

Temperature Controllers:
JCL-33 Digital Indicating Controller with Ramp/Soak

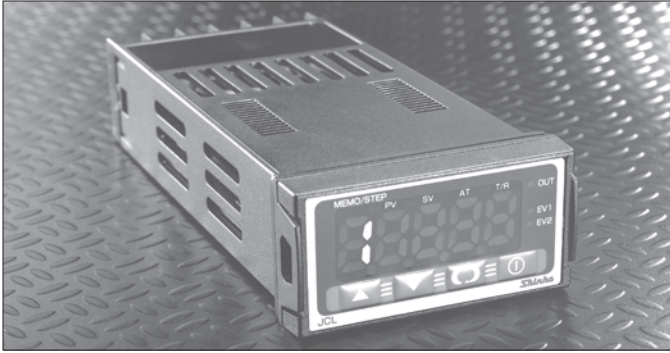
JCL-33



Powerful 1/32 DIN Controller
...at the lowest price anywhere


CONYELECTRONICS

Temperature Controllers: JCL-33 Digital Indicating Controller with Ramp/Soak



Model JCL:
1/32 DIN (48mm x 24mm)

Input Range Table

Input	Type	Input Range	
Thermocouple	K	-200 to 1370°C -199.9 to 400.0°C	-320 to 2500°F -199.9 to 750.0°F
	J	-200 to 1000°C	-320 to 1800°F
	R	0 to 1760°C	0 to 3200°F
	S	0 to 1760°C	0 to 3200°F
	B	0 to 1820°C	0 to 3300°F
	E	-200 to 800°C	-320 to 1500°F
	T	-199.9 to 400.0°C	-199.9 to 750.0°F
	N	-200 to 1300°C	-320 to 2300°F
	PL-II C (W/Re 5-26)	0 to 1390°C 0 to 2315°C	0 to 2500°F 0 to 4200°F
RTD	Pt100	-200 to 850°C -199.9 to 850.0°C	-300 to 1500°F -199.0 to 999.9°F
	JPt100	-200 to 500°C -199.9 to 500.0°C	-300 to 900°F -199.9 to 900°F
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 resistor (sold separately) must be installed.

Standard 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 DC 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

- **Structure**
IP66 Protective construction
Black enclosure
- **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
- **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 manufacturer's warranty

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Accuracy (Setting - Indicating)	<p>Thermocouple ----- Within +/-0.2% of each input span +/-1 digit or +/-2°C (4°F) whichever is greater However, R or S input 0 to 200°C (0 to 400°F): Within +/-6°C (12°F) B input 0 to 300°C (0 to 600°F): Accuracy is not guaranteed K, J, E and N input less than 0°C (32°F): Within +/-0.4% of input span +/-1 digit</p> <p>RTD ----- Within +/-0.1% of each input span +/-1 digit or +/-1°C (2°F) whichever is greater</p> <p>DC current and DC voltage ----- Within +/-0.2% of each input span +/-1 digit</p>
Input Sampling Period	0.25 seconds
Control Output (OUT 1)	<p>Relay contact ----- 1a, 3A 250V AC (Resistive load), 1A 250V AC (Inductive load cos $\phi=0.4$), Electric life: 100,000 times</p> <p>Non-contact DC voltage ----- 12-14V DC Max. 40mA (short-circuit protected)</p> <p>DC current ----- 4 to 20mA DC Load resistance: Max. 550Ω</p>
Control Action	<p>Actions mentioned below can be selected by key operation (Factory default set as PID)</p> <p>PID (with auto-tuning function), PI, PD (with manual reset function), P (with manual reset function), ON/OFF</p> <p>OUT Proportional band (P) ----- 0.0 to 110% (ON/OFF action when set to 0)</p> <p>Integral time (I) ----- 0 to 1000 seconds (OFF when set to 0)</p> <p>Derivative time (D) ----- 0 to 300 seconds (OFF when set to 0)</p> <p>OUT Proportional cycle ----- 1 to 120 seconds (Not available for DC current output type)</p> <p>ARW ----- 0 to 100%</p> <p>Hysteresis ----- Thermocouple and RTD: 0.1 to 100.0°C (°F) DC current and DC voltage: 1 to 1000 (Decimal point place follows the selection)</p>
Event Output 1 (EV1) Event Output 2 (EV2)	<p>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</p> <p>Setting accuracy ----- The same as the indicating accuracy</p> <p>Action ----- ON/OFF action</p> <p>Hysteresis ----- Thermocouple and RTD: 0.1 to 100°C (°F) DC current and DC voltage: 1 to 1000 (Decimal point place follows the selection)</p> <p>EV1 ----- Relay contact 1a, Control capacity: 3A 250V AC (Resistive load), 1A 250V AC (Inductive load cos $\phi=0.4$), Electric life: 100,000 times</p> <p>EV2 ----- Open collector. Control capacity: 0.1A 24V DC (Max.)</p> <p>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</p> <p>Alarm output hold function ----- Once the alarm is activated, the alarm output is maintained until power is turned off</p>
DI (Digital Input)	<p>DI input has 3 functions as shown below. Each function can be selected by keypad</p> <ul style="list-style-type: none"> • 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 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	<p>JCL-33A can perform 1 pattern and 9 steps of simplified program control</p> <p>Progressive time error ----- Within +/-1 minute</p> <p>Pattern end output ----- Pattern end output can be selected by front keypad</p>
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
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
Environment	Ambient temperature: -10 to 50°C Ambient humidity: 35 to 85% RH (No condensation)

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Options

* Please specify options according to user's needs. When ordering, specify an option code to be applied.

