Panasonic

MEWTOCOL Communication
User's Manual

WUME-MEWCP-03

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(MEMO)

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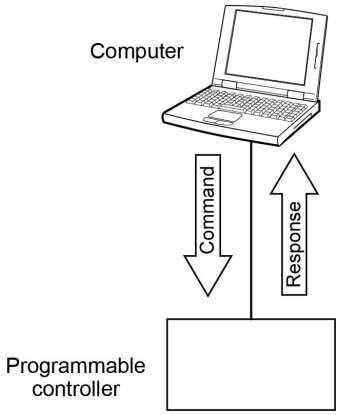
(MEMO)

1 MEWTOCOL-COM (Computer Link)

1.1 Overview of MEWTOCOL-COM

■ Command and response functions

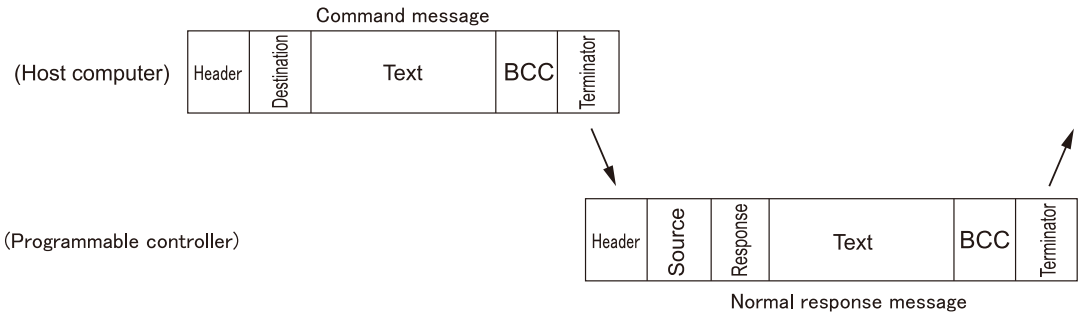
The computer sends commands (instructions) to the programmable controller, and receives responses in return. This enables the computer and programmable controller to converse with each other, so that various kinds of information can be obtained and provided.



Note

- A user program is required on the computer side in order to carry out a computer link.
- No program is necessary on the programmable controller side.

■ Command and response formats



Control codes

Name	Character	ASCII code	Explanation
Header	% or <	25H or 3CH	Indicates the beginning of a message.
Command	#	23H	Indicates that the data comprises a command message.
Normal response	$	24H	Indicates that the data comprises a normal response message.
Error response	!	21H	Indicates that the data comprises a response message when an error occurs.
Terminator	$^{C}_{R}$	0DH	Indicates the end of a message.

Name	Character	ASCII code	Explanation
Delimiter	&(+$^{C}_{R}$)	26H	Indicates a delimiter that splits data into multiple frames.

Destination and source

Two-digit decimal 01 to 32, EE, or FF (ASCII codes)

Command messages contain a unit number for the programmable controller that receives the message.

Response messages contain the unit number of the programmable controller that is sending the response.

If there is no particular value to be specified, "01" should be set.

Note

- When “FF” is specified, a global transmission (sent to all units at once) is applied.
  When a global transmission is sent, no response to the command message is returned.

BCC (Block Check Code)

Two-digit hexadecimal 00 to FF (ASCII codes)

These are codes (horizontal parity) that are used to detect errors in the transmitted data.

If “**” is entered instead of “BCC”, however, messages can be transmitted without the BCC. In this case, the BCC is included with the response.

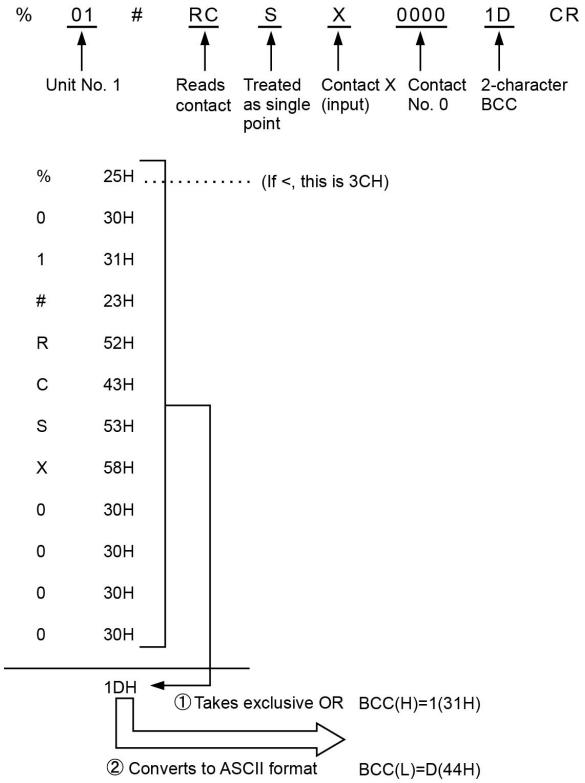
Error code

Indicates error information. If an error occurs in the command, an error code is set as a two-digit hexadecimal 00 to FF (ASCII codes).

■ BCC (Block Check Code)

- The BCC is a code that carries out an error check using horizontal parity, to improve the reliability of the data being sent.
- The BCC uses an exclusive OR from the header (%) to the final character of the text, and converts the 8-bit data into a 2-character ASCII code.

Example



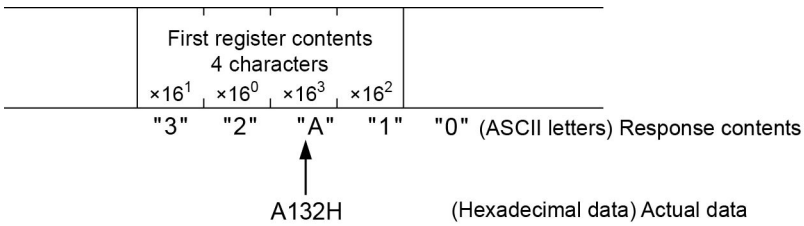
■ How data is notated in commands and responses

Data used in commands and responses can be notated in the three ways described below.

Hexadecimal data

"$x16^0$, $x16^1$, ..." indicate hexadecimal data.

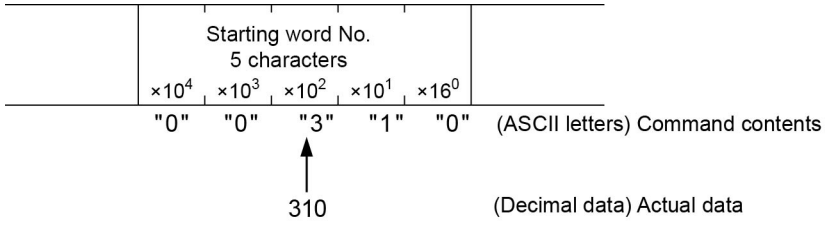
(Example) Register contents in a data area read (RD) response



Decimal data

"$x10^0$, $x10^1$, ..." indicate decimal data.

(Example) Initial word contents in a data area read (RD) command

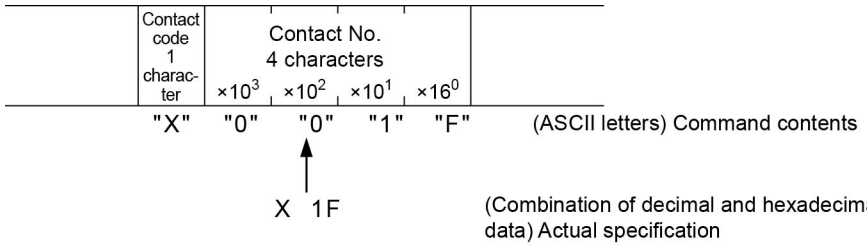


Decimal – hexadecimal data

In the relay numbers for external input (X), external output (Y), internal relays (R), and link relays (L), the last digit is in hexadecimal notation, while the preceding digits are in decimal notation. (In T/C contact numbers, all of the digits, including the last digit, are in decimal notation.)

In this case, the notation would read as follows: "$x16^0$, $x10^1$, $x10^2$..."

