# DATA LINK FB LIBRARY REFERENCE MANUAL

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# Reference Manual Revision History

Reference manual number	Date	Description
FBM-M060-A	2011/07/29	First edition

# 1. M+CPU- DataLink\_Read (for Data Link - READ Instruction)

#### FB Name

#### M+CPU- DataLink\_Read

# **Function Overview**

Item	Description		
Function overview	This FB provides a function equivalent to "Word device data reading using Data link instruction (READ)" in socket communication through a built-in Ethernet port in the CPU module. This FB reads word device data in the target station using the device read function of the MC protocol.		
Symbol		M+CPU - DataLink_Read	
	Execution command	B : FB_EN FB_ENO : B Execution status	
	Read connection No.	W : i_RConnection_No FB_OK : B Completion	
	Target station's CPU type	W : i_CPU_Type FB_ERROR : B Error flag	
	Target station network No.	W : i_Network_No ERROR_ID : W Error code	
	Target station No.	W : i_Station_No o_Result : W Execution result	
	Number of resends ——	W : i_Num_ReSend o_Num_ReSend : W Number of resends	
	Arrival monitoring time	W : i_Monitor_Time	
	Device name	S : i_Device	
	Device No.	W : i_Addr	
	Read data length	W : i_RLength	
Applicable hardware	CPU module		
and software	Q series Built-in Et	thernet port QCPU	
	Engineering tool		
	Q series GX Works	s 2 Version 1.31H or later	
Programming language	Ladder		
Number of steps	Universal model QCPU: 655*		
(maximum value)	*The value is the number of steps in a label program and therefore is a reference value.		
	For details, refer to the GX W	orks2 Version 1 Operating Manual (Simple Project).	

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Item	Description
Function description	By turning on FB_EN (Execution command), this FB reads word device data using the
	following socket communication:
	1) This FB sorts input data, adds a header and a command to the input data, sends the
	data to the target station, and reads data in the target station.
	2) The process is continued until data are read starting from the start address of the
	specified device by the number of device points.
	3) If the process is not completed after the elapse of the arrival monitoring time,
	communications fail and are terminated.
	4) If the process is abnormally ended or an invalid value is input, FB_ERROR turns ON and
	the FB process is suspended.
	The error code is stored in ERROR_ID.
	5) Even if FB_EN (Execution command) is turned OFF before FB operation is completed,
	the processing continues to operate until data reading is completed or an error occurs.
FB compilation type	Macro type
Restrictions and	1) This FB does not include error recovery processing. Program the processing separately
precautions	in accordance with the system and requirements.
	2) This FB cannot be used in an interrupt program.
	3) This FB uses the index register Z9. Do not use Z9 in an interrupt program.
	4) If a message "Insufficient word device points in device/label (VAR) automatic-assign
	setting" appears when a program is complied, change the automatic device assignment
	Setting.
	5) This FB uses the ODP protocol. Use Open completion signal of the socket
	6) Check that Open completion signal (SD1292) corresponding to the calected connection
	number is ON.
	7) Basic functions are the same as those of Data link instruction (READ). However,
	"Abnormal completion type" is fixed at "Clock data setting is not required." and "Arrival
	monitoring time unit" is fixed at "Increments of 1s" in control data.
	8) When the target station is an Ethernet interface module, set "1388h (5000)" under
	"Destination Port No." in the "Built-in Ethernet Port Open Setting" window of the PLC
	parameter dialog box.
	9) When the target station is Built-in Ethernet port QCPU, set parameters so that data can
	be read from the target station using the MC protocol.
	10) When the target station is Built-in Ethernet port QCPU, set Target station's CPU type,
	Target station network number, and Target station number as described below:
	Target station's CPU type: 03FFh, Target station network number: 0, Target station
	11) "254" cannot be set for Target station network number. Because even if "254" is set, the
	Access "
	Access .
Application type	Pulsed execution (multiple scan execution type)
Application example	Reier to Appendix T. Application Examples.

