Shinko

SF SERIES

SPEC. SHEET

1ch Thermocouple Transmitter

Model: SF1E

■ Model

SF1E - □□□ - □ - □

Input
(Burnout: Upscale)
01: K
02: J
03: R
04: S
05: B
06: E
07: T
08: N
09: PL-II
10: W5Re/W26Re
11: W3Re/W25Re
(Burnout: Downscale)
21: K
22: J
23: R
24: S
25: B
26: E
27: T
28: N
29: PL-II
30: W5Re/W26Re
31: W3Re/W25Re

Input sampling period
01: 25ms
02: 125ms
03: 250ms

Output
01: 4 to 20mA DC 06: 0 to 1V DC
02: 0 to 20mA DC 07: 0 to 5V DC
03: 0 to 12mA DC 08: 1 to 5V DC
04: 0 to 10mA DC 09: 0 to 10V DC
05: 1 to 5mA DC

Socket
1: Screw fall prevention, finger-safe (For Y terminal)
2: For Ring terminal

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

■ How to Order

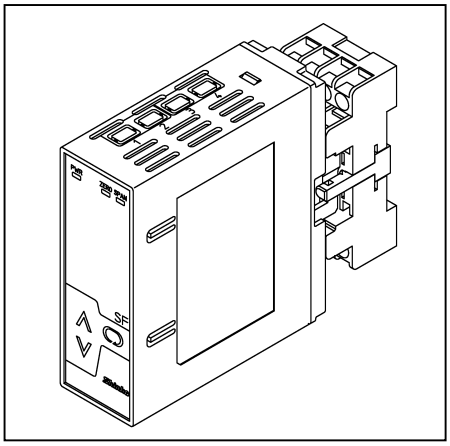
Specify a model and input range.
(e.g.) SF1E-010101-1-0

Default value

Input	K -200 to 1370℃
Output	4 to 20mA DC
Input sampling period	25ms

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

Minimum span: 50℃ (100℉)

■ Output Specifications

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

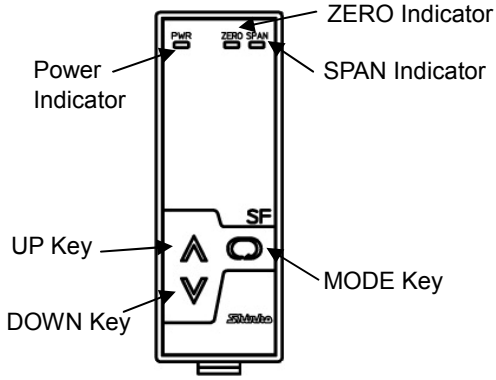
Output range	Allowable load resistance	Zero adjustment range	Span adjustment range
0 to 1V DC	100Ω or more	0 to 5%	95 to 105%
0 to 5V DC	500Ω or more	0 to 5%	95 to 105%
1 to 5V DC	500Ω or more	-5 to 5%	95 to 105%
0 to 10V DC	1kΩ or more	0 to 5%	95 to 105%

■ Performance

Accuracy: Within ±0.2% of input span (at 23℃ of ambient temperature)
R, S input, -50 to 200℃ (-58 to 392℉): Within ±8℃(16℉)
B input, 0 to 300℃ (32 to 572℉): Accuracy is not guaranteed.
K, J, E, T, N input, Less than 0℃ (32℉): Within±0.5% of input span
Cold junction compensation accuracy: Within ±1℃ at -5 to 55℃
Input sampling period: 25ms, 125ms, 250ms (Must be specified)
Response time:
65ms (typ.)(0→90%)(Input sampling period: 25ms)
225ms (typ.)(0→90%)(Input sampling period: 125ms)
425ms (typ.)(0→90%)(Input sampling period: 250ms)
Temperature coefficient: ±0.015%/℃ or less
Insulation resistance: 10MΩ 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
Adjustment: Using the front keypad
(1) Press the MODE Key. The ZERO indicator becomes lit. The unit moves to the Output ZERO adjustment mode.
(2) Press the MODE Key in the Output ZERO adjustment mode. The SPAN indicator becomes lit. The unit moves to the Output SPAN adjustment mode.
(3) Pressing the MODE Key returns to Step (1). If the MODE Key is pressed for approx 3 sec, or if no operation occurs for approx. 30 sec, the unit will revert to the RUN mode.
Indication:
PWR indicator (Green):
Lit when power is turned ON.
Flashes in 0.5 second cycles if non-volatile memory errors occur.
Flashes in 0.25 second cycles if input errors occur.
ZERO indicator (Yellow):
Lit in the Output ZERO adjustment mode.
SPAN indicator (Yellow):
Lit in the Output SPAN adjustment mode.



■ 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. 6VA
Ambient temperature: -5 to 55℃
Ambient humidity: 35 to 85%RH (non-condensing)
Weight: Approx. 190g (including socket)
Mounting: DIN rail
Dimensions: W30 x H88 x D108mm (including socket)

■ 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 compensation: Available

■ Environmental Specifications

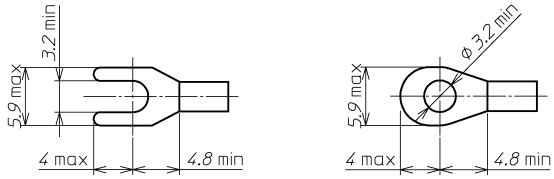
RoHS directive compliance

■ Settings

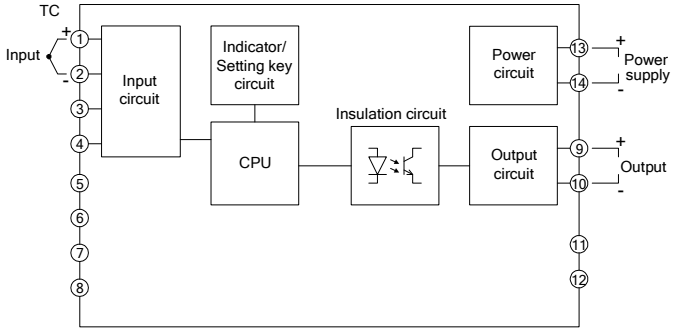
Function keys
(1) UP Key: Increases a numerical value.
(2) DOWN Key: Decreases a numerical value.
(3) MODE Key: Switches from RUN mode to the Adjustment mode, and registers the adjustment value.

■ Solderless Terminals

Y Terminal **Ring Terminal**



■ Circuit Configuration, Terminal Arrangement



■ External Dimensions (Scale: mm)