

Limit Controllers

- JC Series

Standard Features



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



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

• Limit Control Function Specifications

1 setpoint, high-low-limit control type, and latching limit action.

• Structure

Units available in standard DIN sizes (1/16, 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.

• Retransmission Output (Optional) JCD only

• Large LED Display

All units feature dual display. PV red 4 digits, SV green 4 digits.

• 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 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 | 0 to 1390°C | 0 to 2500°F |
| | C (W/Re5-26) | 0 to 2315°C | 0 to 4200°F |
| RTD | Pt100 | -199.9 to 850.0°C -200 to 850°C | -199.9 to 999.9°F -300 to 1050°F |
| 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] JCD-33A: PV [Red 4 digits, Character size: 18 x 8mm], SV [Green 4 digits, Character size 12.6 x 6.6mm] |
| Input | <p>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)</p> <p>RTD ----- Pt100, 3-wire system (Allowable input wire resistance per wire: 10Ω or less)</p> <p>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.)</p> <p>DC voltage ----- 0 to 1V DC Input impedance: 1MΩ or greater Allowable input voltage: 5V or less Allowable signal source resistance: 2kΩ or less</p> <p>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</p> |
| 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 |
| Output | Relay contact - 3A 250V AC (Resistive load), 1A 250V AC (Inductive load cos Ø=0.4), Electric life: 100,000 times |
| Alarm 1 (A1) | <p>Alarm action and Energized/De-energized can be selected by key operation.</p> <ul style="list-style-type: none"> • Setting accuracy The same as the indicating accuracy. • Action ON/OFF action • Hysteresis Thermocouple and RTD: 0.1 to 100.0°C (°F) 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 |
| Transmission Output (For JCD Only) | <p>Converting the value (PV transmission, SV transmission) to analog signal every 0.25 seconds, the value is outputted in current. (For JCD only) (Default: PV transmission)</p> <p>Resolution :1/8192</p> <p>Current :3 to 20mA DC (load resistance, maximum 550Ω)</p> <p>Output accuracy :Within ±0.3% of full scale</p> |
| Mounting Method | JCS provided with one piece mounting bracket. 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 50°C 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 JCD-33A: 96 x 96 x 98.5mm (W x H x D) Approx. 370g |

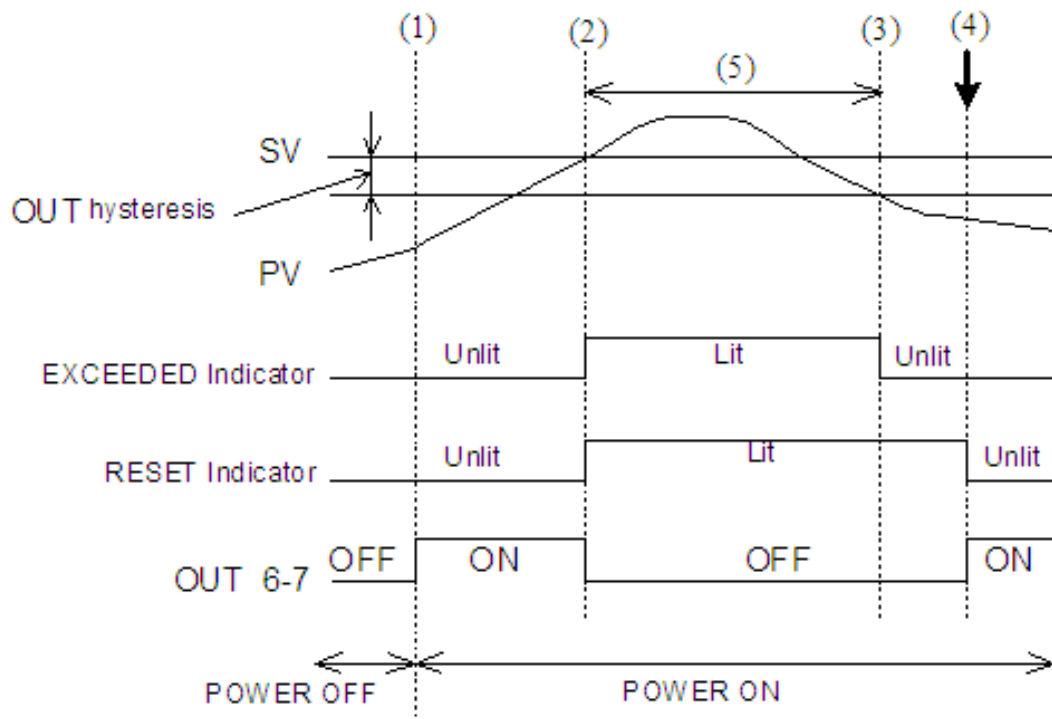
Options

| | |
|--|--|
| 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. |
| 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 |
| External Reset Input (SM) | By connecting external contact (ON) while RESET indicator is lit, the RESET indicator goes off. However, during high limit action, reset is impossible when $SV \leq PV$. During Low limit action, reset is impossible when $SV \geq PV$. For JCD Terminals between 15 and 17 Open: OFF Terminals between 15 and 17 Closed: ON For JCS Terminals between 13 and 14 Open: OFF Terminals between 13 and 14 Closed: ON Circuit current when closed: 6mA |

Action Explanation (For JCS)

High limit control action (Fig. 1)

Auto start will be used for purposes of explanation of the High limit control action.

