Ethernet Communication Converter

COM-ML-1 [For SRZ] PLC Communication Data List

IMR02E16-E1

Thank you for purchasing this RKC product. In order to achieve maximum performance and ensure proper operation of the instrument, carefully read all the instructions in this manual. Please place the manual in a convenient location for easy reference.
This manual describes the PLC communication data of the COM-ML. For the host communication, the installation, the detail handling procedures and various function settings, please read if necessary the following separate manuals.

- COM-ML-1 [For SRZ] Installation Manual (IMR02E13-E□): Enclosed with COM-ML
- COM-ML-1 [For SRZ] Quick Operation Manual (IMR02E14-E□): Enclosed with COM-ML
- COM-ML-1 [For SRZ] Host Communication Data List (IMR02E15-E): Enclosed with COM-ML
- COM-ML-1 [For SRZ] Instruction Manual (IMR02E17-E□): Separate (Download free or purchase hard copy)
- Z-TIO Instruction Manual (IMS01T01-E□): Enclosed with Z-TIO
- Z-TIO Host Communication Quick Instruction Manual (IMS01T02-E□): Enclosed with Z-TIO
- Z-DIO Instruction Manual (IMS01T03-E□): Enclosed with Z-DIO
- SRZ Instruction Manual (IMS01T04-E□): Separate (Download free or purchase hard copy)
- Z-CT INSTRUCTION MANUAL (IMS01T16-E□): Enclosed with Z-CT
- Z-CT Instruction Manual [Detailed version] (IMS01T21-E□): Separate (Download free or purchase hard copy)

These manuals can be downloaded from the official RKC website:
http://www.rkcinst.com/english/manual_load.htm

1. EXPLANATION OF DATA MAP ITEMS

The data that can be communicated by the PLC and COM-ML (SRZ unit) is compiled in the PLC communication data map.

Name: Name of communication data

Register address: A register address of communication data in PLC communication (Excluding data of the Z-CT module)
16 CH: Register address of 16-channel specification
32 CH: Register address of 32-channel specification
48 CH: Register address of 48-channel specification
64 CH: Register address of 64-channel specification
Register addresses in this manual are those assigned when the PLC communication environment is set as follows.
- Register type: 0 (MITSUBISHI PLC MELSEC series: D register)
- Register start number: 1000

Structure: C: Data for each channel [1, 2]
M: Data for each module
U: Data for each SRZ unit

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

[2] ♣: Parameters only used for Heat/Cool control or Position proportioning control, therefore data for CH2 and CH4 of Z-TIO modules are unused. [Read is possible "0," but the result of Write is disregarded.]

Attribute: RO: At the time of Monitor request bit "1," COM-ML writes in data to the PLC. (PLC ← COM-ML)
R/W: At the time of Setting request bit "1," COM-ML read out data from the PLC. At the time of Monitor request bit "1," COM-ML writes in data to the PLC. (PLC ↔ COM-ML)

Data range: Read or write range of communication data

Number of data: This is the maximum number per communication data that can be handled by one SRZ unit.
The total number of communication data:
16-channel specification: 524 items *
32-channel specification: 1036 items *
48-channel specification: 1548 items *
64-channel specification: 2060 items *
* The total number of communication data of the Z-CT module is not included.

The COM-ML occupies a number of PLC registers equal to the maximum number of data items. Even if there are fewer function modules (Z-TIO/Z-DIO modules) connected to the COM-ML, or there are unused communication items, the number of registers occupied does not change. If function modules (Z-TIO/Z-DIO modules) are not connected or there are unused data items, "0" is sent.

Factory set value: Factory set value of communication data

2. DATA MAP

- **16-channel specification**
  System data (monitor item): D01000 to D01007
  Monitor group: D01010 to D01150
  Setting group: D01008, D01009 and D01151 to D01523
- **32-channel specification**
  System data (monitor item): D01000 to D01007
  Monitor group: D01010 to D01290
  Setting group: D01008, D01009 and D01291 to D02035
- **48-channel specification**
  System data (monitor item): D01000 to D01007
  Monitor group: D01010 to D01430
  Setting group: D01008, D01009 and D01431 to D02547
- **64-channel specification**
  System data (monitor item): D01000 to D01007
  Monitor group: D01010 to D01570
  Setting group: D01008, D01009 and D01571 to D03059

Communication data of Z-CT module is not included in this data map.
For the communication data of Z-CT module, refer to **3. COMMUNICATION DATA OF Z-CT MODULE**.

