SRZ SERIES

Module type Process/Temperature Controller

SRZ

High-Performance

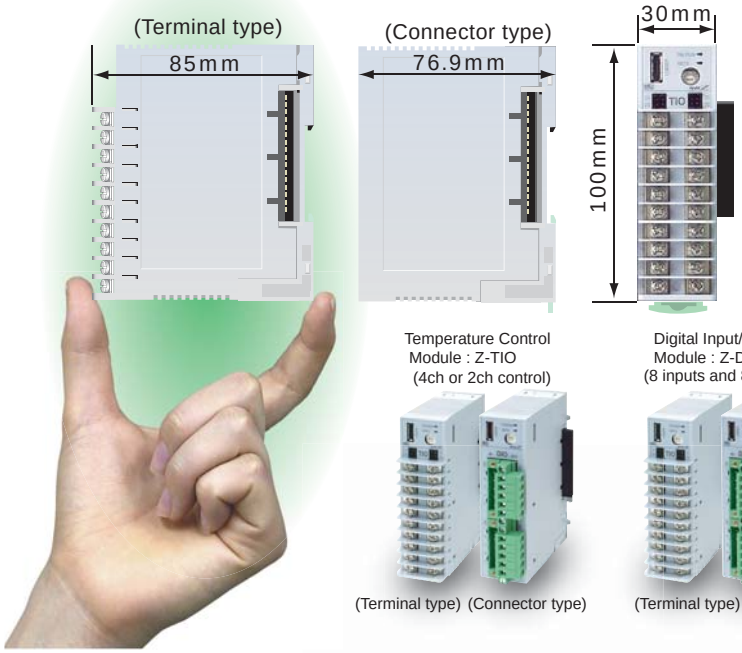
CE,UL,c-UL,RCM

RKC INSTRUMENT INC.

4CH temperature controller packed in one compact module

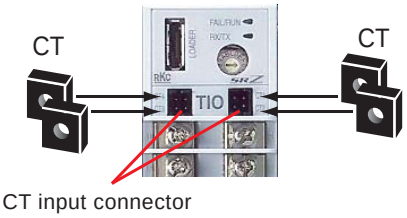
● Compact

Width 30mm, depth 85mm (connector type : 76.9mm) compact design with 4ch control type.



● 4 CT inputs and 4ch controls in one module

4ch Z-TIO module can have 4 CT (Current transformer) inputs.



Temperature Control Module : Z-TIO (4ch or 2ch control)

(Terminal type) (Connector type)

Digital Input/Output Module : Z-DIO (8 inputs and 8 outputs)

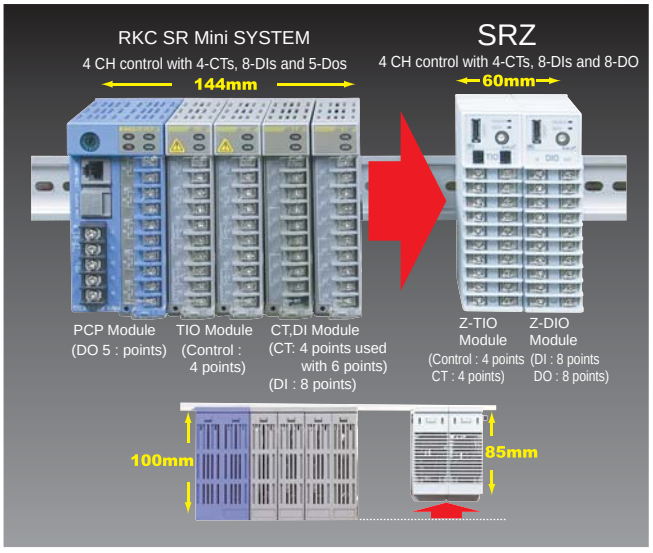
(Terminal type) (Connector type)

CT (Current transformer) Input Module : Z-CT (12 inputs)

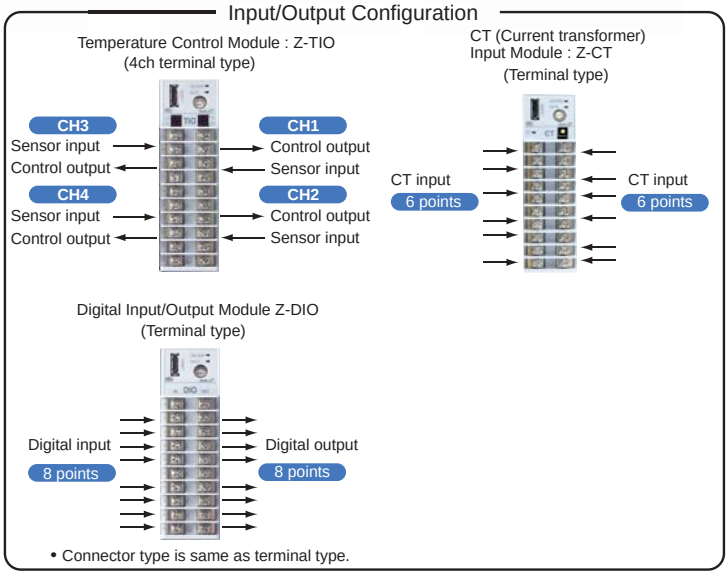
(Terminal type) (Connector type)

Communication Extension Module : Z-COM (High-speed communication gateway)

● Ultra compact - requires substantially less panel space



Input/Output Configuration

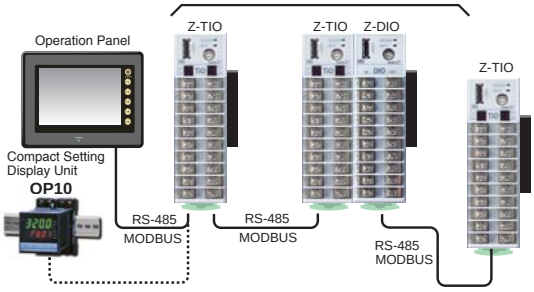


• Connector type is same as terminal type.

Flexible temperature control system configuration

● Distributed installation

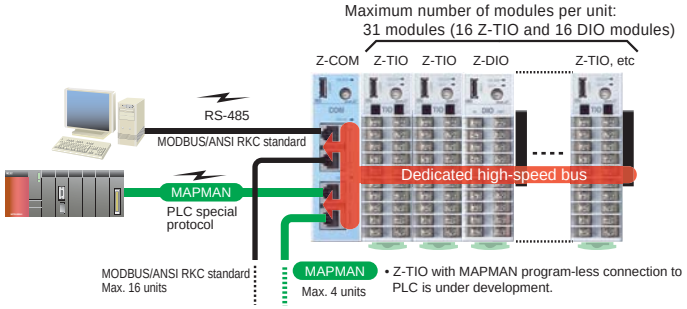
Modules can be remotely distributed by connecting them via RS-485 communication. Up to 16 Z-TIO (64 CH) and 16 Z-DIO (128 DI/DOs) modules can be connected to one serial communication line by distributed installation.
The maximum number of modules connected by distributed installation is 31 modules.



● High-speed communication with large systems, Program-less connection to PLCs

Z-COM module can manage data from connected control modules via high-speed bus connection. MAPMAN program-less connection to PLC is also available.

Program-less connectable PLCs: Mitsubishi Electric MELSEC Series



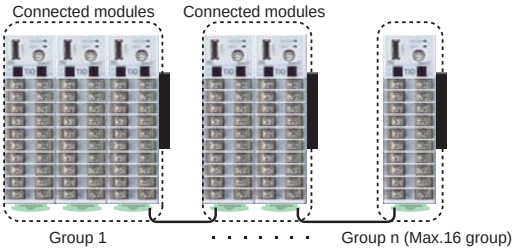
• Z-TIO with MAPMAN program-less connection to PLC is under development.

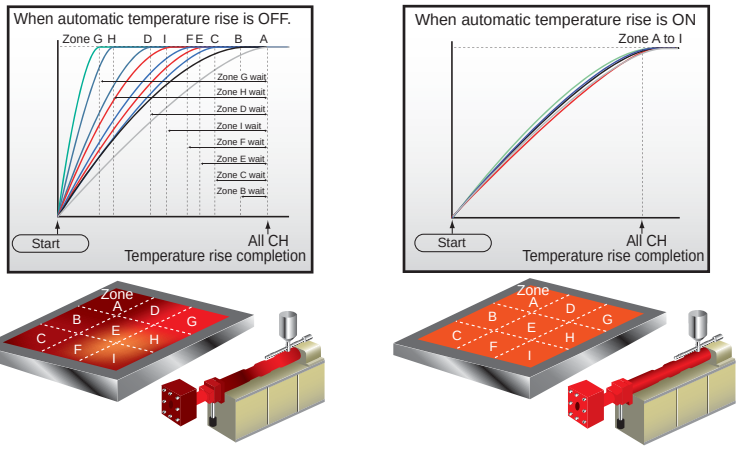
Control

Advanced functions enhance multi-loop control

● Temperature uniformity at ramp-up (Auto-temperature rise function)

The Auto-temperature rise function controls the rate of temperature rise uniformly across all the channels in a specified group. The SRZ system has the ability to have multiple groups within each system. This uniform controlled temperature rise will suppress local overheating and mechanical distortion in the tools, contributing to higher product quality.

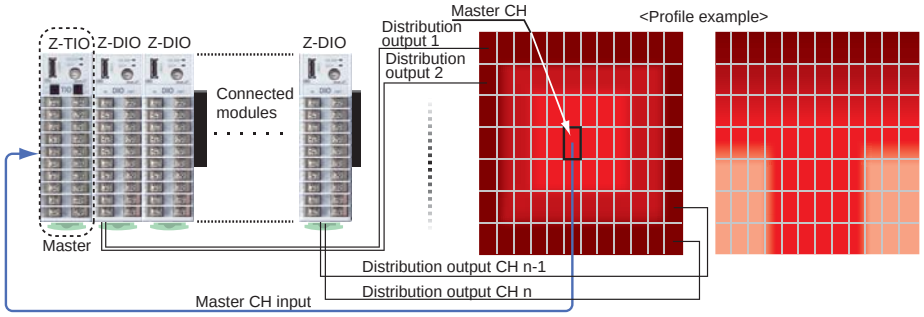




● Multi-loop profile control (Output ratio distribution function)

This function enables one master loop to distribute its output value to multiple outputs of Z-DIO modules. Bias and ratio can be set for each output independently.
A maximum of 187 distribution outputs from one control loop is possible when Z-DIOs and Z-TIOs are used for output ratio distribution.

