Module type controller SRJ

Temperature control input module

J-TI

Installation Manual

Modbus 62501-02

Mounting depth: 60 mm (length of each cable) for connecting cables must be considered when installing.

1. PARTS DESCRIPTION

The J-TI is a temperature input and control module designed for heater control system. This module can control the output of the SSR unit through communication.

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1.5 seconds

| Setting switches |

Communication setting switch

Set the communication of either internal/host communication and Host communication or internal communication transfer

OFF: Termination resistor OFF for any J-TI other than the J-TI at termination point
ON: Termination resistor ON for any J-TI other than the J-TI at termination point

The power supply of the J-TI is separated from the host computer.

2. MOUNTING

1.5 seconds

WARNING

To prevent electric shock or instrument failure, always turn off the power before mounting or removing the instrument.

2.1 Mounting Cautions

(1) This instrument is intended to be used under the following environmental conditions:

- Ambient temperature: -10 to 50°C
- Ambient humidity: 5 to 95 %RH
- Allowable ambient temperature: 5 to 95 %RH
- Pollution degree: 2
- Installation environment: Indoor use
- Altitude: up to 2000 m
- Do not mount this instrument inside the equipment that generates large amount of heat (heaters, transformers, thyristor units, large-wattage resistors.)
- Do not mount this instrument in a location where it is exposed to high carbon dust or fine dust.
- Do not mount this instrument in areas where there are flammable or explosive gases.
- Do not mount this instrument in areas where there is a risk of electric shock, fire or malfunctions.

2.2 Dimensions

| Host communication or internal communication transfer |

Termination resistor of host communication

OFF: Termination resistor OFF for any J-TI other than the J-TI at termination point
ON: Termination resistor ON for any J-TI other than the J-TI at termination point

The power supply of the J-TI is separated from the host computer.

3. WIRING

Wiring diagrams and numeric values used in this manual are only for explanation purposes.

NOTICE

This manual assumes that the reader has a fundamental knowledge of the principles of control, wiring, process control, circuit technique, and communications.

3.1 Wiring Cautions

- For RS485, use low-level data line with no difference in voltage between both pairs in the range of 0 to 0 V.
- For termination resistor, use 1 kΩ for each pair of communication lines.
- Do not connect modular connectors to telephone line.
- Do not connect modular connectors to telephone line.
- Do not power-on the equipment for any instrument.


(1) This product is for use with industrial machines, test and measuring equipment.

5.6 Host communication or internal communication transfer

OFF: Termination resistor OFF for any J-TI other than the J-TI at termination point
ON: Termination resistor ON for any J-TI other than the J-TI at termination point

The power supply of the J-TI is separated from the host computer.

6. Host communication or internal communication transfer

OFF: Termination resistor OFF for any J-TI other than the J-TI at termination point
ON: Termination resistor ON for any J-TI other than the J-TI at termination point

The power supply of the J-TI is separated from the host computer.

7. Terminating resistance of host communication

OFF: Termination resistor OFF for any J-TI other than the J-TI at termination point
ON: Termination resistor ON for any J-TI other than the J-TI at termination point

The power supply of the J-TI is separated from the host computer.

8. Other setting combinations

Other setting combinations can be made by imitating this instrument.

WARNING

To prevent electric shock or instrument failure, do not turn on the power until wiring is completed. Make sure that the wiring is correct before applying power to the instrument.

For an instrument with 24 V power supply input, supply power from "SELV" circuit defined as IEC 60950-1.
3.2 Connector Configuration

To connect a connection connector and a cable (sold separately), contact an RKC sales office or the agent.

- Measured input connector (IN1 to IN6)
  - Used to connect the measured inputs.
  - Recommended connector: The 6-pin type modular connector, TM4P-66P (HIROSE ELECTRIC).
  - Connection example:
    - With a connector for TI section is supplied with the following connector at the time of shipment:
      - Female connectors: 2011-011002-000 (WAGO)
      - With gripping plate and sliding connector release
      - Connection method: 2-wire system, half-duplex multi-drop connection
      - Maximum connections: J-TI master: 4 modules
      - Data back-up error
        - Error code: 8
        - Error message: Adjustment information error
        - Communication status: Control RUN
        - Communication status: ON
      - Solution: Program the instrument if the error still occurs after power is re-applied. Contact our sales office or distributor reporting the error item.