Name	Register address 16 CH	32 CH	48 CH	64 CH	Structure	Attribute	Data range	Number of data	Factory set value
System communication state	D01000	D01000	D01000	D01000	U	RO	Bit data Bit 0: Data collection condition Bit 1 to Bit 15: Unused Data 0: Before data collection is completed 1: Data collection is completed [Decimal number: 0 to 1]	1	—
Normal communication state	D01001	D01001	D01001	D01001	U	RO	0/1 transfer or Count up at 0 to 30000 (For communication checking) "0" and "1" are repeated for each communication period. Or 1 is added in the range of 0 to 30000 for each communication cycle. (The count is reset to zero when 30000 is reached).	1	—
Unused	D01002	D01002	D01002	D01002	—	—	—	1	—
Unused	D01003	D01003	D01003	D01003	—	—	—	1	—
PLC communication error code	D01004	D01004	D01004	D01004	U	RO	Bit data Bit 0: Unused Bit 1: PLC register read/write error Bit 2: Unused Bit 3: Unused Bit 4: Internal communication error Bit 5 to Bit 15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 31]	1	—
PLC communication unit recognition flag	D01005	D01005	D01005	D01005	U	RO	Bit data Bit 0: SRZ unit Bit 1 to Bit 15: Unused Data 0: No unit exists 1: Unit exists [Decimal number: 0 to 1]	1	—
Monitor for the number of connected modules	D01006	D01006	D01006	D01006	U	RO	0 to 31	1	—
Number of valid groups	D01007	D01007	D01007	D01007	U	RO	0 to 30	1	—
Request command	D01008	D01008	D01008	D01008	U	R/W	Bit data Bit 0: Setting request bit Bit 1: Monitor request bit Data 0: OFF 1: ON [Decimal number: 0 to 3]	1	0
Setting item communication state	D01009	D01009	D01009	D01009	U	RO	Bit data Bit 0: Setting error Bit 1: Setting completed bit Bit 2: Monitor completed bit Data 0: OFF 1: ON [Decimal number: 0 to 7]	1	—
Measured value (PV)	D01010 to D01025	D01010 to D01041	D01010 to D01057	D01010 to D01073	C	RO	Input scale low to Input scale high	16CH: 16 32CH: 32 48CH: 48 64CH: 64	—
Comprehensive event state	D01026 to D01041	D01042 to D01073	D01058 to D01105	D01074 to D01137	C	RO	Bit data Bit 0: Event 1 Bit 1: Event 2 Bit 2: Event 3 Bit 3: Event 4 Bit 4: Heater break alarm (HBA) Bit 5: Temperature rise completion Bit 6: Burnout Bit 7 to Bit 15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 127]	16CH: 16 32CH: 32 48CH: 48 64CH: 64	—
Operation mode state monitor	D01042 to D01057	D01074 to D01105	D01106 to D01153	D01138 to D01201	C	RO	Bit data Bit 0: STOP Bit 1: RUN Bit 2: Manual mode Bit 3: Remote mode Bit 4 to Bit 15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 15]	16CH: 16 32CH: 32 48CH: 48 64CH: 64	—
Manipulated output value (MV) monitor [heat-side] ♣	D01058 to D01073	D01106 to D01137	D01154 to D01201	D01202 to D01265	C	RO	PID control or Heat/Cool PID control: −5.0 to +105.0 % Position proportioning control (with FBR input): 0.0 to 100.0 %	16CH: 16 32CH: 32 48CH: 48 64CH: 64	—
Manipulated output value (MV) monitor [cool-side] ♣	D01074 to D01089	D01138 to D01169	D01202 to D01249	D01266 to D01329	C	RO	−5.0 to +105.0 %	16CH: 16 32CH: 32 48CH: 48 64CH: 64	—
Current transformer (CT) input value monitor	D01090 to D01105	D01170 to D01201	D01250 to D01297	D01330 to D01393	C	RO	CTL-6-P-N: 0.0 to 30.0 A CTL-12-S56-10L-N: 0.0 to 100.0 A	16CH: 16 32CH: 32 48CH: 48 64CH: 64	—
Set value (SV) monitor	D01106 to D01121	D01202 to D01233	D01298 to D01345	D01394 to D01457	C	RO	Setting limiter low to Setting limiter high	16CH: 16 32CH: 32 48CH: 48 64CH: 64	—
Remote setting (RS) input value monitor	D01122 to D01137	D01234 to D01265	D01346 to D01393	D01458 to D01521	C	RO	Setting limiter low to Setting limiter high	16CH: 16 32CH: 32 48CH: 48 64CH: 64	—
Output state monitor	D01138 to D01141	D01266 to D01273	D01394 to D01405	D01522 to D01537	M	RO	Bit data Bit 0: OUT1 Bit 1: OUT2 Bit 2: OUT3 Bit 3: OUT4 Bit 4 to Bit 15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 15]	16CH: 4 32CH: 8 48CH: 12 64CH: 16	—
Digital input (DI) state	D01142 to D01145	D01274 to D01281	D01406 to D01417	D01538 to D01553	M	RO	Bit data Bit 0: DI1 Bit 5: DI6 Bit 1: DI2 Bit 6: DI7 Bit 2: DI3 Bit 7: DI8 Bit 3: DI4 Bit 8 to Bit 15: Unused Bit 4: DI5 Data 0: Contact open 1: Contact closed [Decimal number: 0 to 255]	16CH: 4 32CH: 8 48CH: 12 64CH: 16	—
Digital output (DO) state	D01146 to D01149	D01282 to D01289	D01418 to D01429	D01554 to D01569	M	RO	Bit data Bit 0: DO1 Bit 5: DO6 Bit 1: DO2 Bit 6: DO7 Bit 2: DO3 Bit 7: DO8 Bit 3: DO4 Bit 8 to Bit 15: Unused Bit 4: DO5 Data 0: OFF 1: ON [Decimal number: 0 to 255]	16CH: 4 32CH: 8 48CH: 12 64CH: 16	—
Error code (COM-ML)	D01150	D01290	D01430	D01570	U	RO	Bit data Bit 0: Unused Bit 1: Data back-up error Bit 2 to Bit 5: Unused Bit 6: Stack overflow Bit 7 to Bit 9: Unused Bit 10:Network module error Bit 11 to Bit 15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 1090]	1	—