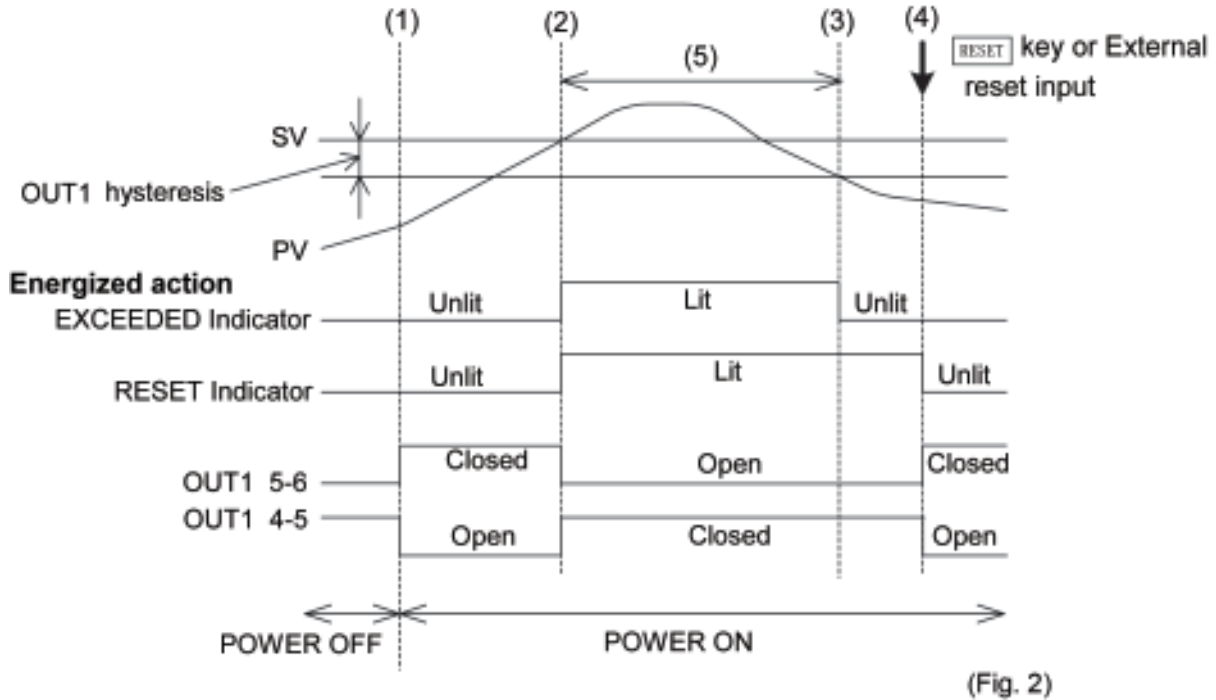


- (1) Limit control action will initiate after power supply to the controller is turned on.
- (2) If PV exceeds SV, the EXCEEDED and RESET indicators light, and OUT (Limit control output terminals between 6-7) is turned OFF.
- (3) If PV drops below (SV-OUT hysteresis), the EXCEEDED indicator goes off. At this time, the RESET indicator is lit, and OUT (Limit control output terminals between 6-7) is in OFF status.
- (4) If the RST key is pressed, or if external reset input terminals between 13-14 are shorted, the RESET indicator goes off, OUT (Limit control output terminals between 6-7) is turned ON, and limit control action initiates again.
- (5) While the EXCEEDED indicator is lit, even the RST key is pressed or if external reset input terminals between 13-14 are shorted, limit control action does not initiate.

Action Explanation (For JCD)

High limit control action (Fig. 2)

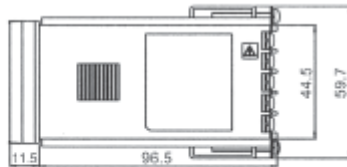
Auto limit control will be used for purposes of explanation of the High limit control action.