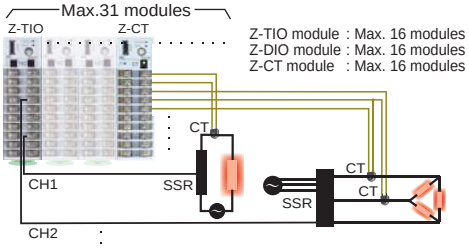
- Output ratio distribution function works via back plane connected modules.
- Distribution output from DIO module becomes open collector output or relay contact output.



● Automatic SV setting on heater break alarm and heater over current alarm

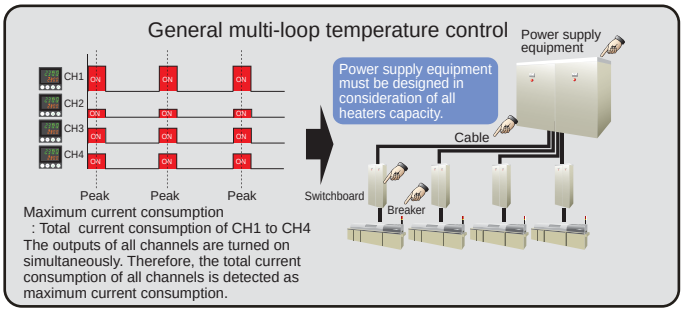
Set values of Heater break alarm (HBA) and heater over current alarm are automatically set by pressing a front-mounted push button when a heater is on.
This function is also available for three-phase heater break alarm.

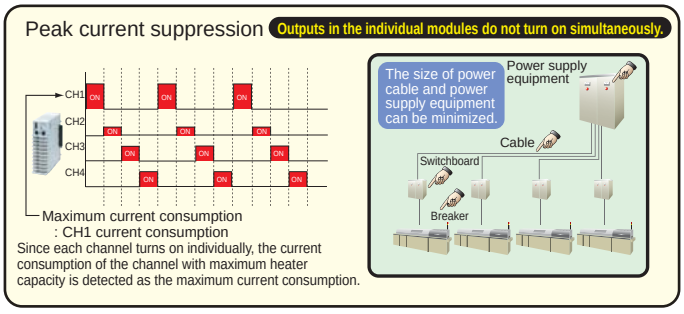
- HBA function of Z-CT module is designed only for time proportional control (On/Off output.) Phase control (continuous output) is not available.
- The CT input monitor value indicates the effective value when the heater break alarm function is enabled and output is 100% (heater ON) or 0% (heater OFF.)



● Peak current suppression

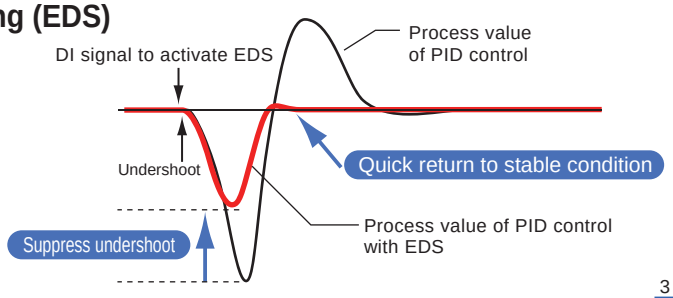
Peak current suppression minimizes the capacity of electrical materials such as power supply equipments, switchboards, power lines, and breakers since this function makes the timing of control output on each channel separate so that the current consumption of the channel with maximum heater capacity is detected as maximum current consumption.





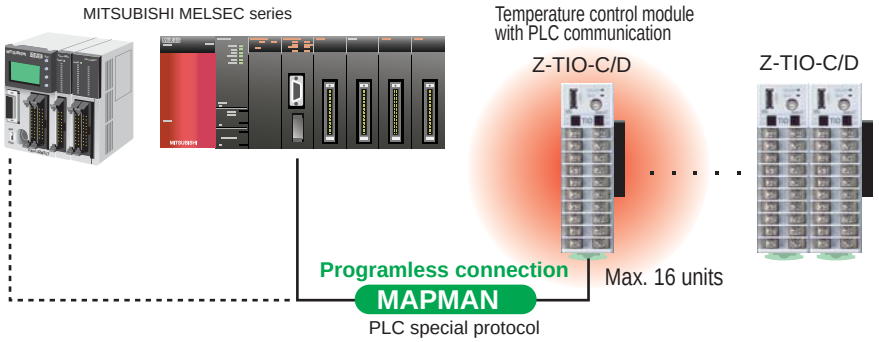
● External disturbance suppression with autotuning (EDS)

EDS with autotuning calculates optimum settings to suppress control disturbance caused by external factors. The function is activated by a DI signal to adjust control output (feed-forward) to compensate for the disturbance.
It is suitable for an application in which external disturbance can be predicted, such as wafer-in/out in semiconductor manufacturing equipment, and during injection in injection molding machine.



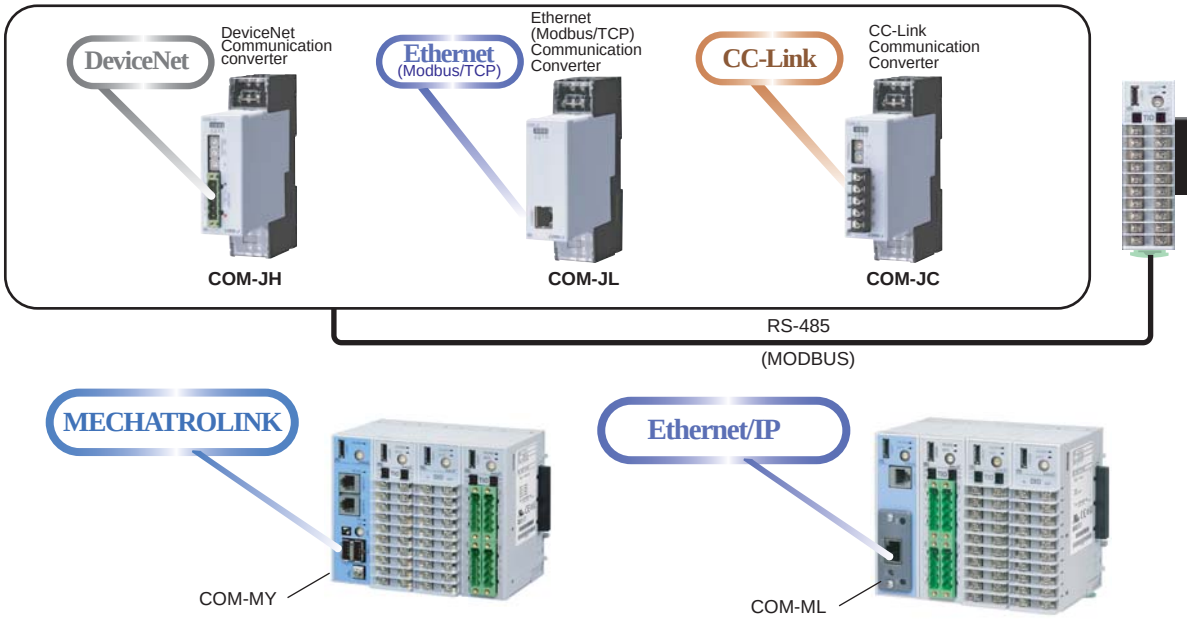
Communication

Programless connection to PLCs (Temperature control module with PLC communication : Z-TIO-C/D)



Corresponding to MITSUBISHI MELSEC PLC series :
1. A compatible, 1C frame (type 4).
   AnA/AnU common command (QR/QW)
   (ANA/QNA series, Q series)
   QnA compatible, 3C frame (type 4), command (0401/1401).
   (QnA/Q series) * ZR register only
2. A compatible, 1C frame (type 4).
   ACPU common command (WR/WW)
   (A series, FX2N, FX2NC series)

Open Network Connectivity



COM-JH

DeviceNet Communication

Protocol: DeviceNet
Connection method:
Multi-drop connection, T-branch connection
[Terminating resistor (121Ω, 1/4W)is necessary]
Communication speed: 125 kbps, 250 kbps, 500 kbps
Error control: CRC error
Node address (MAC ID) duplication check
Max number of connection nodes: 64 (including master)

Communication to SRZ

Connection module : Z-TIO-A/B, Z-DIO
Maximum connection
Total module 31 modules
Same function module : 16 modules
Communication method: RS-485
Protocol : Modbus-RTU

General Specifications

Power supply voltage: 24V DC
Current consumption: Less than 80mA
Rush current : Less than 12A
Weight : Open-style connector type : 120g
Micro-style connector type : 200g
External dimensions: 30 x125 x 110mm (W x H x D)

COM-JL

Ethernet communication

Physical layer:
Ethernet
10BASE-T/100BASE-TX automatic recognition
Application layer: Modbus/TCP
Communication data: Based on Modbus message format
Connector type: RJ-45

Communication to SRZ

Connection module : Z-TIO-A/B, Z-DIO
Maximum connection
Total module 31 modules
Same function module : 16 modules
Communication method: Based on RS-485
Protocol : Modbus-RTU

General Specifications

Power supply voltage: 24V DC
Current consumption: Less than 110mA
Weight : Approx. 180g
External dimensions: 30 x125 x 110mm (W x H x D)

