

# PLC Communication Converter **Communication Data List**

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**IMR01Y17-E5**

This manual describes the communication data of the COM-JE. For the installation, the detail handling procedures and various function settings, please refer to the following separate manuals.

- COM-JE Installation Manual (IMR01Y02-E□): Enclosed with COM-JE
- COM-JE Quick Instruction Manual (IMR01Y12-E□): Enclosed with COM-JE
- COM-JE Instruction Manual (IMR01Y07-E□): Separate manual \*  
\* Download free or purchase hard copy

The above manuals can be downloaded from the official RKC website:  
[http://www.rkcinst.com/english/manual\\_load.htm](http://www.rkcinst.com/english/manual_load.htm)

## 1. PLC COMMUNICATION DATA MAP

The PLC communication data map shows data which can be used for communication between the PLC and controller (FB100/400/900).

### 1.1 Reference to Data Map

(1) Name	(2) Register address	(3) Setting item	(4) Structure	(5) Attribute	(6) Data range	(7) Factory set value
Request command	D01000	—	U	R/W	0 to 212 The first digit 0: Monitor (PLC ← Controller) 1: Setting (PLC → Controller) 2: Set value monitor (PLC ← Controller)	0

- (1) Name: Name of communication data
- (2) Register address: A register address of communication data in PLC communication. Register addresses in this manual apply under the following conditions:
- PLC: MITSUBISHI MELSEC series A-compatible 1C frame (format 4) ACPU common command (WR/WW) (Also for the OMRON PLC, the content of data remains unchanged).
  - Communication environment setting: Maximum number of controllers in PLC communication: 10  
Register start number: 1000  
Register type: 0 (D register)  
Monitor item selection: 4095 (all items)



Setting of Maximum number of controllers in PLC communication and Register start number changes an assignment of a register address.

Name	Register address
Request command	D01000
COM-JE communication state	D01001
...	...
Measured value (PV) Controller 1 to 10	D01030 to D01039
Current transformer 1 (CT1) input value monitor	D01040 to D01049
Current transformer 2 (CT2) input value monitor	D01050 to D01059

For the PLC communication environment setting, refer to the **COM-JE Quick Instruction Manual (IMR01Y12-E□)**.

- (3) Setting item: This is the number set when a special setting item is read or written by the request command.
- (4) Structure: U: Data for each controller communication unit \*  
C: Data for each controller
- \* A controller communication unit denotes a case where one COM-JE are connected to several controllers via controller communication (RS-485, Modbus).
- (5) Attribute: RO: Read only data (PLC ← Controller)  
R/W: Read and Write data (PLC ↔ Controller)
- (6) Data range: Read or write range of communication data



