

Module Type Controller SRZ  
Temperature Control Module  
[for PLC Communication]

# Z-TIO Instruction Manual

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Thank you for purchasing this RKC product. In order to achieve maximum performance and ensure proper operation of your new 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 and specifications only. For the basic operations, refer to Z-TIO PLC Communication Quick Operation Manual (IMS01T11-ED, IMS01T12-ED).

For the detail handling procedures and various function settings, please refer to separate **SRZ Instruction Manual [for PLC Communication] (IMS01T13-ED)**.

The above manuals can be downloaded from our website:  
URL: [http://www.rkcinst.com/english/manual\\_load.htm](http://www.rkcinst.com/english/manual_load.htm)

### Product check

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### Safety precautions



- An external protection device must be installed if failure of this instrument could result in damage to the instrument, equipment or injury to personnel.
- All wiring must be completed before power is turned on to prevent electric shock, fire or damage to instrument and equipment.
- This instrument must be used in accordance with the specifications to prevent fire or damage to instrument and 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 can 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.
- 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.
- This instrument is protected from electric shock by reinforced insulation. Provide reinforced insulation between the wire for the input signal and the wires for instrument power supply, source of power and loads.
- 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 by operating personnel.
- All precautions described in this manual should be taken to avoid damage to the instrument or equipment.
- All wiring must be in accordance with local codes and regulations.
- To prevent instrument damage or failure, protect the power line and the input/output lines from high currents with a protection device such as fuse, circuit breaker, etc.
- Prevent metal fragments or lead wire scraps from falling inside instrument case to avoid electric shock, fire or malfunction.
- Tighten each terminal screw to the specified torque found in the manual to avoid electric shock, fire or malfunction.
- For proper operation of this instrument, provide adequate ventilation for heat dispensation.
- 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 will occur. Use a soft, dry cloth to remove stains from the instrument.
- To avoid damage to instrument display, do not rub with an abrasive material or push front panel with a hard object.
- When high alarm with hold action/re-hold action is used for Event function, alarm does not turn on while hold action is in operation. Take measures to prevent overheating which may occur if the control device fails.

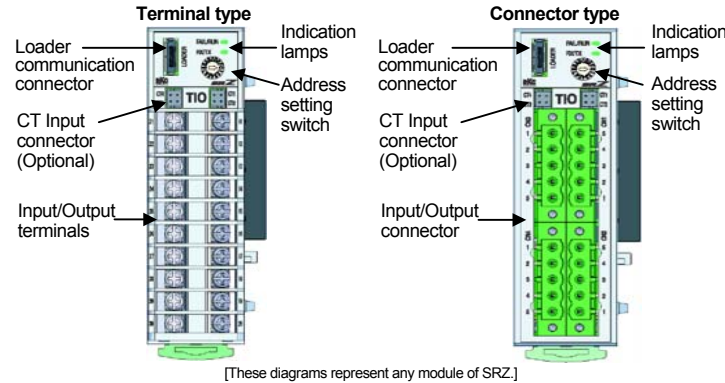
### NOTICE

- 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 purpose of illustration.
- 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.

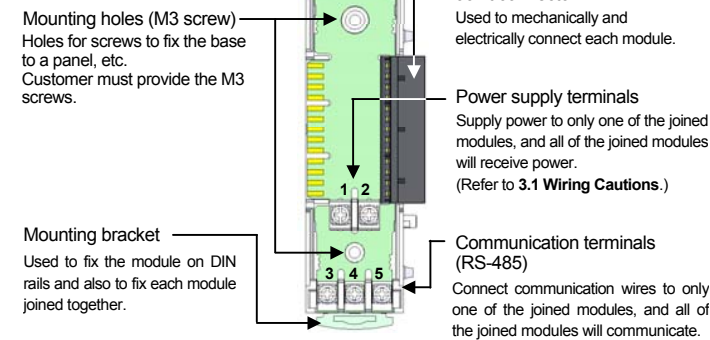
## 1. PARTS DESCRIPTION

### Module mainframe



- [Indication lamps]
- FAIL/RUN
    - When normal (RUN): A green lamp is on
    - Self-diagnostic error (FAIL): A green lamp flashes
    - Instrument abnormality (FAIL): A red lamp is on
  - RX/TX
    - During data send and receive: A green lamp turns on

