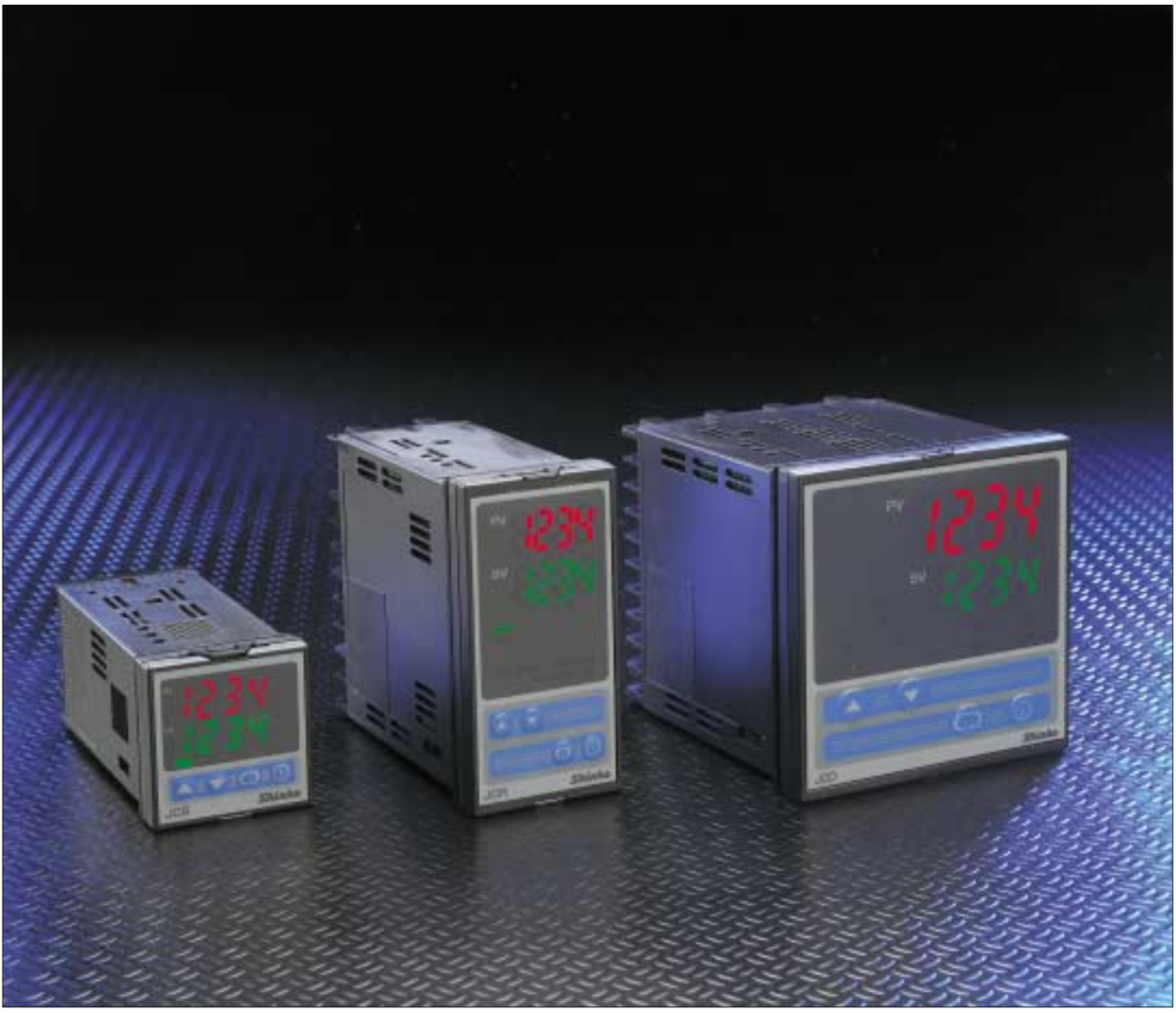
Digital Indicating Controllers

JC Series



High performance controllers

...at the lowest prices anywhere!

