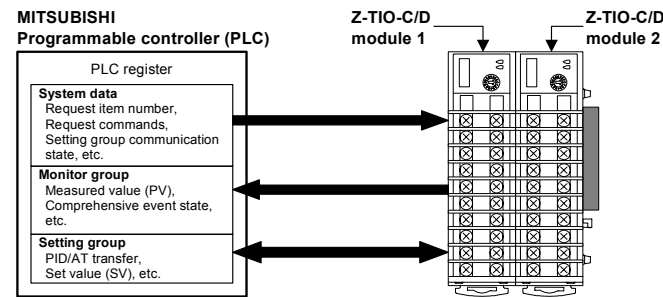


Thank you for purchasing this RKC product. In order to achieve maximum performance and ensure proper operation of your new instrument, carefully read all the instructions in this manual. Please place this manual in a convenient location for easy reference.

1. PLC COMMUNICATION DATA TRANSFER

This manual describes the case of connecting two Z-TIO-C modules or two Z-TIO-D modules to Mitsubishi Electric Corporation's MELSEC series of programmable controllers (PLC). The data transmitted between the PLC and the Z-TIO-C/D module is compiled in the PLC communication data map. In the PLC communication data map the communication data is classified into system data, monitor groups, and setting groups.



For the communication data, see 2. PLC COMMUNICATION DATA MAP.

1.1 Data Transfer Type

Data transfer between PLC and Z-TIO-C/D module are executed by the request item number and the request command.

Request item number

This command sets the communication data of the setting group that is transferred. Set transfer of all communication data of the setting group, or transfer by one data item. Data transfer are executed by request command.

Setting range: 0 or 1 to 64 (Item number)

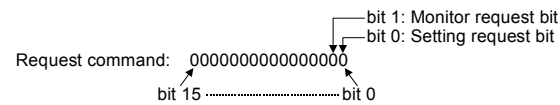
- When set to 0, all communication data of the setting group is transferred.
- When set to a number from 1 to 64 (item number), only the set communication data item is transferred (transfer by one data item).

Note that communication data that is not selected (set to binary: 0) in setting item selection of the PLC communication environment is not transferred.

For the item number 1 to 64, see "Table 2: Setting item selection (Communication data of setting group)" of Z-TIO PLC Communication Quick Instruction Manual [PART1: Preparation] (IMS01T11-ED).

Request command

For the request command, both "setting request bit" and "monitor request bit" are available.



Setting request bit (PLC → Z-TIO-C/D module)

This command requests that the Z-TIO-C/D module read the communication data of the setting group on the PLC side.

[Processing]

- (1) Just when "1 (decimal numbers: 1)" is set to the setting request bit, the Z-TIO-C/D module starts reading the data from the PLC side.
- (2) The setting group communication data set in "Request item number" is transferred from the PLC to the Z-TIO-C/D module.
- (3) After data transmission is completed, the setting request bit becomes "0."

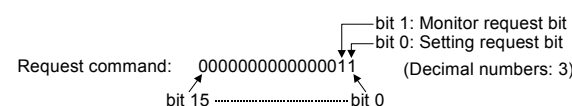
Monitor request bit (PLC ← Z-TIO-C/D module)

This command requests that the Z-TIO-C/D module write the communication data of the setting group on the PLC side.

[Processing]

- (1) Just when "1 (decimal numbers: 2)" is set to the monitor request bit, the Z-TIO-C/D starts writing the data to the PLC side.
- (2) The setting group communication data set in "request item number" is transferred from the Z-TIO-C/D module to the PLC.
- (3) After data transmission is completed, the monitor request bit becomes "0."

- If the bit of one request command is set to "1", do not set the bit of the other request command to "1" until the bit of the first request command reverts to "0."
- When setting both the setting request bit and the monitor request bit to "1," set the bits simultaneously. If set separately, the bit set later may be disregarded.



