

Module Type Controller SRZ Host Communication Quick Instruction Manual

Communication Extension Module Z-COM

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IMS01T09-E4

Thank you for purchasing this RKC product. In order to achieve maximum performance and ensure proper operation of your new instrument, carefully read all the instructions in this manual. Please place this manual in a convenient location for easy reference. This manual explains the communication settings using DIP switches and the communication data when performing host communication while joining the Z-COM module to the Z-TIO, Z-DIO and Z-CT modules. For the installation, the detail handling procedures and various function settings, please read if necessary the following separate manuals.

- Z-COM Installation Manual (IMS01T05-ED): Enclosed with Z-COM
- Z-COM Host Communication Quick Instruction Manual (IMS01T09-ED): Enclosed with Z-COM
- Z-COM PLC Communication Quick Instruction Manual (IMS01T14-ED): Enclosed with Z-COM
- Z-COM PLC Communication Data List (IMS01T15-ED): Enclosed with Z-COM
- Z-COM Instruction Manual (IMS01T22-ED): Separate *
- Z-COM Host Communication Instruction Manual (IMS01T23-ED): Separate *
- Z-TIO INSTRUCTION MANUAL (IMS01T01-ED): Enclosed with Z-TIO
- Z-TIO Host Communication Quick Instruction Manual (IMS01T02-ED): Enclosed with Z-TIO
- SRZ Instruction Manual (IMS01T04-ED): Separate *
- Z-DIO INSTRUCTION MANUAL (IMS01T03-ED): Enclosed with Z-DIO
- Z-CT INSTRUCTION MANUAL (IMS01T16-ED): Enclosed with Z-CT
- Z-CT Instruction Manual [Detailed version] (IMS01T21-ED): Separate *

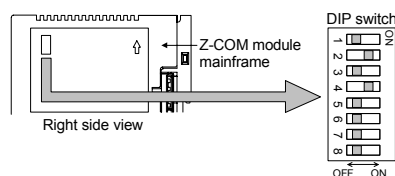
* Download or sold separately

The above manuals can be downloaded from our website:
URL: http://www.rkcinst.com/english/manual_load.htm

1. COMMUNICATION SETTING OF Z-COM MODULE

Use the DIP switch on the right side of Z-COM module to select communication speed, data bit configuration and protocol.

The data change become valid the power of the Z-COM module is turned on again or when control is switched from STOP to RUN.



Contents of the DIP switch

Communication 1 (COM. PORT1 and COM. PORT2) setting

Use switches No. 1, No. 2, and No. 3 to set the communication speed, communication protocol and data bit configuration for Communication 1.

1 2 Communication speed		
OFF	OFF	4800 bps
ON	OFF	9600 bps
OFF	ON	19200 bps (Factory set value)
ON	ON	38400 bps

3 Communication protocol and Data bit configuration		
OFF	Host communication (RKC communication) (Factory set value *)	
ON	Host communication (Modbus) Data 8-bit, without parity, Stop 1-bit	

* Factory set values when the communication protocol is not specified at the order.

Communication 2 (COM. PORT3 and COM. PORT4) setting

Use switches No. 4, No. 5, No. 6, and No. 7 to set the communication speed, communication protocol and data bit configuration for Communication 2.

4 Communication speed		
OFF	9600 bps	
ON	19200 bps (Factory set value)	

5 6 7 Communication protocol and Data bit configuration			
OFF	OFF	OFF	Host communication (RKC communication) Data 8-bit, without parity, Stop 1-bit (Factory set value *)
ON	OFF	OFF	Host communication (Modbus) Data 8-bit, without parity, Stop 1-bit

* Factory set values when the communication protocol is not specified at the order.

DIP switch setting validity/invalidity

Set switch No.8 to "ON" when performing communication by the communication settings set via host communication or loader communication. When set to "ON," the DIP switch settings are disabled.

8 DIP switch setting validity/invalidity		
OFF	Valid (Factory set value)	
ON	Invalid (According to the settings in Host communication or Loader communication)	

2. HOST COMMUNICATION DATA MAP

Symbols used in MAP

Attribute
RO: Read only data (Host computer ← SRZ)
R/W: Read and Write data (Host computer ↔ SRZ)

Symbols
□: Data for each SRZ unit ▲: Data for each channel
●: Data for each module ★: Parameters which can be used in multi-memory area function
▲: Parameters only used for heat/cool control or position proportioning control, therefore data for CH2 and CH4 of Z-TIO module are unused.
[Read is possible (0), but the result of Write is disregarded.]

On a Z-TIO module (2-channel type), the communication data of CH3 and CH4 becomes invalid.

Data range and Number of data in the table:
[]: Number of data (This is the maximum number per communication data that can be handled by one SRZ unit.)

