PGTIOZ01-E

High Accuracy • High Resolution
Module Type Controller

SRZ Series

Z-TIO-G (RTD • DC Voltage Input)

CE c**UL**us 𝒱

G RoHS compliant
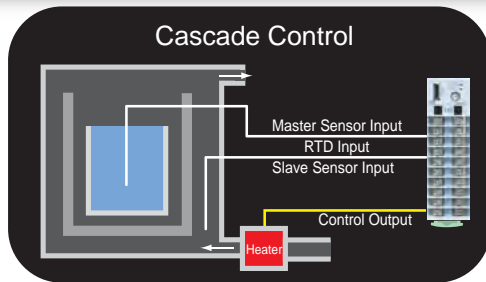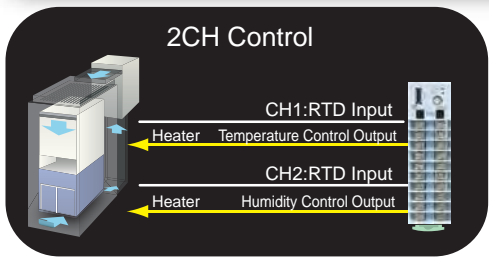
Ultra High Grade

Resolution:0.001°C, Accuracy:±0.05°C

DVD

Z-TIO-G

30 6.7   Approx.95   85   100   76

Terminal Cover
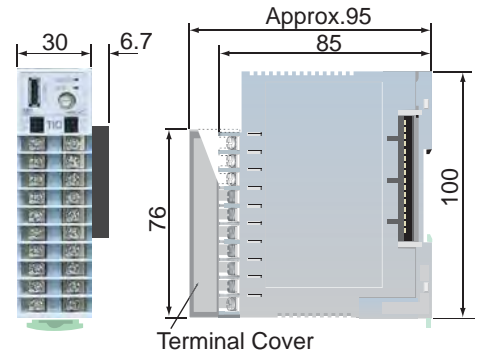
Input Range : -50.000 to +150.000°C

Wide input range of -50.000 to +150.000°C with resolution of 0.001°C.
Other ranges such as -50.00 to +250.00°C and -150.00 to +150.00°C are also available with resolution of 0.01°C.
Voltage input is also available to meet the process applications of various types.

Two channel control or cascade control on the single module.

2CH Control

CH1:RTD Input
Heater   Temperature Control Output
CH2:RTD Input
Heater   Humidity Control Output

Cascade Control

Master Sensor Input
RTD Input
Slave Sensor Input
Control Output
Heater

Can be connected to the standard type TIO modules.
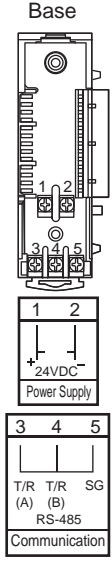
Z-TIO-A/B/C/D
Z-DIO/Z-CT

Z-TIO-G

<Caution>
1) This module is not available with the following functions:
Heat/cool control, position proportioning control, external disturbance suppression function, startup tuning, heater break alarm, and CT input.
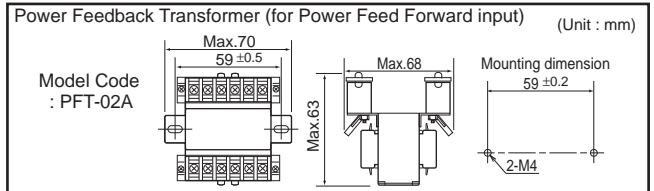2) The Z-COM module cannot be connected to the Z-TIO-G module.

● Terminal Explanation

Base

	Description	
21	PFF	Feedback Transformer Input
22		
23	NO / Triac (1)(2)(3)	Control Output 2 (CH2) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac
24		
25		
26	+ A / B	Measured Input 2 (CH2) (1) Voltage (2) RTD (3-wire type) (3) RTD (4-wire type) • Cascade type : Slave input
27	- (1) B	
28	B	
29	B	
30	A A' (2)(3)	

	Description	
11	NO / Triac (1)(2)(3)	Control Output 1 (CH1) (1) Relay contact (2) Voltage pulse/Voltage/ Current/Open collector (3) Triac
12		
13		
14		
15		
16	+ A / B	Measured Input 1 (CH1) (1) Voltage (2) RTD (3-wire type) (3) RTD (4-wire type) • Cascade type : Master input
17	- (1) B	
18	B	
19	B	
20	A A' (2)(3)	

1 2
3 4 5

1 2
+ - 24VDC
Power Supply

3 4 5
T/R T/R SG
(A) (B)
RS-485
Communication

21 11
22 12
23 13
24 14
25 15
26 16
27 17
28 18
29 19
30 20

Specifications

● Input
- Group 1 : Voltage: 0 to 1 V DC
  - -99.99 to +300.00 [A span is 20000 or less.]
  - • Measured value is 0.001 resolution display.
- Group 2 : RTD : Pt100
  - -50.000 to +150.000°C
  - -50.00 to +250.00°C, -150.00 to +150.00°C
  - • Selectable between 3-wire and 4-wire systems.
- Number of Input : 2 points (Isolated between each input)
- Sampling Time : 0.1 sec
- • Influence of input lead resistance : Approx. 0.02[%/Ω] of reading

● Input Resolution
- Approx. 1/1000000 (at Pt100 -50.000 to +150.000°C range)