COM-JC

CC-Link communication

Protocol: CC-Link Ver.1.10/Ver.2.00
Communication speed: 156 kbps, 625 kbps, 2.5 Mbps
5 Mbps, 10 Mbps
Station number: 1 to 61 (4 stations occupied 1 time,
4 stations occupied 2 times)
1 to 64 (1 stations occupied 1 time)
Connection cable: CC-Link dedicated cable Ver.1.10

Communication to SRZ

Connection module : Z-TIO-A/B,Z-DIO
Maximum connection
Total module 31 modules
Same function module : 16 modules
Communication method: RS-485
Protocol : Modbus-RTU

General Specifications

Power supply voltage: 24V DC
Current consumption: Less than 120mA
Rush current : Less than 12A
Weight : 220g
External dimensions: 30 x125 x 110mm (W x H x D)

COM-ML

Ethernet/IP communication

Physical layer:
Ethernet
10BASE-T/100BASE-TX automatic recognition
Application layer: Ethernet/IP
Correspondence message: I/O message,Explicit message
Connector type: RJ-45

Communication to SRZ

Connection module : Z-TIO-A/B, Z-DIO
Maximum connection
Total module 31 modules
Same function module : 16 modules
* Multi-drop connection : Up to SRZ 16 units
Communication method: RS-422A/485
Protocol : Modbus-RTU
RKC communication (ANSI X3.28-1976)

General Specifications

Power supply voltage: 24V DC
Current consumption: Less than 80mA
Rush current : Less than 12A
Weight : 130g
External dimensions: 30 x100 x 76.9mm (W x H x D)

COM-MY

MECHATROLINK communication

Protocol:	MECHATROLINK-II /I
Communication speed:	10M bps(II), 4M bps (I)
Number of stations:	30(II), 15(I)
Communication method:	Master/slave synchronous
Setting size:	17 bytes/32 bytes(Only II)
Transmission insulation:	Transformer insulation
ASIC:	JL-052
Type of station:	Slave station
Station address:	60h to 7Fh

Communication to SRZ

Connection module : Z-TIO-A/B, Z-DIO
Maximum connection
Total module 31 modules
Same function module : 16 modules
* Multi-drop connection : Up to SRZ 16 units
Communication method: RS-422A/485
Protocol : Modbus-RTU
RKC communication (ANSI X3.28-1976)

General Specifications

Power supply voltage: 24V DC
Current consumption: Less than 80mA
Rush current : Less than 12A
Weight : 120g
External dimensions: 30 x100 x 76.9mm (W x H x D)

Display Unit

Compact Setting Display OP10

This DIN rail mounted compact display and setting unit is suitable for on-site operation change and monitoring.

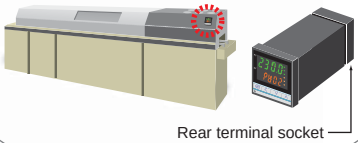
◆ Monitor item

- Measured value (PV)
- Set value (SV)
- Heat-side output value (MV)
- Cool-side output value (Mc)
- Event 1 status (A1)
- Event 2 status (A2)

◆ Setting item

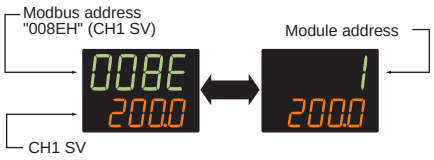
- Autotuning
- Event 1 (A1)
- Event 2 (A2)
- Heat-side proportional band (P)
- Heat-side integral time (I)
- Heat-side derivative time (D)
- Cool-side proportional band (Pc)
- PV bias (Pb)

A rear terminal socket allows the unit to be mounted on a panel.



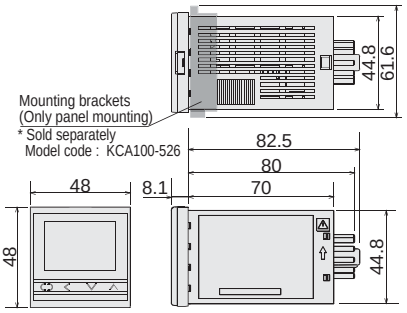
◆ Setting by MODBUS register address

Any Modbus register address can be specified to set or display data. This is used to set or display data that is not included within the OP10 parameter.



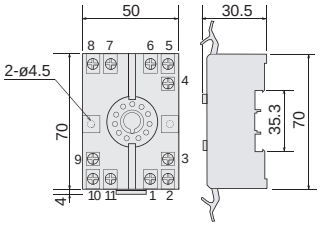
External Dimension

Unit : mm

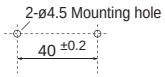


Socket (Sold separately) External Dimensions

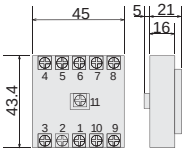
DIN rail mounting socket type
Model : ATC180041
(Matsushita Denko product)



Screw hole dimension for wall mounting



Rear terminal socket type
Model : AT78051
(Matsushita Denko product)



OP10 Specifications

Display: LCD display, 4-digitX2 (Green/Orange)
Communication (Communication to SRZ)
a) Communication method: Based on EIA RS-485
b) Communication speed: 4800bps,9600bps,19200bps,38400bps
c) Bit format:
Start bit: 1, Data bit: 8, Parity bit : None, Stop bit: 1
d) Protocol: Modbus: Modbus-RTU
Maximum connection: 16 modules
Connection module
Z-TIO module : 16 modules
Z-COM-A module : 16 modules (However, up to 99 channels)
The OP10 can be connected to a Z-TIO module and a Z-DIO module, although it cannot be used to set or display data of the Z-DIO module.
General specifications
Power supply voltage :
a) 100 to 240V AC (Rating), 50/60Hz
b) 24V AC (Rating), 50/60HZ
c) 24V DC (Rating)
Power consumption
4VA max. (at 100V AC) 7VA max. (at 240V AC)
4VA max. (at 24V AC) 100mA max (at 24V DC)
Compliance with standard: cUL, CE marking, C-Tick
Ambient temperature: 0 to 50°C
Ambient humidity: 45 to 85% RH
Waterproof/Dustproof: IP66 (Option)
Weight: Approx 120g

Communication with a PC via USB port (Loader communication)

Easy parameter setup via USB loader port with Win-UCI software (Loader communication)

The SRZ module has a standard loader port on the front panel to connect to a PC USB port via COM-K2 (USB communication converter). Using Win-UCI software on the PC, parameter settings can be easily saved on the PC in CSV format, and the same parameter settings are easily copied to other SRZ modules.

Easy data monitoring and logging with Win-UCI software

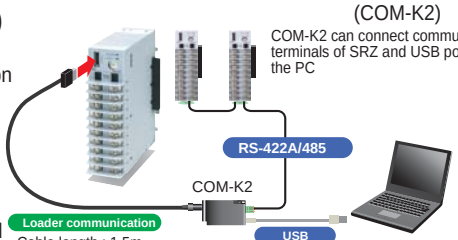
The Win-UCI software enables data monitoring and logging on the PC via communication terminals of SRZ. When SRZ communication terminals are connected to COM-K2 (see the diagram below), the USB port can be used on the PC side. Monitor and log data can be exported as an electronic file in CSV format.

• Win-UCI for SRZ is coming soon on the RKC Instrument website (www.rkcinst.com).

The Loader port is only for parameter setup

USB communication converter (COM-K2)

COM-K2 can connect communication terminals of SRZ and USB port of the PC



Cable length : 1.5m
(optional, specify in the model code when ordering

Cable length : 1m
(COM-K2 standard accessory)

Model :
COM-K2-1
(With loader communication cable)
COM-K2-N
(Without loader communication cable)

• The power to COM-K2 is supplied from the PC via the USB port so no power supply is necessary.

Specifications

Temperature Control Module (Z-TIO)

Input — Universal input

Number of inputs
4 or 2 channel (Isolated between inputs)
Input
a) Temperature, Current, Low voltage input group
Thermocouple : K, J, E, T, R, S, B, N (JIS/IEC)
PLII (NBS), W5Re/W26Re (ASTM)
RTD : Pt100 (JIS/IEC), JPt100 (JIS)
• 3-wire system
Low voltage (Input impedance : More than 1MΩ)
0 to 1V DC, 0 to 100mV, 0 to 10mV DC
Current (Input impedance : 50Ω)
4 to 20mA, 0 to 20mA
b) High voltage input group
High voltage (Input impedance : 1MΩ)
-1 to +1V DC, 0 to 5V DC, 1 to 5V DC, 0 to 10V DC
• Available for feedback resistance input
Sampling time : 0.25sec
Influence of external resistance : 0.125μV/Ω (Thermocouple input)
Influence of lead resistance : 0.02% of reading/Ω (RTD input)
• Maximum 10Ω per wire
Input break action
a) Thermocouple input : Up-scale/Down-scale (Selectable)
b) RTD input : Up-scale
c) Low voltage input : Up-scale/Down-scale (Selectable)
d) Current input : Value around 0mA
e) High voltage input : Value around 0V
Input short action : Down-scale (RTD input)
Input digital filter : 0.1 to 100.0 sec. (OFF when 0 is set.)
PV bias : -span to +span
PV ratio : 0.500 to 1.500