Bit image of bit data is as follows.  
16-bit data  
Bit 15 ..... Bit 0

- (7) Factory set value: Factory set value of communication data

## 1.2 Data Map List

Name	Register address	Setting item	Structure	Attribute	Data range	Factory set value
Request command	D01000	—	U	R/W	0 to 212 The first digit 0: Monitor (PLC ← Controller) 1: Setting (PLC → Controller) 2: Set value monitor (PLC ← Controller) The tenth and hundreds digit 0: All items 1 to 21: Setting item number	0
COM-JE communication state	D01001	—	U	RO	0: Unused 1: Data write into monitor During monitor data of attribute RO is written to PLC 2: Set data read During setting data of attribute R/W is read from PLC 3: Set data write During setting data of attribute R/W is written to PLC	—
COM-JE normal communication flag	D01002	—	U	RO	0/1 transfer (For communication checking) "0" and "1" are repeated for each communication period.	—
PLC communication error code	D01003-01005	—	U	RO	D01003: Do not use this register address as it is used for the internal processing. D01004: Bit data D01005: Bit 0: PLC register read/write error Bit 1: Slave communication timeout Data 0: OFF 1: ON [Decimal number: 0 to 3]	—
Unit recognition flag	D01006	—	U	RO	Bit data Bit 0: Controller communication unit 1 Bit 1: Controller communication unit 2 Bit 2: Controller communication unit 3 Bit 3: Controller communication unit 4 Data 0: No unit exists 1: Unit exists [Decimal number: 0 to 15]	—
Maximum number of controllers in PLC communication	D01007	—	U	RO	1 to 31	—
Number of connection controller in controller communication	D01008	—	U	RO	1 to 31	—
Setting change flag	D01009	—	U	RO	0: Controller setting not changed 1: Controller setting changed Set to "0" when data is written to the PLC by request command 2. In addition, set to "1" when there is a change in the value written to the PLC by the controller.	—
Start address <sup>a</sup>	D01010	—	U	R/W	Register address range of host communication (Modbus)	0
Number of transfer words <sup>a</sup>	D01011	—	U	R/W	1 to 16 words (0: No transfer operation)	0
Control word 1 <sup>a</sup> (request command)	D01012	—	U	R/W	0: No transfer operation 1: Setting (PLC → Controller) 2: Monitor (PLC ← Controller)	0
Control word 2 <sup>a</sup> (communication state)	D01013	—	U	RO	0: Unused 1: No transfer operation 2: Reading out setting data During data is read from PLC 3: Writing monitoring data During data is written to PLC	—
Transfer data <sup>a</sup>	D01014 to D01029	—	U	R/W	Data range specified by Start address	0
Measured value (PV)	D01030 to D01039	—	C	RO	Input scale low to Input scale high <sup>b</sup>	—
Current transformer 1 (CT1) input value monitor	D01040 to D01049	—	C	RO	CTL-6-P-N: 0.0 to 30.0 A CTL-12-S56-10L-N: 0.0 to 100.0 A	—
Current transformer 2 (CT2) input value monitor	D01050 to D01059	—	C	RO	Setting limiter low to Setting limiter high <sup>b</sup>	—
Set value (SV) monitor	D01060 to D01069	—	C	RO	Setting limiter low to Setting limiter high <sup>b</sup>	—
Remote setting (RS) input value monitor	D01070 to D01079	—	C	RO	Setting limiter low to Setting limiter high <sup>b</sup>	—
Manipulated output value (MV1) monitor [heat-side]	D01080 to D01089	—	C	RO	PID control or Heat/Cool PID control: -5.0 to +105.0 % Position proportioning PID control with feedback resistance (FBR) input: 0.0 to 100.0 %	—
Manipulated output value (MV2) monitor [cool-side]	D01090 to D01099	—	C	RO	-5.0 to +105.0 %	—
Digital input (DI) state monitor	D01100 to D01109	—	C	RO	Bit data Bit 0: DI1 Bit 5: DI6 <sup>c</sup> Bit 1: DI2 Bit 6: DI7 <sup>c</sup> Bit 2: DI3 Bit 7 to Bit 15: Unused Bit 3: DI4 Bit 4: DI5 Data 0: Open 1: Closed [Decimal number: 0 to 127]	—
Output state monitor	D01110 to D01119	—	C	RO	Bit data Bit 0: OUT1 Bit 4: DO3 <sup>c</sup> Bit 1: OUT2 Bit 5: DO4 <sup>c</sup> Bit 2: DO1 Bit 6 to Bit 15: Unused Bit 3: DO2 Data 0: OFF 1: ON [Decimal number: 0 to 63]	—

<sup>a</sup> These data items are used for the Specified data transfer type. For the Specified data transfer type, refer to the **COM-JE Instruction Manual (IMR01Y07-E□)**.

<sup>b</sup> Varies with the setting of the Decimal point position selection.

<sup>c</sup> Unused on the FB100.

