

SRZ Series

Module type
Digital Temperature Controller

SRZ
High-Performance



CE cUL us C-Tick
CE, UL, c-UL, C-Tick

RKC RKC INSTRUMENT INC.



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)
	Less than 400°C (752°F)	±70.0°C (±126°F)
B	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)
	Less than 200°C (392°F)	±0.4°C (±0.8°F)
Pt100, JPt100	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 ±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

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 : 32 units (Including host)

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, Nice-Meet start,

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)

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

- 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

Z-TIO, Z-DIO, 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-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 29g/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)

Operating environment

Free from corrosive and flammable gas and dust.

Free from external noise, vibration, shock and exposure to direct sunlight.

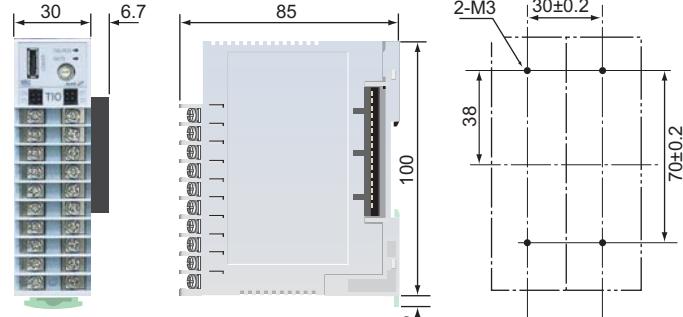
Compliance with Standards

CE Mark, UL, c-UL, C-Tick mark

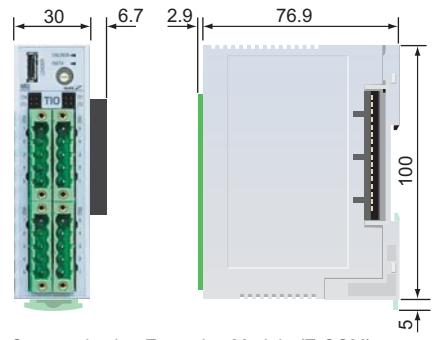
External Dimensions

(Unit:mm)

Temperature Control Module (Z-TIO), Terminal type
Digital Input/Output Module (Z-DIO), Terminal type

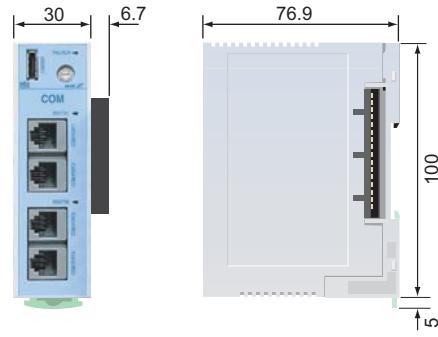


Temperature Control Module (Z-TIO), Terminal type
Digital Input/Output Module (Z-DIO), Terminal type



Communication Extension Module (Z-COM)

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



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

Model and Suffix Code

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

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

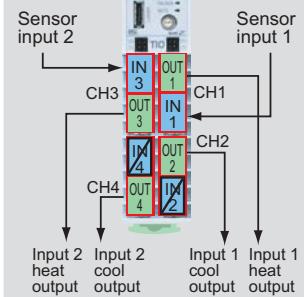
Specifications	Hardware coding only										Quick start code	Control output			
	Z-TIO-A					①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
Wiring method	① Terminal type	T											PID control	Heat/Cool PID control	Position proportional PID control without FBR
	Connector type	C													
Output 1	② See Output Code Table												CH1 output	CH1 Heat output	CH1 Open output
Output 2	③ See Output Code Table												CH2 output	CH1 Cool output	CH1 Close output
Output 3	④ See Output Code Table												CH3 output	CH2 Heat output	CH2 Open output
Output 4	⑤ See Output Code Table												CH4 output	CH2 Cool output	CH2 Close output
CT input	⑥ Not supplied		N												
	CT input 4 points		A												
Quick start code	⑦ No quick start code (Default setting)		N												
	Specify quick start code 1		1												
	Specify quick start code 1 and 2 (See page 7)		2												
Quick start code 1	No quick start code											No symbol			
Control method	⑧ PID control with AT (Reverse action)											F			
	PID control with AT (Direct action)											D			
	Heat/Cool PID control with AT (Air cooling type) (CH2 and CH4 are unused.)											A			
	Heat/Cool PID control with AT (Water cooling type) (CH2 and CH4 are unused.)											W			
	Heat/Cool PID control with AT (CH2 and CH4 are unused.)											G			
	Position proportional PID control without FBR (CH2 and CH4 are unused.)											Z			
Input range	⑨ No quick start code											No symbol			
	See Input range Code Table											□□□			
Instrument version	⑩ Version symbol											Y			