Item	Description	
Timing chart	[When operation completes without error]	[When an error occurs]
	FB_EN (Execution command)	- FB_EN (Execution command)
	FB_ENO (Execution status)	- FB_ENO (Execution status)
	Read data No processing Reading No processing	Read data No processing
	FB_OK (Completion)	- FB_OK (Completion)
	FB_ERROR (Error flag)	- FB_ERROR (Error flag)
	ERROR_ID (Error code) 0	ERROR_ID (Error code) 0 Error code 0
Relevant manual	QnUCPU User's Manual (Communication via	a Built-in Ethernet Port)
	QCPU User's Manual (Hardware Design, Ma	aintenance and Inspection)

# Error Codes

Error code list		
Error code	Description	Action
02h to A2h	An end code added to response data	For details, refer to the Q Corresponding Ethernet
(Hexadecimal)	sent from the target device in the MC	Interface Module User's Manual (Basic).
	protocol	
4000h to 4FFFh	An error code output if an error occurs	For details, refer to the MELSEC-Q/L Programming
(Hexadecimal)	in a programmable controller CPU	Manual (Common Instruction).
C000h to CFFFh	An error code output if an Ethernet	For details, refer to the Q Corresponding Ethernet
(Hexadecimal)	interface module detects an error	Interface Module User's Manual (Basic).

#### Labels

Input labels				
Name	Variable name	Data type	Setting range	Description
Execution command	FB_EN	В	ON, OFF	ON: The FB is activated.
				OFF: The FB is not activated.
Read connection No.	i_RConnection_No	W	1 to 16	Specify the connection number where
				communications are performed.
Target station's CPU	i_CPU_Type	W	03D0h to	03D0h: Control system CPU
type			03D3h,	03D1h: Standby system CPU
			03FFh	03D2h: System A CPU
				03D3h: System B CPU
				03FFh: Target station CPU/own system
				CPU

Name	Variable name	Data type	Setting range	Description
Target station	i_Network_No	W	0 or 1 to 239	Specify the network number including
network number				the station from which data are read.
				"254" cannot be set.
				(When specifying the target station
				CPU or own system CPU for Target
				station's CPU type, set "0" for this
				label.)
Target station number	i_Station_No	W	1 to 120 or	Specify the station number form which
			FFh	data are read.
				When specifying the target station CPU
				or own system CPU for Target station's
				CPU type, set "FFh" for this label.
				("FFh" cannot be set for the CPU other
				than the target station CPU/own
				system CPU.)
Number of resends	i_Num_ReSend	W	0 to 15 (time)	Specify the number of resends
				performed when a process is not
				completed within the arrival monitoring
				time.
				(When more than 15 is set, it will be
				regarded as 5 times.)
Arrival monitoring	i_Monitor_Time	W	1 to 16383	Specify monitoring time until an
time			(second)	instruction is completed.
				(When a value other than 1 to 16383 is
				set, it will be regarded as 10 seconds.)
Device name	i_Device	S	Enabled	Specify the device name from which
			device name	data are read.
				(To specify a D device, input "D".)
Device number	i_Addr	W	Enabled	Specify the device number from where
			device range	data reading is started.
				(To specify a D10 device, input "K10".)
Read data length	i_RLength	W	1 to 960	Specify the number of data to be read.
			(word)	

# Output labels

Name	Variable name	Data type	Initial value	Description
Execution status	FB_ENO	В	OFF	ON: The FB is being executed.
				OFF: The FB is not executed.
Completion	FB_OK	В	OFF	When this label turns ON, it
				indicates that the processing is
				completed.
Error flag	FB_ERROR	В	OFF	If this label turns ON, it
				indicates that an error occurs in
				the FB.
Error code	ERROR_ID	W	0	This label stores an error code
				occurs in the FB.
Execution result	o_Result	W	0	This label stores binary data
				read from the target station.
Number of resends	o_Num_ReSend	W	-	This label stores the number of
				resends performed after the
				elapse of arrival monitoring
				time.