(Example) Specification of command contact of contact area lead (RCS)

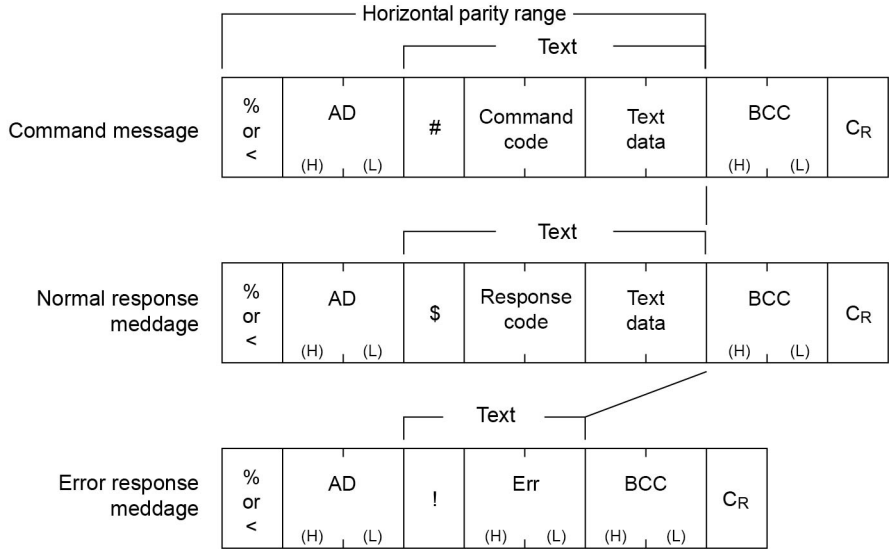


Note

- Data is limited to a certain number of characters. For example, the contact number above is specified using four characters, so when the X1F contact area is read, a 0 will be added at the beginning to fill out the number of characters and form a four-character string.

1.2 Single Frames and Multiple Frames

■ Single-frame commands and responses



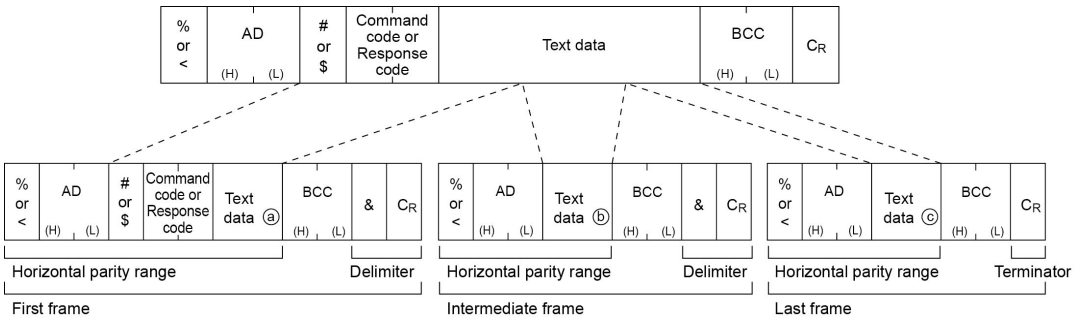
■ Maximum message length

The maximum message length for a single frame of a command or response (the number of characters from the header to the terminator) is as indicated below. If the maximum message length is exceeded, the message should be split into multiple sections and sent. (responses should be split into several frames and sent)

% (Header) 118 characters

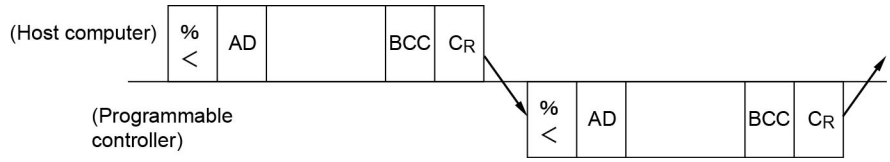
< (Expanded header) 2048 characters

■ Multiple-frame commands and responses

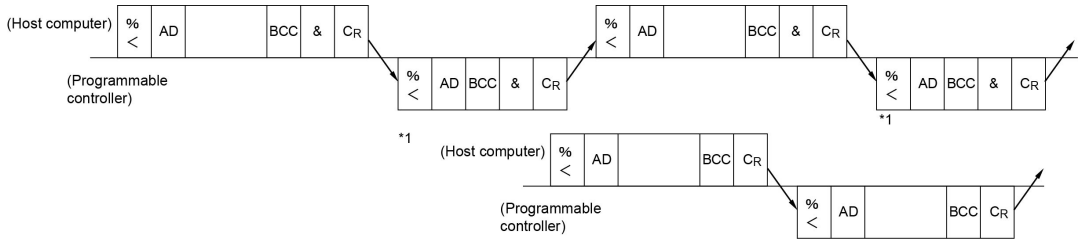


■ Sample communication timing chart

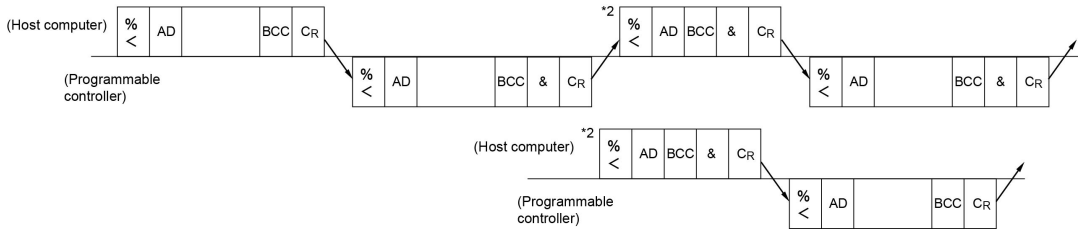
(1) Single-frame command and single-frame response



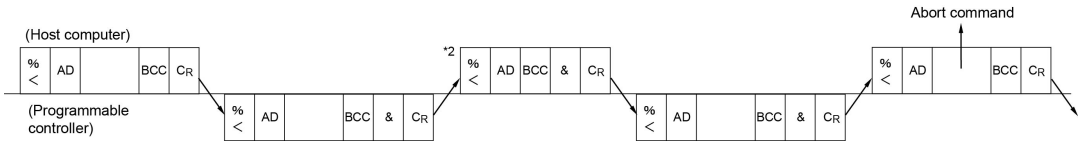
(2) Multiple-frame command and single-frame response



(3) Single-frame command and multiple-frame response



(4) When multiple-frame command is aborted before being completed



Note

- When a transmission is split into several frames and sent, after one frame has been sent, the next frame cannot be sent until a transmission request message (*1 in the sample communication timing chart) has been received from the partner side.
- If multiple frames are being received, a transmission request message (*2 in the sample communication timing chart) should be sent to the partner side so that the next frame can be received.

1.3 List of MEWTOCOL-COM Commands

■ Table of commands

Command name	Code	Description
Read contact area	RC (RCS) (RCP) (RCC)	Reads the on and off status of contacts. ● Specifies only one point. ● Specifies multiple contacts. ● Specifies a range in word units.
Write contact area	WC (WCS) (WCP) (WCC)	Turns contacts on and off. ● Specifies only one point. ● Specifies multiple contacts. ● Specifies a range in word units.
Read data area	RD	Reads the contents of a data area.
Write data area	WD	Writes data to a data area.
Read timer/counter set value area	RS	Reads the value set for a timer/counter.
Write timer/counter set value area	WS	Writes a timer/counter setting value.
Read timer/counter elapsed value area	RK	Reads the timer/counter elapsed value.
Write timer/counter elapsed value area	WK	Writes the timer/counter elapsed value.
Register or Reset contacts monitored	MC	Registers the contact to be monitored.
Register or Reset data monitored	MD	Registers the data to be monitored.
Monitoring start	MG	Monitors a registered contact or data.
Preset contact area (fill command)	SC	Embeds the area of a specified range in a 16-point on and off pattern.
Preset data area (fill command)	SD	Writes the same contents to the data area of a specified range.
Read system register	RR	Reads the contents of a system register.
Write system register	WR	Specifies the contents of a system register.
Read the status of PLC	RT	Reads the specifications of the programmable controller and error codes if an error occurs.
Remote control	RM	Switches the operation mode of the programmable controller.
Abort	AB	Aborts communication.

1.3.1 [RCS] Read contact area (single point)

This reads the on and off status for only one contact.

Command

% or <	Destination ×10¹ ×10⁰	#	R	C	S	Contact code 1 character	Contact No. 4 characters ×10³ ×10² ×10¹ ×16⁰ (×10⁰)	BCC ×16¹ ×16⁰	CR

Treated as single point

Values ( ) are for TM/CT.

