



Module type controller SRJ

Temperature control
input module

Installation J-TI Manual

IMS01X06-E1

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Thank you for purchasing this RKC product. In order to achieve maximum performance and ensure proper operation of the instrument, carefully read all the instructions in this manual. Please place the manual in a convenient location for easy reference.

This manual describes the mounting, wiring, operating and specifications only.

For detailed function and data map, refer to separate **SRJ Instruction Manual (IMS01X07-ED)**.
The manual can be downloaded from the official RKC website:
<https://www.rkcinst.co.jp/english/download-center/>

■ Product check

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Connector for TI section	
[Supplied for the TI section with a connector (delivered installed on the J-TI)] J-TI-A.....	16
J-TI-B, J-TI-C	8

■ Safety precautions

⚠ WARNING

- To prevent injury to persons, damage to the instrument and the equipment, a suitable external protection device shall be required.
- All wiring must be completed before power is turned on to prevent electric shock, fire or damage to the instrument and the equipment.
- This instrument must be used in accordance with the specifications to prevent fire or damage to the instrument and the equipment.
- This instrument is not intended for use in locations subject to flammable or explosive gases.
- Do not touch high-voltage connections such as power supply terminals, etc. to avoid electric shock.
- RKC is not responsible if this instrument is repaired, modified or disassembled by other than factory-approved personnel. Malfunction may occur and warranty is void under these conditions.

⚠ CAUTION

- This product is intended for use with industrial machines, test and measuring equipment. (It is not designed for use with medical equipment and nuclear energy plant.)
- This is a Class A instrument. In a domestic environment, this instrument may cause radio interference, in which case the user may be required to take additional measures.
- Be sure to provide an appropriate surge control circuit respectively for the following:
 - If input/output or signal lines within the building are longer than 30 meters.
 - If input/output or signal lines leave the building, regardless the length.
- This instrument is designed for installation in an enclosed instrumentation panel. All high-voltage connections such as power supply terminals must be enclosed in the instrumentation panel to avoid electric shock to operating personnel.
- All precautions described in this manual should be taken to avoid damage to the instrument or equipment.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- All wiring must be in accordance with local codes and regulations.
- To prevent instrument damage as a result of failure, protect the power line and the input/output lines from high currents with a suitable overcurrent protection device with adequate breaking capacity such as a fuse, circuit breaker, etc.
- A malfunction in this product may occasionally make control operations impossible or prevent alarm outputs, resulting in a possible hazard. Take appropriate measures in the end use to prevent hazards in the event of malfunction.
- Prevent metal fragments or lead wire scraps from falling inside instrument case to avoid electric shock, fire or malfunction.
- For proper operation of this instrument, provide adequate ventilation for heat dissipation.
- Do not connect wires to unused terminals as this will interfere with proper operation of the instrument.
- Turn off the power supply before cleaning the instrument.
- Do not use a volatile solvent such as paint thinner to clean the instrument. Deformation or discoloration may occur. Use a soft, dry cloth to remove stains from the instrument.
- Do not connect modular connectors to telephone line.