Host communication data of Z-COM module

Name	RKC Identifier	Modbus register address HEX DEC	Digits	Attribute	Data range and Number of data	Factory set value
Model code (Z-COM module)	ID	—	32	RO	Model code (character)	—
Model code (Functional module *)	IE	—	32	RO	Model code (character)	[100]
ROM version (Z-COM module)	VR	—	8	RO	ROM version	—
ROM version (Functional module *)	VQ	—	8	RO	ROM version	[100]
Integrated operating time monitor (Z-COM module)	UT	—	7	RO	0 to 19999 hours	—
Integrated operating time monitor (Functional module *)	UV	—	7	RO	0 to 19999 hours	—
Error code (Z-COM module)	ER	0000	0	7 RO	<ul style="list-style-type: none"> RKC communication 1: SRAM error/Adjustment data error¹ 2: Data back-up error¹ 4: A/D conversion error¹ 32: Logic output data error 64: Stack overflow² Modbus b0: SRAM error/Adjustment data error¹ b1: Data back-up error¹ b2: A/D conversion error¹ b3, b4: Unused b5: Logic output data error b6: Stack overflow² b7 to b15: Unused ¹ The error code of the Z-CT module is these three types. ² Only the Z-COM module Data 0: OFF 1: ON [Decimal number: 0 to 127] For the identifier ER, the error condition is shown by the OR of each module. When multiple errors occur, the error No. is the sum value. [Z-COM: 1] [Z-TIO, Z-DIO and Z-CT: 100]	—
Error code (Functional module *)	EZ	0001 : : 0064	1 : : 100	7 RO	<ul style="list-style-type: none"> b0: SRAM error/Adjustment data error¹ b1: Data back-up error¹ b2: A/D conversion error¹ b3, b4: Unused b5: Logic output data error b6: Stack overflow² b7 to b15: Unused ¹ The error code of the Z-CT module is these three types. ² Only the Z-COM module Data 0: OFF 1: ON [Decimal number: 0 to 127] For the identifier ER, the error condition is shown by the OR of each module. When multiple errors occur, the error No. is the sum value. [Z-COM: 1] [Z-TIO, Z-DIO and Z-CT: 100]	—
Backup memory state monitor (Z-COM module)	EM	0065	101	1 RO	0: The content of the backup memory does not coincide with that of the RAM.	—
Backup memory state monitor (Functional module *)	CZ	0066 : : 00C9	102 : : 201	1 RO	1: The content of the backup memory coincides with that of the RAM. [Z-COM: 1] [Z-TIO, Z-DIO and Z-CT: 100]	—
System communication state	QM	00CA	202	1 RO	Bit data b0: Data collection condition b1 to b15: Unused Data 0: Before data collection is completed 1: Data collection is completed [Decimal number: 0, 1] [1]	—
SRZ normal communication flag	QL	00CB	203	1 RO	0/1 transfer (For communication checking) "0" and "1" are repeated for each communication period. [1]	—
PLC communication error code	ES	00CC	204	7 RO	Bit data b0: PLC register read/write error b1: Slave communication timeout b2: Unused b3: Internal communication error b4: Master communication timeout b5 to b15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 31] [1]	—
Unit recognition flag	QN	00CD	205	7 RO	Bit data b0: SRZ unit 1 b1: SRZ unit 2 b2: SRZ unit 3 b3: SRZ unit 4 b4 to b15: Unused Data 0: No unit exists 1: Unit exists [Decimal number: 0 to 15] [1]	—
Unused	—	00CE : : 0131	206 : : 305	—	—	—
Monitor for the number of connected modules	QK	0132	306	7 RO	0 to 31 [1]	—
RUN/STOP transfer	SR	0133	307	1 R/W	0: STOP (Control stop) 1: RUN (Control start) [1]	0
RUN/STOP transfer	SW	0134 : : 0197	308 : : 407	1 R/W	0: STOP (Control stop) 1: RUN (Control start) [100]	0
