DIGITAL INDICATOR

ISO 9001 KEMA CERT. No. 60033 DUTCH COUNCIL FOR ACCREDITATION

CE

c UL us

JIR-301-M

- *Multi-input (total 18 types)*
- *3-point alarm output*
- *Dust-proof /Drip-proof, IP66*
- *Serial communication (optional)*

Shinko

INDICATOR

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 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 are selectable 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 , CE marking

Specifications

■ Model names

JIR–3 0 1–M □,□□□				Series name: JIR-301-M
Input	M			Multi-input
Power supply	1			24V AC/DC
Option	TA	Specified transmission output	DC current output	0 to 20mA DC
	TV		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	Insulated power output		
	BK	Color, black		
	TC	Terminal cover		

Please designate the specification from the □,□□□ columns.
When adding an option, enter it punctuated by a comma.

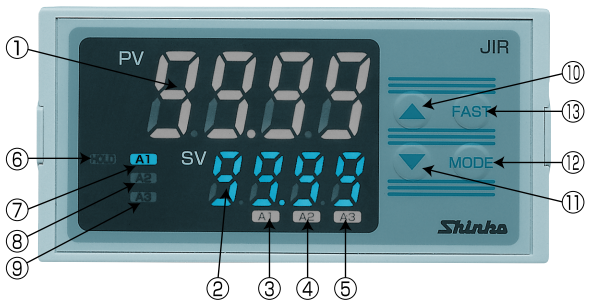
- When P24 option is added, Alarm 2 output is not available.
- When C5 option is added, Hold function is not available.
- For the supply voltage, 100 to 240V AC is standard. However, when ordering 24V AC/DC, enter "1" after the input.

■ 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	-1999 to 9999, -199.9 to 999.9 -19.99 to 99.99, -1.999 to 9.999	
	0 to 20mA DC		
DC voltage	0 to 1V DC		
	0 to 10V DC		
	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.

■ Standard specifications

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: 10Ω or less per wire) 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 , S inputs, 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

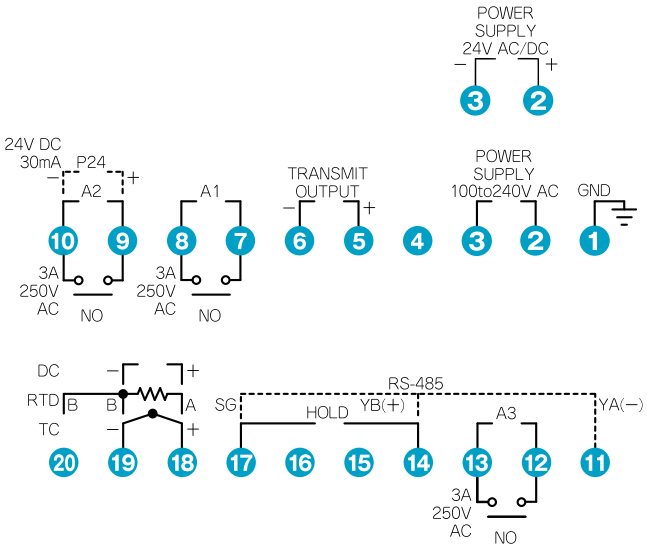
Alarm 1 (A1) Alarm 2 (A2) Alarm 3 (A3)	Alarm action and status Energized/De-energized can be selected by key operation. ・No alarm action ・High limit alarm Setting range: Input range low limit value to input range high limit value ・Low limit alarm Setting range: Input range low limit value to input range 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 lower limit setting value is −199.9, and positive upper 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, 3A 250V AC (resistive load), Electric life: 100,000 times
Transmission output	The input value is converted in analog every 0.25 seconds, and 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
Insulation resistance	10MΩ or greater, at 500V DC
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 terminals and communication terminals)
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: 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 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 Communication speed : 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
Insulated 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: 24 ±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 protection terminal cover (Be sure to use this terminal cover by adding this option if operator may touch the back of the controller while running the controller.)

■ Terminal arrangement



GND Ground terminal

TRANSMIT OUTPUT Transmission output terminals

A1, **A2**, **A3** Alarm 1, Alarm 2 and Alarm 3 output terminals

P24 Insulated power output (24V DC) terminals

RS-485 Serial communication (C5) terminals (When the option is added)