Input/Output configuration

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

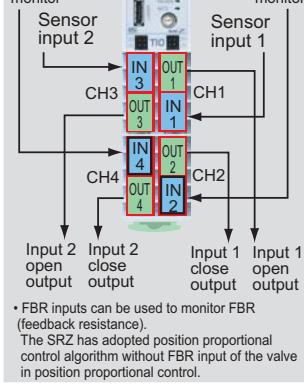
2ch heat/cool PID control
(Z-TIO-A)

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



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

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



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

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

Specifications	Hardware coding only										Quick start code	Control output			
	Z-TIO-B					①	②	③	④	⑤	⑥	⑦	⑧	⑨	
Wiring method	① Terminal type	T											PID control	Heat/Cool PID control	Position proportional PID control without FBR
	Connector type	C													
Output 1	② See Output Code Table												CH1 output	CH1 Heat output	CH1 Open output
Output 2	③ See Output Code Table												CH2 output	CH1 Cool output	CH1 Close output
CT input	④ Not supplied		N												
	CT input 2 points		A												
Option	⑤ Not supplied			N											
Quick start code	No quick start code (Default setting)			N											
	Specify quick start code 1			1											
	Specify quick start code 1 and 2 (See page 7)			2											
Quick start code 1	No quick start code										No symbol				
Control method	PID control with AT (Reverse action)										F				
	PID control with AT (Direct action)										D				
	Heat/Cool PID control with AT (Air cooling type) (CH2 and CH4 are unused.)										A				
	Heat/Cool PID control with AT (Water cooling type) (CH2 and CH4 are unused.)										W				
	Heat/Cool PID control with AT (CH2 and CH4 are unused.)										G				
	Position proportional PID control without FBR (CH2 and CH4 are unused.)										Z				
Input range	⑧ No quick start code										No symbol				
	See Input Range Code Table										□□□				
Instrument version	Version symbol										Y				

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 : 35	-200.0	to +400.0°C
K : 40	-200.0	to +800.0°C
K : 09	0.0	to 400.0°C
K : 10	0.0	to 800.0°C
K : 42	-200.0	to +1372.0°C
K : 02	0.0	to 400°C
K : 04	0.0	to 800°C
K : 41	-200	to +1372°C
K : C7	-328	to +2501°F
K : A4	0.0	to 800°F
K : A1	0	to 800°F
K : A2	0	to 1600°F
J : 27	-200.0	to +400.0°C
J : 32	-200.0	to +800.0°C
J : 08	0.0	to 400.0°C
J : 09	0.0	to 800.0°C
J : 29	-200.0	to +1200.0°C

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

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

RTD

Input	Code	Range
B : 03	0	to 1800°C
B : B1	32	to 3272°F
N : 02	0	to +1200°C
N : A6	32	to +2372°F
PLII (NBS) : A : 02	0	to 1390°C
A : A2	0	to 2534°F
WSReW26® (ASTM) : W : 03	0	to 2300°C
W : B1	32	to 4208°F

DC Current • Voltage

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

0 to 100.0% 0.0 to 100.0%

Plug-in connector

(For connector type module)

Model : SRZP-02 (Side screw type)	
Equivalent part : MSTB 2.5/5-STF-5,08 PHENIX CONTACT	
Model : SRZP-01 (Front screw type)	
Equivalent part : FRONT-MSTB 2.5/5-STF-5,08 PHENIX CONTACT	