Control

a) Brilliant II PID control
• Direct action/Reverse action is selectable
b) Brilliant II PID control (Heat/Cool type)
c) Position proportioning control without feedback resistance
• a), b), c) is selectable
• With auto-tuning and start-up tuning (Except for position proportioning control)
a) Proportional band :
Temperature input : 0 to input span (°C,°F)
Voltage/Current input : 0.0 to 1000.0% of input span
• Differential gap at ON/OFF control (High/Low individual setting) :
Temperature input : 0 to input span (°C,°F)
Voltage/Current input : 0.0 to 100.0% of input span
b) Integral time : 0 to 3600 sec or 0.0 to 1999.9 sec (selectable)
c) Derivative time : 0 to 3600 sec or 0.0 to 1999.9 sec (selectable)
d) Cool side proportional band :
Temperature input : 1(0.1, 0.01) to input span (°C,°F)
Voltage/Current input : 0.1 to 1000.0% of input span
e) Cool side Integral time :
0 to 3600 sec or 0.0 to 1999.9 sec (selectable)
f) Cool side Derivative time :
0 to 3600 sec or 0.0 to 1999.9 sec (selectable)
g) Overlap/Deadband
Temperature input : -span to +span (°C,°F)
Voltage/Current input : -100.0 to +100.0% of input span
h) Control response : Slow, Medium, Fast
i) Ramp-to-setpoint : 0 to span per Time
(Time is settable between 1 and 3600 sec)
Up/Down individual setting
j) Output limiter : -5.0 to +105.0% (High/Low individual setting)
k) Output change rate limiter : 0.0 to 100.0%/sec
(Up/Down individual setting)
l) Proportional cycle time : 0.1 to 100.0 sec
m) Cool side proportional cycle time : 0.1 to 100.0 sec
n) Manual reset : -100.0 to +100.0%
o) Output at Control Stop mode : -5.0 to +105.0%
(Heat side/Cool side individual setting)

Performance

Input	Input Range	Accuracy
K, J, T, PLII, E	Less than -100°C (-148°F)	±2.0°C (±3.6°F)
	-100 to +500°C (-148 to 932°F)	±1.0°C (±1.8°F)
	More than 500°C (932°F)	±(0.2% of reading+1digit)
N, S, R, W5Re/W26Re	Less than 1000°C (1832°F)	±2.0°C (±3.6°F)
	More than 1000°C (1832°F)	±(0.2% of reading+1digit)
B	Less than 400°C (752°F)	±70.0°C (±126°F)
	400 to 1000°C (752 to 1832°F)	±2.0°C (±3.6°F)
	More than 1000°C (1832°F)	±(0.2% of reading+1digit)
Pt100, JPt100	Less than 200°C (392°F)	±0.4°C (±0.8°F)
	More than 200°C (392°F)	±(0.2% of reading+1digit)
DC V, DC A	±0.2% of span	
FBR input	±1.0% of span +1digit	

• Cold junction temperature compensation error when close horizontal mounting
±1.0°C (1.8°F) [Terminal type], ±2.0°C (3.6°F) [Connector type]
Insulation resistance
More than 20MΩ (500V DC) between measured terminals and ground
More than 20MΩ (500V DC) between power terminals and ground
More than 20MΩ (500V DC) between measured and power terminals
Dielectric voltage
750V AC for one minute between measured terminals and ground
750V AC for one minute between power terminals and ground
750V AC for one minute between measured and power terminals

Output

Number of outputs : 4 points or 2 points
Output
a) Relay contact output, Form a contact
250V AC 3A (Resistive load)
b) Voltage pulse output, 0/12V DC
(Load resistance : More than 600Ω)
• Power supply and output are not isolated
c) Current output, 4 to 20mA DC, 0 to 20mA DC
(Load resistance : Less than 600Ω)
• Power supply and output are not isolated.
d) Continuous voltage output
1 to 5V, 0 to 5V DC, 1 to 5V DC, 0 to 10V DC
(Load resistance : More than 1kΩ)
• Power supply and output are not isolated.
e) SSR (Triac) output, Rated current : 0.5A
f) Open collector output (Sink type)
Load current : Less than 100mA

Event (Alarm) function

Number of events : Up to 4 points per channel
Event type
Process high, Process low, Deviation high, Deviation low, Deviation high/low, Band, Set value high, Set value low, MV value high, MV value low, Cool side MV value high, Cool side MV value low, FBR value high, FBR value low, LBA (Control loop break alarm), Deviation high between channel, Deviation low between channel, Deviation high/low between channel, Deviation band between channel LBA, Temperature rise completion
• LBA is assignable to event 4.
• Temperature rise completion is assignable to event 3.
a) Hold/Re-hold action is configurable.
• Valid for deviation/band/process alarm only.
b) Energized/de-energized action is configurable.
c) Delay timer : 0 to 1800sec
d) Interlock (latch) function is configurable.

Heater break alarm function

Number of alarms : 4 or 2 points (1 point per CT input)
CT type : CTL-6-P-N : 0 to 30A
CTL-12-S56-10L-N : 0 to 100A
Input accuracy
±(5% of input value + 1 digit) or 2A (whichever is larger)

Communication function

Communication method : RS-485
Communication speed : 4800bps, 9600bps, 19200bps, 38400bps
Protocol
a) ANSI X3.28 sub-category 2.5B4 (RKC standard)
b) MODBUS-RTU
c) PLC special protocol (Mapman) : Z-TIO-C/D module
Corresponding to MITSUBISHI MELSEC PLC series :
1. A compatible, 1C frame (type 4).
AnA/AnU common command (QR/QW)
(ANA/QNA series, Q series)
QnA compatible, 3C frame (type 4), command (0401/1401)
(QnA/Q series) • ZR register only
2. A compatible, 1C frame (type 4).
ACPU common command (WR/WW)
(A series, FX2N, FX2NC series)
Bit format
a) RKC standard protocol
Start bit : 1, Data bit : 7 or 8,
Parity bit : 1 (odd or even) or none, Stop bit : 1 or 2
b) MODBUS protocol
Start bit : 1, Data bit : 8 (binary or byte data),
Parity bit : 1 (odd or even) or none, Stop bit : 1
Maximum connection
Z-TIO-A/B: 31 modules
Z-TIO-C/D: 16 modules

Multi-Memory Area (recipe)

Number of areas : 8 areas (recipes) per channel
Stored parameters
Set value (SV), Event set values 1 to 4, LBA time, LBA dead band, Proportional band, Integral time, Derivative time, Cool side proportional band, Cool side integral time, Cool side derivative time, Overlap/Deadband, Manual reset, Control response parameter, Ramp-to-setpoint (Up/Down), Soak time Linking area number

Other functions

a) Remote setpoint input
b) Temperature ratio setting
c) Cascade control mode
d) Output ratio distribution function
Function which distributes the control output value of the master channel to the Z-DIO/TIO module output.
e) EDS function
Function which suppresses overshoot and undershoot.
f) Auto-temperature-rise with learning function
Function which achieves temperature uniformity at ramp-up in the same control group while learning function calculates optimum parameter settings for this function.
Up to 16 groups can be configured within modules which are connected each other by connectors on the base
g) Peak current suppression function
This function is effective for modules connected each other by connectors on the base
• The peak current suppression function is performed in coupled modules.
h) Master-slave Mode
With this function, when a mode of Mode-master channel is changed, the mode of all slave channels (preset) will be also automatically changed. Modes can be selected among various mode function such as memory area (recipe).

Specifications

Digital Input/Output Module (Z-DIO)

Digital Input

Number of inputs : 8 points
• Isolated input (4 points/common)
Input method
Voltage contact input
Open : Less than 5.0V, Close : More than 17.5V
Contact current : Less than 3.0mA
Allowable input voltage : Less than 26.4V DC
Function : Interlock reset, RUN/STOP, Remote/Local, Auto/Manual, Memory area selection, External disturbance suppression
Function allocation : See digital input allocation table

Digital Output

Number of inputs : 8 points (4 points/common)
Output signal
a) Relay contact output, Form A Contact
250V AC 1A , 30V DC 1A (Resistive load)
b) Open collector output (Sink type)
Allowable load current : Less than 100mA
Load voltage : Less than 30V
Minimum load : 0.5mA
ON voltage : Less than 2.0V (at maximum load current)
Leakage current at OFF : Less than 0.1mA
Function :
Event 1 output (CH1 to CH4), Event 2 output (CH1 to CH4)
Event 3 output (CH1 to CH4), Event 4 output (CH1 to CH4)
HBA output, Burn-out status output, Temperature rise completion output, Manual output
Function allocation : See output allocation table

Communication Function

Communication method : RS-485
Communication speed : 4800bps, 9600bps, 19200bps, 38400bps
Protocol
a) ANSI X3.28 sub-category 2.5B4 (RKC standard)
b) MODBUS-RTU
Bit format
a) RKC standard protocol
Start bit : 1
Data bit : 7 or 8
Parity bit : 1 (odd or even) or none
Stop bit : 1 or 2
b) MODBUS protocol
Start bit : 1
Data bit : 8 (binary or byte data)
Parity bit : none
Stop bit : 1
Maximum connection : 16 units

Communication Extension Module (Z-COM)

Communication Function

Communication method : RS-485/RS-422A
Communication speed : 4800bps, 9600bps, 19200bps, 38400bps
Protocol
a) ANSI X3.28 sub-category 2.5B4 (RKC standard)
b) MODBUS-RTU
c) PLC special protocol (Mapman)
Corresponding to PLC
MITSUBISHI MELSEC series
AnA/AnU common command (QR/QW)
(ANA/QNA series, Q series)
OMRON SYSMAC series
C mode command (WD/RD/WE/RE)
Bit format
a) RKC standard protocol
Start bit : 1
Data bit : 7 or 8
Parity bit : 1 (odd or even) or none
Stop bit : 1 or 2
b) MODBUS protocol
Start bit : 1
Data bit : 8 (binary or byte data)
Parity bit : 1 (odd or even) or none
Stop bit : 1
c) PLC special protocol (Mapman)
Start bit : 1
Data bit : 7 or 8
Parity bit : 1 (odd or even) or none
Stop bit : 1 or 2
Communication allocation
Communication 1 (COM PORT 1 to 2)
RKC standard communication or MODBUS protocol
Communication 2 (COM PORT 3 to 4)
RKC standard communication, MODBUS protocol or PLC special protocol (Mapman)
Maximum connection
RKC standard protocol, MODBUS protocol : 16 units
PLC special protocol (Mapman) : 4 units
Maximum connection function module
Same function module : 16 units
Total function module : 31 units

CT (Current transformer) Input Module (Z-CT)