Control RUN/STOP holding setting	X1	0198 : : 01FB	408 : : 507	1 R/W	0: Not holding (STOP start) 1: Holding (RUN/STOP hold) [100]	1
The following items are enabled when the power is turned on again or when control is changed from STOP to RUN.						
Communication 1 protocol	VK	8000	32768	1 R/W	0: RKC communication 1: Modbus [1]	0
Communication 1 communication speed	VL	8001	32769	1 R/W	0: 4800 bps 2: 19200 bps 1: 9600 bps 3: 38400 bps [1]	2
Communication 1 data bit configuration	VM	8002	32770	7 R/W	0 to 5 See Table 1 Data bit configuration. [1]	0
Communication 1 interval time	VN	8003	32771	7 R/W	0 to 250 ms [1]	10
Communication 2 protocol	VP	8004	32772	1 R/W	0: RKC communication 1: Modbus 2: MITSUBISHI MELSEC series special protocol AnA/AnUCPU common command (QR/QW) 3: OMRON SYSMAC series special protocol 4: MITSUBISHI MELSEC series special protocol ACPU common command (WR/WW) [1]	0
Communication 2 communication speed	VU	8005	32773	1 R/W	0: 4800 bps 2: 19200 bps 1: 9600 bps 3: 38400 bps [1]	2
Communication 2 data bit configuration	VV	8006	32774	7 R/W	0 to 11 See Table 1 Data bit configuration. [1]	0
Communication 2 interval time	VX	8007	32775	7 R/W	0 to 250 ms [1]	10
Station number	QV	8008	32776	7 R/W	0 to 31 [1]	0
PC number (CPU No.)	QW	8009	32777	7 R/W	0 to 255 [1]	255
Register type	QZ	800A	32778	7 R/W	MITSUBISHI MELSEC series 0: D register 1: R register 2: W register 3: ZR register 4 to 29: Unused OMRON SYSMAC series 0: DM register (Data memory) 1 to 9: Unused 10 to 22: EM register (Extended data memory) (Specify the bank No.) (Specify the bank No.+10) 23 to 28: Unused 29: EM register (Extended data memory) (Specify the current bank) [1]	0
Register start number (High-order 4-bit)	QS	800B	32779	7 R/W	0 to 15: QnA compatible, 3C frame [1]	0
Register start number (Low-order 16-bit)	QX	800C	32780	7 R/W	0 to 9999: A compatible, 1C frame, ACPU common command (WR/WW), OMRON SYSMAC series 0 to 65535: A compatible 1C frame, AnA/AnUCPU common command (QR/QW), QnA compatible 3C frame [1]	1000
System data address bias	QQ	800D	32781	7 R/W	0 to 65535 [1]	2100
COM module link recognition time	QT	800E	32782	7 R/W	0 to 255 seconds [1]	10
PLC scanning time	VT	800F	32783	7 R/W	0 to 3000 ms [1]	255
PLC communication start time	R5	8010	32784	7 R/W	1 to 255 seconds [1]	5
Method for setting the number of connected modules	RY	8011	32785	7 R/W	0: No action. 1: Automatically set the maximum number of connected function modules only when power is turned on. 2: Execute automatic setting of the maximum number of connected function modules. ¹ [1]	1
Slave mapping method	RK	8012	32786	7 R/W	0: Bias from the address setting switch [Register address + (Remainder of set value of address setting switch/4) × System data address bias] 1: Bias disabled [1]	0
Number of connected modules ² (Z-TIO module)	QY	8013	32787	7 R/W	0 to 16 Maximum number of Z-TIO modules connected to Z-COM. [1]	—
Number of connected modules ² (Z-DIO module)	QU	8014	32788	7 R/W	0 to 16 Maximum number of Z-DIO modules connected to Z-COM. [1]	—
Number of connected modules ² (Z-CT module)	QO	8015	32789	7 R/W	0 to 16 Maximum number of Z-CT modules connected to Z-COM. [1]	—
Unused	—	8016 : : 8019	32790 : : 32793	—	—	—
Number of valid groups	QA	801A	32794	7 RO	0 to 128 [1]	—
Control RUN/STOP holding setting	X2	802B	32795	1 RO	0: Not holding (STOP start) 1: Holding (RUN/STOP hold) [1]	1