● Input Accuracy
- Pt100 -50.000 to +150.000°C : ±0.050°C
  - -50.00 to +250.00°C, -150.00 to +150.00°C : ±0.20°C
- Voltage ±0.05% of span

● Influence ambient temperature
- ±0.006%/°C of input span

● Control Output
- Number of Outputs : 2 points
- Output Type
  - Relay output : Form A contact, 250V AC 3A (resistive load)
  - Voltage pulse output : 0/12V DC
    - (Load resistance : More than 600Ω)
  - Current output : 4 to 20mA DC, 0 to 20mA DC
    - (Load resistance : Less than 600Ω)
  - Continuous voltage output : 0 to 1V DC, 0 to 5V DC, 1 to 5V DC, 0 to 10V DC
    - (Load resistance : More than 1kΩ)
  - SSR (Triac) output : Rated current : 0.5A
  - Open collector output : Maximum load current : Less than 100mA

● Control Method
- Brilliant II PID control with Autotuning
  - • Available for reverse and direct action.
  - • Available for cascade control action.

● Event • See Event Code Table
- Number of Events : 4 points/ch
  - • Available for Deviation between channels high, Deviation between channels low, Deviation between channels high/low, Deviation between channels band
  - • Available for Hold Action, Delay timer (0 to 1800 sec), Interlock (latch) function

● Standard Function
- Power Feed Forward Input (PFF), Analog output adjustment, Multi-Memory area (8 points)

● Communication
- Communication Method : RS-485
- Communication speed : 4800, 9600, 19200, 38400 BPS
- Protocol :
  - a) ANSI X3.28(1976) 2.5 B1 (RKC standard)
  - b) MODBUS- RTU
- Maximum connection : 16 modules (Z-TIO)
  - • The maximum number of SRZ modules (including other function modules) on the same communication line is 31 modules.

● Loader Communication
- Communication speed : 38400 BPS
- Protocol : ANSI X3.28(1976) 2.5 B1 (RKC standard)
- Maximum connection : 1 module

● General Specifications
- Supply Voltage : 21.6 to 26.4V DC (Ripple rate 10% p-p or less)
  - [Rating:24VDC]
- Power Consumption : Less than 120mA, Surge current : Less than 10A
- Memory Backup : Backed up by non-volatile memory (FRAM)
  - • Data retaining period : Approx. 10 years
  - • Number of writing : Approx. 1,000,000,000,000,000 times.
- Operating Environments : -10 to 50°C
  - 5 to 95% RH.
  - Absolute humidity : MAX. W.C 29.3g/m3 dry air at 101.3kPa.
- Net Weight : Approx 160g
- 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 terminals and power terminals
- Dielectric Strength
  - 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 terminals and power terminals
- Safety standards:
  - UL: UL61010-1, cUL: CAN/CSA-C22.2 No. 61010-1
  - CE marking: LVD: EN61010-1, OVERVOLTAGE CATEGORY II, POLLUTION DEGREE 2, Class II (Reinforced insulation)
  - EMC: EN61326-1
- C-Tick: EN55011

Power Feedback Transformer (for Power Feed Forward input)
(Unit : mm)

Model Code : PFT-02A

Max.70 / 59 ±0.5 / Max.68 / Max.63 / Mounting dimension 59 ±0.2 / 2-M4

Model Code

Specifications		2ch High Resolution type Temperature Control Module Z-TIO-G	Hardware coding only ① ② ③ ④ ⑤ ⑥		Quick start code 1 ⑦ ⑧
			T - ☐ ☐ /N ☐ ☐		- ☐ ☐
Wiring method	①	Terminal type	T		
Output 1	②	See Output Code Table	☐		
Output 2	③	See Output Code Table	☐		
CT input	④	Not supplied	N		
Power feed forward input	⑤	Not supplied	N		
		With Power feedback transformer (Max.240V)	2		
Initial setting	⑥	No quick start code (Default setting)	N		
		Specify quick start code 1	1		
		Specify quick start code 1 and 2	2		
Quick start code 1 — Control Method (All channel common)	⑦	No quick start code			No code
		PID control with AT (Reverse action)			F
		PID control with AT (Direct action)			D
Quick start code 1 — Input and range (All channel common)	⑧	No quick start code			No code
		Pt100 -50.000 to +150.000°C			D38
		Pt100 -50.00 to +250.00°C			D39
		Pt100 -150.00 to +150.00°C			D41
		0 to 1V DC 0.000 to 100.000 (Programmable range)			301

Output signal code table

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

Quick Start Code 2

- 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.

Specifications			① ② ③ ④ ⑤ ⑥ ☐ ☐ ☐ ☐ -N ☐ ☐
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	Not supplied	N
Communication Protocol	⑥	ANSI/RKC standard protocol	1
		MODBUS protocol	2

Event Type Code Table
◆ : Default setting

Event Type	Code	Event Type	Code
No event ◆	N	Deviation High with Alarm Re-Hold	Q
Deviation High	A	Deviation Low with Alarm Re-Hold	R
Deviation Low	B	Deviation High/Low with Alarm Re-Hold	T
Deviation High/Low	C	Set value High	V
Band	D	Set value Low	W
Deviation High with Alarm Hold	E	MV value High	1
Deviation Low with Alarm Hold	F	MV value Low	2
Deviation High/Low with Alarm Hold	G	LBA (Loop break alarm) [1]	5
Process High	H	Temperature rise completion [2]	6
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.