Input

Number of inputs : 12 points
CT type and Input range
CTL-6-P-Z : 0.0 to 10.0A
CTL-6-P-N : 0.0 to 30.0A
CTL-12-S56-10L-N : 0.0 to 100.0A
Sampling cycle : 3 sec
Input accuracy :
CTL-6-P-Z : ±0.3A
CTL-6-P-N : ±2% of reading or ±1.0A
CTL-12-S56-10L-N : ±2% of reading or ±1.0A

Event (Alarm)

Alarm type : Heater break alarm (HBA) and Heater overcurrent alarm
• Interlock (latch) function is configurable.
• Alarm delay time : 0 to 255 times
Setting method: Via communication or push-button switch
• Automatic alarm setting function is available.
CT allocation : Module address setting and channel setting

Communication Function

Same as DIO module communication function

Z-TIO, Z-DIO, Z-CT, Z-COM Common Specifications

General Specifications

Supply voltage : 21.6 to 26.4V DC (Including supply voltage variation)
Rating : 24V DC
Power consumption
a) Z-TIO : Less than 140mA, Surge current : Less than 10A
b) Z-DIO : Less than 70mA, Surge current : Less than 10A
c) Z-CT : Less than 70mA, Surge current : Less than 10A
d) Z-COM : Less than 30mA, Surge current : Less than 10A
Power failure
A power failure of 4m sec or less will not affect the control action.
• If power failure of more than 20m sec occurs, controller will restart with the state of HOT or COLD start. (Only Z-TIO)
Memory backup
Backed up by non-volatile memory (FRAM)
• Data retaining period : Approx. 10 years
• Number of writing : Approx. 10,000,000,000 times.
(Depending on storage and operating conditions.)
Ambient temperature : -10 to +50°C (14 to 122°F)
Ambient humidity : 5 to 95% RH (Non condensing)
• Absolute humidity : MAX.W.C 29.3g/m3 dry air at 101.3kPa
Weight
Z-TIO
Terminal type : Approx 130g (2ch type), Approx 160g (4ch type)
Connector type : Approx 120g (2ch type), Approx 140g (4ch type)
Z-DIO
Terminal type : Approx 150g (DI/DO 8ch type)
Approx 120g (DI 8ch type)
Approx 140g (DO 8ch type)
Connector type : Approx 130g (DI/DO 8ch type)
Approx 100g (DI 8ch type)
Approx 120g (DO 8ch type)
Z-CT
Terminal type : Approx 160g
Connector type : Approx 140g
Z-CT: Approx 110g
Operating environment
Free from corrosive and flammable gas and dust.
Free from external noise, vibration, shock and exposure to direct sunlight.
Compliance with Standards
CE Mark, UL, c-UL, RCM mark

Model and Suffix Code

● 4ch type Temperature Control Module (Z-TIO-A/C)

• If used as a heat and cool module or position proportional controller then it is only 2 channels.

Specifications		Z-TIO-A (Standard type) Z-TIO-C (PLC special protocol : MAPMAN) Hardware coding ①-②③④⑤⑥⑦-⑧ Quick start code ⑨/⑩
Wiring method	①	T: Terminal type; C: Connector type
Output 1	②	See Output Code Table
Output 2	③	See Output Code Table
Output 3	④	See Output Code Table
Output 4	⑤	See Output Code Table
CT input	⑥	N: Not supplied; A: CT input 4 points
Quick start code	⑦	N: No quick start code (Default setting); 1: Specify quick start code 1; 2: Specify quick start code 1 and 2 (See page 7)
Quick start code 1 — Control method	⑧	No symbol: No quick start code; F: PID control with AT (Reverse action); D: PID control with AT (Direct action); A: Heat/Cool PID control with AT (Air cooling type) (CH2 and CH4 are unused.); W: Heat/Cool PID control with AT (Water cooling type) (CH2 and CH4 are unused.); G: Heat/Cool PID control with AT (CH2 and CH4 are unused.); Z: Position proportional PID control without FBR (CH2 and CH4 are unused.)
Quick start code 1 — Input range	⑨	No symbol: No quick start code; □□□: See Input range Code Table
Instrument version	⑩	Y: Version symbol

Control output

PID control	Heat/Cool PID control	Position proportional PID control without FBR
CH1 output	CH1 Heat output	CH1 Open output
CH2 output	CH1 Cool output	CH1 Close output
CH3 output	CH2 Heat output	CH2 Open output
CH4 output	CH2 Cool output	CH2 Close output

● 2ch type Temperature Control Module (Z-TIO-B/D)

• If used as a heat and cool module or position proportional controller then it is only 1 channels.

Specifications		Z-TIO-B (Standard type) Z-TIO-D (PLC special protocol : MAPMAN) Hardware coding ①-②③/④⑤⑥-⑦⑧/⑨
Wiring method	①	T: Terminal type; C: Connector type
Output 1	②	See Output Code Table
Output 2	③	See Output Code Table
CT input	④	N: Not supplied; A: CT input 2 points
Option	⑤	N: Not supplied
Quick start code	⑥	N: No quick start code (Default setting); 1: Specify quick start code 1; 2: Specify quick start code 1 and 2 (See page 7)
Quick start code 1 — Control method	⑦	No symbol: No quick start code; F: PID control with AT (Reverse action); D: PID control with AT (Direct action); A: Heat/Cool PID control with AT (Air cooling type) (CH2 and CH4 are unused.); W: Heat/Cool PID control with AT (Water cooling type) (CH2 and CH4 are unused.); G: Heat/Cool PID control with AT (CH2 and CH4 are unused.); Z: Position proportional PID control without FBR (CH2 and CH4 are unused.)
Quick start code 1 — Input range	⑧	No symbol: No quick start code; □□□: See Input Range Code Table
Instrument version		Y: Version symbol

Control output

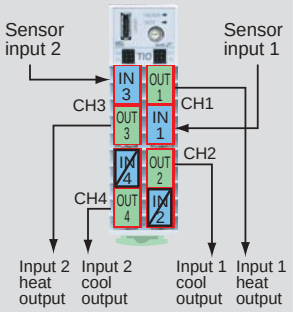
PID control	Heat/Cool PID control	Position proportional PID control without FBR
CH1 output	CH1 Heat output	CH1 Open output
CH2 output	CH1 Cool output	CH1 Close output

Input/Output configuration

(Heat/Cool PID control or Position proportional PID control)

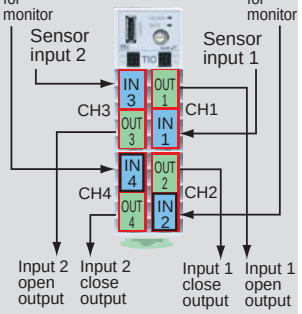
2ch heat/cool PID control (Z-TIO-A)

• No CH3 and CH4 for 1CH control type (Z-TIO-B).



2ch position proportional PID control (Z-TIO-A)

FBR input 2 for monitor • No CH3 and CH4 for 1CH control type (Z-TIO-B). FBR input 1 for monitor



• FBR inputs can be used to monitor FBR (feedback resistance). The SRZ has adopted position proportional control algorithm without FBR input of the valve in position proportional control.

Output Code Table

Output Type	Code
Relay contact output	M
Voltage pulse output (0/12V DC)	V
0 to 1V DC	3
0 to 5V DC	4
0 to 10V DC	5
1 to 5V DC	6
0 to 20mA DC	7
4 to 20mA DC	8
Triac output*	T
Open Collector output	D

***When a triac output is specified, CE marking and UL/CSA are not applied.**

Input Range Code Table

Thermocouple

Input	Code	Range
K	K 35	-200.0 to +400.0℃
	K 40	-200.0 to +800.0℃
	K 09	0.0 to 400.0℃
	K 10	0.0 to 800.0℃
	K 42	-200.0 to +1372.0℃
	K 02	0 to 400℃
	K 04	0 to 800℃
	K 41	-200 to +1372℃
	K C7	-328 to +2501℉
	K A4	0.0 to 800.0℉
	K A1	0 to 800℉
	K A2	0 to 1600℉

Input	Code	Range
J	J 27	-200.0 to +400.0℃
	J 32	-200.0 to +800.0℃
	J 08	0.0 to 400.0℃
	J 09	0.0 to 800.0℃
	J 29	-200.0 to +1200.0℃
	J 02	0 to 400℃
	J 04	0 to 800℃
	J 15	-200 to +1200℃
	J B6	0.0 to 800.0℉
	J B9	-328 to +2192℉
	J A1	0 to 800℉
	J A2	0 to 1600℉

Input	Code	Range
T	T 19	-200.0 to +400.0℃
	T C5	-328 to +752℉
	T C6	0.0 to +752.0℉
S	S 06	-50 to +1768℃
	S A7	-58 to +3214℉
R	R 07	-50 to +1768℃
	R A7	-58 to +3214℉
E	E 20	-200.0 to +1000.0℃
	E B2	0.0 to +800.0℉
	E B1	-328 to +1832℉

Input	Code	Range
B	B 03	0 to 1800℃
	B B1	32 to 3272℉
N	N 02	0 to +1200℃
	N A6	32 to +2372℉
PLII (NBS)	A 02	0 to 1390℃
	A A2	0 to 2534℉
W5Re/W26Re (ASTM)	W 03	0 to 2300℃
	W B1	32 to 4208℉

RTD

Input	Code	Range
Pt100	D 35	-200.0 to +850.0℃
	D 21	-200.0 to +200.0℃
	D C6	-328.0 to +752.0℉
	D D2	-328 to +1562℉
JPt100	P 30	-200.0 to +640.0℃
	P C6	-328.0 to +752.0℉
	P D2	-328 to +1184℉

DC Current • Voltage

Input	Code	Range
0 to 10mV	1 01	0.0 to 100.0%
0 to 100mV	2 01	
0 to 1V	3 01	
0 to 5V	4 01	

Input	Code	Range
0 to 10V	5 01	0.0 to 100.0%
1 to 5V	6 01	
0 to 20mA	7 01	
4 to 20mA	8 01	

• Quick start code 2 tells the factory to ship with each parameter preset to the values detailed as specified by the customer. Quick start code is not necessarily specified when ordering, unless the preset is requested. These parameters are software selectable items and can be re-programmed in the field via the manual.

