Hz).

■ Settings

Function keys

- (1) Up key : Increases the numeric value.
- (2) Down key : Decreases the numeric value.
- (3) Mode key : Switches the setting mode.
- (4) Sub mode key: Press with the Mode key to proceed to the Setup mode.

Setting items

Setting by pressing the Mode key for 3 seconds

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

Setting by the Mode key and Sub-mode key

- (1) Set value lock
- (2) Frequency high limit value
- (3) Output 0% value
- (4) Output 100% value
- (5) Decimal point place
- (6) Output type
- (7) Output Normal/Reverse
- (8) Shutdown threshold value
- (9) Output volume during shutdown
- (10) Display selection
- (11) Indication time

■ Displays and indicators

Input display: Indicates the input frequency.
Indication of 10000 or more:
The lower 4 digits flash. When pulse is absent, 0 flashes.

Over range: " " flashes on the Input display.
(1.1 times frequency high limit value)

Warm-up indication : For approx. 2 seconds after power-on, the model name is indicated on the Input display, and the output type is indicated on the Output display.

Output display : Indicates the output volume in a 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—0.25mm 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

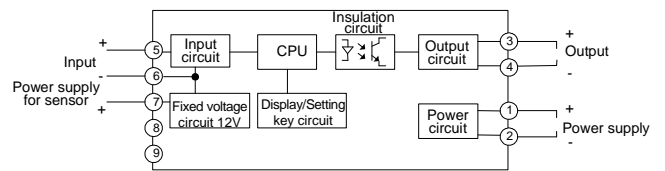
Insulation sleeve attached (Phoenix Contact GMBH & CO.)

AI0.25-8YE	0.2—0.25mm ²
AI0.34-8TQ	0.25—0.34mm ²
AI0.5-8WH	0.34—0.5mm ²

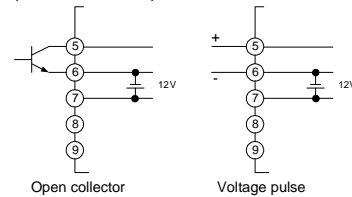
Crimping pliers (Phoenix Contact GMBH & CO.)

CRIMPFOX ZA3
CRIMPFOX UD6

■ Circuit configuration and Terminal arrangement

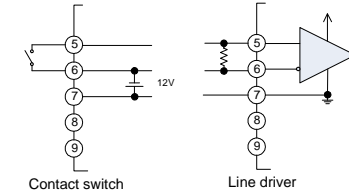


Input connection example



Open collector

Voltage pulse



Contact switch

Line driver

■ External Dimensions (Scale: mm)