- Communicator connector (COM. IN, COM. OUT)
  - Used to connect the host computer.
  - Recommended connector: The 8-pin type modular connector, TM8-P6P-63P-58P-BE (KOREA ELECTRIC)
  - Communication setting switch:
    - J: Address 0
    - TI: Address 4

1. Wiring example

- TC input
  - Connection method: 2-wire system, half-duplex multi-drop connection
  - Maximum connections: J-TI master: 4 modules
  - Data back-up error
    - Error code: 8
    - Error message: Adjustment information error
    - Communication status: Control RUN
    - Communication status: ON
  - Solution: Program the instrument if the error still occurs after power is re-applied. Contact our sales office or distributor reporting the error item.

4. SPECIFICATIONS

- General specifications
  - Power supply voltage (for J-TI): 24 V AC (including power supply voltage variation)
  - Current consumption (at maximum): 150 mA max. (24 V DC)
  - When eight J-CVMs is connected to a J-TI: 500 mA max.
  - Insulation resistance:
    - 2 kΩ or more

- Power connector
  - Used to connect the instrument power supply.
  - Recommended receptacle housing: D-3000 Series 3P (X type) 1-178288-3 (TE Connectivity)
  - Tab header (J-TI side): D-3000 Series 3P Horizontal Type (X type) 1-178293-3 (TE Connectivity)
  - Wire tensile strength: 0.75 N (0.076 kgf) or more
  - Conductor size: 2 to 1.5 mm²
  - Fine-strand: 2 to 1.5 mm²
  - AWG: 24 to 14
  - Strip length: 8 to 20 mm (0.31 to 0.79 in)
  - Operating tools: 2 to 0.8 mm (WAGO 210-719 screwdriver)
  - Wire tensile strength: 0.75 N (0.076 kgf) or more
  - Avoid wire bender (wiring exposed)

- CVM power/communication connector (COM.-CVM)
  - Used to connect the J-CVM.
  - Recommended receptacle housing: D-3100 Series 8P (X type) 1-178260-4 (TE Connectivity)
  - Tab header (J-TI side): D-2100 Series 8P Horizontal Type (X type) 1376009-1 (TE Connectivity)
  - Wire tensile strength: 1.5 to 0.5 (JIS C 11112) or more
  - Conductor size: 2 to 1.5 mm²
  - Fine-strand: 2 to 1.5 mm²
  - AWG: 24 to 14
  - Strip length: 8 to 20 mm (0.31 to 0.79 in)
  - Operating tools: 2 to 0.8 mm (WAGO 210-719 screwdriver)
  - Wire tensile strength: 0.75 N (0.076 kgf) or more
  - Avoid wire bender (wiring exposed)

- CVM communication setting switch:
  - J: Address 0
  - TI: Address 4

4.1 Measured input (PV)

- Number of inputs and ranges:
  - J-TI-A: 8 points (each isolated from each input)
  - J-TI-B: 8 points (each isolated from each input)
  - J-TI-C: 8 points (each isolated from each input)
  - J-TI-D: 16 points (each isolated from each input)
  - J-TI-E: 24 points (each isolated from each input)
  - J-TI-F: 32 points (each isolated from each input)

- Input type and range:
  - TC input K (JIS-C1602-1995):
    - 0.0 to 400.0 °C
  - RTD input Pt100 (JIS-C1604-1997), 3-wire system:
    - 0.0 to 800.0 °C
  - Process high, Process low:
    - Same as measured range

- Wire tensile strength:
  - 0.75 N (0.076 kgf) or more

- Communication setting:
  - Address 0
  - Address 4

- Self-diagnostic error:
  - Communication status: Control RUN
  - Communication status: OFF
  - Error code: Error 1 or Error 2
  - Error message: Communication error

- Event function:
  - Number of events:
    - 2 points/channel
  - Event setting range:
    - Deviation high, Deviation low, Deviation high/low, Band, Process high, Process low
  - Maximum connections:
    - 12 modules
  - Communication setting:
    - J: Address 0
    - TI: Address 4

- Control loop break alarm (A): OFF
  - Control loop break alarm (B): 1 to 7200 seconds
  - Communication setting:
    - J: Address 0
    - TI: Address 4

- Power supply:
  - 24 V AC

- Communication:
  - J: Address 0
  - TI: Address 4

5. MODEL CODE

5.1 Suffix code

- Type:
  - N: None

- Input range code table

5.2 Initial setting code

- Type:
  - N: None
  - D: Deviation high
  - N: None

- Communication setting:
  - J: Address 0
  - TI: Address 4
  - Communication protocol: Modbus

- Event 1 type:
  - Event 2 type:
    - Event 2 type 1: Déviation low with hold action
    - Event 2 type 2: Déviation low with re-hold action
  - Communication protocol: Modbus