Digital Indicating Controller with Ramp/Soak

JCL-33 Series

Powerful 1/32 DIN Controller available today...at the lowest price!

Shinko North America Ltd.

www.mod-tronic.com

Toll Free 1 - 800 794-5883

Standard Features

Model JCL

1/32 DIN (48mm x 24mm)

• Structure
IP66 protective construction.
Black enclosure color.

• Programmable Alarms
Units feature standard single alarm output.

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

• Ramp/Soak Function
Up to 9 Ramp/Soak segments.

• Dual Use
This instrument is easily switched between controller or transmitter by simple key operation.

Input Range Table

Input Type		Input Range	
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	-200 to 850ºC	-300 to 1500ºF
		-199.9 to 850.0ºC	-199.0 to 999.9ºF
	JPt100	-200 to 500ºC	-300 to 900ºF
		-199.9 to 500.0ºC	-199.9 to 900ºF
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 DC voltage inputs, scaling and decimal point place are changeable.
* For DC current input, 50Ω shunt register (sold separately) must be installed.

• Low Cost
Most advanced price/performance package available.

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

• Large LED Display
All units feature bright display of either PV or SV, red 4 digits.

• Digital Input
Change between setpoints (SV1, SV2).

• Safety Approvals
UL, cUL and CE Safety Approvals.

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

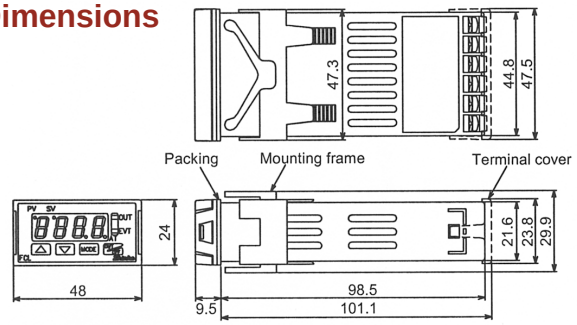
General Specifications

Display	PV/SV ------ Red Digits 8.7(H) x 5(W)mm
Input	Thermocouple ---------- K, J, R, S, B, E, 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

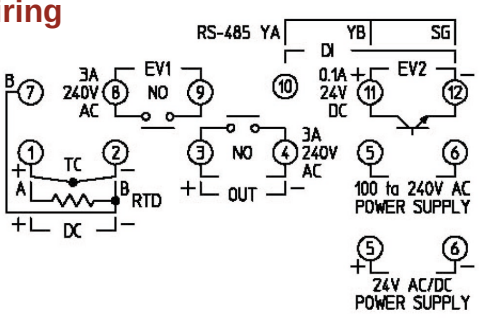
General Specifications

Control Output (OUT 1)	Relay contact ---------- 1a, 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 Maximum 40mA (Short circuit protected) DC Current ---------- 4 to 20mA DC load resistance: maximum 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 Proportional band (P) ---- 0.0 to 110% (ON/OFF action when set to 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) OUT Proportional cycle -------- 1 to 120 seconds (Not available for DC current output type.) ARW ---------- 0 to 100% Hysteresis ---------- Thermocouple, RTD: 0.1 to 100.0ºC (ºF) DC current, DC voltage: 1 to 1000 (The placement of the decimal point follows selection)
Event Output 1 (EV1) Event Output 2 (EV2)	Alarm action, Timer function and Pattern end function can be selected by keypad. For the inputs with a decimal point, the negative minimum value is -199.9 and the positive maximum value is 999.9. Setting accuracy --- The same as the indicating accuracy. Action ---------- ON/OFF action. Hysteresis ---------- Thermocouple, RTD: 0.1 to 100ºC (ºF) DC current, DC voltage: 1 to 1000 (The placement of the decimal point follows the selection) EV1 -------- Relay contact 1a, Control capacity: 3A 250V AC (Resistive load), 1A 250V AC (Inductive load cos ∅=0.4), Electric life: 100,000 times EV2 -------- Open collector. Control capacity: 0.1A 24V DC (Max.) Alarm action delayed timer function --- Alarm action is delayed by this function. If input enters alarm output range and the set time has passed, the output is turned on. Alarm output hold function ---- Once the alarm is activated, the alrm output is maintained until the power is turned off.
DI (Digital Input)	DI input has 3 functions as shown below. Each function can be selected by keypad. • Timer function: If input signal enters from outside, timer measurement starts, and ON delay timer, OFF delay timer or ON/OFF delay timer action output is turned on after delay timer setting time has passed. • SV1/SV2 external selection function: SV1 (Main setting 1), and SV2 (Main setting 2) can be selected by external contact signal. (If the JCL-33A is used as a programmable controller, this function is not available.) • OUT/OFF (RUN/STOP) external selection function: Control output OUT/OFF (Fixed value control) or Program control RUN/STOP can be switched [Fixed value control] (If the JCL-33A is used as a programmable controller, OUT/OFF external selection function is not available.) [Program control] Program control RUN/STOP can be switched by external contact pulse input (ON time, approx. 30ms).
Simplified Programmable Controller Function	JCL-33A can perform 1 pattern and 9 steps of simplified program control. Progressing time error ---- Within ±1 minute Pattern end output --------- Pattern end output can be selected by front keypad.
Converter function	JCL-33A has a converter function,which can be easily used by changing with keypad. (However,this is available only for the DC current output type.)
Mounting Method	Provided with one piece mounting bracket.
Setting Method	Sheet key input
Material • Color	Material: Flame resistant resin. Color: Black
Environment	Ambient temperature: -10 to 50ºC. Ambient humidity: 35 to 85%RH (No condensation)
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 6VA

External Dimensions



Terminal Wiring



Options

Heating/Cooling (DR)	If this option is added, Event output 1 cannot be used. Heating control action: The same as the control output (OUT). Cooling control action Proportional band (P) ---- 0.0 to 10.0 times the control output (OUT) (ON/OFF action when set to 0.0) Integral time (I) ---------- The same as that of the control output (OUT). Deriviative time (D) ----- The same as that of the control output (OUT). Proportional cycle ------ 1 to 120 seconds (Not available for DC current output type). Overlap/Dead band ---- Thermocouple, RTD: -100.0 to 100.0ºC (ºF,), DC current, DC voltage: -1000 to 1000 (The placement of the decimal point follows the selection). Hysteresis ---------- Thermocouple, RTD: 0.1 to 100.0ºC (ºF), DC current, DC voltage: 1 to 1000 (The placement of the decimal point follows the selection). Control output (EV1) ----- Relay contact 1a, Control capacity: 3A 250V AC (resistive load), 1 A 250V AC (Inductive load cos ∅=0.4), Electric life: 100,000 times
Serial Communication (C5)	Performs operations such as various setting status changes, setting value reading and setting, etc., from the external computer. Shinko programmable controller which has the SVTC option can digitally transmit its SV to JCL-33A units which have the C5 option. Communication interface: Based on EIA RS-485 Communication speed: 2400/4800/9600/19200bps (can be selected by keypad) Communication protocol: Shinko/Modbus RTU/Modbus ASCII (can be selected by keypad) Number of connectable units: Maximum 31 units per host computer.

Model Number Configuration

JCL-33A- ___/M ___ ___ ___

FRONT PANEL SIZE	CODE
1/32 DIN (48mm x 24mm)	L

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	-

HEATING/COOLING CONTROLLING OUTPUT	CODE
Relay Output	DR

OPTIONS*	CODE
RS-485	C5

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

Shinko is an **ISO 9001** facility

High Performance Temperature & Recording Instrumentation

...at the lowest prices anywhere!

Shinko North America Ltd.