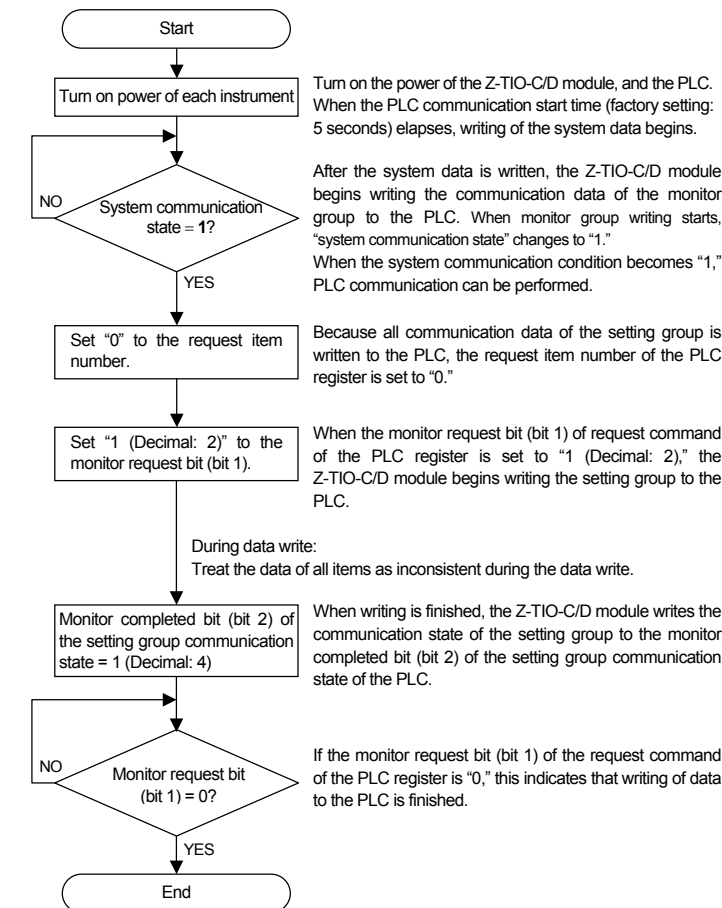
Monitor group

The monitor group communication data is always transferred as monitor item data between the PLC and the Z-TIO-C/D module regardless of the request command setting.

1.2 Data Transfer Procedures

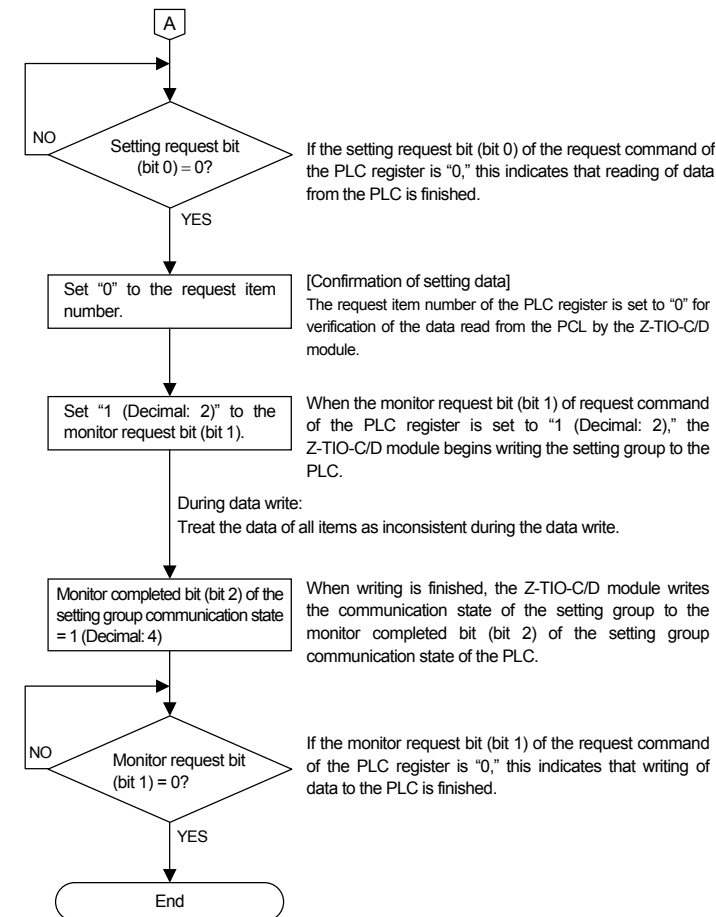
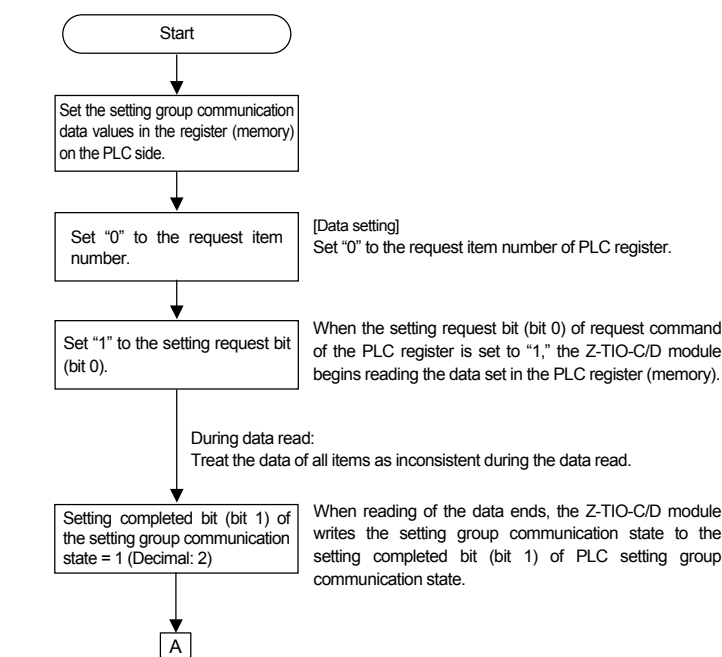
Change each set value of Z-TIO-C/D module from the PLC after the initial settings are made. If each set value of Z-TIO-C/D module is changed from the PLC without setting the initial values, it is re-written to "0" with each set value of the PLC at that time set to "0."