Name	Register address	Setting item	Structure	Attribute	Data range	Factory set value
Controller state 1 (comprehensive alarm state)	D01120 to D01129	—	C	RO	Bit data Bit 0: Burnout state Bit 1: Burnout state of feedback resistance (FBR) input Bit 2: Event 1 state Bit 3: Event 2 state Bit 4: Event 3 state Bit 5: Event 4 state Bit 6: Heater break alarm 1 (HBA1) state Bit 7: Heater break alarm 2 (HBA2) state Bit 8 to Bit 15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 255]	—
Controller state 2 (error code)	D01130 to D01139	—	C	RO	Bit data Bit 0: Adjustment data error Bit 1: Back-up error Bit 2: A/D conversion error Bit 3 to Bit 4: Unused Bit 5: Custom data error Bit 6: Unused Bit 7: Watchdog timer error Bit 8: Stack overflow Bit 9 to Bit 10: Unused Bit 11: Program error (busy) Bit 12 to Bit 14: Unused Bit 15: Controller communication error Data 0: OFF 1: ON [Decimal number: 0 to 35239]	—
Controller state 3 (Operation mode state)	D01140 to D01149	—	C	RO	Bit data Bit 0: Control STOP Bit 1: Control RUN Bit 2: Manual mode <sup>1</sup> Bit 3: Remote mode <sup>1</sup> Bit 4 to Bit 13: Unused Bit 14: Backup memory state monitor Bit 15: Autotuning (AT) Data 0: OFF 1: ON [Decimal number: 0 to 49167]	—
PID/AT transfer	D01150 to D01159	1	C	R/W	0: PID control 1: Autotuning (AT)	0
Auto/Manual transfer	D01060 to D01069	2	C	R/W	0: Auto mode 1: Manual mode	0
RUN/STOP transfer	D01070 to D01079	3	C	R/W	0: RUN (control start) 1: STOP (control stop)	0
Event 1 set value	D01180 to D01189	4	C	R/W	Deviation: -Input span to +Input span <sup>2</sup>	50
Event 2 set value	D01190 to D01199	5	C	R/W	Process and set value: Input scale low to Input scale high <sup>2</sup>	50
Event 3 set value	D01200 to D01209	6	C	R/W	Manipulated output value (MV1 or MV2): -5.0 to +105.0 %	50
Event 4 set value	D01210 to D01219	7	C	R/W	Setting limiter low to Setting limiter high <sup>2</sup>	TC/RTD inputs: 0 V/I inputs: 0.0
Set value (SV)	D01220 to D01229	8	C	R/W	TC/RTD inputs: 0 (0.0, 0.0) to Input span <sup>2</sup> (Unit: °C [°F]) Voltage (V)/Current (I) inputs: 0.0 to 1000.0 % of Input span (0.0, 0.0; ON/OFF action)	TC/RTD inputs: 30 V/I inputs: 30.0
Proportional band [heat-side]	D01230 to D01239	9	C	R/W	PID control or Heat/Cool PID control: 0 to 3600 seconds or 0.0 to 1999.9 seconds <sup>3</sup> (0.0; PD action) <sup>4</sup>	240
Integral time [heat-side]	D01240 to D01249	10	C	R/W	PID control or Heat/Cool PID control: 0 to 3600 seconds or 0.0 to 1999.9 seconds <sup>3</sup> (0.0; PI action) <sup>4</sup>	240
Derivative time [heat-side]	D01250 to D01259	11	C	R/W	PID control or Heat/Cool PID control: 0 to 3600 seconds or 0.0 to 1999.9 seconds <sup>3</sup> (0.0; PI action) <sup>4</sup>	60
Proportional band [cool-side]	D01260 to D01269	12	C	R/W	TC/RTD inputs: 1 (0.1, 0.1) to Input span <sup>2</sup> (Unit: °C [°F]) Voltage (V)/Current (I) inputs: 0.1 to 1000.0 % of Input span	TC/RTD inputs: 30 V/I inputs: 30.0
Integral time [cool-side]	D01270 to D01279	13	C	R/W	TC/RTD inputs: 0 to 3600 seconds or 0.0 to 1999.9 seconds <sup>3</sup> (0.0; PD action) <sup>4</sup>	240
Derivative time [cool-side]	D01280 to D01289	14	C	R/W	TC/RTD inputs: 0 to 3600 seconds or 0.0 to 1999.9 seconds <sup>3</sup> (0.0; PI action) <sup>4</sup>	60
Overlap/Deadband	D01290 to D01299	15	C	R/W	TC/RTD inputs: -Input span to +Input span <sup>2</sup> (Unit: °C [°F]) Voltage (V)/Current (I) inputs: -100.0 to +100.0 % of Input span Minus (-) setting results in Overlap. However, the overlapping range is within the proportional range.	0
Setting change rate limiter (up)	D01300 to D01309	16	C	R/W	0 to Input span/unit time <sup>2</sup> (0: Unused)	0
Setting change rate limiter (down)	D01310 to D01319	17	C	R/W	* Unit time: 60 seconds (factory set value)	0
Heater break alarm 1 (HBA1) set value	D01320 to D01329	18	C	R/W	CTL-6-P-N: 0.0 to 30.0 A (0.0: Unused)	0.0
Heater break alarm 2 (HBA2) set value	D01330 to D01339	19	C	R/W	CTL-12-S56-10L-N: 0.0 to 100.0 A (0.0: Unused)	0.0
PV bias	D01340 to D01349	20	C	R/W	-Input span to +Input span <sup>2</sup>	0
Manual manipulated output value	D01350 to D01359	21	C	R/W	PID control: Output limiter low [MV1] to Output limiter high [MV1] Heat/cool PID control: -Output limiter high [MV2] to +Output limiter high [MV1] (-105.0 to +105.0 %) Position proportioning PID control with feedback resistance (FBR) input: Output limiter low [MV1] to Output limiter high [MV1]	0.0

<sup>1</sup> During operation in Manual mode, the Manual mode of the Operation mode state monitor is set to the "1: ON" state and the Remote mode of the same monitor is set to the "0: OFF" state even if the parameter, Remote/Local transfer is set to "1: Remote mode."

<sup>2</sup> Varies with the setting of the Decimal point position selection.

<sup>3</sup> Varies with the setting of the Integral/Derivative time decimal point position selection.

<sup>4</sup> When the heat-side or cool-side integral time is set to zero for Heat/Cool PID control, PD action will take place for both heat-side and cool-side.

## 2. HOST COMMUNICATION DATA MAP

The Host communication data map shows data which can be used for communication between the host computer and controller (FB100/400/900). The Modbus register address is also used for the Specified data transfer type of PLC communication.



