INDICATOR

JIR-301-M

■ *Multi-input (total 18 types)*

■ *Dust-proof / Drip-proof, IP66*

■ *3-point alarm output*

■ *Serial communication (option)*

Shinko

Features

Multi-input

Total 18 types of input can be chosen from thermocouple (10 types), RTD (2 types), DC current (2 types) and DC voltage (4 types).

Alarm output （3 points) is provided as standard.

Alarm output (3 points) is available as standard.
Alarm action type and status Energized/De-energized can be easily switched by key operation. （Default: No alarm action, Energized)

Standard transmission output.

The input value is converted in analog every 0.25 seconds and it is outputted in DC current.
4 to 20mA DC is standard output.

Modbus

Serial communication (option C5) protocol comprises Shinko protocol and Modbus protocol. For Modbus protocol, RTU mode and ASCII mode can be selected by key operation. Without the communication converter, Modbus compatible instruments can be connected.

Standard Dust-proof/Drip-proof function (for front part only)

IP66 structure means the indicator can be used even in harsh environment exposed to dust and water splashes.

Safety standards

UL/CSA (pending), CE marking

Specifications

■ Model names

J I R－3 0 1－M □ ,□□□	Series name: JIR-301-M		
Input	M		Multi-input
Power supply	1		24V AC/DC
Option	TA	DC current output	0 to 20mA DC
	TV	Specified transmission output	DC voltage output	0 to 1V DC
			0 to 5V DC
			1 to 5V DC
			0 to 10V DC
	C5	Serial communication (Based on EIA RS-485)	
	P24	Isolated power output	
	BK	Color, black	
	TC	Terminal cover	

Please designate the specification from the □,□□□ columns.
When adding an option, enter it punctuated by comma.
・ When the option P24 is added, Alarm 2 output is not available.
・ When the option C5 is added, Hold function is not available.
・ For the supply voltage, 100 to 240V AC is standard. However, when ordering 24V AC/DC, enter "1" after the input.
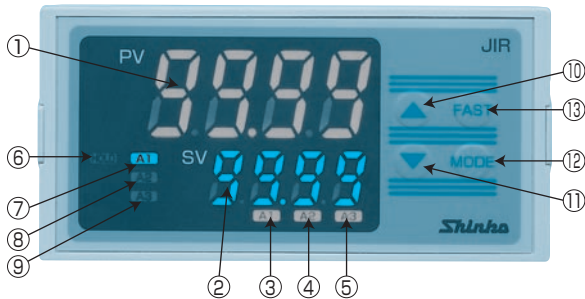
■ Rated range

Input type		Input range	
Thermo-couple	K	-200 to 1370 ℃	-320 to 2500 ℉
		-199.9 to 400.0℃	-199.9 to 750.0℉
	J	-200 to 1000 ℃	-320 to 1800 ℉
	R	0 to 1760 ℃	0 to 3200 ℉
	S	0 to 1760 ℃	0 to 3200 ℉
	B	0 to 1820 ℃	0 to 3300 ℉
	E	-200 to 800 ℃	-320 to 1500 ℉
	T	-199.9 to 400.0℃	-199.9 to 750.0℉
	N	-200 to 1300 ℃	-320 to 2300 ℉
	PL‐Ⅱ	0 to 1390 ℃	0 to 2500 ℉
	C （W/Re5-26)	0 to 2315 ℃	0 to 4200 ℉
RTD	Pt100	-200 to 850 ℃	-300 to 1500 ℉
		-199.9 to 850.0℃	-199.9 to 999.9℉
	JPt100	-200 to 500 ℃	-300 to 900 ℉
		-199.9 to 500.0℃	-199.9 to 900.0℉
DC current	4 to 20mA DC		
	0 to 20mA DC		
DC voltage	0 to 1V DC	-1999 to 9999, -199.9 to 999.9	
	0 to 10V DC	-19.99 to 99.99, -1.999 to 9.999	
	1 to 5V DC		
	0 to 5V DC		

・ For DC current and voltage input, scaling is possible and decimal point place can be changed.
・ For DC current input, 50Ω shunt resistor (sold separately) must be externally installed.