Quick Start Code 2

Specifications		Quick Start Code 2 ①②③④-⑤⑥
Event 1 type	①	See Event Type Code Table
Event 2 type	②	See Event Type Code Table
Event 3 type	③	See Event Type Code Table
Event 4 type	④	See Event Type Code Table
CT type	⑤	N: No CT input; P: CTL-6-P-N; S: CTL-12-S56-10L-N
Communication Protocol	⑥	1: ANSI/RKC standard protocol; 2: MODBUS protocol; 3: PLC special protocol (MAPMAN) (Mitsubishi MELSEC A/Q series) • Only Z-TIO-C/D; 5: PLC special protocol (MAPMAN) (Mitsubishi MELSEC FX series) • Only Z-TIO-C/D

Event Type Code Table

Event Type	Code
No event	N
Deviation High	A
Deviation Low	B
Deviation High/Low	C
Band	D
Deviation High with Alarm Hold	E
Deviation Low with Alarm Hold	F
Deviation High/Low with Alarm Hold	G
Process High	H
Process Low	J
Process High with Alarm Hold	K
Process Low with Alarm Hold	L

Event Type	Code
Deviation High with Alarm Re-Hold	Q
Deviation Low with Alarm Re-Hold	R
Deviation High/Low with Alarm Re-Hold	T
Set value High	V
Set value Low	W
MV value High	1
MV value Low	2
Cool side MV value High	3
Cool side MV value Low	4
LBA (Loop break alarm) [1]	5
Temperature rise completion [2]	6

[1] LBA is available with event 4 only.
[2] Temperature rise completion is available with event 3 only.

● Digital Input/Output Module (Z-DIO-A)

Specifications		Z-DIO-A ①-②③/④-⑤⑥⑦⑧	Hardware coding	Quick start code
Wiring method	①	Terminal type	T	
		Connector type	C	
Number of digital input (DI)	②	Not supplied	N	
		DI 8 points	A	
Digital output (DO) signal	③	Not supplied	N	
		Relay contact output, 8 points	M	
		Open Collector output, 8 points	D	
Quick start code	④	No quick start code (Default setting)		N
		Specify quick start code		1
Quick start code: Digital input (DI) allocation	⑤	No quick start code		No symbol
		No digital input		N
		See DI allocation table		□
Quick start code: Digital output (DO) allocation (DO1 to DO4)	⑥	No quick start code		No symbol
		No digital output		N
		See DO1 to 4 allocation table		□
Quick start code: Digital output (DO) allocation (DO5 to DO8)	⑦	No quick start code		No symbol
		No digital output		N
		See DO5 to 8 allocation table		□
Quick start code: Communication protocol	⑧	No quick start code		No symbol
		ANSI/RKC standard protocol		1
		MODBUS protocol		2

DO1 to 4 Allocation Table

Code	Digital output			
	DO 1	DO 2	DO 3	DO 4
01	DO1 manual output	DO manual output	DO manual output	DO4 manual output
02	Event 1 (All CH)	Event 2 (All CH)	Event 3 (All CH)	Event 4 (All CH)
03	Event 1 (CH1)	Event 2 (CH1)	Event 3 (CH1)	Event 4 (CH1)
04	Event 1 (CH2)	Event 2 (CH2)	Event 3 (CH2)	Event 4 (CH2)
05	Event 1 (CH3)	Event 2 (CH3)	Event 3 (CH3)	Event 4 (CH3)
06	Event 1 (CH4)	Event 2 (CH4)	Event 3 (CH4)	Event 4 (CH4)
07	Event 1 (CH1)	Event 1 (CH2)	Event 1 (CH3)	Event 1 (CH4)
08	Event 2 (CH1)	Event 2 (CH2)	Event 2 (CH3)	Event 2 (CH4)
09	Event 3 (CH1)	Event 3 (CH2)	Event 3 (CH3)	Event 3 (CH4)
10	Event 4 (CH1)	Event 4 (CH2)	Event 4 (CH3)	Event 4 (CH4)
11	TIO HBA (CH1)	TIO HBA (CH2)	TIO HBA (CH3)	TIO HBA (CH4)
12	Burnout (CH1)	Burnout (CH2)	Burnout (CH3)	Burnout (CH4)
13	Temperature rise	HBA (Comprehensive output)	Burnout (All CH)	DO4 manual output

DO5 to 8 Allocation Table

Code	Digital output			
	DO 5	DO 6	DO 7	DO 8
01	DO5 manual output	DO6 manual output	DO7 manual output	DO8 manual output
02	Event 1 (All CH)	Event 2 (All CH)	Event 3 (All CH)	Event 4 (All CH)
03	Event 1 (CH1)	Event 2 (CH1)	Event 3 (CH1)	Event 4 (CH1)
04	Event 1 (CH2)	Event 2 (CH2)	Event 3 (CH2)	Event 4 (CH2)
05	Event 1 (CH3)	Event 2 (CH3)	Event 3 (CH3)	Event 4 (CH3)
06	Event 1 (CH4)	Event 2 (CH4)	Event 3 (CH4)	Event 4 (CH4)
07	Event 1 (CH1)	Event 1 (CH2)	Event 1 (CH3)	Event 1 (CH4)
08	Event 2 (CH1)	Event 2 (CH2)	Event 2 (CH3)	Event 2 (CH4)
09	Event 3 (CH1)	Event 3 (CH2)	Event 3 (CH3)	Event 3 (CH4)
10	Event 4 (CH1)	Event 4 (CH2)	Event 4 (CH3)	Event 4 (CH4)
11	TIO HBA (CH1)	TIO HBA (CH2)	TIO HBA (CH3)	TIO HBA (CH4)
12	Burnout (CH1)	Burnout (CH2)	Burnout (CH3)	Burnout (CH4)
13	Temperature rise completion	HBA (Comprehensive output)	Burnout (All CH)	DO8 manual output

DI Allocation Table

	Digital input							
	DI 1	DI 2	DI 3	DI 4	DI 5	DI 6	DI 7	DI 8
01	Memory area selection (1 to 8)			Area set	Operation mode 1	Operation mode 2	Alarm interlock reset	AUTO/MANUAL
02	Memory area selection (1 to 8)			Area set	Operation mode 1	Operation mode 2	Alarm interlock reset	LOCAL/REMOTE
03	Memory area selection (1 to 8)			Area set	Operation mode 1	Operation mode 2	Alarm interlock reset	Feed-forward start
04	Memory area selection (1 to 8)			Area set	Operation mode 1	Operation mode 2	Alarm interlock reset	Soak stop
05	Memory area selection (1 to 8)			Area set	Operation mode 1	Operation mode 2	Alarm interlock reset	STOP/RUN
06	Memory area selection (1 to 8)			Area set	Operation mode 1	Operation mode 2	AUTO/MANUAL	LOCAL/REMOTE
07	Memory area selection (1 to 8)			Area set	Operation mode 1	Operation mode 2	AUTO/MANUAL	Feed-forward start
08	Memory area selection (1 to 8)			Area set	Operation mode 1	Operation mode 2	AUTO/MANUAL	Soak stop
09	Memory area selection (1 to 8)			Area set	Operation mode 1	Operation mode 2	AUTO/MANUAL	STOP/RUN
10	Memory area selection (1 to 8)			Area set	Operation mode 1	Operation mode 2	LOCAL/REMOTE	Feed-forward start
11	Memory area selection (1 to 8)			Area set	Operation mode 1	Operation mode 2	LOCAL/REMOTE	Soak stop
12	Memory area selection (1 to 8)			Area set	Operation mode 1	Operation mode 2	LOCAL/REMOTE	STOP/RUN
13	Memory area selection (1 to 8)			Area set	Operation mode 1	Operation mode 2	EDS start	Soak stop
14	Memory area selection (1 to 8)			Area set	Operation mode 1	Operation mode 2	EDS start	STOP/RUN
15	Memory area selection (1 to 8)			Area set	Operation mode 1	Operation mode 2	Soak stop	STOP/RUN
16	**Memory area selection (1 to 8)**			Area set	Alarm interlock reset	AUTO/MANUAL	LOCAL/REMOTE	Feed-forward start
17	**Memory area selection (1 to 8)**			Area set	Alarm interlock reset	AUTO/MANUAL	LOCAL/REMOTE	Soak stop
18	**Memory area selection (1 to 8)**			Area set	Alarm interlock reset	AUTO/MANUAL	LOCAL/REMOTE	STOP/RUN
19	**Memory area selection (1 to 8)**			Area set	Alarm interlock reset	AUTO/MANUAL	EDS start	Soak stop
20	**Memory area selection (1 to 8)**			Area set	Alarm interlock reset	AUTO/MANUAL	EDS start	STOP/RUN
21	Memory area selection (1 to 8)			Area set	Alarm interlock reset	AUTO/MANUAL	Soak stop	STOP/RUN
22	Memory area selection (1 to 8)			Area set	AUTO/MANUAL	LOCAL/REMOTE	EDS start	Soak stop
23	Memory area selection (1 to 8)			Area set	AUTO/MANUAL	LOCAL/REMOTE	EDS start	STOP/RUN
24	Memory area selection (1 to 8)			Area set	AUTO/MANUAL	LOCAL/REMOTE	Soak stop	STOP/RUN
25	Memory area selection (1 to 8)			Area set	LOCAL/REMOTE	Feed-forward start	Soak stop	STOP/RUN
26	Memory area selection (2 points)	Area set	Alarm interlock reset	STOP/RUN	AUTO/MANUAL	LOCAL/REMOTE	Operation mode 1	Operation mode 2
27	Memory area selection (1 to 8)			Area set	Operation mode 1	Operation mode 2	EDS start 1	EDS start 2
28	Memory area selection (2 points)	Area set	Alarm interlock reset	Area set	AUTO/MANUAL	LOCAL/REMOTE	EDS start 1	EDS start 2
29	EDS start 1	EDS start 2	Alarm interlock reset	Area set	AUTO/MANUAL	LOCAL/REMOTE	Operation mode 1	Operation mode 2