- Modbus register address  
HEX: Hexadecimal DEC: Decimal  
The head address of each item. (Vacant numbers become unused.)
- Attribute  
RO: Only reading of data is possible (Host computer ← Controller)  
R/W: Reading and writing data is possible (Host computer ↔ Controller)
- Data  
16-bit data



All the data in the RKC communication is 7 digits.



Reading data of unused setting items are factory set values. Unused setting items may not be written. To do so will not cause an error, however data will be rejected.



For the Specified data transfer type, refer to the **COM-JE Instruction Manual (IMR01Y07-E□)**.

Name	RKC Identifier	Modbus register address		Number of data	Attribute	Data range	Factory set value
		HEX	DEC				
Measured value (PV)	M1	0000	0	31	RO	Input scale low to Input scale high <sup>1</sup>	—
Current transformer 1 (CT1) input value monitor	M3	0020	32	31	RO	CTL-6-P-N: 0.0 to 30.0 A	—
Current transformer 2 (CT2) input value monitor	M4	0040	64	31	RO	CTL-12-S56-10L-N: 0.0 to 100.0 A	—
Set value (SV) monitor	MS	0060	96	31	RO	Setting limiter low to Setting limiter high <sup>1</sup>	—
Remote setting (RS) input value monitor	S2	0080	128	31	RO	Setting limiter low to Setting limiter high <sup>1</sup>	—
Burnout state monitor	B1	00A0	160	31	RO	0: OFF 1: ON	—
Burnout state monitor of feedback resistance input	B2	00C0	192	31	RO	0: OFF 1: ON	—
Event 1 state monitor	AA	00E0	224	31	RO	0: OFF	—
Event 2 state monitor	AB	0100	256	31	RO	1: ON	—
Event 3 state monitor	AC	0120	288	31	RO	—	—
Event 4 state monitor	AD	0140	320	31	RO	—	—
Heater break alarm 1 (HBA1) state monitor	AE	0160	352	31	RO	0: OFF 1: ON	—
Heater break alarm 2 (HBA2) state monitor	AF	0180	384	31	RO	—	—
Manipulated output value (MV1) monitor [heat-side]	O1	01A0	416	31	RO	PID control or Heat/Cool PID control: -5.0 to +105.0 % Position proportioning PID control with feedback resistance (FBR) input: 0.0 to 100.0 %	—
Manipulated output value (MV2) monitor [cool-side]	O2	01C0	448	31	RO	-5.0 to +105.0 %	—
Error code	ER	01E0	480	31	RO	Bit data Bit 0: Adjustment data error Bit 1: Back-up error Bit 2: A/D conversion error Bit 3 to Bit 4: Unused Bit 5: Custom data error Bit 6: Unused Bit 7: Watchdog timer error Bit 8: Stack overflow Bit 9 to Bit 10: Unused Bit 11: Program error (busy) Bit 12 to Bit 15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 4095]	—
Digital input (DI) state monitor	L1	0200	512	31	RO	Bit data Bit 0: DI1 Bit 5: DI6 <sup>2</sup> Bit 1: DI2 Bit 6: DI7 <sup>2</sup> Bit 2: DI3 Bit 7 to Bit 15: Unused Bit 3: DI4 Bit 4: DI5 Data 0: Open 1: Closed [Decimal number: 0 to 127]	—
Output state monitor	Q1	0220	544	31	RO	Bit data Bit 0: OUT1 Bit 4: DO3 <sup>2</sup> Bit 1: OUT2 Bit 5: DO4 <sup>2</sup> Bit 2: DO1 Bit 6 to Bit 15: Unused Bit 3: DO2 Data 0: OFF 1: ON [Decimal number: 0 to 63]	—
Operation mode state monitor	L0	0240	576	31	RO	Bit data Bit 0: Control STOP Bit 1: Control RUN Bit 2: Manual mode <sup>3</sup> Bit 3: Remote mode <sup>3</sup> Bit 4 to Bit 15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 15]	—
Memory area soak time monitor	TR	0260	608	31	RO	0 to 11999 seconds or 0 to 5999 minutes	—
Integrated operating time monitor	UT	0280	640	31	RO	0 to 19999 hours	—
Holding peak value ambient temperature monitor	Hp	02A0	672	31	RO	-10.0 to +100.0 °C	—
Power feed forward input value monitor <sup>2</sup>	HM	02C0	704	31	RO	0.0 to 160.0 % Display in the percentage of the load voltage (rated value).	—

<sup>1</sup> Varies with the setting of the Decimal point position selection.

<sup>2</sup> Unused on the FB100.

<sup>3</sup> During operation in Manual mode, the Manual mode of the Operation mode state monitor is set to the "1: ON" state and the Remote mode of the same monitor is set to the "0: OFF" state even if the parameter, Remote/Local transfer is set to "1: Remote mode."