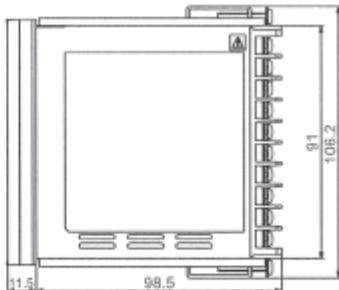
- (1) Limit control action will initiate after power supply to the controller is turned on.
- (2) If PV exceeds SV, the EXCEEDED and RESET indicators light, and OUT1 (Limit control output terminals between 5-6) is turned OFF.
- (3) If PV drops below (SV-OUT1 hysteresis), the EXCEEDED indicator goes off. At this time, the RESET indicator is lit, and OUT1 (Limit control output terminals between 5-6) is in OFF status.
- (4) If the RST key is pressed, or if external reset input terminals between 15-17 are shorted, the RESET indicator goes off, OUT1 (Limit control output terminals between 5-6) is turned ON, and limit control action initiates again.
- (5) While the EXCEEDED indicator is lit, even the RST key is pressed or even if external reset input terminals between 15-17 are shorted, limit control action does not initiate.

External Dimensions

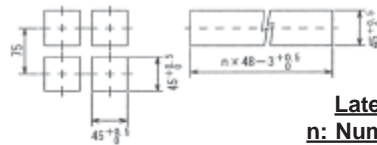
JCS-33A Series



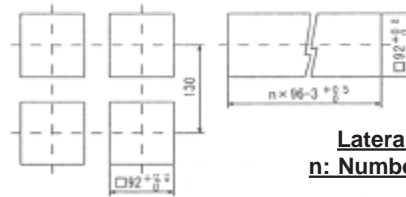
JCD-33A Series



Panel Cutout



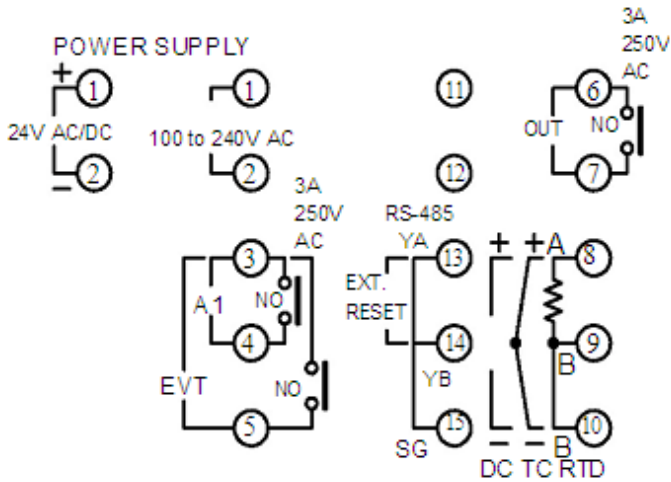
Lateral close mounting
n: Number of units mounted



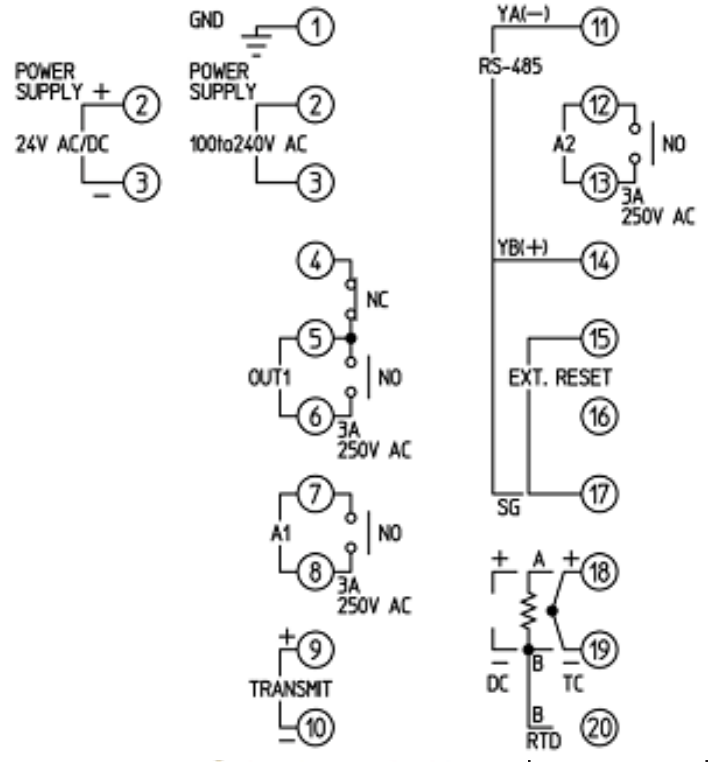
Lateral close mounting
n: Number of units mounted

Terminal Wiring

JCS-33A series



JCD-33A series



Model Number Configuration

JC -33A-R / M T

EX) JCS-33A-R/M,1,T6080,A2

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

| ALARM FUNCTION | CODE |
|----------------|------|
| Standard | A |

| CONTROL OUTPUT | CODE |
|----------------|------|
| Relay Contact | R |

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

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

| SPECIFICATION | CODE |
|------------------------------------|---------|
| High Limit or Low Limit Controller | |
| for 1/16 DIN | T6080 |
| for 1/4 DIN | T5909-1 |

| OPTIONS | CODE |
|---------|------|
| Alarm 2 | A2 |
| RS-485 | C5 |



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