* Functional module: Z-TIO-AB module, Z-DIO module or Z-CT module

Table 1: Data bit configuration

Set value	Data bit	Parity bit	Stop bit	Settable communication	Set value	Data bit	Parity bit	Stop bit	Settable communication
0	8	Without	1	Modbus	6	8	Without	2	PLC communication
1	8	Even	1	RKC communication	7	8	Even	2	
2	8	Odd	1	PLC communication	8	8	Odd	2	
3	7	Without	1	RKC communication	9	7	Without	2	
4	7	Even	1	PLC communication	10	7	Even	2	
5	7	Odd	1	PLC communication	11	7	Odd	2	

Data range: Modbus: 0 to 2 RKC communication: 0 to 5 PLC communication: 0 to 11

Host communication data of Z-TIO module

Name	RKC Identifier	Modbus register address HEX DEC	Digits	Attribute	Data range and Number of data	Factory set value
Measured value (PV) ▲	M1	01FC : : 023B	508 : : 571	7 RO	Input scale low to input scale high [64]	—
Comprehensive event state ▲	AJ	023C : : 027B	572 : : 635	7 RO	<ul style="list-style-type: none"> RKC communication Least significant digit to 4th digit: Event 1 to Event 4 5th digit: Heater break alarm 6th digit: Temperature rise completion 7th digit: Burnout Data 0: OFF 1: ON Modbus b0 to b3: Event 1 to Event 4 b4: Heater break alarm b5: Temperature rise completion b6: Burnout b7 to b15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 127] [64] 	—
Operation mode state monitor ▲	L0	027C : : 02BB	636 : : 699	7 RO	<ul style="list-style-type: none"> RKC communication Least significant digit: Control STOP 2nd digit: Control RUN 3rd digit: Manual mode 4th digit: Remote mode 5th digit to Most significant digit: Unused Data 0: OFF 1: ON Modbus b0: Control STOP b1: Control RUN b2: Manual mode b3: Remote mode b4 to b15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 15] [64] 	—
Unused	—	02BC : : 02CB	700 : : 715	—	—	—
Manipulated output value (MV) monitor [heat-side] ▲ ▲	O1	02CC : : 030B	716 : : 779	7 RO	PID control or heat/cool PID control: -5.0 to +105.0 % Position proportioning control (FBR input): 0.0 to 100.0 % [64]	—
Manipulated output value (MV) monitor [cool-side] ▲ ▲	O2	030C : : 034B	780 : : 843	7 RO	-5.0 to +105.0 % [64]	—
Current transformer (CT) input value monitor ▲	M3	034C : : 038B	844 : : 907	7 RO	CTL-6-P-N: 0.0 to 30.0 A CTL-12-S56-10L-N: 0.0 to 100.0 A [64]	—
Set value (SV) monitor ▲	MS	038C : : 03CB	908 : : 971	7 RO	Setting limiter (low) to setting limiter (high) [64]	—
Remote setting (RS) input value monitor ▲	S2	03CC : : 040B	972 : : 1035	7 RO	Setting limiter (low) to setting limiter (high) [64]	—
Burnout state monitor ▲	B1	040C : : 044B	1036 : : 1099	1 RO	0: OFF 1: ON [64]	—
Event 1 state monitor ▲	AA	044C : : 048B	1100 : : 1163	1 RO	0: OFF 1: ON	—
Event 2 state monitor ▲	AB	048C : : 04CB	1164 : : 1227	1 RO	If the Event 3 type is temperature rise completion, check the temperature rise completion state in the comprehensive event state. (The Event 3 state monitor does not turn ON.)	—
Event 3 state monitor ▲	AC	04CC : : 050B	1228 : : 1291	1 RO	—	—
Event 4 state monitor ▲	AD	050C : : 054B	1292 : : 1355	1 RO	—	[Each 64]
Heater break alarm (HBA) state monitor ▲	AE	054C : : 058B	1356 : : 1419	1 RO	0: OFF 1: ON [64]	—
Output state monitor ▲	Q1	058C : : 059B	1420 : : 1435	7 RO	<ul style="list-style-type: none"> RKC communication Least significant digit to 4th digit: OUT1 to OUT4 b4 to b15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 15] [16] 	—
Memory area soak time monitor ▲	TR	059C : : 05DB	1436 : : 1499	7 RO	0 minutes 00 seconds to 199 minutes 59 seconds: RKC communication: 0:00 to 199:59 (min:sec) Modbus: 0 to 11999 seconds 0 hours 00 minutes to 99 hours 59 minutes: RKC communication: 0:00 to 99:59 (hrs:min) Modbus: 0 to 5999 minutes [64]	—
Unused	—	05DC : : 05EB	1500 : : 1515	—	—	—
Holding peak value ambient temperature monitor ▲	Hp	05EC : : 062B	1516 : : 1579	7 RO	-10.0 to +100.0 °C or 14.0 to 212.0 °F [64]	—
Unused	—	062C : : 063B	1580 : : 1595	—	—	—

¹ After automatic setting of the number of connected function modules, the value automatically reverts to 0.

² When 1 or 2 is set for the communication identifier RY (method of setting the number of connected modules), the maximum number of connected modules is set automatically. When 0 is set, the maximum number of connected modules is set manually.

Maximum number of connected modules: Maximum address of function modules (address setting switch set value + 1)
Z-COM uses this set value to calculate the number of channels of communication data (RKC communication only).