HOLD Hold function input terminals

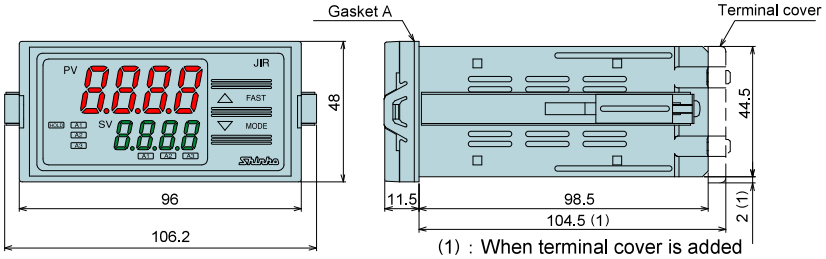
TC Thermocouple input terminals

RTD RTD input terminals

DC DC current or DC voltage input terminals

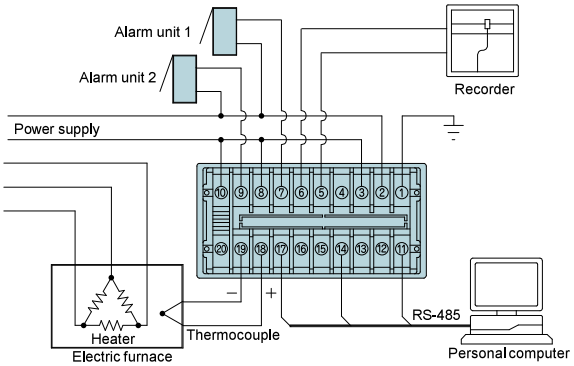
- Terminal block of this unit is designed to be wired from the upper side of the unit.
- When P24 option is added, Alarm 2 (A2) output is unavailable.
- When C5 option is added, Hold function is unavailable.

External dimensions

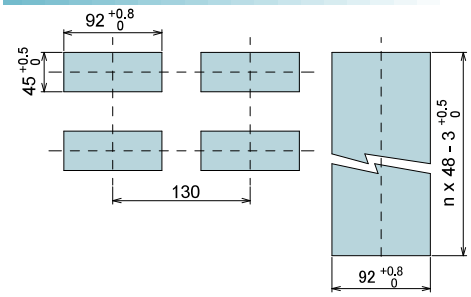


(1) : When terminal cover is added

Wiring example



Panel cutout



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

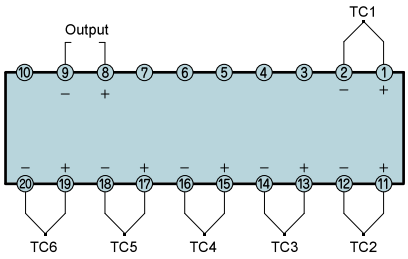
Standard specification

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: 0.3A 45V DC (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: 1 to 3mm)
Weight	Approx. 250g

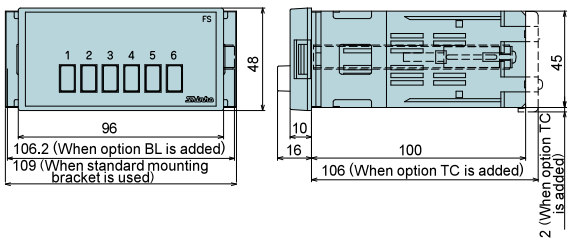
Option

Terminal cover[TC]	Electrical shock protection terminal cover (Be sure to use this terminal cover by adding this option if operator may touch the back of the controller while running the controller.)
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 will be provided. Panel thickness: 1 to 15mm

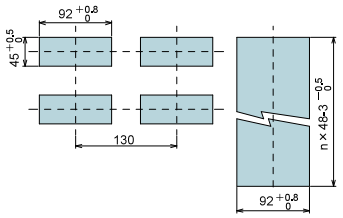
Terminal arrangement



External dimensions



Panel cutout



Lengthwise close mounting
n: Number of units mounted

SAFETY PRECAUTIONS

- To ensure safe and correct use, thoroughly read and understand the manual before using this instrument.
- This instrument is intended to be used for industrial machinery, machine tools and measuring equipment. Verify correct usage after consulting purpose of use with our agency or main office. (Never use this instrument for medical purposes with which human lives are involved.)
- External protection devices such as protection equipment against excessive temperature rise, etc. must be installed, as malfunction of this product could result in serious damage to the system or injury to personnel. Also proper periodic maintenance is required.
- This instrument must be used under the conditions and environment described in the manual. Shinko Technos Co., Ltd. does not accept liability for any injury, loss of life or damage occurring due to the instrument being used under conditions not otherwise stated in this manual.

Caution with respect to Export Trade Control Ordinance

To avoid this instrument from being used as a component in, or as being utilized in the manufacture of weapons of mass destruction (i.e. military applications, military equipment, etc.), please investigate the end users and the final use of this instrument.
In the case of resale, ensure that this instrument is not illegally exported.

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·This catalog is as of January 2005, and specifications are subject to change without notice. ·If you have any inquiries, please consult us or our agency.

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