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

Specifications		Z-DIO-A							
		Hardware coding only				Quick start code			
		①	②	③	④	⑤	⑥	⑦	⑧
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	No quick start code	No symbol						
		No digital input	N						
		See DI Allocation Table		□					
	Digital output (DO) allocation (DO1 to DO4)	No quick start code	No symbol						
		No digital output	N						
		See DO1 to 4 Allocation Table		□					
	Digital output (DO) allocation (DO5 to DO8)	No quick start code	No symbol						
		No digital output	N						
	See DO5 to 8 Allocation Table		□						
	Communication protocol	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	HBA (CH1)	HBA (CH2)	HBA (CH3)	HBA (CH4)
12	Burnout (CH1)	Burnout (CH2)	Burnout (CH3)	Burnout (CH4)
13	Temperature rise	HBA (All CH)	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	HBA (CH1)	HBA (CH2)	HBA (CH3)	HBA (CH4)
12	Burnout (CH1)	Burnout (CH2)	Burnout (CH3)	Burnout (CH4)
13	Temperature rise completion	HBA (All CH)	Burnout (All CH)	DO8 manual output

DI Allocation Table

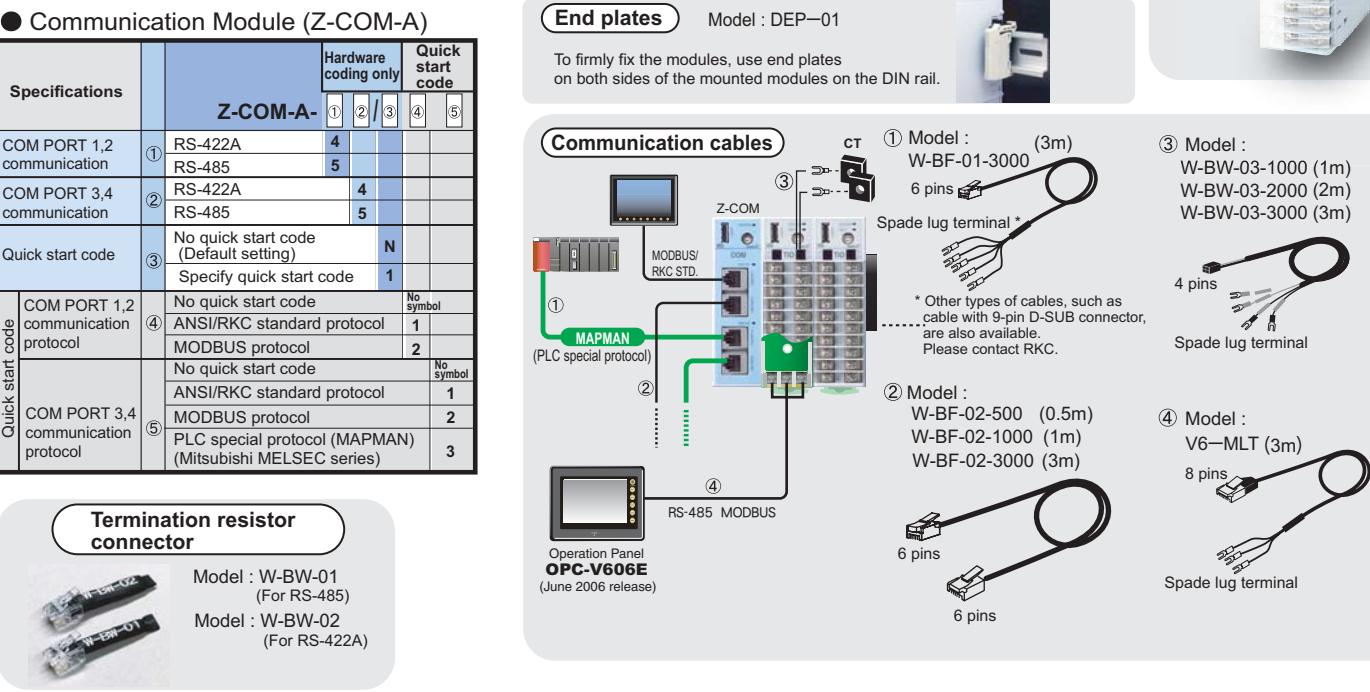
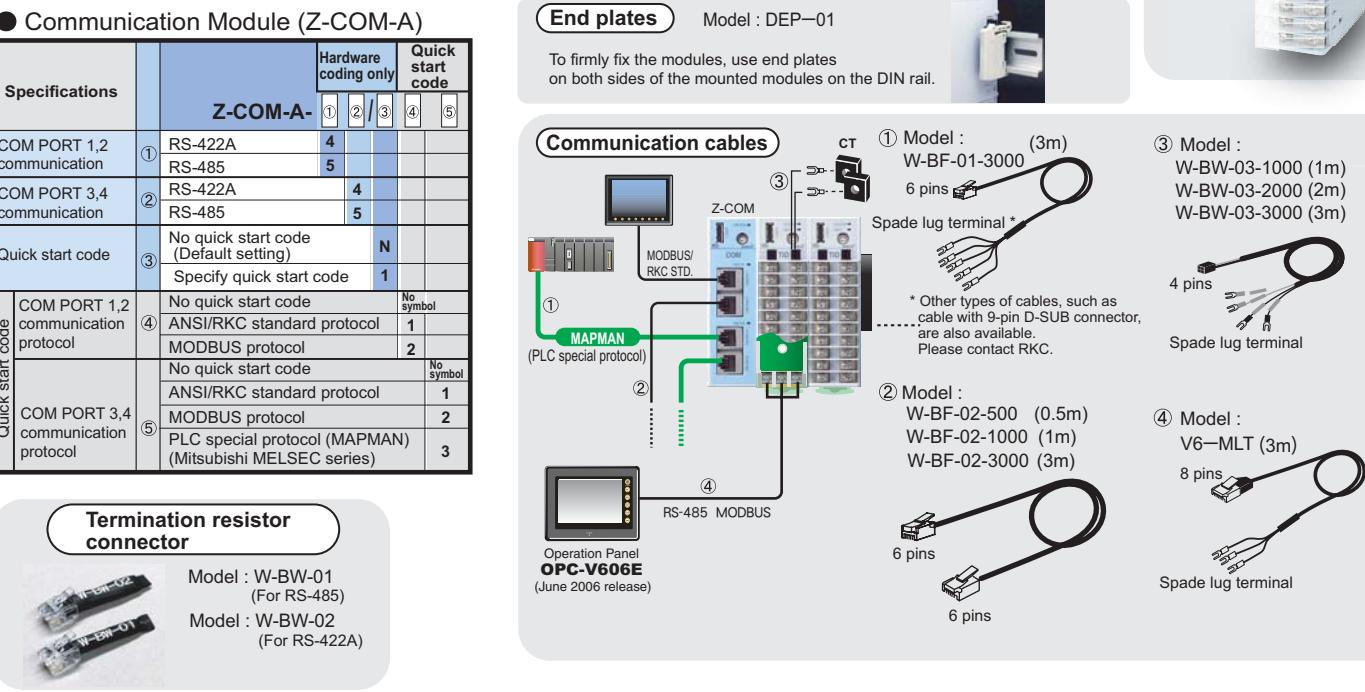
	Digital input							
	DI 1	DI 2	DI 3	DI 4	DI 5	DI 6	DI 7	DI 8
01	Memory area selection (1 to 8)			Area set	Operation mode 1	Operation mode 2	Alarm interlock reset	AUTO/MANUAL
02	Memory area selection (1 to 8)			Area set	Operation mode 1	Operation mode 2	Alarm interlock reset	LOCAL/REMOTE
03	Memory area 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	Alarm interlock reset	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	Alarm interlock reset	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	Operation mode 1	Operation mode 2	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	EDS start	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			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)



