

SAF series

SPEC.SHEET

Pulse Scaler

Model : **SAFD**

(With indication function & sensor power)

Model

SAFD-0 □ □ - □ □

Input

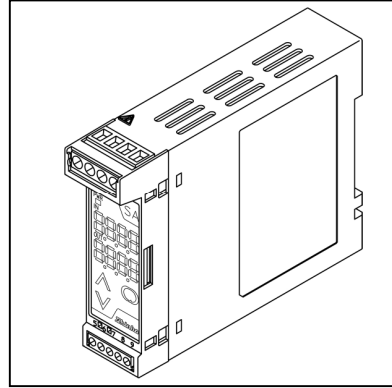
- 0 : Open collector
- 1 : Voltage pulse
- 2 : Line driver

Output

- 0 : Open collector
- 1 : 5V voltage pulse
- 2 : 12V voltage pulse

Power supply

- 0 : 100 to 240V AC
- 1 : 24V AC/DC



How to order

Specify a model & input frequency.

(e.g.) SAFD-000-0 (Input frequency: 800Hz, Pulse rate: 1/50)

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

Input frequency	9999Hz
Pulse rate	1/1

Input specifications

Open collector

- Frequency range : 0.001Hz to 15kHz
- Minimum pulse width : 5 μ s or more (for ON and OFF)
- Input detection voltage/current : ON: Max. 30mA (30V or less)
OFF: Residual voltage 0.5V or less
- Operation input conditions : ON: 200 Ω or less
OFF: 100k Ω or more
- Max rated input frequency : 20kHz

Voltage pulse

- Frequency range : 0.001Hz to 15kHz
- Minimum pulse width : 5 μ s or more (for High and Low)
- Waveform : Rectangular, sine waveforms or similar
- Detection Level : Low: 1V DC or less
High: 2V DC or more
- Input Impedance : 10k Ω or more
- Input Amplitude : 2 to 50V_{p-p}
- Max rated input frequency : 20kHz

Line driver

- AM26LS31 or equivalent
- Receiver: AM26LS32 or equivalent

Output Specifications

Open collector

- Output rating : 12V DC/30mA
- Max. frequency : 15kHz

Voltage pulse

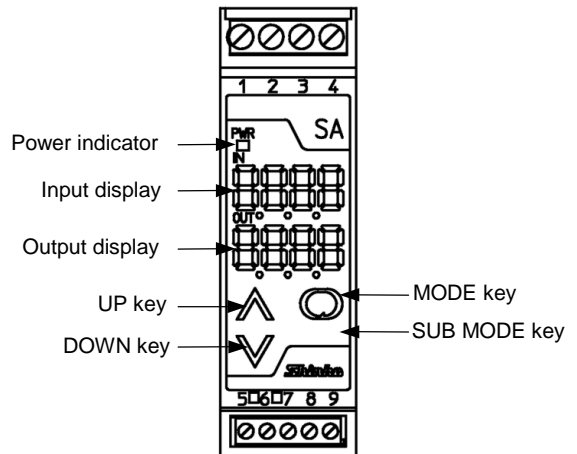
- Output rating : 5V, 12V DC \pm 10%
- Allowable load resistance: 500 Ω or more
- Max. frequency : 15kHz

Performance

- Accuracy : Within \pm 0.1%
- Display accuracy : Within Accuracy \pm 1 digit
- Insulation resistance: 10M Ω 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 : Via 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.
 Detecting unconnected sensor:
 If pulse is not detected for a constant period, the unit will revert to the initial status (0Hz).
 (Low pulse: 1000sec or 100sec, Frequency: 1sec)

■ 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 the MODE key and SUB MODE key

- (1) Set value lock
- (2) Frequency type/unit
- (3) Frequency high limit value
- (4) Input 0% value
- (5) Input 100% value
- (6) Input decimal point place
- (7) Pulse rate frequency
- (8) Output type/unit
- (9) Output high limit value
- (10) Output 0% value
- (11) Output 100% value
- (12) Output decimal point place
- (13) One-shot output pulse width
- (14) Output Normal/Reverse
- (15) Display selection
- (16) Indication time

Pulse rate frequency setting:

Pulse rate is shown in the equation below.

$$\text{Pulse rate} \left(\frac{1}{XX} \right) = \frac{1}{\text{Pulse rate frequency}}$$

Pulse unit is selected during Frequency type/unit selection.
 Setting range: 1 to 9999

■ 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.
 Output display: Indicates the output volume during Run mode.
 Indicates set (or adjusted) value during Setup mode.
 Over range: " " flashes on the Output display.
 (1.1 times output high limit value)
 Power indicator: The green LED lights when power-on.

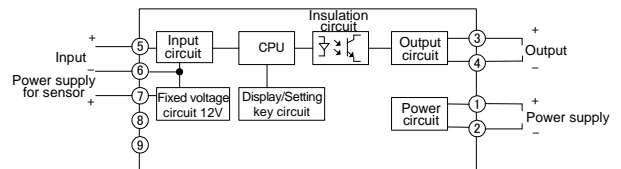
■ Ferrules

Terminals from 1 to 4
 Insulation sleeve attached (Phoenix Contact GMBH & CO.)
 AI0.25-8YE 0.2—0.25mm²
 AI0.34-8TQ 0.25—0.34mm²
 AI0.5-8WH 0.34—0.5mm²
 AI0.75-8GY 0.5—0.75mm²
 AI1.0-8RD 0.75—1.0mm²
 AI1.5-8BK 1.0—1.5mm²
 Crimping pliers (Phoenix Contact GMBH & CO.)
 CRIMPFOX ZA3
 CRIMPFOX UD6

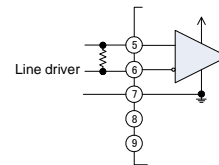
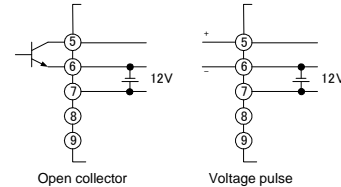
Terminals from 5 to 9

Insulation sleeve attached (Phoenix Contact GMBH & CO.)
 AI0.25-8YE 0.2—0.25mm²
 AI0.34-8TQ 0.25—0.34mm²
 AI0.5-8WH 0.34—0.5mm²
 Crimping pliers (Phoenix Contact GMBH & CO.)
 CRIMPFOX ZA3
 CRIMPFOX UD6

■ Circuit configuration and Terminal arrangement



Input connection example



◆ External Dimensions (Scale: mm)