Normal response (Read successful)

% or <	Source ×10¹ ×10⁰	$	R	C	Contact code 1 character	BCC ×16¹ ×16⁰	CR

Error response (Read error)

% or <	Source ×10¹ ×10⁰	!	Error code ×16¹ ×16⁰	BCC ×16¹ ×16⁰	CR

Contact code

Contact	Notation
External input X	"X"
External output Y	"Y"
Internal relay R	"R"
Link relay L	"L"
Timer T	"T"
Counter C	"C"

Contact data

Contact	Notation
ON	"1"
OFF	"0"

1.3.2 [RCP] Read contact area (plural point)

This reads the on and off status for multiple contacts.

Command

% or <	Destination ×10¹ ×10⁰	#	R	C	P	n 1 character ×10⁰	Contact code 1 character	Contact specification ① Contact No. 4 characters ×10³ ×10² ×10¹ ×16⁰ (×10⁰)	Contact specification ⓝ Contact code 1 character	Contact No. 4 characters ×10³ ×10² ×10¹ ×16⁰ (×10⁰)	BCC ×16¹ ×16⁰	CR

Treated as multiple points

No. of contacts n = 1 to 8

Values ( ) are for TM/CT.

Normal response (Read successful)

% or <	Source ×10¹ ×10⁰	$	R	C	Contact data ① 1 character	Contact data ⓝ 1 character	BCC ×16¹ ×16⁰	CR

Error response (Read error)

% or <	Source ×10¹ ×10⁰	!	Error code ×16¹ ×16⁰	BCC ×16¹ ×16⁰	CR

Contact code

Contact	Notation
External input X	"X"
External output Y	"Y"
Internal relay R	"R"
Link relay L	"L"
Timer T	"T"
Counter C	"C"

Contact data

Contact	Notation
ON	"1"
OFF	"0"

1.3.3 [RCC] Read contact area (word units block)

This reads the on and off status of the contact in word units.

Command

% or <	Destination ×10¹ ×10⁰	#	R	C	C	Contact code 1 character	Starting word No. 4 characters ×10³ ×10² ×10¹ ×10⁰	Ending word No. 4 characters ×10³ ×10² ×10¹ ×10⁰	BCC ×16¹ ×16⁰	CR

Treated as word

Normal response (Read successful)

The contact information is read as hexadecimal data, in word units.

% or <	Source ×10¹ ×10⁰	$	R	C	First contact information 4 characters ×16¹ ×16⁰ ×16³ ×16²	Last contact information 4 characters ×16¹ ×16⁰ ×16³ ×16²	BCC ×16¹ ×16⁰	CR

(lower word) (higher word) (lower word) (higher word)

Error response (Read error)

% or <	Source ×10¹ ×10⁰	!	Error code ×16¹ ×16⁰	BCC ×16¹ ×16⁰	CR

Contact code

Contact	Notation
External input X	"X"
External output Y	"Y"
Internal relay R	"R"
Link relay L	"L"
Timer T	"T"
Counter C	"C"

1.3.4 [WCS] Write contact area (single point)

This turns only one contact on or off.

Command

% or <	Destination ×10¹ ×10⁰	#	W	C	S	Contact code 1 character	Contact No. 4 characters ×10³ ×10² ×10¹ ×16⁰ (×10⁰)	Contact code 1 character	BCC ×16¹ ×16⁰	CR

Treated as single point

Normal response (Write successful)

% or <	Source ×10¹ ×10⁰	$	W	C	BCC ×16¹ ×16⁰	CR

Error response (Write error)

% or <	Source ×10¹ ×10⁰	!	Error code ×16¹ ×16⁰	BCC ×16¹ ×16⁰	CR

Contact code

Contact	Notation
External output Y	"Y"
Internal relay R	"R"
Link relay L	"L"

Contact data

Contact	Notation
ON	"1"
OFF	"0"

1.3.5 [WCP] Write contact area (plural points)

This turns multiple contacts on and off.

Command

% or <	Destination ×10¹ ×10⁰	#	W	C	P	n 1 character ×10⁰	Contact code 1 character	Contact specification ① Contact No. 4 characters ×10³ ×10² ×10¹ ×16⁰	Contact data ⓝ 1 character

Treated as multiple points

No. of contacts n = 1 to 8

Contact specification ⓝ Contact code 1 character	Contact No. 4 characters ×10³ ×10² ×10¹ ×16⁰ (×10⁰)	Contact data ⓝ 1 character	BCC ×16¹ ×16⁰	C_R

Normal response (Write successful)

% or <	Source ×10¹ ×10⁰	$	W	C	BCC ×16¹ ×16⁰	C_R

Error response (Write error)

% or <	Source ×10¹ ×10⁰	!	Error code ×16¹ ×16⁰	BCC ×16¹ ×16⁰	C_R

Contact code

Contact	Notation
External output Y	"Y"
Internal relay R	"R"
Link relay L	"L"

Contact data

Contact	Notation
ON	"1"
OFF	"0"

1.3.6 [WCC] Write contact area (word units block)

This turns a contact on or off in word units.

Command The contact information is read as hexadecimal data, in word units.

% or <	Destination ×10¹ ×10⁰	#	W	C	C	Contact code 1 character	Starting word No. 4 characters ×10³ ×10² ×10¹ ×10⁰	Ending word No. 4 characters ×10³ ×10² ×10¹ ×10⁰

Treated as word

First contact information 4 characters ×16¹ ×16⁰ ×16³ ×16²	Last contact information 4 characters ×16¹ ×16⁰ ×16³ ×16²	BCC ×16¹ ×16⁰	C_R

(lower word) (higher word) (lower word) (higher word)

Normal response (Write successful)

% or <	Source ×10¹ ×10⁰	$	W	C	BCC ×16¹ ×16⁰	C_R

Error response (Write error)

% or <	Source ×10¹ ×10⁰	!	Error code ×16¹ ×16⁰	BCC ×16¹ ×16⁰	C_R

Contact code

Contact	Notation
External output Y	"Y"
Internal relay R	"R"
Link relay L	"L"

1.3.7 [RD] Read data area

This reads the contents of the data area.

To read the contents of DT, LD, and FL:

Command

% or <	Destination ×10¹ ×10⁰	#	R	D	Contact code 1 character	Starting word No. 5 characters ×10⁴ ×10³ ×10² ×10¹ ×10⁰	Ending word No. 5 characters ×10⁴ ×10³ ×10² ×10¹ ×10⁰	BCC ×16¹ ×16⁰	C_R

Normal response (Read successful)

% or <	Source ×10¹ ×10⁰	$	R	D	First register contents 4 characters ×16¹ ×16⁰ ×16³ ×16²	Last register contents 4 characters ×16¹ ×16⁰ ×16³ ×16²	BCC ×16¹ ×16⁰	C_R

(lower word) (higher word) (lower word) (higher word)

Error response (Read error)

% or <	Source ×10¹ ×10⁰	!	Error code ×16¹ ×16⁰	BCC ×16¹ ×16⁰	C_R

Data code

Data	Notation
Data register DT	"D"
Link data register LD	"L"
File register FL	"F"

To read the contents of an index register:

Command

% or <	Destination ×10¹ ×10⁰	#	R	D	Data code 2 characters	0 0 0 0 0 0 0 0 0 (9 characters)	BCC ×16¹ ×16⁰	C_R

Normal response (Read successful) (For I0 and I1)

% or <	Source ×10¹ ×10⁰	$	R	D	Register contents 4 characters ×16¹ ×16⁰ ×16³ ×16²	BCC ×16¹ ×16⁰	C_R

(lower word) (higher word)

Normal response (Read successful) (For I0 and I1)

% or <	Source ×10¹ ×10⁰	$	R	D	Register contents (I0) 4 characters ×16¹ ×16⁰ ×16³ ×16²	Register contents (I1) 4 characters ×16¹ ×16⁰ ×16³ ×16²	BCC ×16¹ ×16⁰	C_R

(lower word) (higher word) (lower word) (higher word)

Error response (Read error)