Name	RKC Identifier	Modbus register address		Digits	Attribute	Data range and Number of data	Factory set value
		HEX	DEC				
Logic output monitor 1 ▲	ED	063C 064B	1596 1611	7	RO	<ul style="list-style-type: none"> • RKC communication Least significant digit to 4th digit: Logic output 1 to 4 5th digit to Most significant digit: Unused Data 0: OFF 1: ON • Modbus b0 to b7: Logic output 1 to 8 b8 to b15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 255] [16] 	—
Logic output monitor 2 ▲	EE	—	—	7	RO	<ul style="list-style-type: none"> • RKC communication Least significant digit to 4th digit: Logic output 5 to 8 5th digit to Most significant digit: Unused Data 0: OFF 1: ON [Decimal number: 0 to 255] [16] 	—
Unused	—	064C 080B	1612 2059	—	—	—	—
PID/AT transfer ▲	G1	080C 084B	2060 2123	1	R/W	<ul style="list-style-type: none"> 0: PID control 1: Autotuning (AT) 	0
Auto/Manual transfer ▲	J1	084C 088B	2124 2187	1	R/W	<ul style="list-style-type: none"> 0: Auto mode 1: Manual mode 	0
Remote/Local transfer ▲	C1	088C 08CB	2188 2251	1	R/W	<ul style="list-style-type: none"> 0: Local mode 1: Remote mode 	0
Unused	—	08CC 08DB	2252 2267	—	—	—	—
Memory area transfer ▲	ZA	08DC 091B	2268 2331	7	R/W	1 to 8	1
Interlock release ▲	AR	091C 095B	2332 2395	1	R/W	<ul style="list-style-type: none"> 0: Normal state 1: Interlock release execution 	0
Event 1 set value (EV1) ▲	A1	095C 099B	2396 2459	7	R/W	Deviation action, Deviation action between channels, Temperature rise completion range *	50
Event 2 set value (EV2) ▲	A2	099C 09DB	2460 2523	7	R/W	<ul style="list-style-type: none"> -Input span to +Input span *When temperature rise completion is selected at Event 3 action type. 	50
Event 3 set value (EV3) ▲	A3	09DC 0A1B	2524 2587	7	R/W	Process action, SV action: Input scale low to Input scale high	50
Event 4 set value (EV4) ▲	A4	0A1C 0A5B	2588 2651	7	R/W	MV action: -5.0 to +105.0 %	50
Control loop break alarm (LBA) time ▲	A5	0A5C 0A9B	2652 2715	7	R/W	0 to 7200 seconds (0: Unused)	480
LBA deadband ▲	N1	0A9C 0ADB	2716 2779	7	R/W	0 (0.0) to Input span	0 (0.0)
Set value (SV) ▲	S1	0ADC 0B1B	2780 2843	7	R/W	Setting limiter (low) to Setting limiter (high)	TC/RTD: 0 V/I: 0.0
Proportional band [heat-side] ▲	P1	0B1C 0B5B	2844 2907	7	R/W	<ul style="list-style-type: none"> TC/RTD inputs: 0 (0.0) to Input span (Unit: °C [°F]) Voltage (V)/current (I) inputs: 0.0 to 1000.0 % of input span 0 (0.0): ON/OFF action 	TC/RTD: 30 (30.0) V/I: 30.0
Integral time [heat-side] ▲	I1	0B5C 0B9B	2908 2971	7	R/W	<ul style="list-style-type: none"> PID control or heat/cool PID control: 0 to 3600 seconds or 0.0 to 1999.9 seconds (0.0, 0.0: PD action) Position proportioning control: 1 to 3600 seconds or 0.1 to 1999.9 seconds 	240
Derivative time [heat-side] ▲	D1	0B9C 0BDB	2972 3035	7	R/W	0 to 3600 seconds or 0.0 to 1999.9 seconds (0.0, 0.0: PI action)	60
Control response parameter ▲	CA	0BDC 0C1B	3036 3099	1	R/W	<ul style="list-style-type: none"> 0: Slow 1: Medium 2: Fast When the P or PD action is selected, this setting becomes invalid. 	PID control, Position proportioning control: 0 Heat/cool PID control 2
Proportional band [cool-side] ▲	P2	0C1C 0C5B	3100 3163	7	R/W	<ul style="list-style-type: none"> TC/RTD inputs: 1 (0.1) to Input span (Unit: °C [°F]) Voltage (V)/current (I) inputs: 0.1 to 1000.0 % of input span 	TC/RTD: 30 (30.0) V/I: 30.0
Integral time [cool-side] ▲	I2	0C5C 0C9B	3164 3227	7	R/W	0 to 3600 seconds or 0.0 to 1999.9 seconds (0.0, 0.0: PD action)	240
Derivative time [cool-side] ▲	D2	0C9C 0CDB	3228 3291	7	R/W	0 to 3600 seconds or 0.0 to 1999.9 seconds (0.0, 0.0: PI action)	60
Overlap/Deadband ▲	V1	0CDD 0D1B	3292 3355	7	R/W	<ul style="list-style-type: none"> TC/RTD inputs: -Input span to +Input span (Unit: °C [°F]) Voltage (V)/current (I) inputs: -100.0 to +100.0 % of input span 	0
Manual reset ▲	MR	0D1C 0D5B	3356 3419	7	R/W	-100.0 to +100.0 %	0.0
Setting change rate limiter (up) ▲	HH	0D5C 0D9B	3420 3483	7	R/W	0 (0.0) to Input span/unit time 0 (0.0): Unused Unit time: 60 seconds (factory set value)	0 (0.0)
Setting change rate limiter (down) ▲	HL	0D9C 0DDB	3484 3547	7	R/W	0 (0.0) to Input span/unit time 0 (0.0): Unused Unit time: 60 seconds (factory set value)	0 (0.0)
Area soak time ▲	TM	0DDC 0E1B	3548 3611	7	R/W	<ul style="list-style-type: none"> 0 minutes 00 seconds to 199 minutes 59 seconds: RKC communication: 0.00 to 199:59 (min:sec) Modbus: 0 to 11999 seconds 0 hours 00 minutes to 99 hours 59 minutes: RKC communication: 0.00 to 99:59 (hrs:min) Modbus: 0 to 5999 minutes 	RKC communication: 0.00 Modbus: 0