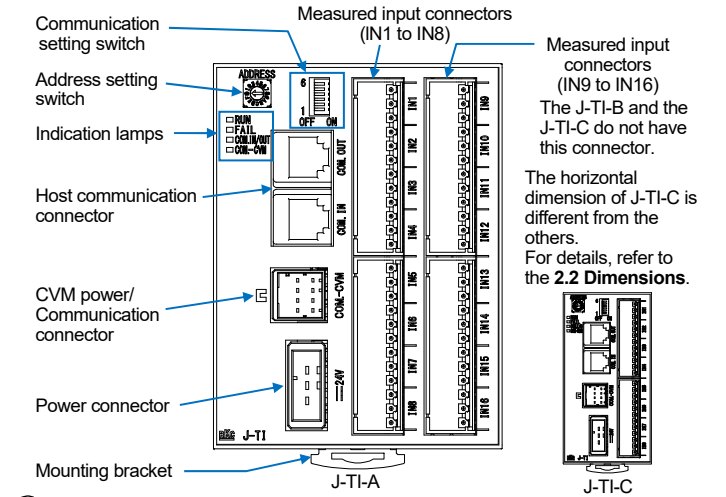
NOTICE

- This manual assumes that the reader has a fundamental knowledge of the principles of electricity, process control, computer technology and communications.
- The figures, diagrams and numeric values used in this manual are only for explanation purpose.
- RKC is not responsible for any damage or injury that is caused as a result of using this instrument, instrument failure or indirect damage.
- RKC is not responsible for any damage and/or injury resulting from the use of instruments made by imitating this instrument.
- Periodic maintenance is required for safe and proper operation of this instrument. Some components have a limited service life, or characteristics that change over time.
- Every effort has been made to ensure accuracy of all information contained herein. RKC makes no warranty, expressed or implied, with respect to the accuracy of the information. The information in this manual is subject to change without prior notice.
- No portion of this document may be reprinted, modified, copied, transmitted, digitized, stored, processed or retrieved through any mechanical, electronic, optical or other means without prior written approval from RKC.
- Various symbols are used on the equipment, and they have the following meaning.
 - ==: Direct current
 - ⚠: Safety precaution

This symbol is used where the instruction manual needs to be consulted for the safety of both the operator and the equipment. Carefully read the cautions in this manual before using the instrument.

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.

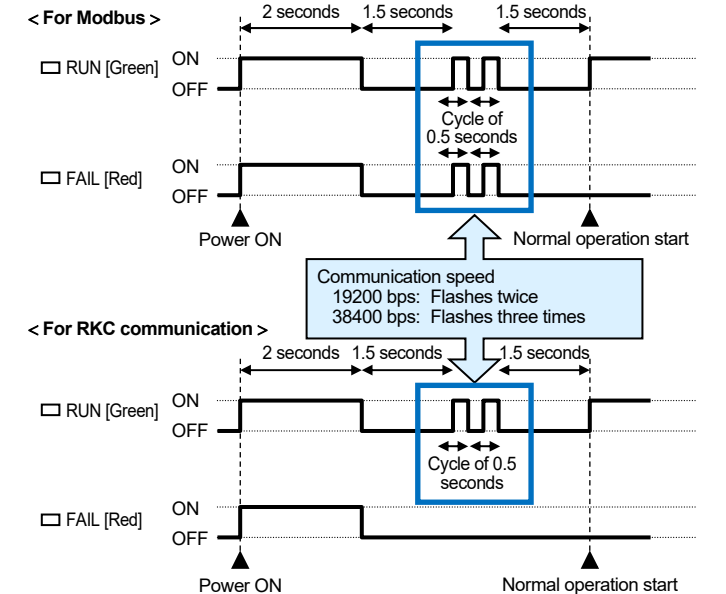


For the connector, refer to the **3.2 Connector Configurations**.

■ Indication lamps

J-TI-A, J-TI-B		
<input type="checkbox"/> RUN	RUN [Green]	Lights during normal operation.
<input type="checkbox"/> FAIL	FAIL [Red]	Lights when instrument error.
<input type="checkbox"/> COM.IN/OUT	Host communication (COM.IN/OUT or COM.I/O) [Orange]	Flashing during host communication data send and receive.
<input type="checkbox"/> COM-CVM	CVM communication (COM.-CVM or COM-CVM) [Orange]	Flashing during J-CVM communication data send and receive.
J-TI-C		
<input type="checkbox"/> RUN		
<input type="checkbox"/> FAIL		
<input type="checkbox"/> COM.I/O		
<input type="checkbox"/> COM-CVM		

As soon as power is applied, the instrument shows communication protocol and communication speed using a RUN [Green] lamp and a FAIL [Red] lamp.



Set the Communication protocol and Communication speed by the host communication. For the Host communication, refer to the **SRJ Instruction Manual (IMS01X07-ED)**.

■ Setting switches

● Communication setting switch

Set the termination resistor of Internal/Host communication and Host communication or internal communication transfer			
1	Termination resistor of internal communication		
OFF	Termination resistor OFF (for any J-TI other than the J-TIs at both ends in internal communication) [Factory set value]		
ON	Termination resistor ON (for the J-TIs at both ends in internal communication)		
2	Termination resistor of host communication		
OFF	Termination resistor OFF (for any J-TI other than the J-TI at termination* in host communication) [Factory set value]		
ON	Termination resistor ON (for the J-TI at termination in* host communication)		

* The most distant J-TI from the host computer.