% or <	Source ×10¹ ×10⁰	!	Error code ×16¹ ×16⁰	BCC ×16¹ ×16⁰	C_R

Data code

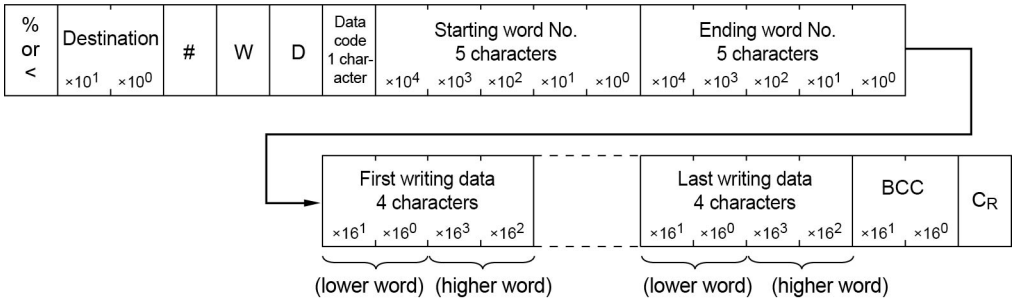
Data	Notation
I0	"I" "X"
I1	"I" "Y"
I0, I1	"I" "D"

1.3.8 [WD] Write data area

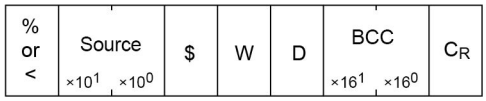
This writes the contents of the data area.

To write the contents of DT, LD, and FL:

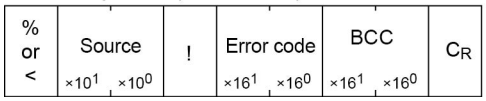
Command The contact information is written as hexadecimal data, in word units.



Normal response (Write successful)



Error response (Write error)



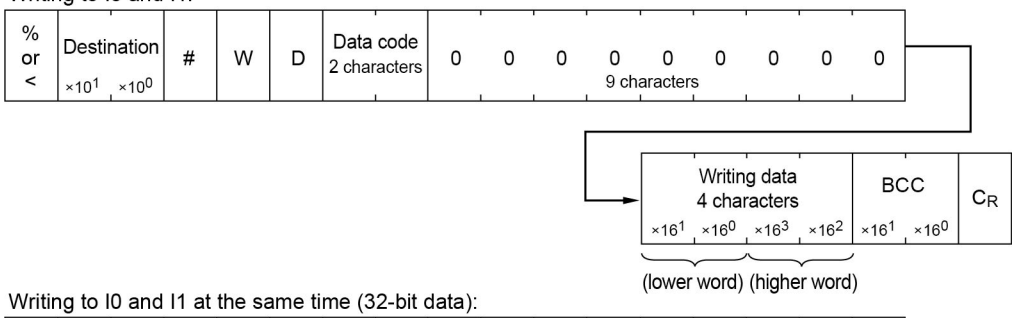
Data code

Data	Notation
Data register DT	"D"
Link data register LD	"L"
File register FL	"F"

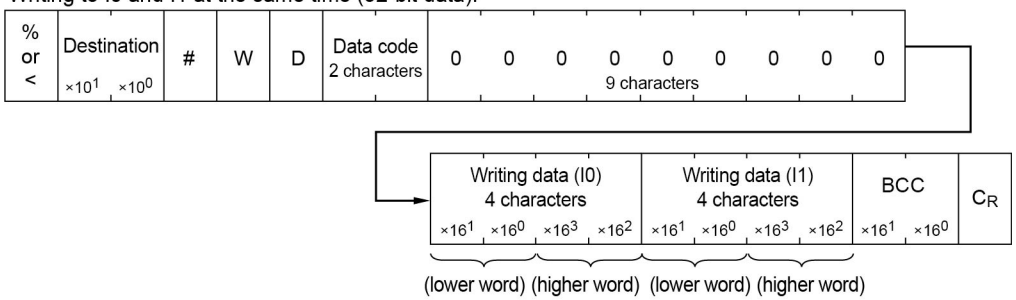
To write to an index register:

Command

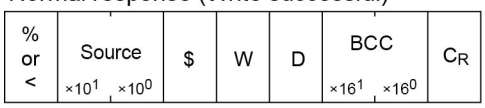
Writing to I0 and I1:



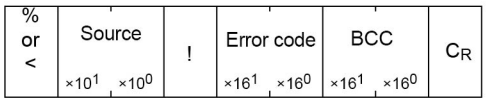
Writing to I0 and I1 at the same time (32-bit data):



Normal response (Write successful)



Error response (Write error)



Data code

Data	Notation
I0	"I" "X"
I1	"I" "Y"
I0, I1	"I" "D"

1.3.9 [RS] Read set value area

This reads the value set for a timer/counter.

Command

% or <	Destination $\times10^1$ $\times10^0$	#	R	S	Starting timer/counter No. 4 characters $\times10^3$ $\times10^2$ $\times10^1$ $\times10^0$	Ending timer/counter No. 4 characters $\times10^3$ $\times10^2$ $\times10^1$ $\times10^0$	BCC $\times16^1$ $\times16^0$	C_R

Normal response (Read successful)

% or <	Source $\times10^1$ $\times10^0$	$	R	S	First set value 4 characters $\times16^1$ $\times16^0$ $\times16^3$ $\times16^2$	Last set value 4 characters $\times16^1$ $\times16^0$ $\times16^3$ $\times16^2$	BCC $\times16^1$ $\times16^0$	C_R

(lower word) (higher word) (lower word) (higher word)

Error response (Read error)

% or <	Source $\times10^1$ $\times10^0$	!	Error code $\times16^1$ $\times16^0$	BCC $\times16^1$ $\times16^0$	C_R

1.3.10 [WS] Write set value area

This writes the value to be set for a timer/counter.

Command

% or <	Destination $\times10^1$ $\times10^0$	#	W	S	Starting timer/counter No. 4 characters $\times10^3$ $\times10^2$ $\times10^1$ $\times10^0$	Ending timer/counter No. 4 characters $\times10^3$ $\times10^2$ $\times10^1$ $\times10^0$

First writing data 4 characters $\times16^1$ $\times16^0$ $\times16^3$ $\times16^2$	Last writing data 4 characters $\times16^1$ $\times16^0$ $\times16^3$ $\times16^2$	BCC $\times16^1$ $\times16^0$	C_R

(lower word) (higher word) (lower word) (higher word)

Normal response (Write successful)

% or <	Source $\times10^1$ $\times10^0$	$	W	S	BCC $\times16^1$ $\times16^0$	C_R

Error response (Write error)

% or <	Source $\times10^1$ $\times10^0$	!	Error code $\times16^1$ $\times16^0$	BCC $\times16^1$ $\times16^0$	C_R

1.3.11 [RK] Read elapsed value area

This reads the elapsed value for a timer/counter.

Command

% or <	Destination ×10¹ ×10⁰	#	R	K	Starting timer/counter No. 4 characters ×10³ ×10² ×10¹ ×10⁰	Ending timer/counter No. 4 characters ×10³ ×10² ×10¹ ×10⁰	BCC ×16¹ ×16⁰	CR

Normal response (Read successful)

% or <	Source ×10¹ ×10⁰	$	R	K	First elapsed value 4 characters ×16¹ ×16⁰ ×16³ ×16²	Last elapsed value 4 characters ×16¹ ×16⁰ ×16³ ×16²	BCC ×16¹ ×16⁰	CR

(lower word) (higher word) (lower word) (higher word)

Error response (Read error)

% or <	Source ×10¹ ×10⁰	!	Error code ×16¹ ×16⁰	BCC ×16¹ ×16⁰	CR

1.3.12 [WK] Write elapsed value area

This writes the elapsed value for a timer/counter.

Command

% or <	Destination ×10¹ ×10⁰	#	W	K	Starting timer/counter No. 4 characters ×10³ ×10² ×10¹ ×10⁰	Ending timer/counter No. 4 characters ×10³ ×10² ×10¹ ×10⁰

First writing data 4 characters ×16¹ ×16⁰ ×16³ ×16²	Last writing data 4 characters ×16¹ ×16⁰ ×16³ ×16²	BCC ×16¹ ×16⁰	CR

(lower word) (higher word) (lower word) (higher word)

Normal response (Write successful)

% or <	Source ×10¹ ×10⁰	$	W	K	BCC ×16¹ ×16⁰	CR

Error response (Write error)

% or <	Source ×10¹ ×10⁰	!	Error code ×16¹ ×16⁰	BCC ×16¹ ×16⁰	CR

1.3.13 [MC] Register or Reset contacts monitored

This registers a contact to be monitored. Up to 80 points can be registered for one unit.