Name	RKC Identifier	Modbus register address		Digits	Attribute	Data range and Number of data	Factory set value
		HEX	DEC				
Link area number ▲	LP	0E1C 0E5B	3612 3675	7	R/W	0 to 8 (0: No link)	0
Heater break alarm (HBA) set value ▲	A7	0E5C 0E9B	3676 3739	7	R/W	<ul style="list-style-type: none"> When CT is CTL-6-P-N: 0.0 to 30.0 A (0.0: Not used) When CT is CTL-12-S56-10L-N: 0.0 to 100.0 A (0.0: Not used) 	0.0
Heater break determination point ▲	NE	0E9C 0EDB	3740 3803	7	R/W	0.0 to 100.0 % of HBA set value (0.0: Heater break determination is invalid)	30.0
Heater melting determination point ▲	NF	0EDC 0F1B	3804 3867	7	R/W	0.0 to 100.0 % of HBA set value (0.0: Heater melting determination is invalid)	30.0
PV bias ▲	PB	0F1C 0F5B	3868 3931	7	R/W	-Input span to +Input span	0
PV digital filter ▲	F1	0F5C 0F9B	3932 3995	7	R/W	0.0 to 100.0 seconds (0.0: Unused)	0.0
PV ratio ▲	PR	0F9C 0FDB	3996 4059	7	R/W	0.500 to 1.500	1.000
PV low input cut-off ▲	DP	0FDC 101B	4060 4123	7	R/W	0.00 to 25.00 % of input span	0.00
RS bias ▲	RB	101C 105B	4124 4187	7	R/W	-Input span to +Input span	0
RS digital filter ▲	F2	105C 109B	4188 4251	7	R/W	0.0 to 100.0 seconds (0.0: Unused)	0.0
RS ratio ▲	RR	109C 10DB	4252 4315	7	R/W	0.001 to 9.999	1.000
Output distribution selection ▲	DV	10DC 111B	4316 4379	1	R/W	<ul style="list-style-type: none"> 0: Control output 1: Distribution output 	0
Output distribution bias ▲	DW	111C 115B	4380 4443	7	R/W	-100.0 to +100.0 %	0.0
Output distribution ratio ▲	DQ	115C 119B	4444 4507	7	R/W	-9.999 to +9.999	1.000
Proportional cycle time ▲	T0	119C 11DB	4508 4571	7	R/W	<ul style="list-style-type: none"> 0.1 to 100.0 seconds M: Relay contact output T: Triac output V: Voltage pulse output D: Open collector output 	M output: 20.0 V, T, D output: 2.0
Minimum ON/OFF time of proportioning cycle ▲	VI	11DC 121B	4572 4635	7	R/W	0 to 1000 ms	0
Manual manipulated output value ▲	ON	121C 125B	4636 4699	7	R/W	<ul style="list-style-type: none"> PID control: Output limiter (low) to Output limiter (high) Heat/cool PID control: -Cool-side output limiter (high) to -Heat-side output limiter (high) Position proportioning control (with FBR input): Output limiter (low) to Output limiter (high) Position proportioning control (without FBR input): 0: Close-side output OFF, Open-side output OFF 1: Close-side output ON, Open-side output OFF 2: Close-side output OFF, Open-side output ON 	0.0
Area soak time stop function ▲	RV	125C 129B	4700 4763	1	R/W	<ul style="list-style-type: none"> 0: No function 1: Event 1 2: Event 2 3: Event 3 4: Event 4 	0
EDS mode (for disturbance 1) ▲	NG	129C 12DB	4764 4827	1	R/W	<ul style="list-style-type: none"> 0: No function 1: EDS function mode 2: Learning mode 3: Tuning mode EDS function: External disturbance suppression function 	0
EDS mode (for disturbance 2) ▲	NX	12DC 131B	4828 4891	1	R/W	EDS function: External disturbance suppression function	0
EDS value 1 (for disturbance 1) ▲	NI	131C 135B	4892 4955	7	R/W	-100.0 to +100.0 %	0.0
EDS value 1 (for disturbance 2) ▲	NJ	135C 139B	4956 5019	7	R/W	0.0	0.0
EDS value 2 (for disturbance 1) ▲	NK	139C 13DB	5020 5083	7	R/W	0.0	0.0
EDS value 2 (for disturbance 2) ▲	NM	13DC 141B	5084 5147	7	R/W	0.0	0.0
EDS transfer time (for disturbance 1) ▲	NN	141C 145B	5148 5211	7	R/W	0 to 3600 seconds or 0.0 to 1999.9 seconds	0
EDS transfer time (for disturbance 2) ▲	NO	145C 149B	5212 5275	7	R/W	0 to 3600 seconds or 0.0 to 1999.9 seconds	0
EDS action time (for disturbance 1) ▲	NQ	149C 14DB	5276 5339	7	R/W	1 to 3600 seconds	600
EDS action time (for disturbance 2) ▲	NL	14DC 151B	5340 5403	7	R/W	1 to 3600 seconds	600
EDS action wait time (for disturbance 1) ▲	NR	151C 155B	5404 5467	7	R/W	0.0 to 600.0 seconds	0.0
EDS action wait time (for disturbance 2) ▲	NY	155C 159B	5468 5531	7	R/W	0.0 to 600.0 seconds	0.0
EDS value learning times ▲	NT	159C 15DB	5532 5595	7	R/W	0 to 10 times (0: No learning mode)	1
EDS start signal ▲	NU	15DC 161B	5596 5659	1	R/W	<ul style="list-style-type: none"> 0: EDS start signal OFF 1: EDS start signal ON (for disturbance 1) 2: EDS start signal ON (for disturbance 2) 	0