■ Name and functions of the sections

① PV display : Input value is indicated with a red LED.
② SV display : A1, A2 or A3 setting value is indicated with a green LED.
③ A1 indicator : When A1 output is ON, red indicator lights up.
④ A2 indicator : When A2 output is ON, red indicator lights up.
⑤ A3 indicator : When A3 output is ON, red indicator lights up.
⑥ HOLD indicator : When PV Hold (Hold, Peak hold, Bottom hold) output is ON, yellow indicator lights up.
⑦ A1 setting indicator : When A1 setting is indicated, green indicator lights up.
⑧ A2 setting indicator : When A2 setting is indicated, green indicator lights up.
⑨ A3 setting indicator : When A3 setting is indicated, green indicator lights up.
⑩ Increase key : Increases the numeric setting value.
⑪ Decrease key : Decreases the numeric setting value.
⑫ Mode key : Switches the setting mode and registers the setting value. （To register the setting value or selected value, press the Mode key)
⑬ Fast key : By pressing the Fast key while holding down the Increase key or Decrease key, the setting value changes faster.

Display	PV: Red LED 4-digit, character size, 16 x 7.2mm (H x W) SV: Green LED 4-digit, character size, 10 x 4.8mm (H x W)
Input	Thermocouple : K, J, R, S, B, E, T, N, PL‐Ⅱ, C (W/Re5-26) External resistance: 100Ω or less (for B input, 40Ω or less)
	RTD : Pt100, JPt100 3-wire system (Allowable input lead wire resistance per wire: 10Ω or less)
	DC current : 0 to 20mA DC, 4 to 20mA DC Input impedance: 50Ω (Install 50Ω shunt resistor between input terminals) Allowable input current: 50mA or less (when 50Ω shunt resistor is used)
	DC voltage : 0 to 1V DC　Input impedance: 1MΩ or greater Allowable input voltage: 5V or less Allowable signal source resistance: 2kΩ or less
	0 to 5V DC, 1 to 5V DC, 0 to 10V DC　Input impedance: 100kΩ or greater Allowable input voltage: 15V or less Allowable signal source resistance: 100Ω or less
Accuracy (Setting/indication)	Thermocouple : Within ±0.2% of each input span ±1digit, or within ±2℃(4℉), whichever is greater However, R or S input, 0 to 200℃(0 to 400℉): Within ±6℃(12℉) B input, 0 to 300℃(0 to 600℉): Accuracy is not guaranteed. K, J, E, T, N inputs, less than 0℃(32℉): Within ±0.4% of each input span ±1digit
	RTD : Within ±0.1% of each input span ±1digit, or within ±1℃(2℉), whichever is greater
	DC current, DC voltage: Within ±0.2% of each input span ±1digit
Input sampling period	0.25 seconds