• Area setting is set to disabled at the factory.
• EDS function : External disturbance suppression function

Operation mode 1 : Only monitoring. (Control stop, Event function OFF)
Operation mode 2 : Monitoring and Event function (Control stop)

Standard accessory

Connector cover

Model : KSRZ-517A

Power supply terminal cover

Model : KSRZ-518A

● CT (Current transformer) Input Module (Z-CT)

Specifications		Z-CT-A ①/②-③④	Hardware coding	Quick start code
Wiring method	①	Terminal type	T	
		Connector type	C	
Quick start code	②	No quick start code (Default setting)		N
		Specify quick start code		1
Quick start code: CT type	③	No quick start code		No symbol
		CTL-6-P-N (0 to 30A)		P
		CTL-12-S56-10L-N (0 to 100A)		S
		CTL-6-P-Z (0 to 10A)		Z
Quick start code: Communication protocol	④	No quick start code		No symbol
		ANSI/RKC standard protocol		1
		MODBUS protocol		2

● Communication Module (Z-COM-A)

Specifications		Z-COM-A- ①②/③④⑤⑥	Hardware coding	Quick start code
COM PORT 1,2 communication	①	RS-422A	4	
		RS-485	5	
COM PORT 3,4 communication	②	RS-422A	4	
		RS-485	5	
Quick start code	③	No quick start code (Default setting)		N
		Specify quick start code		1
Quick start code: COM PORT 1,2 communication protocol	④	No quick start code		No symbol
		ANSI/RKC standard protocol		1
		MODBUS protocol		2
Quick start code: COM PORT 3,4 communication protocol	⑤	No quick start code		No symbol
		ANSI/RKC standard protocol		1
		MODBUS protocol		2
		PLC special protocol (MAPMAN) (Mitsubishi MELSEC A/Q series)		3
		PLC special protocol (MAPMAN) (OMRON SYSMAC series)		4
		PLC special protocol (MAPMAN) (Mitsubishi MELSEC FX series)		5
Quick start code: Maximum channel data (For PLC special communication)	⑥	No quick start code		No symbol
		16-channels specification		A
		32-channels specification		B
		48-channels specification		C
		64-channels specification		D

Model Code

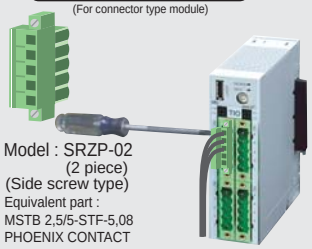
Accessories

Compact setting display unit (OP10)

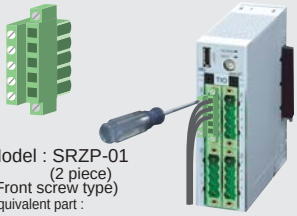
Accessories

Plug-in connector

(For connector type module)

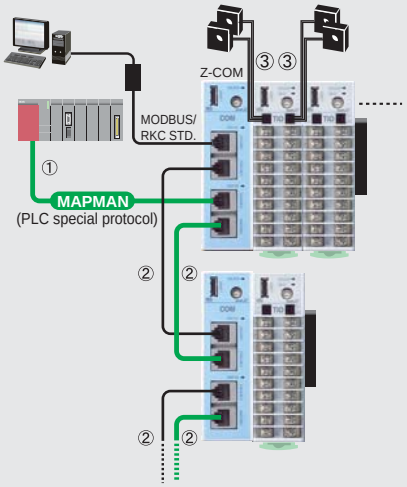


Model : SRZP-02
(2 piece)
(Side screw type)
Equivalent part :
MSTB 2,5/5-STF-5,08
PHOENIX CONTACT

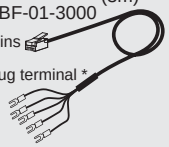


Model : SRZP-01
(2 piece)
(Front screw type)
Equivalent part :
FRONT-MSTB 2,5/5-STF-5,08
PHENIX CONTACT

Communication cables

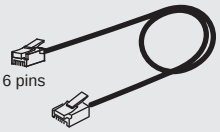


① Model : W-BF-01-3000 (3m)
6 pins
Spade lug terminal *

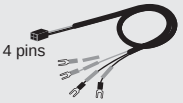


* Other types of cables such as cable with 9-pin D-SUB connector are also available. Please contact RKC.

② Model :
W-BF-02-500 (0.5m)
W-BF-02-1000 (1m)
W-BF-02-3000 (3m)



③ Model :
W-BW-03-1000 (1m)
W-BW-03-2000 (2m)
W-BW-03-3000 (3m)

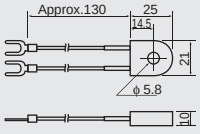


Spade lug terminal

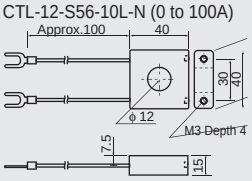
Current transformer for heater break alarm (HBA)

(Unit : mm)

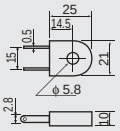
Model
: CTL-6-P-N (0 to 30A)



Model
: CTL-12-S56-10L-N (0 to 100A)



Model
: CTL-6-P-Z (0 to 10A) [1]
[Available for Z-CT module only]



1 (U.R.D.Co.,LTD product)

End plates

Model : DEP-01

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

Front terminal cover

Model :
KSRZ-510A

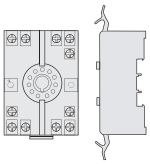
Termination resistor connector

Model : W-BW-01
(For RS-485)
Model : W-BW-02
(For RS-422A)

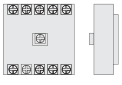
Compact setting display unit **(OP10)**

Specifications	No	Model Code OP10- ①	②	③
		*		
Power supply	①	24V AC/DC 3		
		100 to 240V AC 4		
Waterproof/ dustproof	②	No waterproof/dustproof	N	
		Waterproof/dustproof	1	
Available controller	③	Z-COM-A (Modbus protocol)		01
		Z-TIO (Modbus protocol)		02
		V-TIO-E/F (RS-422A,Modbus protocol)		03
		H-PCP-J (RS-422A,Modbus protocol)		04

DIN rail mounting socket type
Model : ATC180041
(Matsushita Denko product)

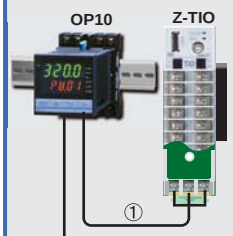


Rear terminal socket type
Model : AT78051
(Matsushita Denko product)

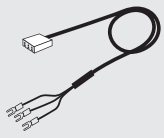


Mounting brackets
(Only panel mounting)
* Sold separately
Model code : KCA100-526

Cable

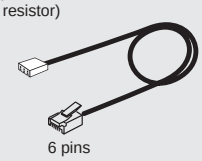


① **W-BO-01-1000** (1m)
(With termination resistor)



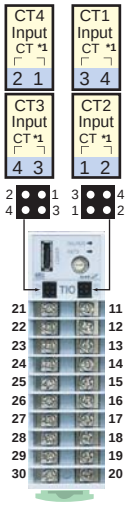
② **W-BO-04-1000** (1m)
(RS-485, With termination resistor)

② **W-BO-05-1000** (1m)
(RS-422A, With termination resistor)



Terminal/ Connector Configuration

Temperature Control Module (Z-TIO) Terminal type

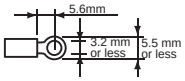


No.	Description	No.	Description
21	Measured Input 3 (CH3) (1) Thermocouple (2) RTD (3) Voltage/Current	11	Control Output 1 (CH1) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac
22		12	
23		13	Measured Input 1 (CH1) (1) Thermocouple (2) RTD (3) Voltage/Current
24	Control Output 3 (CH3) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac	14	
25		15	
26	Measured Input 4 (CH4) (1) Thermocouple (2) RTD (3) Voltage/Current (4) Feedback resistance	16	Control Output 2 (CH2) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac
27		17	
28		18	Measured Input 2 (CH2) (1) Thermocouple (2) RTD (3) Voltage/Current (4) Feedback resistance
29	Control Output 4 (CH4) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac	19	
30		20	

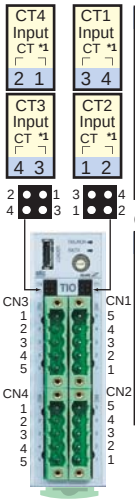
CT : Current transformer for heater break alarm
Feedback resistance input is used only for monitoring.
<Caution> Voltage / current outputs are not isolated from the power supply voltage.

*1 : Optional

Screw Size : M3 X 7
Solderless terminal is recommended



Temperature Control Module (Z-TIO) Connector type



CN (Connector) 3

No.	Description
1	Measured Input 3 (CH3) (1) Thermocouple (2) RTD (3) Voltage/Current
2	
3	
4	Control Output 3 (CH3) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac
5	

CN (Connector) 1

No.	Description
5	Control Output 1 (CH1) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac
4	
3	Measured Input 1 (CH1) (1) Thermocouple (2) RTD (3) Voltage/Current
2	
1	

CN (Connector) 4

No.	Description
1	Measured Input 4 (CH4) (1) Thermocouple (2) RTD (3) Voltage/Current (4) Feedback resistance
2	
3	
4	Control Output 4 (CH4) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac
5	

CN (Connector) 2

No.	Description
5	Control Output 2 (CH2) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac
4	
3	Measured Input 2 (CH2) (1) Thermocouple (2) RTD (3) Voltage/Current (4) Feedback resistance
2	
1	

• For 2CH specifications, connectors CN3 and CN4 are not mounted.
CT : Current transformer for heater break alarm
Feedback resistance input is used only for monitoring.
<Caution> Voltage / current outputs are not isolated from the power supply voltage.