### Base



## 2. MOUNTING



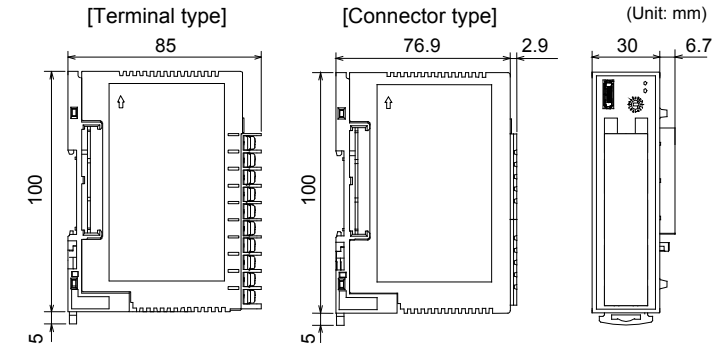
To prevent electric shock or instrument failure, always turn off the power before mounting or removing the instrument.

### 2.1 Mounting Cautions

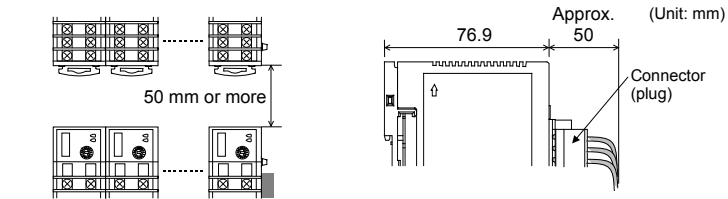
- (1) This instrument is intended to be used under the following environmental conditions. (IEC61010-1) [OVERVOLTAGE CATEGORY II, POLLUTION DEGREE 2]
  - (2) Use this instrument within the following environment conditions:
    - Allowable ambient temperature: -10 to +50 °C
    - Allowable ambient humidity: 5 to 95 % RH (Absolute humidity: MAX. W. C 29.3 g/m<sup>3</sup> dry air at 101.3 kPa)
    - Installation environment conditions: Indoor use  
Altitude up to 2000 m
  - (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 50 mm space on top and bottom of the instrument for maintenance and environmental reasons.
    - Do not mount this instrument directly above equipment that generates large amount of heat (heaters, transformers, semi-conductor functional devices, large-wattage resistors).

- If the ambient temperature rises above 50 °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) If this instrument is permanently connected to equipment, it is important to include a switch or circuit-breaker into the installation. This should be in close proximity to the equipment and within easy reach of the operator. It should be marked as the disconnecting device for the equipment.

### 2.2 Dimensions



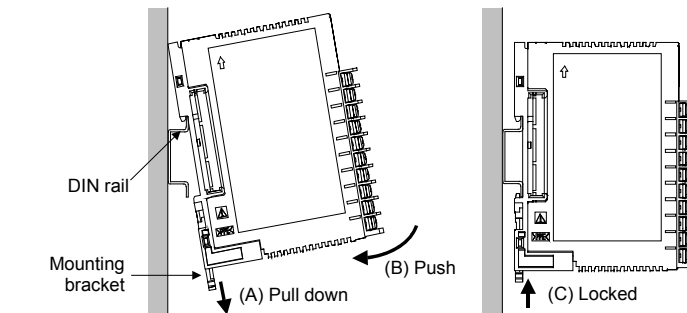
- Space required between each module vertically  
When the module is mounted on the panel, allow a minimum of 50 mm at the top and bottom of the module to attach the module to the mainframe.
- Depth for connector mount type module  
Space for connectors and cables must be considered when installing.