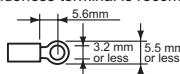
Terminal/ Connector Configuration

Temperature Control Module (Z-TIO) Terminal type

CT4 Input CT * 1 2 1	CT1 Input CT * 3 4	CT2 Input CT * 1 2	No.	Description
21	B	-	21	Measured Input 3 (CH3) (1) Thermocouple (2) RTD (3) Voltage/Current
22	+ B	-	22	Control Output 3 (CH3) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac
23	A	-	23	Measured Input 1 (CH1) (1) Thermocouple (2) RTD (3) Voltage/Current
24	-	NO	24	Measured Input 4 (CH4) (1) Thermocouple (2) RTD (3) Voltage/Current (4) Feedback resistance
25	-	NO	25	Control Output 1 (CH1) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac
26	-	NO	26	Measured Input 2 (CH2) (1) Thermocouple (2) RTD (3) Voltage/Current (4) Feedback resistance
27	-	NO	27	Control Output 2 (CH2) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac
28	-	NO	28	Measured Input 3 (CH3) (1) Thermocouple (2) RTD (3) Voltage/Current (4) Feedback resistance
29	-	NO	29	Control Output 4 (CH4) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac
30	-	NO	30	Measured Input 4 (CH4) (1) Thermocouple (2) RTD (3) Voltage/Current (4) Feedback resistance

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.

Screw Size : M3 X 7
Solderless terminal is recommended



Temperature Control Module (Z-TIO) Connector type

CN (Connector) 3	CN (Connector) 1																																																																																							
<table border="1"> <thead> <tr> <th>CT4 Input CT * 1 2 1</th><th>CT1 Input CT * 3 4</th><th>CT2 Input CT * 1 2</th><th>No.</th><th>Description</th></tr> </thead> <tbody> <tr> <td>11</td><td>B</td><td>-</td><td>11</td><td>Control Output 1 (CH1) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac</td></tr> <tr> <td>12</td><td>+ B</td><td>-</td><td>12</td><td>Measured Input 3 (CH3) (1) Thermocouple (2) RTD (3) Voltage/Current</td></tr> <tr> <td>13</td><td>A</td><td>-</td><td>13</td><td>Measured Input 1 (CH1) (1) Thermocouple (2) RTD (3) Voltage/Current</td></tr> <tr> <td>14</td><td>-</td><td>NO</td><td>14</td><td>Control Output 3 (CH3) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac</td></tr> <tr> <td>15</td><td>-</td><td>NO</td><td>15</td><td>Measured Input 4 (CH4) (1) Thermocouple (2) RTD (3) Voltage/Current (4) Feedback resistance</td></tr> <tr> <td>16</td><td>-</td><td>NO</td><td>16</td><td>Control Output 2 (CH2) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac</td></tr> <tr> <td>17</td><td>-</td><td>NO</td><td>17</td><td>Measured Input 2 (CH2) (1) Thermocouple (2) RTD (3) Voltage/Current (4) Feedback resistance</td></tr> <tr> <td>18</td><td>-</td><td>NO</td><td>18</td><td>Control Output 4 (CH4) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac</td></tr> <tr> <td>19</td><td>-</td><td>NO</td><td>19</td><td>Measured Input 1 (CH1) (1) Thermocouple (2) RTD (3) Voltage/Current (4) Feedback resistance</td></tr> <tr> <td>20</td><td>-</td><td>NO</td><td>20</td><td>Measured Input 3 (CH3) (1) Thermocouple (2) RTD (3) Voltage/Current (4) Feedback resistance</td></tr> </tbody> </table>	CT4 Input CT * 1 2 1	CT1 Input CT * 3 4	CT2 Input CT * 1 2	No.	Description	11	B	-	11	Control Output 1 (CH1) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac	12	+ B	-	12	Measured Input 3 (CH3) (1) Thermocouple (2) RTD (3) Voltage/Current	13	A	-	13	Measured Input 1 (CH1) (1) Thermocouple (2) RTD (3) Voltage/Current	14	-	NO	14	Control Output 3 (CH3) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac	15	-	NO	15	Measured Input 4 (CH4) (1) Thermocouple (2) RTD (3) Voltage/Current (4) Feedback resistance	16	-	NO	16	Control Output 2 (CH2) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac	17	-	NO	17	Measured Input 2 (CH2) (1) Thermocouple (2) RTD (3) Voltage/Current (4) Feedback resistance	18	-	NO	18	Control Output 4 (CH4) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac	19	-	NO	19	Measured Input 1 (CH1) (1) Thermocouple (2) RTD (3) Voltage/Current (4) Feedback resistance	20	-	NO	20	Measured Input 3 (CH3) (1) Thermocouple (2) RTD (3) Voltage/Current (4) Feedback resistance	<table border="1"> <thead> <tr> <th>5</th><th>4</th><th>3</th><th>2</th><th>1</th><th>No.</th><th>Description</th></tr> </thead> <tbody> <tr> <td>1</td><td>B</td><td>-</td><td>1</td><td>Measured Input 1 (CH1) (1) Thermocouple (2) RTD (3) Voltage/Current</td></tr> <tr> <td>2</td><td>+ B</td><td>-</td><td>2</td><td>Control Output 1 (CH1) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac</td></tr> <tr> <td>3</td><td>A</td><td>-</td><td>3</td><td>Measured Input 4 (CH4) (1) Thermocouple (2) RTD (3) Voltage/Current (4) Feedback resistance</td></tr> <tr> <td>4</td><td>-</td><td>NO</td><td>4</td><td>Control Output 3 (CH3) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac</td></tr> <tr> <td>5</td><td>-</td><td>NO</td><td>5</td><td>Measured Input 2 (CH2) (1) Thermocouple (2) RTD (3) Voltage/Current (4) Feedback resistance</td></tr> </tbody> </table>	5	4	3	2	1	No.	Description	1	B	-	1	Measured Input 1 (CH1) (1) Thermocouple (2) RTD (3) Voltage/Current	2	+ B	-	2	Control Output 1 (CH1) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac	3	A	-	3	Measured Input 4 (CH4) (1) Thermocouple (2) RTD (3) Voltage/Current (4) Feedback resistance	4	-	NO	4	Control Output 3 (CH3) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac	5	-	NO	5	Measured Input 2 (CH2) (1) Thermocouple (2) RTD (3) Voltage/Current (4) Feedback resistance
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* For 2CH specifications, connectors CN3 and CN4 are not mounted. *1 : Optional