Shinko
North America Ltd.

www.shinkona.com

Standard Features



Model JCS
1/16 DIN (48mm x 48mm)



Model JCR
1/8 DIN (48mm x 96mm)



Model JCD
1/4 DIN (96mm x 96mm)

• Structure
Units available in standard DIN sizes (1/16, 1/8 and 1/4 DIN).
NEMA 4X protective construction.
Black enclosure.

• Programmable Alarms
Units feature standard single alarm output with optional second alarm.

• True Multi-Input
Units feature true multi-input capabilities: 10 thermocouple types, 1 RTD type, 2 current inputs, and 4 voltage inputs.

• Auto/Manual Control
Manual overide allows you to take control of your process at anytime.

• Large LED Display
All units feature dual display. PV red 4 digits, SV green 4 digits.

• PID Autotune
All units feature as standard full function third generation PID Autotune. This feature minimizes process overshoot under the most demanding applications.

• Modbus Protocol With RS485 (Option)
Units offer communications capabilities.

• Safety Approvals
UL, cUL and CE Safety Approvals.

• Warranty
All units manufactured to strict ISO standards and offer full 3 year manufacturers warranty.

• Low Cost
Most advanced price/performance package available.

Input Range Table

Input Type		Scale	
Thermocouple	K	-200 to 1370ºC	-320 to 2500ºF
		-199.9 to 400.0ºC	-199.9 to 750.0ºF
	J	-200 to 1000ºC	-320 to 1800ºF
	R	0 to 1760ºC	0 to 3200ºF
	S	0 to 1760ºC	0 to 3200ºF
	B	0 to 1820ºC	0 to 3300ºF
	E	-200 to 800ºC	-320 to 1500ºF
	T	-199.9 to 400.0ºC	-199.9 to 750.0ºF
	N	-200 to 1300ºC	-320 to 2300ºF
	PL-II	0 to 1390ºC	0 to 2500ºF
	C (W/Re5-26)	0 to 2315ºC	0 to 4200ºF
RTD	Pt100	-199.9 to 850.0ºC	-199.9 to 999.9ºF
		-200 to 850ºC	-300 to 1050ºF
DC	4 to 20mA DC 0 to 20mA DC 0 to 1V DC 0 to 10V DC 1 to 5V DC 0 to 5V DC	-1999.9 to 9999, -199.9 to 999.9 -19.99 to 99.99, -1.999 to 9.999	

• For DC current input a shunt resistor (50Ω) is provided as standard.