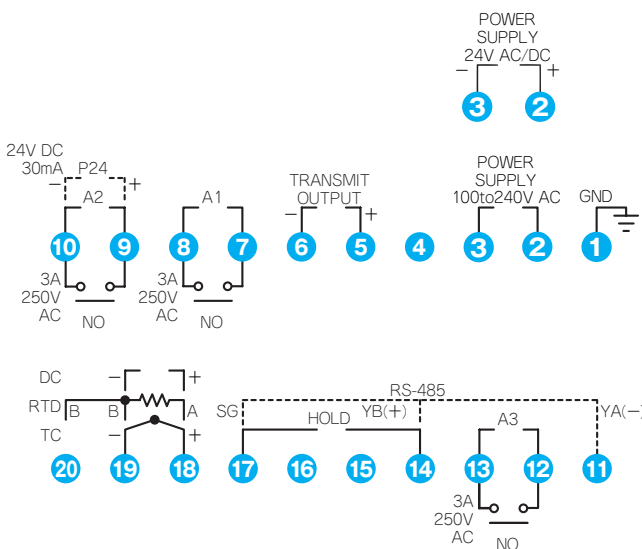|	

Alarm 1 (A1)
Alarm 2 (A2)
Alarm 3 (A3)
	Alarm action and status Energized/De-energized can be selected by key operation.
	・No alarm action
	・High limit alarm Setting range: Input range low limit value to input range high limit value
	・Low limit alarm Setting range: Input range low limit value to input range high limit value
	・High limit alarm with standby Setting range: Input range low limit value to input range high limit value
	・Low limit alarm with standby Setting range: Input range low limit value to input range high limit value
	・High/Low limit range alarm(*1) Setting range: None
	   When input has a decimal point, negative low limit setting value is －199.9, and positive high limit setting value is 999.9.
	   Setting range for DC current and DC voltage inputs: Scaling low limit value to scaling high limit value.
	   (*1) Only Alarm 3 (A3) can be selected. High/Low limit range alarm is activated depending on A1 and A2 setting values.
	Setting accuracy : The same as indicating accuracy
	Action : ON/OFF action
	Hysteresis : Thermocouple, RTD: 0.1 to 100.0(°F)
	              DC current, DC voltage: 1 to 1000 (The placement of the decimal point follows the selection)
	Output : Relay contact 1a 250V AC 3A (resistive load), Electric life: 100,000 times

Transmission output	The input value is converted in analog every 0.25 seconds, and it is outputted in DC current. Resolution : 1/12000 DC current : 4 to 20mA DC (load resistance, Max. 550Ω) Output accuracy : Within ±0.3% of output span
Supply voltage	100 to 240V AC 50/60Hz, 24V AC/DC 50/60Hz Allowable voltage fluctuation range: 85 to 264V AC, 20 to 28V AC/DC
Power consumption	Approx. 10VA
Isolation resistance	500V DC 10MΩ or greater
Dielectric strength	Between Input terminal and Ground terminal, Input terminal and Power terminal-------- 1.5kV AC for 1 minute Between Power terminal and Ground terminal --- 1.5kV AC for 1 minute Between Output terminal and Ground terminal, Output terminal and Power terminal---- 1.5kV AC for 1 minute (Output terminal comprises A1, A2 and A3 output terminals transmission output terminal and communication terminal)
Environment	Ambient temperature: 0 to 50℃ Ambient humidity: 35 to 85%RH (Non-condensing)
Case	Material: Flame resistant resin, Color: Light gray
Mounting method	Screw type mounting bracket (Panel thickness: Within 1 to 15mm)
Setting method	Sheet key input
External dimension	W96 x H48 x D100mm
Weight	Approx. 300g
Attached function	Sensor correction, Setting value lock, Power failure countermeasure, Self-diagnosis, Automatic cold junction temperature compensation (thermocouple type only), Sensor burnout alarm, Input burnout, Warm-up indication, Dust-proof/Drip-proof IP66, Hold function

■ Option

[When ordering, designate an option code]