* Data on RS bias, RS ratio and RS digital filter is that in cascade control or ratio setting.

Name	RKC Identifier	Modbus register address		Digits	Attribute	Data range and Number of data	Factory set value
		HEX	DEC				
Operation mode ▲	EI	161C 165B	5660 5723	1	R/W	<ul style="list-style-type: none"> 0: Unused 1: Monitor 2: Monitor + Event function 3: Control 	3
Startup tuning (ST) ▲	ST	165C 169B	5724 5787	1	R/W	<ul style="list-style-type: none"> 0: ST unused 1: Execute once (Returns to "0" after the tuning is finished.) 2: Execute always 	0
Automatic temperature rise learning ▲	Y8	169C 16DB	5788 5851	1	R/W	<ul style="list-style-type: none"> 0: Unused 1: Learning (Returns to "0" after the tuning is finished.) 	0
Communication switch (for logic) ▲	EF	16DC 16EB	5852 5867	7	R/W	<ul style="list-style-type: none"> • RKC communication Least significant digit to 4th digit: Communication switch 1 to 4 5th digit to Most significant digit: Unused Data 0: OFF 1: ON • Modbus b0 to b3: Communication switch 1 to 4 b4 to b15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 15] [16] 	0
Unused	—	16EC 196B	5868 6507	—	—	—	—

For communication data (Engineering setting), refer to the Z-COM Host Communication Instruction Manual (IMS01T23-EC).