General Specifications

Display	JCS-33A: PV [Red 4 digits, Character size: 10.2 x 4.9mm], SV [Green 4 digits, Character size 8.8 x 4.9mm] JCR-33A: PV [Red 4 digits, Character size: 11.2 x 5.4mm], SV [Green 4 digits, Character size 11.2 x 5.4mm] JCD-33A: PV [Red 4 digits, Character size: 18 x 8mm], SV [Green 4 digits, Character size 12.6 x 6.6mm]
Input	Thermocouple ----- K, J, R, S, B, E, T, T, N, PL-II C (W/Re5-26) External resistance: 100Ω or less (However, for B input: 40Ω or less) RTD ---------- Pt100, 3-wire system (Allowable input wire resistance per wire: 10Ω or less) DC current ---------- 0 to 20mA DC, 4 to 20mA DC Input impedance: 50Ω (Connect shunt resistor 50Ω between input terminals.) Allowable input current: 50mA or less (When shunt resistor 50Ω 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 • Indicating)	Thermocouple ---------- Within ±0.2% of each input span ±1 digit or ±2ºC (4ºF) whichever is greater However, R or S input 0 to 200ºC (0 to 400ºF): Within ±6ºC (12ºF) B input 0 to 300ºC (0 to 600ºF): Accuracy is not guaranteed. K, J, E and N input less than 0ºC (32ºF): Within ±0.4% of input span ±1 digit RTD ---------- Within ±0.1% of each input span ±1 digit or ±1ºC (2ºF) whichever is greater DC current and DC voltage ---- Within ±0.2% of each input span ± 1 digit
Input Sampling Period	0.25 seconds
Control Output (OUT 1)	Relay contact - (JCS-33A) 3A 250V AC (Resistive load), 1A 250V AC (Inductive load cos ∅=0.4), Electric life: 100,000 times Non-contact DC voltage ----12-14V DC Max. 40 mA (short-circuit protected) DC current ----- 4 to 20mA DC Load resistance: Max. 550Ω
Control Action	Actions mentioned below can be selected by key operation. (Factory default set as PID) PID (with auto-tuning function), PI, PD (with manual Reset function), P (with manual reset function), ON/OFF OUT 1 proportional band (P) --- Thermocouple: 0 to 1000ºC (0 to 2000ºF) (ON/OFF action when set to 0) RTD: 0.0 to 999.9ºC (0 to 999.9ºF) (ON/OFF action when set to 0.0) DC current and DC voltage: 0.0 to 100.0% (ON/OFF action when set to 0.0) Integral time (I) ---------- 0 to 1000 seconds (OFF when set to 0) Derivative time (D) ---------- 0 to 300 seconds (OFF when set to 0) Proportional cycle ---------- 1 to 120 seconds (DC current output type is not available.) OUT1 ARW ---------- 0 to 100% FS Hysteresis ---------- Thermocouple and RTD: 0.1 to 100.0ºC (F) DC current and DC voltage: 1 to 1000 (Decimal point place follows the selection) OUT1 Output limit ---------- -5 to 100%
Alarm 1 (A1)	Alarm action and Energized/De-energized can be selected by key operation. • Setting accuracy — The same as the indicating accuracy. • Action — ON/OFF action • Hysteresis — Thermocouple and RTD: 0.1 to 100.0ºC (ºF) DC current and DC voltage: 1 to 1000 (The placement of the decimal point follows the selection) • Output — Relay contact 3A 250V AC (Resistive load), Electric life: 100,000 times
Mounting Method	JCS provided with one piece mounting bracket. JCR and JCD includes screw type mounting brackets.
Setting Method	Sheet key input.
Material • Color	Material: Flame resistant resin. Color: Black
Supply Voltage	100 to 240V AC 50/60Hz, 24V AC/DC 50/60Hz Allowable voltage fluctuation: 85 to 264V AC, 20 to 28 AC/DC, Power consumption approximately 8VA
Environment	Ambient temperature: -10 to 50ºC Ambient humidity: 35 to 85%RH (No condensation)
External Dimension & Weight	JCS-33A: 48 x 48 x 96.5mm (W x H x D) Approx. 200g JCR-33A: 48 x 96 x 98.5mm (W x H x D) Approx. 250g JCD-33A: 96 x 96 x 98.5mm (W x H x D) Approx. 370g