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# Upgrade History

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Note

This chapter describes the functionalities of the function block. It does not describe restrictions on use of a programmable controller CPU and other modules and combination use of them. Before use, please read the user's manuals for the products used.

# 2. M+CPU-DataLink\_Write (for Data Link - WRITE Instruction)

#### FB Name

#### M+CPU-DataLink\_Write

# Function Overview

Item	Description	Description			
Function overview	This FB provides a function equivalent to "Word device data writing using Data link instruction (WRITE)" in socket communication through a built-in Ethernet port in the CPU module. This FB writes word device data to the target station using the device write function of the MC protocol.				
Symbol		M+CPU - DataLink Write			
	Execution command ——	B : FB_EN FB_ENO : B Execution status			
	Write connection No.	W : i_WConnection_No FB_OK : B Completion			
	Target station's CPU type	W : i_CPU_Type FB_ERROR : B Error flag			
	Target station network No.	W : i_Network_No ERROR_ID : W Error code			
	Target station No.	W : i_Station_No o_Num_ReSend : W Number of resends			
	Number of resends ——	W : i_Num_ReSend			
	Arrival monitoring time	W : i_Monitor_Time			
	Device name	S : i_Device			
	Device No	S : i_Addr			
	Write data length ———	W : i_WLength			
	Write data ——	W : i_Write_Data			
Applicable hardware	CPU module				
and software	Q series Built-in E	thernet port QCPU			
	Engineering tool				
	Q series GX Work	s 2 Version 1.31H or later			
Programming language	Ladder				
Number of steps	Universal model QCPU: 673	*			
(maximum value)	*The value is the number of steps in a label program and therefore is a reference value.				
	For details, refer to the GX V	vorksz version i Operating Manual (Simple Project).			

Item	Description
Function description	By turning on FB_EN (Execution command), this FB writes word device data using the
	following socket communication:
	1) This FB adds a header and a command to the write data and sends the data to the
	target station.
	2) The CPU module waits for a response from the target station and checks the end code
	in the header information upon reception of response data.
	3) If the process is not completed after the elapse of the arrival monitoring time,
	communications fail and are terminated.
	4) If the process is abnormally ended or an invalid value is input, FB_ERROR turns ON
	and the FB process is suspended.
	The error code is stored in ERROR_ID.
	5) Even if FB_EN (Execution command) is turned OFF before FB operation is completed,
	the processing continues to operate until data writing is completed or an error occurs.
FB compilation type	Macro type
Restrictions and	1) This FB does not include error recovery processing. Program the processing separately
precautions	in accordance with the system and requirements.
	2) This FB cannot be used in an interrupt program.
	3) This FB uses the index register Z9. Do not use Z9 in an interrupt program.
	4) If a message "Insufficient word device points in device/label (VAR) automatic-assign
	setting" appears when a program is complied, change the automatic device assignment
	setting.
	5) This FB uses the UDP protocol. Use Open completion signal of the socket
	communication as an interlock to activate the FB.
	6) Check that Open completion signal (SD1282) corresponding to the selected connection
	number is ON.
	7) Basic functions are the same as those of Data link instruction (WRITE). However,
	"Abnormal completion type" is fixed at "With arrival check" and "Clock data setting is not
	required." and "Arrival monitoring time unit" is fixed at "Increments of 1s" in control data.
	8) When the target station is an Ethernet interface module, set "1388h (5000)" under
	"Destination Port No." in the "Built-in Ethernet Port Open Setting" window of the PLC
	parameter dialog box.
	9) When the target station is Built-in Ethernet port QCPU, set parameters so that data can
	be written to the target station using the MC protocol.
	10) When the target station is Built-in Ethernet port QCPU, set Target station's CPU type,
	Target station network number, and Target station number as described below:
	Target station's CPU type: 03FFh, Target station network number: 0, Target station
	number: FFh
	11) "254" cannot be set for Target station network number. Because even if "254" is set, the
	CPU module cannot access the module specified in "Valid Module During Other
	Station Access".
	12) Since cannot be executed, "Specification in units of groups" (81h to A0h) cannot be set
	tor Larget station number.