Specified transmission output [TA or TV]	The input value is converted in analog every 0.25 seconds, and it is outputted in DC current or DC voltage. If this option is applied, the standard transmission output (4 to 20mA) becomes ineffective. Resolution: 1/12000 DC current [TA] : 0 to 20mA DC (load resistance, max. 500Ω) DC voltage [TV] : 0 to 1V DC (load resistance, min. 100kΩ), 0 to 5V DC (load resistance, min. 500kΩ) 1 to 5V DC (load resistance, min. 500kΩ), 0 to 10V DC (load resistance, min. 1MΩ) Output accuracy : Within ±0.3% of output span
Serial communication [C5]	Operates various setting value changes, setting value readings and settings from external computer. If this option is added, Hold function is not available. Communication interface : Based on EIA RS-485 Communication method : Half-duplex communication start-stop synchronous Data transfer rate : 2400/4800/9600/19200bps Selectable by key operation Parity : Even/Odd/No parity Selectable by key operation Stop bit : 1, 2 Selectable by key operation Communication protocol : Shinko protocol/Modbus RTU/Modbus ASCII, Selectable by key operation Connectable number of unit : Max. 31 units per host computer Communication error detection : Double detection by parity and checksum
Isolated power output [P24]	24V DC is outputted from terminals 9 and 10, and this becomes the power source for a 2-wire transmitter. If this option is added, Alarm 2 (A2) output is not available. Output voltage: 24V ±3V DC (when load current is 30mA) Ripple voltage: 200mV (when load current is 30mA) Max. load current: 30mA
Color Black [BK]	The standard color of the base and case is light gray, however, if this option is designated, the color of base and case is black.
Terminal cover [TC]	Electric shock protecting terminal cover If it is possible that an operator will touch the back of the unit while power is turned on, make sure to add this option and make use of a terminal cover.

■ Terminal arrangement

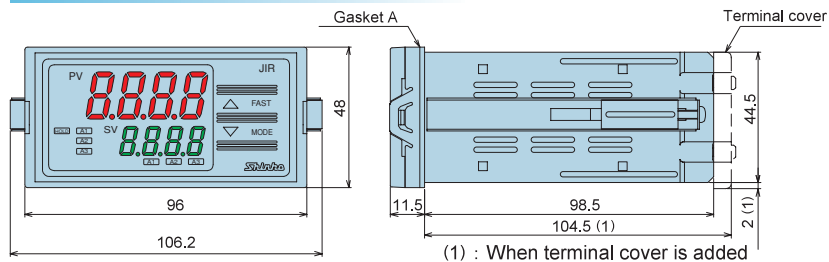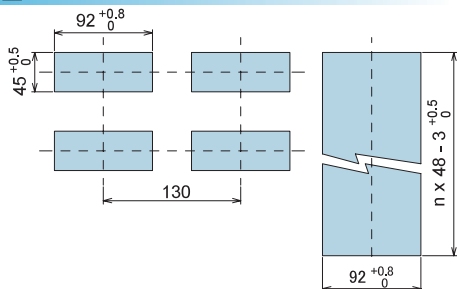| GND	Ground terminal
POWER SUPPLY	Power supply terminal
TRANSMIT OUTPUT	Transmission output terminals
A1, A2, A3	Alarm 1, Alarm 2 and Alarm 3 output terminals
P24	Isolated power output (24V DC) terminal
RS-485	Serial communication (C5) terminal (When the option is added)
HOLD	Hold function input terminal
TC	Thermocouple input terminal
RTD	RTD input terminal
DC	DC current or DC voltage input terminal

⚠️
- Terminal block of this unit is designed to be wired from the upper side of the unit.
- When option P24 is added, Alarm 2 (A2) output is unavailable.
- When option C5 is added, Hold function is unavailable.

■ Solderless terminal

Use a solderless terminal with isolation sleeve that fits to the M3 screw as shown below.
Tightening torque is 0.6N·m to 1.0N·m.

φ3.2mm   5.8mm or less   3.2mm   5.8mm or less

■ External dimension

Gasket A   Terminal cover

PV   JIR
△ FAST
SV
▽ MODE

96
106.2

48
44.5

11.5   98.5
104.5 (1)
2 (1)