Options

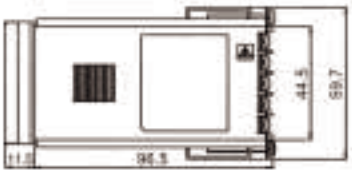
Alarm 2 [A2]	When this option is added, 1 alarm point is added. Alarm action type, Setting range and Relay contact type are the same as those of Alarm 1 (A1). See Alarm 1 (A1) section.
Heater Break Alarm [W]	Watches the heater current with CT (current transformer), and detects burnout. Heater rated current must be selected from 5A, 10A, 20A and 50A. Setting accuracy---Within ±5% of heater rated current Output----------Relay contact 3A 250V AC (Resistive load), Electric life: 100,000 times Self-holding---------Not available Accessories--------CT (Current Transformer)
Control Output (OUT2) (Heating/Cooling Control) [DR,DS,DA,DT]	If this option is applied, control output 2 is added and enables Heating/Cooling control. There are 4 types of control output i.e. Relay contact output (DR), Non-contact voltage output (DS), DC current output (DA) and Non-contact relay output. Must be designated when ordering. (Relay contact output, Non-contact voltage output and DC current output can be applied to JCR-33A and JCD-33A series.) (Only Non-contact relay output can be applied to JCS-33A series.) Control action (Heating side): The same as control output (OUT1) Control action (Cooling side): Proportional band (P)-- 0.0 to 10.0 times of the control output (OUT1) proportional band (ON/OFF action when set to 0.0) Integral time (I)---------- The same as the integral time setting value of the control output (OUT1) Derivative time (D)----- The same as the derivative time setting value of the control output (OUT1) Overlap cycle---------- Thermocouple and RTD: -100.0 to 100.0ºC (F) Dead band---------- DC current and DC voltage: -1000 to 1000 (Decimal point place follows this selection.) Hysteresis---------- 0.1 to 100.0ºC (F) Control output • Relay contact (DR) : 3A 250V AC (Resistive load), 1A 250V AC (Inductive load cos ∅=0.4), Electric life: 100,000 times • Non-contact voltage (DS) 12-14V DC Max. 40mA (short-circuit protected) • DC current (DA) : 4 to 20mA DC Load resistance: Max. 550Ω • Non-contact relay (DT) : 3A 250V AC (Resistive load) Only available on model JCS Cooling action mode (This must be selected from below by key operation.) • Air cooling (Linear characteristic) • Oil cooling (1.5th Power of characteristic) • Water cooling (2nd Power of characteristic)
Serial Communication [C5]	Various setting status changing, reading and setting of the JC•-33A can be performed from external computer. By combining programmable controller (Option: SVTC added) with JC•-33A (Option: C5 added), it is possible to transmit the SV (setting value) of the programmable controller digitally to the JC•-33A. Communication interface----------Based on EIA, RS-485 Data transfer rate----------(2400/4800/9600/1920bps) Selectable by key operation Communication protocol----------Based on Shinko standard protocol or Modbus (Selectable by key operation) (When Modbus is selected, RTU mode or ASCII mode can be selected.) Number of connectable units-------A maximum of 31 units per host computer
SV1/SV2 External Selection [SM]	Provided as standard feature on model JCR and JCD. Option only on model JCS. Main setting value 1 and 2 can be changed by external contact. Terminal between 13 and 14 is open: SV1, Terminal between 13 and 14 is closed: SV2
Loop Break Alarm [LA]	This option enables Heater burnout, Sensor burnout and Input burnout to be detected. Loop break alarm time----------0 to 200 minutes Loop break alarm span----------Thermocouple and RTD: 0 to 150ºC (F), 0.0 to 150.0ºC (F) DC current and DC voltage: 0 to 1500 Output---------Relay contact 3A 250V AC (resistive load), 1A 250V AC (Inductive load cos ∅=0.4), Electric life: 100,000 times
Transmitter Power Supply [P24]	When this option is added, 24V DC is output from the terminal 9 to 10 of JCD-33A and JCR-33A Output voltage: 24V DC ±3V (When load current is 30mA) Ripple voltage: 200mV (When load current is 30mA) Maximum load current: 30mA

All units feature a full 3 year warranty and lifetime technical support!