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)

Derivative 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 and RTD: -100.0 to 100.0°C (°F)

DC current and DC voltage: -1000 to 1000 (Decimal point follows this selection)

Hysteresis ----- Thermocouple and RTD: 0.1 to 100.0°C (°F)

DC current and DC voltage: 1 to 1000 (Decimal point follows this selection)

Control output (EV1) ----- Relay contact 1a, Control capacity: 3A 250V AC (Resistive load), 1A 250V AC (Inductive load $\cos \phi=0.4$), 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

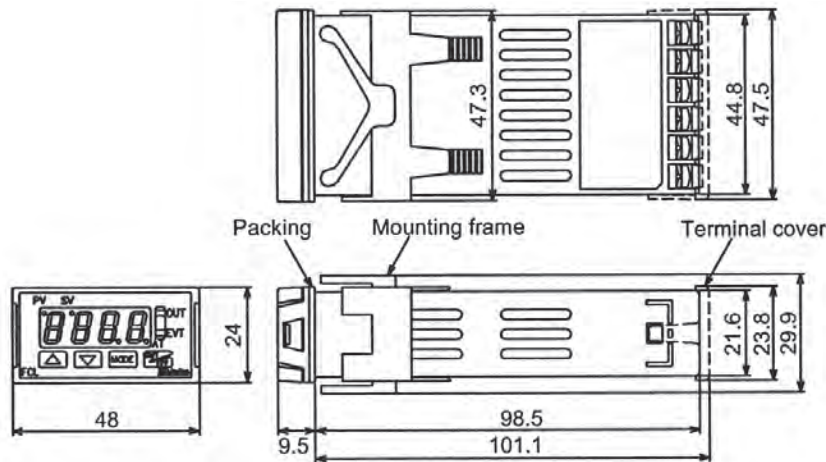
Communication interface ----- Based on EIA RS-485

Communication speed ----- 2400/4800/9600/19200bps (can be selected by keypad)

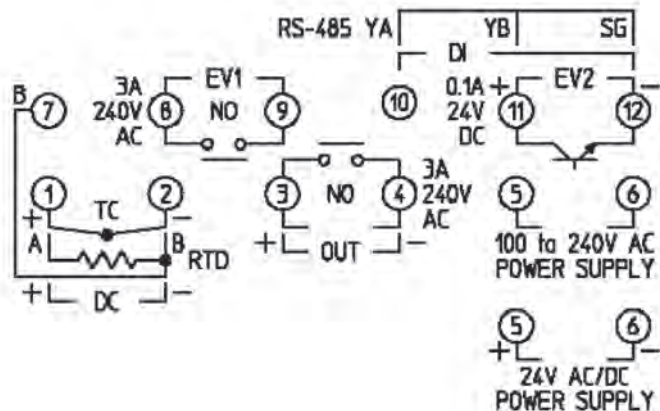
Communication protocol ----- Shinko/Modbus RTU/Modbus ASCII (can be selected by keypad)

Number of connectable units: A maximum of 31 units per host computer

External Dimensions



Terminal Wiring



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Model Number Configuration

FRONT PANEL SIZE	CODE	PRICE
1/32 DIN (48mm x 24mm)	L	\$129.00

ALARM FUNCTION	CODE	PRICE
Standard	A	N/C

CONTROL OUTPUT	CODE	PRICE
Relay Contact	R	N/C
SSR Driver	S	N/C
4-20mA*	A	N/C

*Not available with heater break alarm

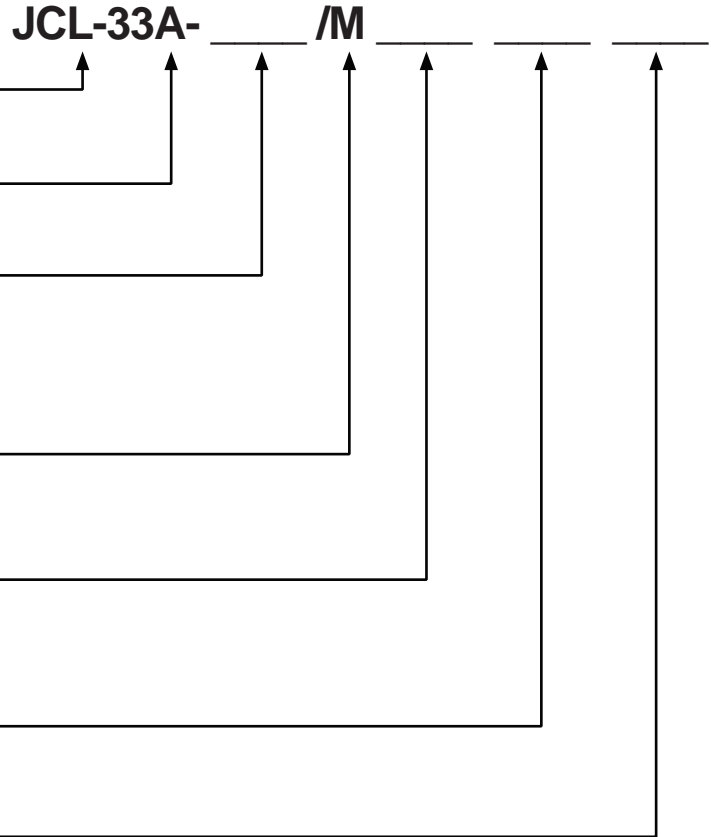
INPUT	CODE	PRICE
True Multi-Input	M	N/C
T/C, RTD, Voltage, Current	-	N/C

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

HEATING/COOLING CONTROLLING OUTPUT	CODE	PRICE
Relay Output	DR	\$35.00

OPTIONS	CODE	PRICE
RS-485	C5	\$60.00

** All Prices Subject to Change



**High Performance
Temperature & Recording
Instrumentation
...At The Lowest Prices Anywhere!**

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