Command

% or <	Destination $\times10^1$ $\times10^0$	#	M	C	Contact specification① Contact code 1 character	Contact No. 4 characters $\times10^3$ $\times10^2$ $\times10^1$ $\times16^0$ ($\times10^0$)	Contact specification ⓝ Contact code 1 character	Contact No. 4 characters $\times10^3$ $\times10^2$ $\times10^1$ $\times16^0$ ($\times10^0$)	BCC $\times16^1$ $\times16^0$	C_R

Values in ( ) are for T/C.

Values in ( ) are for T/C.

If the contact code is "*", a dummy registration is entered.

20 points max.

Register reset

% or <	Destination $\times10^1$ $\times10^0$	#	M	C	F	F	F	F	F	BCC $\times16^1$ $\times16^0$	C_R

Fixed (5 characters)

Normal response (Registration successful)

% or <	Source $\times10^1$ $\times10^0$	$	M	C	BCC $\times16^1$ $\times16^0$	C_R

Error response (Registration error)

% or <	Source $\times10^1$ $\times10^0$	!	Error code $\times16^1$ $\times16^0$	BCC $\times16^1$ $\times16^0$	C_R

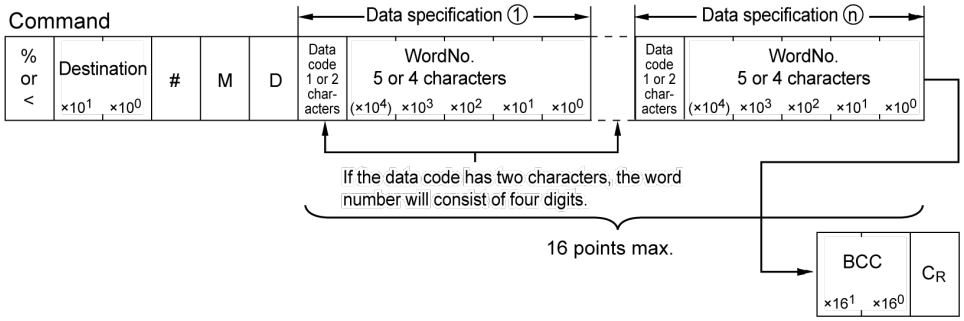
Contact code

Contact	Notation
External input X	"X"
External output Y	"Y"
Internal relay R	"R"
Link relay L	"L"
Timer T	"T"
Counter C	"C"

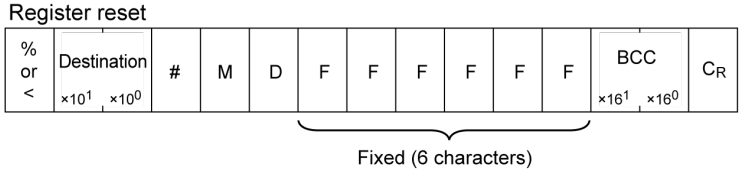
1.3.14 [MD] Register or Reset data monitored

This registers data to be monitored. Up to 16 points can be registered for one unit.

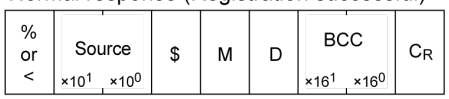
Command



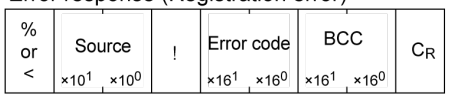
Register reset



Normal response (Registration successful)



Error response (Registration error)



Data code

Data	Data code
Data register DT	D
Lind data register LD	L
File register FL	F
Timer/counter set value area SV	S
Timer/counter elapsed value area EV	K
Index register I0	IX
Index register I1	IY
External input WX	WX
External output WY	WY
Internal relay WR	WR
Link relay WL	WL

2-character data code

Note

- If the data code is IX or IY, “0” should be specified for the four characters of the word number.
- Dummy registrations (“*”) are not possible when registering data to be monitored.

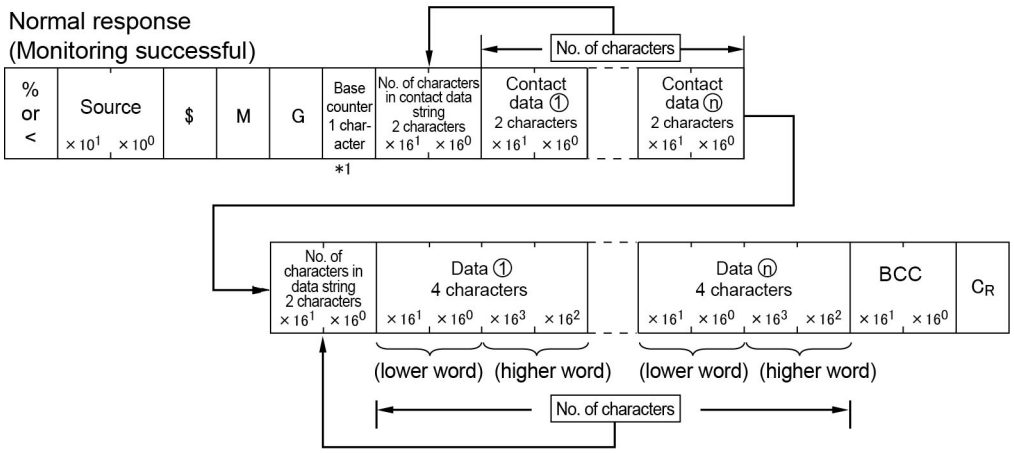
1.3.15 [MG] Monitoring start

This monitors a contact or data that has been registered.

Command

% or <	Destination $\times 10^1$ $\times 10^0$	#	M	G	BCC $\times 16^1$ $\times 16^0$	C_R

Normal response
(Monitoring successful)



*1 The base counter returns “A” if scanning took place ten times or more on the PLC side since the previous response.

Error response (Monitoring error)

% or <	Source $\times 10^1$ $\times 10^0$	!	Error code $\times 16^1$ $\times 16^0$	BCC $\times 16^1$ $\times 16^0$	C_R

- Contact data is entered in the order registered, starting from bit 0 of the contact data (1).
- Data is entered in the order registered, starting from the data (1).

1.3.16 [SC] Preset contact area (fill command)

This embeds the areas of the specified range for 16 on and off points.

Command

% or <	Destination ×10¹ ×10⁰	#	S	C	Contact code 1 character	Starting word No. 4 characters ×10³ ×10² ×10¹ ×10⁰	Ending word No. 4 characters ×10³ ×10² ×10¹ ×10⁰	Word preset pattern 4 characters ×16¹ ×16⁰ ×16³ ×16²	BCC ×16¹ ×16⁰	CR

(lower word) (higher word)

Normal response (Preset successful)

% or <	Source ×10¹ ×10⁰	$	S	C	BCC ×16¹ ×16⁰	CR

Error response (Preset error)

% or <	Source ×10¹ ×10⁰	!	Error code ×16¹ ×16⁰	BCC ×16¹ ×16⁰	CR

Contact code

Contact	Notation
External output Y	"Y"
Internal relay R	"R"
Link relay L	"L"

1.3.17 [SD] Preset data area

This writes the same contents to the data area of the specified range.

Command

% or <	Destination ×10¹ ×10⁰	#	S	D	Data code 1 character	Starting word No. 5 characters ×10⁴ ×10³ ×10² ×10¹ ×10⁰	Ending word No. 5 characters ×10⁴ ×10³ ×10² ×10¹ ×10⁰	Word preset pattern 4 characters ×16¹ ×16⁰ ×16³ ×16²	BCC ×16¹ ×16⁰	CR

(lower word) (higher word)

Normal response (Preset successful)

% or <	Source ×10¹ ×10⁰	$	S	D	BCC ×16¹ ×16⁰	CR

Error response (Preset error)

% or <	Source ×10¹ ×10⁰	!	Error code ×16¹ ×16⁰	BCC ×16¹ ×16⁰	CR

Data code

Data	Notation
Data register DT	"D"
Link data register LD	"L"
File register FL	"F"

1.3.18 [RT] Read the status of PLC

This reads information such as error codes if an error occurs in the programmable controller specifications.