3	4	5	6	Host communication or internal communication transfer
OFF	OFF	ON	ON	Internal communication (the J-TI slave connected to the J-TI) [Factory set value]
ON	ON	OFF	OFF	Host communication (the J-TI master connected to a host computer)
Other setting combinations				Do not set this one

● Address setting switch

When connecting more than one J-TI on the same communication line, set each address of J-TI by using Address setting switch to avoid overlapping addresses. Overlapped communication addresses may cause instrument failure or malfunction.

The data changes become valid when the power is turned on again.

ADDRESS



Set the communication address for the J-TI.
Setting range: 0 to F (Decimal numbers: 0 to 15) Factory set value: 0
Up to four J-TI masters can be connected to a single host computer.
Up to three J-TI slaves can be connected to a single J-TI master.
Communication address must be between 0 and 3, 4 and 7, 8 and B, or C and F. Addresses 0, 4, 8 and C are used for masters.
The J-TI connected to the J-CVM must be set with one of 0, 4, 8 and C (Master address).
For Modbus, the value obtained by adding "1" to the set address corresponds to the address used for the actual program.

2. MOUNTING

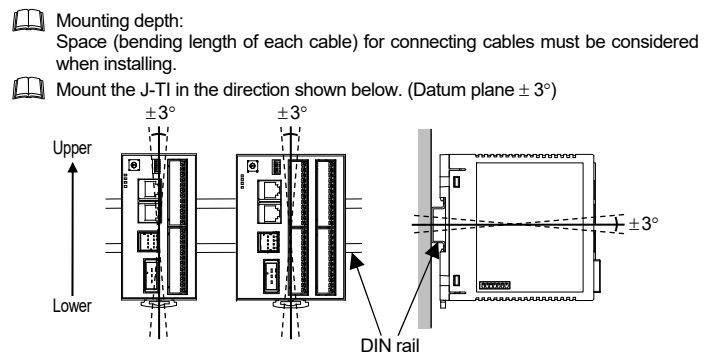
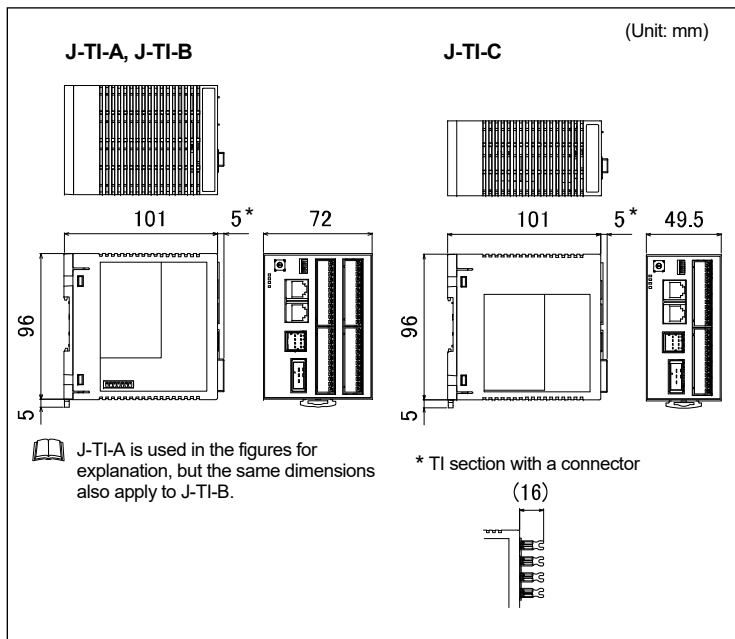
⚠ WARNING