♣ Parameters only used for Heat/Cool control or Position proportioning control, therefore data for CH2 and CH4 of Z-TIO modules are unused.

Name	Register address 16 CH	32 CH	48 CH	64 CH	Structure	Attribute	Data range	Number of data	Factory set value
PID/AT transfer	D01151 to D01166	D01291 to D01322	D01431 to D01478	D01571 to D01634	C	R/W	0: PID control 1: Autotuning (AT) When the Autotuning (AT) is finished, the control will automatically returns to 0: PID control.	16CH: 16 32CH: 32 48CH: 48 64CH: 64	0
Auto/Manual transfer	D01167 to D01182	D01323 to D01354	D01479 to D01526	D01635 to D01698	C	R/W	0: Auto mode 1: Manual mode	16CH: 16 32CH: 32 48CH: 48 64CH: 64	0
Event 1 set value (EV1)	D01183 to D01198	D01355 to D01386	D01527 to D01574	D01699 to D01762	C	R/W	Deviation action, Deviation action between channels, Temperature rise completion range *: −Input span to +Input span * When temperature rise completion is selected at Event 3 action type. Process action, SV action: Input scale low to Input scale high	16CH: 16 32CH: 32 48CH: 48 64CH: 64	50 (50.0)
Event 2 set value (EV2)	D01199 to D01214	D01387 to D01418	D01575 to D01622	D01763 to D01826	C	R/W		16CH: 16 32CH: 32 48CH: 48 64CH: 64	50 (50.0)
Event 3 set value (EV3)	D01215 to D01230	D01419 to D01450	D01623 to D01670	D01827 to D01890	C	R/W	MV action: −5.0 to +105.0 %	16CH: 16 32CH: 32 48CH: 48 64CH: 64	50 (50.0)
Event 4 set value (EV4)	D01231 to D01246	D01451 to D01482	D01671 to D01718	D01891 to D01954	C	R/W		16CH: 16 32CH: 32 48CH: 48 64CH: 64	50 (50.0)
Set value (SV)	D01247 to D01262	D01483 to D01514	D01719 to D01766	D01955 to D02018	C	R/W	Setting limiter low to Setting limiter high	16CH: 16 32CH: 32 48CH: 48 64CH: 64	TC/RTD inputs: 0 (0.0) V/I inputs: 0.0
Proportional band [heat-side] ♣	D01263 to D01278	D01515 to D01546	D01767 to D01814	D02019 to D02082	C	R/W	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	16CH: 16 32CH: 32 48CH: 48 64CH: 64	TC/RTD inputs: 30 (30.0) V/I inputs: 30.0
Integral time [heat-side] ♣	D01279 to D01294	D01547 to D01578	D01815 to D01862	D02083 to D02146	C	R/W	PID control or Heat/Cool PID control: 0 to 3600 seconds or 0.0 to 1999.9 seconds (0, 0.0: PD action) Position proportioning control: 1 to 3600 seconds or 0.1 to 1999.9 seconds	16CH: 16 32CH: 32 48CH: 48 64CH: 64	240
Derivative time [heat-side] ♣	D01295 to D01310	D01579 to D01610	D01863 to D01910	D02147 to D02210	C	R/W	0 to 3600 seconds or 0.0 to 1999.9 seconds (0, 0.0: PI action)	16CH: 16 32CH: 32 48CH: 48 64CH: 64	60