Item	Description			
FB operation type	Pulsed execution (multiple scan execution type)			
Application example	Refer to Appendix 1. Application Examples.			
Timing chart	[When operation completes without error] [When an error occurs]			
	FB_EN (Execution command)   FB_EN (Execution command)     FB_ENO (Execution status)   FB_ENO (Execution status)     Write processing   No processing     Write processing   Write processing     FB_OK (Completion)   FB_ENO (Error flag)     FB_ERROR (Error flag)   FB_ERROR (Error flag)     ERROR_ID (Error code)   0			
Relevant manual	QnUCPU User's Manual (Communication via Built-in Ethernet Port)			
	QCPU User's Manual (Hardware Design, Maintenance and Inspection)			

# Error Codes

Error code list		
Error code	Description	Action
02h to A2h	An end code added to response data	For details, refer to the Q Corresponding Ethernet
(Hexadecimal)	sent from the target device in the MC	Interface Module User's Manual (Basic).
	protocol	
4000h to 4FFFh	An error code output if an error occurs	For details, refer to the MELSEC-Q/L Programming
(Hexadecimal)	in a programmable controller CPU	Manual (Common Instruction).
C000h to CFFFh	An error code output if an Ethernet	For details, refer to the Q Corresponding Ethernet
(Hexadecimal)	interface module detects an error	Interface Module User's Manual (Basic).

# Labels

Input labels					
Name	Variable name	Data type	Setting range	Description	
Execution command	FB_EN	В	ON, OFF	ON: The FB is activated.	
				OFF: The FB is not activated.	
Write connection No.	i_WConnection_No	W	1 to 16	Specify the connection number	
				where communications are	
				performed.	
Target station's CPU	i_CPU_Type	W	03D0h to 03D3h,	03D0h: Control system CPU	
type			03FFh	03D1h: Standby system CPU	
				03D2h: System A CPU	
				03D3h: System B CPU	
				03FFh: Target station CPU/own	
				system CPU	

Name	Variable name	Data type	Setting range	Description
Target station network	i_Network_No	W	0 or 1 to 239	Specify the network number
number				including the station to which data
				are written.
				"254" cannot be set.
				(When specifying the target station
				CPU or own system CPU for
				Target station's CPU type, set "0"
				for this label.)
Target station number	i_Station_No	W	1 to 120 or FFh	Specify the station number to
				which data are written.
				"Specification in units of groups"
				(81h to A0h) cannot be set.
				When specifying the target station
				CPU or own system CPU for
				Target station's CPU type, set
				"FFh" for this label.
				("FFh" cannot be set for the CPU
				other than the target station
				CPU/own system CPU.)
Number of resends	i_Num_ReSend	W	0 to 15 (time)	Specify the number of resends
				performed when a process is not
				completed within the arrival
				monitoring time.
				(When more than 15 is set, it will
				be regarded as 5 times.)
Arrival monitoring time	i_Monitor _Time	W	1 to 16383	Specify monitoring time until an
			(second)	instruction is completed.
				(When a value other than 1 to
				16383 is set, it will be regarded as
				10 seconds.)
Device name	i_Device	S	Enabled device	Specify the device name to which
			name	data are written.
				(To specify a D device, input "D".)
Device number	i_Addr	W	Enabled device	Specify the device number from
			range	where data writing is started.
				(To specify a D10 device, input
				"K10".)
Write data length	i_WLength	W	1 to 960 (word)	Specify the number of data to be
				written.
Write data	i_Write_Data	W	Enabled device	Specify binary data written to the
			range	target station.