CT : Current transformer for heater break alarm

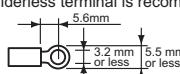
Feedback resistance input is used only for monitoring.

<Caution> Voltage / current outputs are not isolated from the power supply voltage.

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

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

Screw Size : M3 X 7
Solderless terminal is recommended



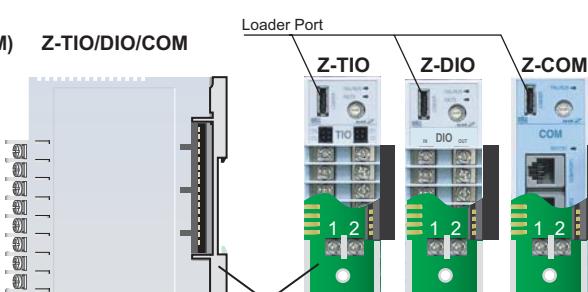
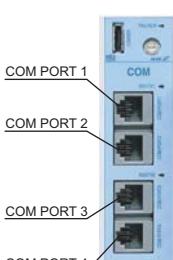
Digital Input/Output Module (Z-DIO) Connector type

CN3	CN1																																																																																				
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NO (1)	-	-	-	-	5	-																																																																															

* 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.

Communication Extension Module (Z-COM)

Z-TIO/DIO/COM



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

Caution for the export trade

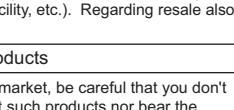
Investigate the final application and final user so that this product is not used in weapons of mass destruction, etc. (military application, military facility, etc.). Regarding resale also be sure it is not to be exported illegally.

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.



- 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.



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