Command

% or <	Destination $\times10^1$ $\times10^0$	#	R	T	BCC $\times16^1$ $\times16^0$	C_R

Normal response (Read successful)

% or <	Source $\times10^1$ $\times10^0$	$	R	T	Model code 2 characters $\times16^1$ $\times16^0$	Version 2 characters $\times16^1$ $\times16^0$	Program capacity 2 characters $\times16^1$ $\times16^0$	Operation mode 2 characters $\times16^1$ $\times16^0$

Link information for system 2 characters $\times16^1$ $\times16^0$	Error flag 2 characters $\times16^1$ $\times16^0$	Self-diagnostic error No. 4 characters $\times16^1$ $\times16^0$ $\times16^3$ $\times16^2$	BCC $\times16^1$ $\times16^0$	C_R

(lower word) (higher word)

Error response (Read error)

% or <	Source $\times10^1$ $\times10^0$	!	Error code $\times16^1$ $\times16^0$	BCC $\times16^1$ $\times16^0$	C_R

Model code

This expresses the CPU unit type as a 2-character decimal value.

Code	Model
20	FP2 and FP2SH

Version

This expresses the CPU unit version as a 2-character decimal value.

For example: 15 → Ver. 1.5

Program capacity

This expresses the program capacity by specified by system register no.0 as a 2-character decimal value. The value is expressed in k-step units.

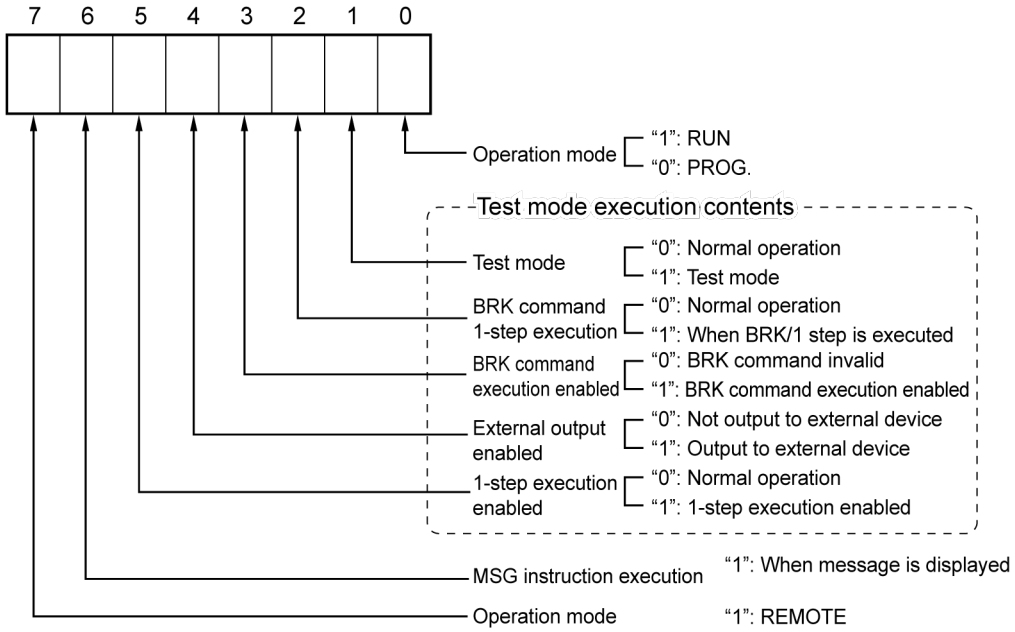
Code	Program capacity	Last step address
02	2k steps	1534
n		1,024 x n - 512 – 2 For example: If n = 8, the value is 7,678.
16	16k steps	15870
32	32k steps	32254

(Note 1) With the FP2SH, this will be "0".

Operation mode

- The contents of special internal relays R9020 to R9027 are expressed as 2-character hexadecimal values.
- The user can check the settings of the mode selector switches on the CPU unit (RUN/PROG./REMOTE), whether normal operation or test operation is being used, and other elements.

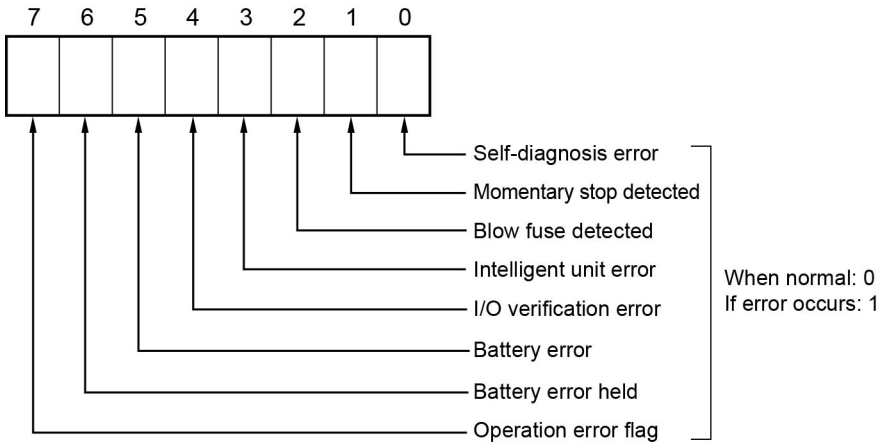
They are read using binary notation, as shown below.



Error flag

The statuses of the eight error flags (special internal relays) R9000 to R9007 are expressed as 2-character hexadecimal values.

They are read using binary notation, as shown below.



Self-diagnostic error code

- If an error occurs, the self-diagnosis error code is expressed as a 4-digit hexadecimal value. Please be careful, since self-diagnosis error codes are normally treated as decimal values.

  For example, if the content is read as "2D00" in hexadecimal format, the self-diagnosis error code will be "2D". In decimal notation it will be read as "45" (Operation error).
- If no error has occurred, the value will be "0000".

1.3.19 [RR] Read system register

This reads the contents of the system registers.

Command

% or <	Destination ×10¹ ×10⁰	#	R	R	Dummy	Starting system register No. 3 characters ×10² ×10¹ ×10⁰	Ending system register No. 3 characters ×10² ×10¹ ×10⁰	BCC ×16¹ ×16⁰	C_R
					0				

Normal response (Read successful)

% or <	Source ×10¹ ×10⁰	$	R	R	First system register contents 4 characters ×16¹ ×16⁰ ×16³ ×16²	Last system register contents 4 characters ×16¹ ×16⁰ ×16³ ×16²	BCC ×16¹ ×16⁰	C_R
					(lower word) (higher word)	(lower word) (higher word)		

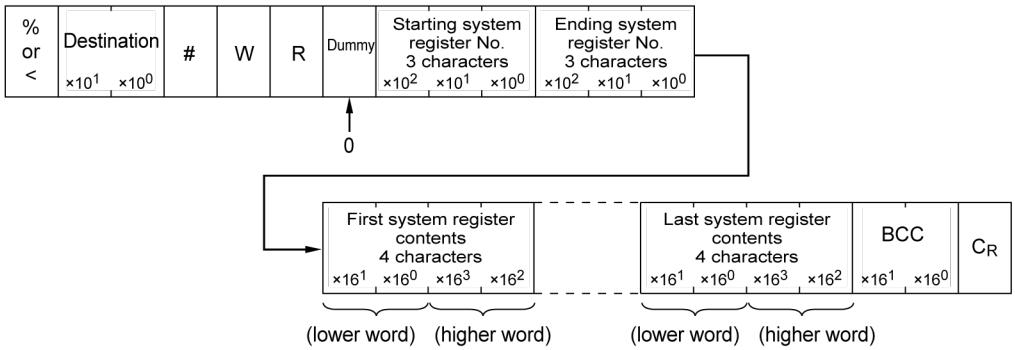
Error response (Read error)

% or <	Source ×10¹ ×10⁰	!	Error code ×16¹ ×16⁰	BCC ×16¹ ×16⁰	C_R

1.3.20 [WR] Write system register

This sets the system registers.

Command



Normal response (Write successful)

% or <	Source ×10^1 ×10^0	$	W	R	BCC ×16^1 ×16^0	CR

Error response (Write error)

% or <	Source ×10^1 ×10^0	!	Error code ×16^1 ×16^0	BCC ×16^1 ×16^0	CR

1.3.21 [RM] Remote control

This switches the operation mode of the programmable controller. It is effective only when the operation mode of the programmable controller is the REMOTE mode.