External Dimensions

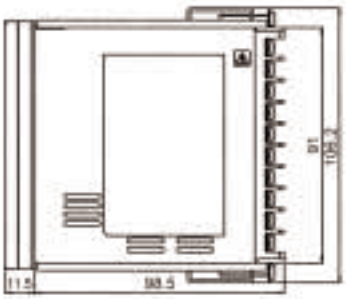
JCS-33A Series





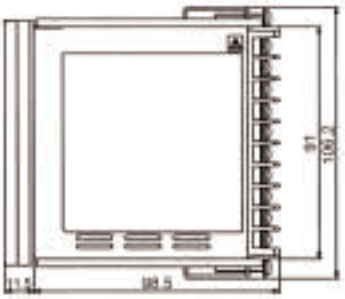
JCR-33A Series



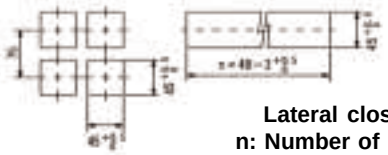


JCD-33A Series

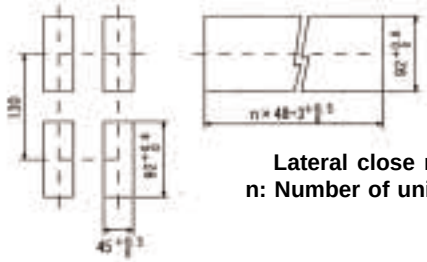




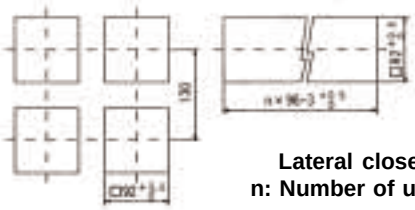
Panel Cutout



Lateral close mounting
n: Number of units mounted



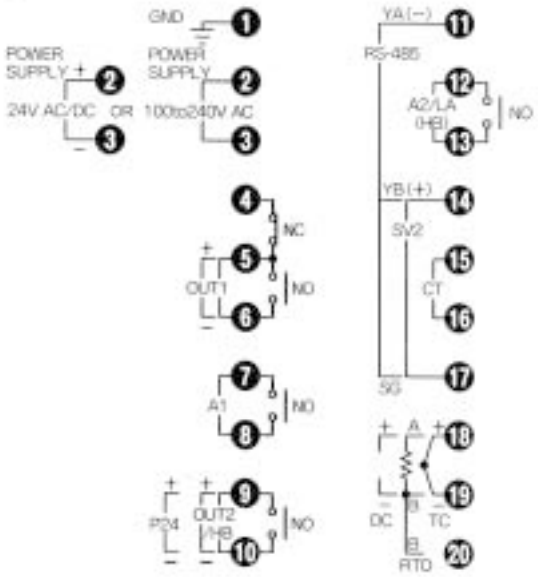
Lateral close mounting
n: Number of units mounted



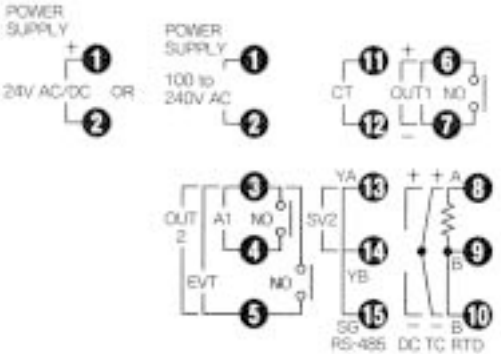
Lateral close mounting
n: Number of units mounted

Terminal Wiring

JCR-33A, JCD-33A series



JCS-33A series



Shinko is an
ISO 9001
facility

Model Number Configuration

JC ___ -33A-___/M ___ ___ ___

FRONT PANEL SIZE	CODE
1/16 DIN (48mm x 48mm)	S
1/8 DIN (48mm x 96mm)	R
1/4 DIIN (96mm x 96mm)	D

ALARM FUNCTION	CODE
Standard	A

CONTROL OUTPUT	CODE
Relay Contact	R
SSR Driver	S
4-20mA*	A

*Not available with heater break alarm.

INPUT	CODE
True Multi-Input T/C, RTD, Voltage, Current	M

SUPPLY VOLTAGE	CODE
24V AC/DC	1
100 - 240V AC	-

CONTROL OUTPUT 2	CODE
Relay Contact	DR
SSR Driver	DS
4-20mA	DA
Solid State Relay Output*	DT

*Only available on the JCS model.

OPTIONS	CODE
Alarm 2	A2
RS-485***	C5
Heater Break (5A)	W5A
(10A)	W10A
(20A)	W20A
(50A)	W50A
Remote SV**	SM
Loop Break Alarm	LA
Transmitter Power Supply 24 V DC*	P24

*Not available on the JCS.
** Standard feature on the JCR and JCD
*** Not available with SM option.



High Performance Temperature & Recording Instrumentation

...at the lowest prices anywhere!

Shinko is an **ISO 9001** facility

Shinko North America Ltd.