Proportional band [cool-side] ♣	D01311 to D01326	D01611 to D01642	D01911 to D01958	D02211 to D02274	C	R/W	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	16CH: 16 32CH: 32 48CH: 48 64CH: 64	TC/RTD inputs: 30 (30.0) V/I inputs: 30.0
Integral time [cool-side] ♣	D01327 to D01342	D01643 to D01674	D01959 to D02006	D02275 to D02338	C	R/W	0 to 3600 seconds or 0.0 to 1999.9 seconds (0, 0.0: PD action)	16CH: 16 32CH: 32 48CH: 48 64CH: 64	240
Derivative time [cool-side] ♣	D01343 to D01358	D01675 to D01706	D02007 to D02054	D02339 to D02402	C	R/W	0 to 3600 seconds or 0.0 to 1999.9 seconds (0, 0.0: PI action)	16CH: 16 32CH: 32 48CH: 48 64CH: 64	60
Control response parameter ♣	D01359 to D01374	D01707 to D01738	D02055 to D02102	D02403 to D02466	C	R/W	0: Slow 1: Medium 2: Fast When the P or PD action is selected, this setting becomes invalid.	16CH: 16 32CH: 32 48CH: 48 64CH: 64	PID control, Position proportioning control: 0 Heat/Cool PID control: 2
Overlap/Deadband ♣	D01375 to D01390	D01739 to D01770	D02103 to D02150	D02467 to D02530	C	R/W	TC/RTD inputs: −Input span to +Input span (Unit:°C [°F]) Voltage (V)/Current (I) inputs: −100.0 to +100.0 % of Input span	16CH: 16 32CH: 32 48CH: 48 64CH: 64	0 (0.0)
Setting change rate limiter (up)	D01391 to D01406	D01771 to D01802	D02151 to D02198	D02531 to D02594	C	R/W	0 (0.0) to Input span/unit time 0 (0.0): Unused	16CH: 16 32CH: 32	0 (0.0)
Setting change rate limiter (down)	D01407 to D01422	D01803 to D01834	D02199 to D02246	D02595 to D02658	C	R/W	Unit time: 60 seconds (factory set value)	48CH: 48 64CH: 64	0 (0.0)
Heater break alarm (HBA) set value	D01423 to D01438	D01835 to D01866	D02247 to D02294	D02659 to D02722	C	R/W	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)	16CH: 16 32CH: 32 48CH: 48 64CH: 64	0.0
Heater break determination point	D01439 to D01454	D01867 to D01898	D02295 to D02342	D02723 to D02786	C	R/W	0.0 to 100.0 % of HBA set value (0.0: Heater break determination is invalid)	16CH: 16 32CH: 32 48CH: 48 64CH: 64	30.0
Heater melting determination point	D01455 to D01470	D01899 to D01930	D02343 to D02390	D02787 to D02850	C	R/W	0.0 to 100.0 % of HBA set value (0.0: Heater melting determination is invalid)	16CH: 16 32CH: 32 48CH: 48 64CH: 64	30.0
PV bias	D01471 to D01486	D01931 to D01962	D02391 to D02438	D02851 to D02914	C	R/W	−Input span to +Input span	16CH: 16 32CH: 32 48CH: 48 64CH: 64	0 (0.0)
Manual manipulated output value ♣	D01487 to D01502	D01963 to D01994	D02439 to D02486	D02915 to D02978	C	R/W	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	16CH: 16 32CH: 32 48CH: 48 64CH: 64	0.0

♣ Parameters only used for Heat/Cool control or Position proportioning control, therefore data for CH2 and CH4 of Z-TIO modules are unused.