Initial setting



Data setting

When the setting group communication data is transferred from PLC to the Z-TIO-C/D module.



Data processing precautions

The data type is treated as binary data with a sign and without a decimal point. For this reason, carefully express and set the data. (Excluding the bit data)

2. PLC COMMUNICATION DATA MAP

The data that can be communicated by the PLC and Z-TIO-C/D module is compiled in the PLC communication data map. The data map indicated in this manual is the data map of factory set value. The data map can be changed using the PLC communication environment items below.

- Register type
- Register start number (High-order 4-bit)
- Register start number (Low-order 16-bit)
- Monitor item register bias
- Setting item register bias
- Monitor item selection
- Setting item selection
- Slave register bias

For the PLC communication environment item, see Z-TIO PLC Communication Quick Instruction Manual [PART1: Preparation] (IMS01T11-ED).

For communication data not described in this manual, see the SRZ Instruction Manual [for PLC Communication] (IMS01T13-ED).

2.1 Explanation of Data Map Items

Name:	Name of communication data
Register address:	A register address of communication data in PLC communication (MITSUBISHI MELSEC series)
Structure:	C: Data for each channel M: Data for each module
Attribute:	RO: Read only data (PLC ← Z-TIO-C/D module) R/W: Read and Write data (PLC ↔ Z-TIO-C/D module)
Data range and Number of data:	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 Z-TIO-C/D module *. (Numerical value in the [] at the lower right) The total number of communication data is 150 items. * In the case of two-channel type (Z-TIO-D modules), the number of the data per one module is the same as four-channel type (Z-TIO-C modules).
Factory set value:	Factory set value of communication data

2.2 Data Map

The data map register address is the address when the following items are used at their factory set values.

Register start number (Low-order 16-bit):	1000
Register type:	0 (D register)
Monitor item register bias:	10
Setting item register bias:	0
Monitor item selection:	33535
Setting item selection:	Setting group 1: 62427 Setting group 2: 15583 Setting group 3: 512 Setting group 4: 512
Slave register bias:	150

Register range for each data

	Z-TIO-C/D module 1	Z-TIO-C/D module 2
System data	D01000 to D01009	D01150 to D01159
Monitor group	D01010 to D01049	D01160 to D01199
Setting group	D01050 to D01149	D01200 to D01299

Data map of Z-TIO-C/D module 1

Name	Register address	Structure	Attribute	Data range and Number of data	Factory set value
System communication state	D01000	M	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]	—
Z-TIO normal communication flag	D01001	M	RO	0/1 transfer (For communication checking) "0" and "1" are repeated for each communication period. [1]	—
Unused	D01002	—	RO	Internal processing Do not use the register address [1]	—
Unused	D01003	—	RO	Internal processing Do not use the register address [1]	—
PLC communication error code	D01004	M	RO	Bit data b0: PLC register read/write error b1: Slave communication timeout b2: Unused b3: Unused b4: Master communication timeout b5 to b15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 31] [1]	—
Z-TIO module recognition flag	D01005	M	RO	Bit data b0: Z-TIO module 1 b1: Z-TIO module 2 b2: Z-TIO module 3 b3: Z-TIO module 4 b4: Z-TIO module 5 b5: Z-TIO module 6 b6: Z-TIO module 7 b7: Z-TIO module 8 b8: Z-TIO module 9 b9: Z-TIO module 10 b10: Z-TIO module 11 b11: Z-TIO module 12 b12: Z-TIO module 13 b13: Z-TIO module 14 b14: Z-TIO module 15 b15: Z-TIO module 16 Data 0: No module exists 1: Module exists [Decimal number: 0 to 65535] [1]	—
Unused	D01006	—	—	Internal processing Do not use the register address [1]	—
Request item number	D01007	M	R/W	0 or 1 to 64 0: Transfer all communication data of the setting group. * 1 to 64: Transfer only the communication data of the selected item number. * [1]	0
Request command	D01008	M	R/W	Bit data b0: Setting request bit b1: Monitor request bit Data 0: OFF 1: ON [Decimal number: 0 to 3] [1]	0
Setting group communication state	D01009	M	RO	Bit data b0: Setting error bit b1: Setting completed bit b2: Monitor completed bit Data 0: OFF 1: ON [Decimal number: 0 to 7] [1]	—

* Note that communication data that is not selected (set to binary: 0) in setting item selection of the PLC communication environment is not transferred.