(1) : When terminal cover is added

■ Wiring example

Alarm unit 1
Alarm unit 2
Power supply

10 9 8 7 6 5 4 3 2 1
20 19 18 17 16 15 14 13 12 11
− +

Heater
Electric furnace
Thermocouple

Recorder

RS-485

Personal computer

■ Panel cutout

92 +0.8/0
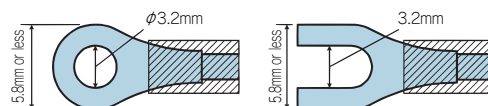45 +0.5/0

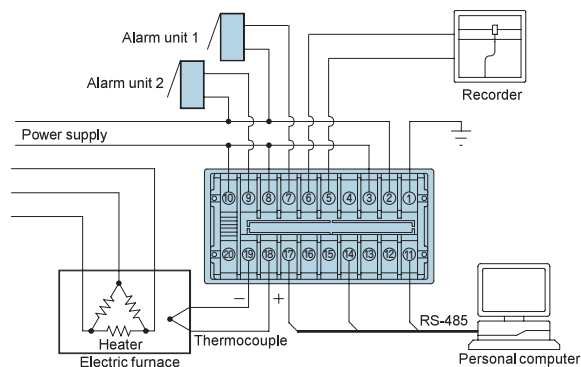130

n × 48 − 3 +0.5/0

92 +0.8/0

Lengthwise close mounting
n: Number of units mounted

⚠ Caution: For the lengthwise close mounting,
Dust-proof/Drip-proof IP66 specification is not fulfilled.

| Peripheral instrument | 6-point switch | **FS-106-E** |

■ Standard specification

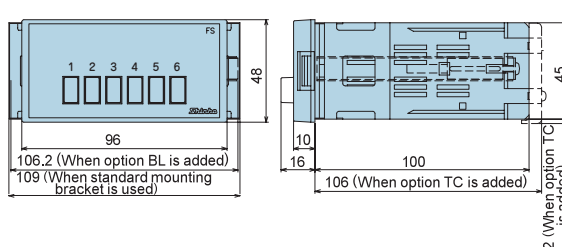| Input	Thermocouple: K, J, R, S, B, E, T, C (W/Re5-26), N, PL-Ⅱ	
Action system	Locks only pressed switches	
Input switching	6-point push button switch (Push button head: Black)	
Switch	Model name: Push switch	Switching timing: Non-shorting
	Rating: 45V DC 0.3A (resistive load)	Contact life: 10,000 times (rated load) or greater
	Contact resistance: 20mΩ or less	Working force: 450±200g
	Between contacts capacity: 3pF or less	
Environment	Ambient temperature: 0 to 50℃ Ambient temperature: 35 to 85%RH (Non-condensing)	
Material, color	Material: Flame resistant resin, Color: Light gray	
Mounting	Flush, Mounting bracket: One-touch type (Panel thickness: Within 1 to 3mm)	
Weight	Approx. 250g	

■ Option

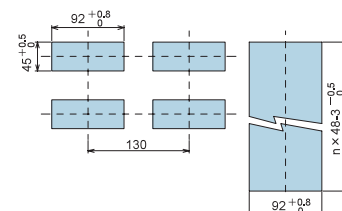| Terminal cover [TC]	Electrical shock protecting terminal cover (If it is possible that an operator will touch the back of the unit while power is turned on, make sure to add this option and use a terminal cover.)
Color, black [BK]	The standard color of the case and base is light gray, however, by adding this option, the color of the case and base is black.
Screw type mounting bracket [BL]	One-touch type mounting bracket is standard, however, if this option is added, screw type mounting bracket is provided. Panel thickness: Within 1 to 15mm

■ Terminal arrangement

Output   TC1
⑩ ⑨ ⑧ ⑦ ⑥ ⑤ ④ ③ ② ①
− +   − +

⑳ ⑲ ⑱ ⑰ ⑯ ⑮ ⑭ ⑬ ⑫ ⑪
− + − + − + − + − +
TC6 TC5 TC4 TC3 TC2

■ External dimension

FS
1 2 3 4 5 6
48
45

96
106.2 (When option BL is added)
109 (When standard mounting bracket is used)

10
16   100
106 (When option TC is added)
2 (When option TC is added)

■ Panel cutout

92 +0.8/0
45 +0.5/0

130

n × 48-3 +0.5/0

92 +0.8/0

Lengthwise close mounting
n: Number of units mounted

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CERT. No.60033
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