Command

% or <	Destination ×10^1 ×10^0	#	R	M	Operation code 1 character	BCC ×16^1 ×16^0	CR

Normal response (Remote control successful)

% or <	Source ×10^1 ×10^0	$	R	M	BCC ×16^1 ×16^0	CR

Operation code

Code	Operation
"R"	PROGRAM mode → RUN mode (booting)
"P"	RUN mode → PROGRAM mode (stopped)

Error response (Remote control error)

% or <	Source ×10^1 ×10^0	!	Error code ×16^1 ×16^0	BCC ×16^1 ×16^0	CR

1.3.22 [AB] Abort

If a transmission is aborted while a multiple-frame response is being received from the programmable controller, this is issued from the side sending the command (the computer side).

Command

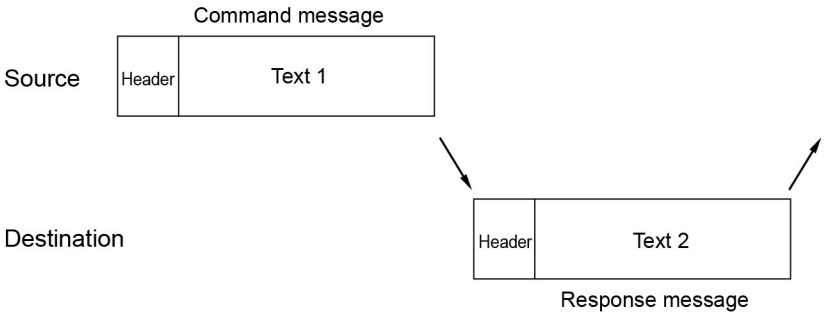
% or <	Destination $\times 10^1$ $\times 10^0$	#	A	B	BCC $\times 16^1$ $\times 16^0$	C_R

Response
No response

2 MEWTOCOL-DAT (Data Transfer)

2.1 Overview of MEWTOCOL-DAT

■ Overview of command and response



(Note 1)
- A dedicated procedure and conversational-style format are used.
- Data is sent as binary codes.
- Transmission rights are transferred each time a command message is sent.
- The maximum length for text data is 1020 words.
- If the transmission source is a programmable controller, command messages are transmitted by executing the SEND and RECV commands.

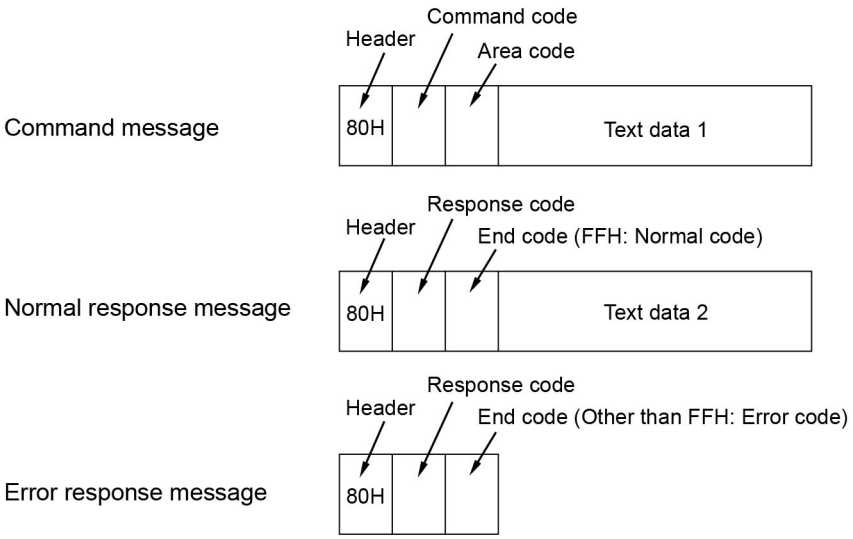
Note

- With MEWTOCOL communication carried out through an ET-LAN unit, format is used in which the special header shown below is added to MEWTOCOL-DAT commands and responses.

Special header for ET-LAN unit	MEWTOCOL command/response

- The content of the special header changes depending on the communication conditions.

■ Command code and Response code



■ Table of commands

Command code	Description	Corresponding response code
50H	Writing to a data area	D0H
51H	Reading from a data area	D1H
52H	Writing of contact information	D2H
53H	Reading of contact information	D3H

Note

- The corresponding response code is a value that is the reverse of the first bit (0 → 1) of the command code (1-byte binary code).
- The end code for a normal response is FFH, while that when an error occurs is an error code.

Info.

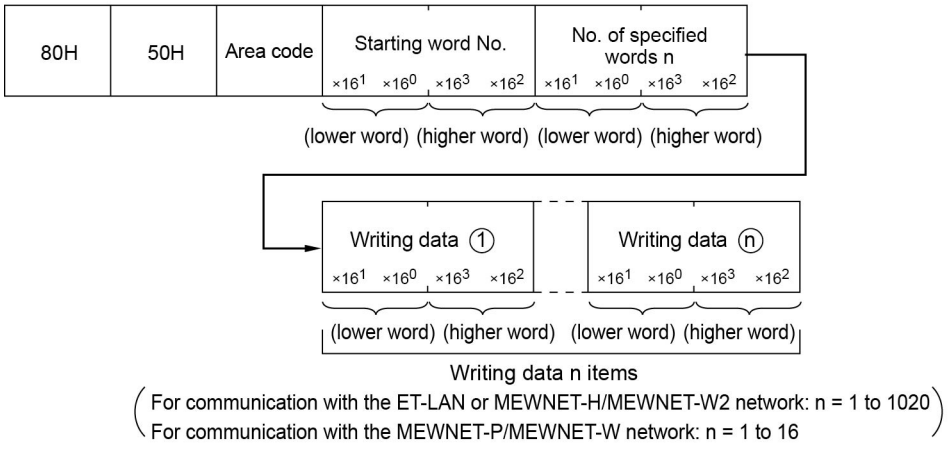
- Reference:"3 MEWTOCOL Error Codes"

2.2 List of MEWTOCOL-DAT Commands

2.2.1 [50H] Write data area

The specified number of words of data are written, starting from the specified first word number of the data area.

Command



Normal response (Write successful)

80H	D0H	FFH

Error response (Write error)

80H	D0H	Error code

Area code

Area type	Area code
Link relay (WL)	00
Internal relay (WR)	01
External output relay (WY)	02
External input relay (WX)	03
Timer/counter set value area (SV)	04
Timer/counter elapsed value area (EV)	05
Link data register (LD)	06
Special internal relay (WR)	07
Special data register (DT)	08
Data register (DT)	09

Area type	Area code
File register (FL)	0A

2.2.2 [51H] Read data area

The specified number of words of data are read, starting from the specified first word number of the data area.

Command

80H	51H	Area code	Starting word No.				No. of specified words n			
			$\times16^1$	$\times16^0$	$\times16^3$	$\times16^2$	$\times16^1$	$\times16^0$	$\times16^3$	$\times16^2$
			(lower word)		(higher word)		(lower word)		(higher word)	

Normal response (Read successful)

80H	D1H	FFH	Data contents ①				Data contents ⓝ			
			$\times16^1$	$\times16^0$	$\times16^3$	$\times16^2$	$\times16^1$	$\times16^0$	$\times16^3$	$\times16^2$
			(lower word)		(higher word)		(lower word)		(higher word)	

Reading data n items

(For communication with the ET-LAN or MEWNET-H/MEWNET-W2 network: n = 1 to 1020
For communication with the MEWNET-P/MEWNET-W network: n = 1 to 16)

Error response (Read error)

80H	D1H	Error code

Area code

Area type	Area code
Link relay (WL)	00
Internal relay (WR)	01
External output relay (WY)	02
External input relay (WX)	03
Timer/counter set value area (SV)	04
Timer/counter elapsed value area (EV)	05
Link data register (LD)	06
Special internal relay (WR)	07
Special data register (DT)	08
Data register (DT)	09
File register (FL)	0A

2.2.3 [52H] Write contact information

Writing is carried out to the specified contact of the contact area.