#### Output labels

Name	Variable name	Data type	Initial value	Description
Execution status	FB_ENO	В	OFF	ON: The FB is being executed.
				OFF: The FB is not executed.
Completion	FB_OK	В	OFF	When this label turns ON, it
				indicates that the processing is
				completed.
Error flag	FB_ERROR	В	OFF	If this label turns ON, it indicates
				that an error occurs in the FB.
Error code	ERROR_ID	W	0	This label stores an error code
				occurs in the FB.
Number of resends	o_Num_ReSend	W	-	This label stores the number of
				resends performed after the elapse
				of arrival monitoring time.

# Upgrade History

Version	Date	Description
1.00A	2011/07/29	First edition

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#### Note

This chapter describes the functionalities of the function block. It does not describe restrictions on use of a programmable controller CPU and other modules and combination use of them. Before use, please read the user's manuals for the products used.

# 3. M+CPU-DataLink\_RandomAccess (for Data Link - Random Access Buffer Communication)

# FB Name

#### M+CPU-DataLink\_RandomAccess

# **Function Overview**

Item	Description						
Function overview	This FB provides a function equivalent to "Communication using the random access buffer"						
	in socket communication thr	in socket communication through a built-in Ethernet port in the CPU module.					
Symbol				T			
		M+CPU - DataLink_Ra	ndomAccess				
	Execution command ———	B : FB_EN	FB_ENO : B	Execution status			
	Receive connection No.	W : i_RConnection_No	FB_OK : B	——— Completion			
	Communication data code	B : i_DataCode_Type	FB_ERROR : B	Error flag			
	Start device No.	W : i_Device_No	ERROR_ID : W	Error code			
				J			
Applicable hardware	CPU module						
and software	Q series Built-in E	Ethernet port QCPU					
	Engineering tool						
	Q series GX Wor	ks 2 Version 1.31H or late	er				
Programming	Ladder						
language							
Number of steps	Universal model QCPU: 111	6*					
(maximum value)	*The value is the number of	steps in a label program	and therefore is	a reference value.			
	For details, refer to the GX V	Norks2 Version 1 Operati	ng Manual (Sim	ple Project).			

Item	Description
Function description	By turning on FB_EN (Execution command), this FB performs communications using a
	random access buffer in the following socket communication:
	1) This FB reads data received in the socket communication receive area of the receive
	connection number.
	2) The CPU module checks the subheader in the receive data and judges whether the data
	is read request or write request data.
	3) When the data is write request data, the data excluding the subheader is stored in a
	device starting from the start device number.
	4) If an invalid value is input, FB_ERROR turns ON and the FB process is suspended.
	The error code is stored in ERROR_ID.
	5) Even if FB_EN (Execution command) is turned OFF before FB operation is completed,
	the processing continues to operate until the process is completed or an error occurs.
	6) When the data is read request data, response data including the
	read-requested-address (device) data starting from the start device number is sent to
	the target device.
	7) Even if FB_EN (Execution command) is turned OFF before FB operation is completed,
	the processing continues to operate until data reading is completed or an error occurs.
FB compilation type	Macro type
Restrictions and	1) This FB does not include error recovery processing. Program the processing separately
precautions	in accordance with the system and requirements.
	2) This FB cannot be used in an interrupt program.
	3) This FB uses index registers Z9 to Z7. Do not use these registers in an interrupt
	program.
	4) This FB uses data registers D0 and D1. Do not use these registers in an interrupt
	program.
	5) If a message "Insufficient word device points in device/label (VAR) automatic-assign
	setting" appears when a program is complied, change the automatic device assignment
	setting.
	6) Check that Open completion signal (SD1282) corresponding to the selected connection
	Tumber is ON.
	7) A bit device cannot be set for a start device number.
	USING ICP
	2) When performing eacher communication in TCP, set Passive for the connection method
	and create a program so that turning ON Open completion signal corresponding to the
	selected connection number will be an interlock to activate the FB
	1) When using UDP use Open completion signal of the socket communication as an
	interlock to activate the FB.
FB operation type	Executed when necessary
Application example	Refer to Appendix 1. Application Examples.