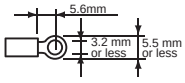
*1 : Optional

Digital Input/Output Module (Z-DIO) Terminal type

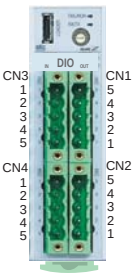
No.	Description	No.	Description
21	DI4	11	COM COM 24VDC DO1 DO1 DO2 DO2 DO3 DO3 DO4 DO4 NO NO (1) (2)
22	DI3	12	
23	DI2	13	
24	DI1	14	
25	COM 24VDC	15	
26	DI8	16	COM 24VDC COM DO5 DO5 DO6 DO6 DO7 DO7 DO8 DO8 NO NO (1) (2)
27	DI7	17	
28	DI6	18	
29	DI5	19	
30	COM 24VDC	20	

Digital Input 1 to 4 — Voltage sink type input
Digital Output 1 to 4 — (1) Relay contact (2) Open collector
Digital Input 5 to 8 — Voltage sink type input
Digital Output 5 to 8 — (1) Relay contact (2) Open collector

Screw Size : M3 X 7
Solderless terminal is recommended



Digital Input/Output Module (Z-DIO) Connector type



CN3

No.	Description
1	DI4
2	DI3
3	DI2
4	DI1
5	COM 24VDC

Digital Input 1 to 4 — Voltage sink type input

CN1

No.	Description
5	COM COM 24VDC DO1 DO1
4	
3	DO2 DO2
2	DO3 DO3
1	DO4 DO4 NO (1) (2)

Digital Output 1 to 4 — (1) Relay contact (2) Open collector

CN4

No.	Description
1	DI8
2	DI7
3	DI6
4	DI5
5	COM 24VDC

Digital Input 5 to 8 — Voltage sink type input

CN2

No.	Description
5	COM 24VDC COM DO5 DO5
4	
3	DO6 DO6
2	DO7 DO7
1	DO8 DO8 NO (1) (2)

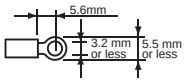
Digital Output 5 to 8 — (1) Relay contact (2) Open collector

CT (Current transformer) Input Module (Z-CT) Terminal type

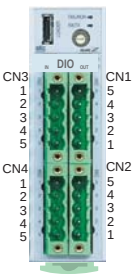
No.	Description	No.	Description
21	CT9	11	CT1
22	COM	12	COM
23	CT8	13	CT2
24	COM	14	COM
25	CT7	15	CT3
26	CT12	16	CT4
27	COM	17	COM
28	CT11	18	CT5
29	COM	19	COM
30	CT10	20	CT6

CT Input 7 to 9
CT Input 1 to 3
CT Input 10 to 12
CT Input 4 to 6

Screw Size : M3 X 7
Solderless terminal is recommended



CT (Current transformer) Input Module (Z-CT) Connector type



CN3

No.	Description
1	CT9
2	COM
3	CT8
4	COM
5	CT7

CT Input 7 to 9

CN1

No.	Description
5	CT1
4	COM
3	CT2
2	COM
1	CT3

CT Input 1 to 3

CN4

No.	Description
1	CT12
2	COM
3	CT11
4	COM
5	CT10

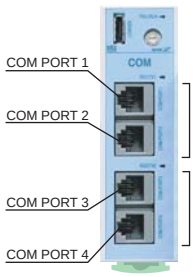
CT Input 10 to 12

CN2

No.	Description
5	CT14
4	COM
3	CT5
2	COM
1	CT6

CT Input 4 to 6

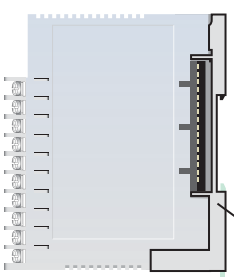
Communication Extension Module (Z-COM)



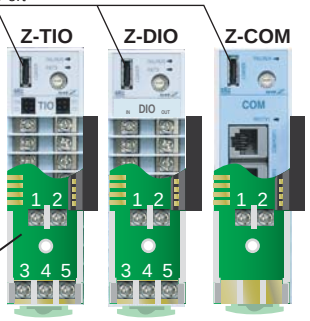
Communication 1
RKC standard/MODBUS
RS-485,422A

Communication 2
RKC standard/MODBUS
PLC special protocol (Mapman)
RS-485,422A

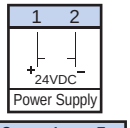
Z-TIO/DIO/CT/COM

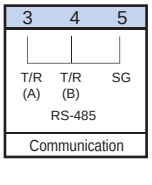


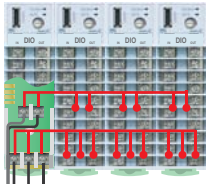
Loader Port



• Z-COM: No.3,4,5 terminals are not mounted.







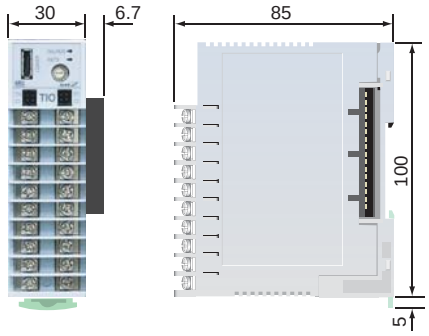
• Supply the power to only one of the joined modules. When power is supplied to any one of the joined modules, all of the joined modules will receive power.

External Dimensions

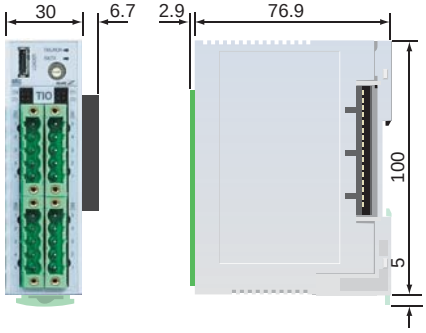
Temperature Control Module (Z-TIO)
Digital Input/Output Module (Z-DIO)
Current transformer (CT) Input Module (Z-CT)

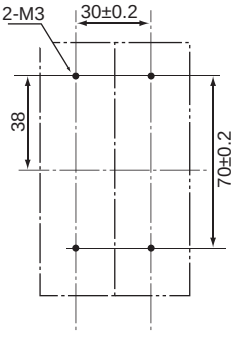
(Unit:mm)

Terminal Type



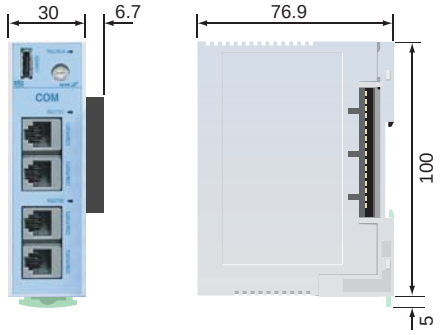
Connector Type

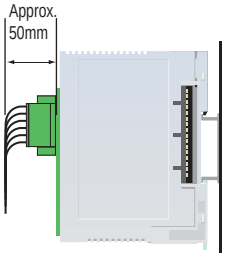




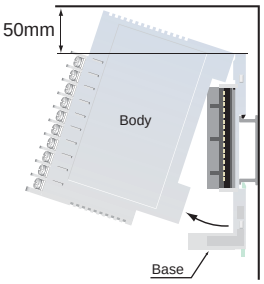
(When installed with screws)

Communication Extension Module (Z-COM)





• Secure approximately 50 mm for the connectors and wiring, depending on the connector type



• Secure approximately 50 mm to remove the body from the base.

Communication Converter Model Code

● DeviceNet communication converter (COM-JH)

Specifications	Model Code				
	COM - J	H -	□	∗	02
Type	DeviceNet communication converter	H			
Connector for DeviveNet	Open connector (Unshielded type)		N		
	Micro connector (Shield type)		1		
Available controller	SRZ				02

● Ethernet (Modbus/TCP) communication converter (COM-JL)

Specifications	Model Code				
	COM - J	L -	□	∗	02
Type	Ethernet communication converter	L			
Communication type	Modbus/TCP		1		
Available controller	SRZ				02

● CC-Link communication converter (COM-JC)

Specifications	Model Code				
	COM - J	C	∗	02	- □
Type	CC-Link communication converter	C			
Available controller	SRZ			02	
RUN/STOP logic selection	0 : RUN, 1 : STOP				1
	0 : STOP, 1 : RUN				2

● Ethernet (Ethernet/IP) communication converter (COM-ML)

Specifications	Model Code				
	COM - M	L -	2	□	∗ 02
Type	Ethernet communication converter	L			
Ethernet communication type	Ethernet/IP		2		
Host communication type	RS-422A			4	
	RS-485			5	
Available controller	SRZ				02

● MECHATROLINK communication converter (COM-MY)

Specifications	Model Code			
	COM - M	Y -	□	∗ 02
Type	MECHATROLINK communication converter	Y		
Host communication type	RS-422A		4	
	RS-485		5	
Available controller	SRZ			02

● USB communication converter (COM-K2)

Specifications	Model Code	
	COM - K2 -	□
Loader communication cable	None	1
	With loader communication cable	N

Safety Warning

- Before operating this product, read the instruction manual carefully to avoid incorrect operation.
- This product is intended for use with industrial machines, test and measuring equipment. It is not designed for use with medical equipment.
- If it is possible that an accident may occur as a result of the failure of the product or some other abnormality, an appropriate independent protection device must be installed.

Caution for the export trade

All transactions must comply with laws, regulations, and treaties.

Caution for imitated products

As products imitating our product now appear on the market, be careful that you don't purchase these imitated products. We will not warrant such products nor bear the responsibility for any damage and/or accident caused by their use.

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