### 2.3 DIN Rail Mounting

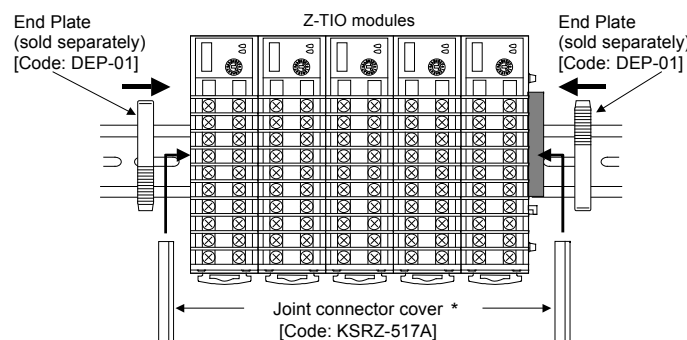
#### Mounting procedures

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.



#### Mounting end plates

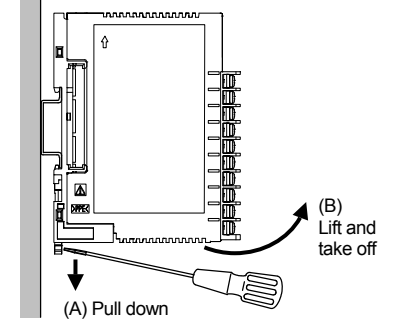
To firmly fix the modules, use end plates on both sides of the mounted modules.



\* It is recommended to use a plastic cover on the connector on both sides of the mounted modules for protection of connectors.

### Removal procedures

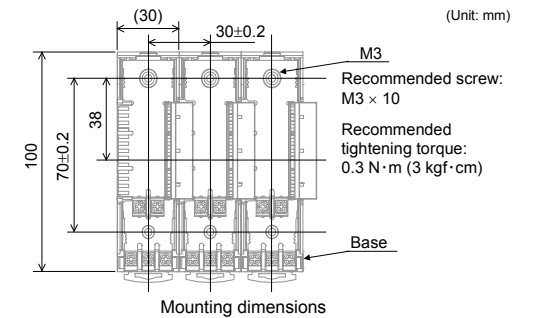
Pull down a mounting bracket with a blade screwdriver (A). Lift the module from bottom, and take it off (B).



### 2.4 Panel Mounting

#### Mounting procedures

1. Refer to the mounting dimensions below when selecting the location.



2. Remove the base from the module (B) while the lock is pressed (A). (Fig.1)
3. Join bases. Then, lock them by pushing in the mounting brackets.
  - Refer to the 2.5 Joining Each Module.
4. Fix the base to its mounting position using M3 screws. Customer must provide the screws.
5. Mount the module on the base. (Fig.2)

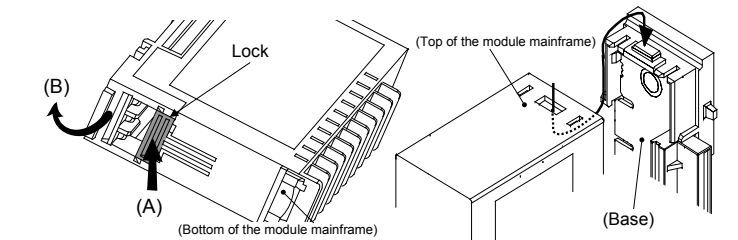


Fig. 1: Removing the base

Fig. 2: Mounting the module mainframe

### 2.5 Joining Each Module

Up to 16 Z-TIO-C/D modules (for PLC communication) can be joined together. Join these modules according to the following procedure.

In case of PLC communication, Z-TIO-C and Z-TIO-D modules cannot be connected to a Z-COM module.

1. Mount the modules on the DIN rail.
2. Slide the modules until the modules are closely joined together and the joint connectors are securely connected.
3. Push in the mounting brackets to lock the modules together and fix to the DIN rail.

For panel mounting, mount the module mainframes after the bases are joined and mounted.