Host communication data of Z-DIO module

Name	RKC Identifier	Modbus register address		Digits	Attribute	Data range and Number of data	Factory set value
		HEX	DEC				
Digital input (DI) state 1 ▲	L1	3E6C 3E7B	15980 15995	7	RO	<ul style="list-style-type: none"> • RKC communication Least significant digit to 4th digit: D11 to D14 5th digit to Most significant digit: Unused Data 0: Contact open 1: Contact closed • Modbus b0 to b7: D11 to D18 b8 to b15: Unused Data 0: Contact open 1: Contact closed [Decimal number: 0 to 255] [16] 	—
Digital input (DI) state 2 ▲	L6	—	—	7	RO	<ul style="list-style-type: none"> Least significant digit to 4th digit: D15 to D18 5th digit to Most significant digit: Unused Data 0: Contact open 1: Contact closed 	—
Digital output (DO) state 1 ▲	Q2	3E7C 3E8B	15996 16011	7	RO	<ul style="list-style-type: none"> • RKC communication Least significant digit to 4th digit: DO1 to DO4 5th digit to Most significant digit: Unused Data 0: OFF 1: ON • Modbus b0 to b7: DO1 to DO8 b8 to b15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 255] [16] 	—
Digital output (DO) state 2 ▲	Q3	—	—	7	RO	<ul style="list-style-type: none"> Least significant digit to 4th digit: DO5 to DO8 5th digit to Most significant digit: Unused Data 0: OFF 1: ON 	—
Unused	—	3E8C 3FDB	16012 16348	—	—	—	—
DO manual output 1 ▲	Q4	3FDC 3EFB	16349 16353	7	R/W	<ul style="list-style-type: none"> • RKC communication Least significant digit to 4th digit: DO1 manual output to DO4 manual output 5th digit to Most significant digit: Unused Data 0: OFF 1: ON • Modbus b0 to b7: DO1 manual output to DO8 manual output b8 to b15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 255] [16] 	0
DO manual output 2 ▲	Q5	—	—	7	R/W	<ul style="list-style-type: none"> Least significant digit to 4th digit: DO5 manual output to DO8 manual output 5th digit to Most significant digit: Unused Data 0: OFF 1: ON 	0
DO output distribution selection ▲	DO	3FEC 406B	16364 16491	1	R/W	<ul style="list-style-type: none"> 0: DO output 1: Distribution output 	0
DO output distribution bias ▲	O8	406C 40EB	16492 16619	7	R/W	-100.0 to +100.0 %	0.0
DO output distribution ratio ▲	O9	40EC 416B	16620 16747	7	R/W	-9.999 to +9.999	1.000
DO proportioning cycle time ▲	VO	416C 41EB	16748 16875	7	R/W	<ul style="list-style-type: none"> 0.1 to 100.0 seconds M: Relay contact output D: Open collector output 	M: 20 D: 2
DO minimum ON/OFF time of proportioning cycle ▲	VJ	41EC 426B	16876 17003	7	R/W	0 to 1000 ms	0
Unused	—	426C 433B	17004 17211	—	—	—	—

For communication data (Engineering setting), refer to the Z-COM Host Communication Instruction Manual (IMS01T23-EC).

Host communication data of Z-CT module

Name	RKC Identifier	Modbus register address		Digits	Attribute	Data range and Number of data	Factory set value
		HEX	DEC				
Current transformer (CT) input value monitor ▲	M4	46BC 477B	18108 18299	7	RO	<ul style="list-style-type: none"> CTL-6-P-Z: 0.0 to 10.0 A CTL-6-P-N: 0.0 to 30.0 A CTL-12-S56-10L-N: 0.0 to 100.0 A 	—
Load factor conversion CT monitor ▲	M5	477C 483B	18300 18491	7	RO	0.0 to 100.0 A	—
Heater break alarm (HBA) state monitor ▲	AF	483C 48FB	18684 18683	1	RO	<ul style="list-style-type: none"> 0: Normal 1: Break 2: Melting 	—
Heater overcurrent alarm state monitor ▲	AG	48FC 49BB	18684 18875	1	RO	<ul style="list-style-type: none"> 0: Normal 1: Heater overcurrent 	—
Automatic setting state monitor ▲	CJ	49BC 49CB	18876 18891	1	RO	<ul style="list-style-type: none"> 0: Normal state 1: Automatic setting execution 2: Automatic setting failure 	—
Unused	—	49CC 4FCB	18892 20427	—	—	Do not use this register address as it is used for the internal processing.	—
Heater break/Heater overcurrent alarm automatic setting selection ▲	BT	4FCC 508B	20428 20619	1	R/W	<ul style="list-style-type: none"> 0: Automatic setting is disabled. (Alarm set value cannot be automatically set by the push button and communication.) 1: Automatic setting for heater break alarm is enabled. 2: Automatic setting for heater overcurrent alarm set value is enabled. 3: Automatic setting for heater break alarm (HBA) and heater overcurrent alarm set values are enabled. 	1
Automatic setting transfer ▲	BU	508C 514B	20620 20811	1	R/W	<ul style="list-style-type: none"> 0: Normal state 1: Automatic setting execution 2: Automatic setting failure (RO) 	0
Heater break alarm (HBA) set value ▲	A8	514C 520B	20812 21003	7	R/W	<ul style="list-style-type: none"> 0.0 to 100.0 A 0.0: Heater break alarm function (HBA) OFF (HBA function OFF: The current transformer (CT) input value monitoring is available.) 	0.0
Heater break alarm (HBA) selection ▲	BZ	520C 52CB	21004 21195	1	R/W	<ul style="list-style-type: none"> 0: Heater break alarm (HBA) unused 1: Heater break alarm (HBA) 2: Heater break alarm (HBA) (With alarm interlock function) 	1
Heater overcurrent alarm set value ▲	A6	52CC 538B	21196 21387	7	R/W	<ul style="list-style-type: none"> 0.0 to 105.0 A 0.0: Heater overcurrent alarm function OFF 	0.0
Heater overcurrent alarm selection ▲	BO	538C 544B	21388 21579	1			