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. (IEC 61010-1) [POLLUTION DEGREE 2]
- (2) Use this instrument within the following environment conditions:
 - Allowable ambient temperature: -10 to +55 °C
 - Allowable ambient humidity: 5 to 95 %RH (Absolute humidity: MAX.W.C 29 g/m³ dry air at 101.3 kPa)
- (3) Avoid the following conditions when selecting the mounting location:
 - Rapid changes in ambient temperature which may cause condensation.
 - Corrosive or inflammable gases.
 - Direct vibration or shock to the mainframe.
 - Water, oil, chemicals, vapor or steam splashes.
 - Excessive dust, salt or iron particles.
 - Excessive induction noise, static electricity, magnetic fields or noise.
 - Direct air flow from an air conditioner.
 - Exposure to direct sunlight.
 - Excessive heat accumulation.
- (4) Mount this instrument in the panel considering the following conditions:
 - Ensure at least 25 mm space on top and bottom of the instrument for maintenance and environmental reasons.
 - Do not mount this instrument directly above the equipment that generates large amount of heat (heaters, transformers, thyristor units, large-wattage resistors.)
 - If the ambient temperature rises above 55 °C, cool this instrument with a forced air fan, cooler, etc. Cooled air should not blow directly on this instrument.
 - In order to improve safety and the immunity to withstand noise, mount this instrument as far away as possible from high voltage equipment, power lines, and rotating machinery.
 - High voltage equipment: Do not mount within the same panel.
 - Power lines: Separate at least 200 mm.
 - Rotating machinery: Separate as far as possible.
- (5) In case this instrument is connected to a supply by means of a permanent connection, a switch or circuit-breaker shall be included in the installation. This shall be in close proximity to the equipment and within easy reach of the operator. It shall be marked as the disconnecting device for the equipment.

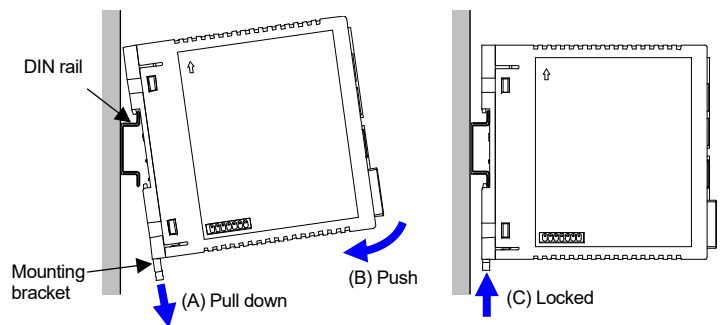
2.2 Dimensions



2.3 DIN Rail Mounting and Removing

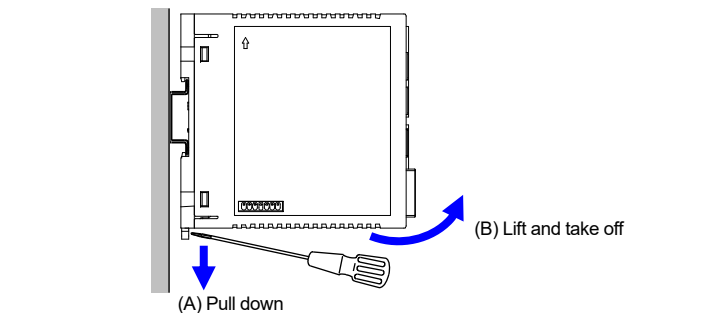
■ Mounting procedures

1. Pull down the mounting bracket at the bottom of the module (A). Attach the hooks on the top of the module to the DIN rail and push the lower section into place on the DIN rail (B).
2. Slide the mounting bracket up to secure the module to the DIN rail (C).



■ Removal procedures

Pull down a mounting bracket with a blade screwdriver (A). Lift the module from bottom, and take it off (B).



3. WIRING

⚠ WARNING

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

3.1 Wiring Cautions

- For thermocouple input, use the appropriate compensation wire.
- For RTD input, use low resistance lead wire with no difference in resistance between the three lead wires.
- To avoid noise induction, keep input signal wire away from instrument power line, load lines and power lines of other electric equipment.
- If there is electrical noise in the vicinity of the instrument that could affect operation, use a noise filter.
 - Shorten the distance between the twisted power supply wire pitches to achieve the most effective noise reduction.
 - Always install the noise filter on a grounded panel. Minimize the wiring distance between the noise filter output and the instrument power supply terminals to achieve the most effective noise reduction.
 - Do not connect fuses or switches to the noise filter output wiring as this will reduce the effectiveness of the noise filter.
- Power supply wiring must be twisted and have a low voltage drop.
- For an instrument with 24 V power supply input, supply power from "SELV" circuit defined as IEC 60950-1.
- A suitable power supply should be considered in end-use equipment. The power supply must be in compliance with a limited-energy circuits (maximum available current of 5.04 A).