Name	Register address 16 CH	32 CH	48 CH	64 CH	Structure	Attribute	Data range	Number of data	Factory set value
Operation mode	D01503 to D01518	D01995 to D02026	D02487 to D02534	D02979 to D03042	C	R/W	0: Unused 1: Monitor 2: Monitor + Event function 3: Control	16CH: 16 32CH: 32 48CH: 48 64CH: 64	3
DO manual output	D01519 to D01522	D02027 to D02034	D02535 to D02546	D03043 to D03058	M	R/W	Bit data Bit 0: DO1 manual output Bit 1: DO2 manual output Bit 2: DO3 manual output Bit 3: DO4 manual output Bit 4: DO5 manual output Bit 5: DO6 manual output Bit 6: DO7 manual output Bit 7: DO8 manual output Bit 8 to Bit 15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 255]	16CH: 4 32CH: 8 48CH: 12 64CH: 16	0
RUN/STOP transfer (Each unit)	D01523	D02035	D02547	D03059	U	R/W	0: STOP (Control stop) 1: RUN (Control start)	1	0

☞ The host computer is used to set communication data (engineering data, operation data, etc.) of function modules (Z-TIO/Z-DIO modules) that cannot be set by PLC communication.
For the communication data, refer to **COM-ML-1 [For SRZ] Instruction Manual (IMR02E17-E□)** or **SRZ Instruction Manual (IMS01T04-E□).**

3. COMMUNICATION DATA OF Z-CT MODULE

The communication data of the Z-CT module is not assigned to PLC register addresses prior to shipment, and thus the customer must assign the communication data to the PLC registers.
The Zeal PLC register mapping software tool is used to perform register address assignment. Refer to Help in Zeal to assign the communication data to PLC registers.

🕮 Zeal can be downloaded from our website.

■ PLC communication data of Z-CT module

Name	Register address	Structure	Attribute	Data range	Number of data	Factory set value
Current transformer (CT) input value monitor	Not assigned prior to shipment	C	RO	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	192	—
Load factor conversion CT monitor	Not assigned prior to shipment	C	RO	0.0 to 100.0 A	192	—
Heater break alarm (HBA) state monitor	Not assigned prior to shipment	C	RO	0: Normal 1: Break 2: Melting	192	—
Heater overcurrent alarm state monitor	Not assigned prior to shipment	C	RO	0: Normal 1: Heater overcurrent	192	—
Automatic setting state monitor	Not assigned prior to shipment	M	RO	0: Normal state 1: Automatic setting execution 2: Automatic setting failure	16	—
Heater break/ Heater overcurrent alarm automatic setting selection	Not assigned prior to shipment	C	R/W	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.	192	1
Automatic setting transfer	Not assigned prior to shipment	C	R/W	0: Normal state 1: Automatic setting execution 2: Automatic setting failure (RO)	192	0
Heater break alarm (HBA) set value	Not assigned prior to shipment	C	R/W	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.	192	0.0
Heater break alarm (HBA) selection	Not assigned prior to shipment	C	R/W	0: Heater break alarm (HBA) unused 1: Heater break alarm (HBA) 2: Heater break alarm (HBA) [With alarm interlock function]	192	1
Heater overcurrent alarm set value	Not assigned prior to shipment	C	R/W	0.0 to 105.0 A 0.0: Heater overcurrent alarm function OFF	192	0.0
Heater overcurrent alarm selection	Not assigned prior to shipment	C	R/W	0: Heater overcurrent alarm unused 1: Heater overcurrent alarm 2: Heater overcurrent alarm (With alarm interlock function)	192	1
Heater break alarm (HBA) interlock release	Not assigned prior to shipment	C	R/W	0: Normal state 1: Interlock release execution	192	0
Heater overcurrent alarm interlock release	Not assigned prior to shipment	C	R/W	0: Normal state 1: Interlock release execution	192	0

☞ For description of the data map, refer to **1. EXPLANATION OF DATA MAP ITEMS**.

☞ For the communication data of Z-CT module, refer to **Z-CT Instruction Manual [Detailed version] (IMS01T21-E□)**.

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