Command

80H	52H	Area code	Word No. ×16¹ ×16⁰ ×16³ ×16²	Bit No.	Contact information

(lower word) (higher word)

00 : OFF
01 : ON

Bit 0 to 15: 01 to 0F

Normal response (Write successful)

80H	D2H	FFH

Error response (Write error)

80H	D2H	Error code

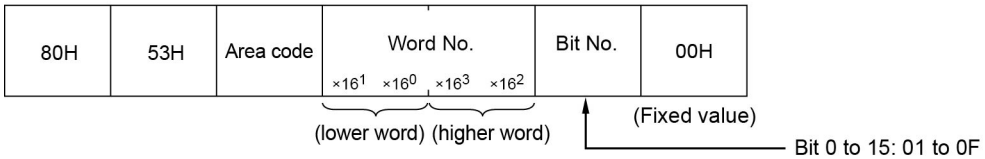
Area code

Area type	Area code
Link relay (WL)	00
Internal relay (WR)	01
External output relay (WY)	02
External input relay (WX)	03
Timer/counter set value area (SV)	04
Timer/counter elapsed value area (EV)	05
Link data register (LD)	06
Special internal relay (WR)	07
Special data register (DT)	08
Data register (DT)	09
File register (FL)	0A

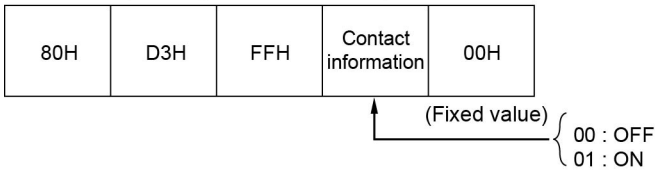
2.2.4 [53H] Read contact information

Reading is carried out from the specified contact of the contact area.

Command



Normal response (Read successful)



Error response (Read error)

Area code

Area type	Area code
Link relay (WL)	00
Internal relay (WR)	01
External output relay (WY)	02
External input relay (WX)	03
Timer/counter set value area (SV)	04
Timer/counter elapsed value area (EV)	05
Link data register (LD)	06
Special internal relay (WR)	07
Special data register (DT)	08
Data register (DT)	09
File register (FL)	0A

(MEMO)

3 MEWTOCOL Error Codes

3.1 Table of Error Codes

The same error codes are used for the computer link function and data link function.

■ Link system error

Error code	Error name	Steps to take
22H	WACK error	The receive buffer of the partner node has overflowed. Steps to take: Keep the data size within the maximum range.
23H	MEWTOCOL station No. overlap	The transmission has been interrupted because the MEWTOCOL station number of the source node duplicates that of another node. Steps to take: Change the setting for the MEWTOCOL station number and try again.
24H	ET-LAN unit hardware error	Hardware error in communication control unit Steps to take: Turn the power supply off and then on again. ● If the error still occurs, replace the unit. ● If the error does not occur, the malfunction may have been caused by noise. Check the installation and layout of the transmission line and the usage environment.
26H	MEWTOCOL station No. setting error	A value other than 01 to 64 and EE has been specified for the MEWTOCOL station number of the source node. Steps to take: Specify a MEWTOCOL station number within a range of 01 to 64 and EE.
27H	No support error	An attempt was made to send a packet that is not supported by the system. Steps to take: Please contact your dealer.
28H	No response error	Timeout error while waiting for response from partner station. Steps to take: Use the application program to send the transmission again.
30H	Time-out error	Ongoing transmission disabled status Steps to take: Use the application program to send the transmission again.
32H	Transmission impossible error	The transmission was interrupted because the buffer of the source node overflowed. Steps to take: Keep the data size within the maximum range.
33H	Communication stop	The transmission was interrupted because the network access switch of the MEWNET-H link unit serving as a relay was off. Steps to take: Turn on the network access switch.
36H	No destination error	● No partner station exists on the network. ● Network access was disengaged. Steps to take: ● Check to see if a partner station exists on the network. ● Use the application program to send the transmission again.

Error code	Error name	Steps to take
38H	Other communication errors	Transmission error other than the above Steps to take: Use the application program to send the transmission again.

(Note 1) When the error occurred on the second or a higher hierarchy level of a multiple-hierarchy link, no response will be returned.

(Note 2) For basic procedure errors, processing errors, and programmable controller application errors, if a link-related error (including hierarchical) occurred within the network, no response will be returned.

■ Basic procedure error

Error code	Error name	Steps to take
40H	BCC error	When using the computer link function: A BCC error occurred in the command data. Steps to take: Use the application program to send the transmission again.
41H	Format error	<When using the computer link function> A command message was sent that does not fit the transmission format. ● There is too much or too little command data. ● “#” or “transmission destination” does not exist, or a similar problem For data transfer function An attempt was made to send a greater volume of data than can be transmitted. Steps to take: Correct the format and command.
42H	No support error	When using the computer link function: A command was sent that is not supported. A command is being sent to a destination that is not supported, etc. Steps to take: Use a command that is supported.
43H	Procedure error	When using the computer link function: While the programmable controller was waiting for a transmission request message (there was still more data to be sent), a different command was sent. Steps to take: Send the transmission request message to the partner node.

■ Processing error

Error code	Error name	Steps to take
50H	Link setting error	When using the computer link function: A route number has been specified that does not exist. Steps to take: Specify the route number correctly.
51H	Simultaneous operation error	When using the computer link function: When sending a command to another node, the transmission buffer of the sending machine overflowed. Steps to take:

Error code	Error name	Steps to take
		Use the application program to send the transmission again.
52H	Transmit disable error	<When using the computer link function> Data cannot be transmitted to another node. Steps to take: Turn the power supply off and then on again. ● If the error still occurs, replace the unit. ● If the error does not occur, the malfunction may have been caused by noise. Check the installation and layout of the transmission line and the usage environment.
53H	Busy error	When using the computer link function: A command was received while multiple frames were being processed. Steps to take: Use the application program to send the transmission again.

■ PC application error

Error code	Error name	Steps to take
60H	Parameter error	When using the computer link function: The code used is for an area specification parameter that does not exist, or is a code that cannot be used with that command (X, Y, D, etc.). An inappropriate code is being used for the function specification parameter (0, 1, 2, etc.). Steps to take: Specify using the correct format code.
61H	Data error	When using the computer link function: An error occurred indicating that the specification for the contact number, area number, or the code format used to handle the data (BCD, HEX, etc.) is excessive, insufficient, or the wrong range has been specified. When using the data transfer function: The wrong field has been specified for the source node or another node. Steps to take: Specify using the correct format code.
62H	Registration error	When using the computer link function: Too many registrations have been entered, or a registration has not been entered (monitor registration, trace registration, etc.). When there are too many registrations, reset the registrations. Steps to take: Specify using the correct format code.
63H	Mode error	When using the computer link function: When a command was transmitted, the operation mode was one in which that command cannot be processed. Steps to take: Specify using the correct format code.
65H	Protect error	When using the computer link function: An attempt was made to write data to a program area or system register while the memory protect status was in effect. Steps to take: Data cannot be written while the memory protect status is in effect.

Error code	Error name	Steps to take
66H	Address error	When using the computer link function: An error occurred indicating that the code format (BCD, HEX, etc.) for the address (program address, absolute address, etc.) data is excessive, insufficient, or the wrong range has been specified. Steps to take: Specify using the correct format code.
67H	No data error	When using the computer link function: The data to be read does not exist. (An attempt was made to read a comment registration or other data that has not been written.) Steps to take: Specify using the correct format code.
72H	Time-out error	When using the computer link function: Timeout error occurred while waiting for a transmission answer Steps to take: Use the application program to send the transmission again.
73H	Time-out error	When using the computer link function: Timeout error occurred while waiting for the transmission buffer to become empty Steps to take: Use the application program to send the transmission again.
74H	Time-out error	When using the computer link function: Timeout error occurred while waiting for a response Steps to take: Use the application program to send the transmission again.

(MEMO)

Revision History

The manual code is shown at the bottom of the cover page.

Date of issue	Manual code	Revision details
April 2022	WUME-MEWCP-01	First edition
November 2022	WUME-MEWCP-02	2nd edition ● Added information about the MEWTOCOL-COM command and 1:1 communication.
April 2024	WUME-MEWCP-03	3rd Edition ● Change in Corporate name

(MEMO)

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April, 2024

WUME-MEWCP-03