Item	Description				
Timing chart	[When operation	completes without error]	[When an error o	occurs]	
	FB_EN (Execution command)		- FB_EN (Execution command)		
	FB_ENO (Execution status)		FB_ENO (Execution status)		
	Reception status signal (SD1286.n)	₹_₹	Reception status signal (SD1286.n)	▲ ↓▼	
	Random access processing	No processing During No processing No processing	Random access processing	No processing	
	FB_OK (Completion)	<b>_</b>	- FB_OK (Completion)		
	FB_ERROR (Error flag)		- FB_ERROR (Error flag)	∮	
	ERROR_ID (Error code)	0	ERROR_ID (Error code)	0 Error code 0	
Relevant manual	QnUCPU User's Manual (Communication via Built-in Ethernet Port)				
	QCPU User's Ma	nual (Hardware Design, Ma	intenance and Ins	pection)	

Error Codes	
Error code list	
Error code	Description
10 (Decimal)	i_RConnection_No (Receive connection No.) is outside the range. Set the number of data
	within the range (1 to 16) and turn OFF and ON FB_EN again.
41A1h to 41B9h	Communication failure occurs. For details, refer to "Appendix 1.11 Error codes returned to
(Hexadecimal)	request source during communication with CPU module" in the QCPU User's Manual
	(Hardware Design, Maintenance and Inspection).

#### Labels

Input labels					
Name	Variable name	Data type	Setting range	Description	
Execution command	FB_EN	В	ON, OFF	ON: The FB is activated.	
				OFF: The FB is not activated.	
Receive connection No.	i_RConnection_No	W	1 to 16	Specify the connection number	
				where communications using a	
				random access buffer are	
				performed.	
Communication data	i_DataCode_Type	В	ON, OFF	OFF: Binary code communication	
code				ON: ASCII code communication	
Start device number	i_Device_No	W	Enabled device	Specify the device number from	
			code and start	where communications using a	
			device number	random access buffer are started.	

#### Output labels

Name	Variable name	Data type	Initial value	Description
Execution status	FB_ENO	В	OFF	ON: The FB is being executed.
				OFF: The FB is not executed.
Completion	FB_OK	В	OFF	When this label turns ON, it
				indicates that the processing is
				completed.
Error flag	FB_ERROR	В	OFF	If this label turns ON, it indicates
				that an error occurs in the FB.
Error code	ERROR_ID	W	0	This label stores an error code
				occurs in the FB.

# Upgrade History

Version	Date	Description
1.00A	2011/07/29	First edition

#### Note

This chapter describes the functionalities of the function block. It does not describe restrictions on use of a programmable controller CPU and other modules and combination use of them. Before use, please read the user's manuals for the products used.

# Appendix 1. Application Examples Application examples of Data link instruction (READ/WRITE) FBs

#### 1) The target station is Built-in Ethernet port QCPU

# (1) System Configuration



#### (2) Device Lists

#### External output (check)

Device	FB name	Application (at ON)	
Y10	Socket communication - Data link instruction (READ)	Abnormally ended	
Y20 Socket communication - Data link instruction (WRITE)		Abnormally ended	
Data registe	r		
Device	FB name	Application (at ON)	
D100		Error code	
D101	Socket communication - Data link instruction	Number of resends (result)	
D102	(	Read data	
D200		Error code	
D201	Socket communication - Data link instruction	Number of resends (result)	
D1000	(	Write data	

#### Relay

Device	FB name	Application (at ON)	
M0		Instruction execution request	
M1	Socket communication - Data link instruction (READ)	Ready	
M2	()	Completion	
M10		Instruction execution request	
M11	Socket communication - Data link instruction (WRITE)	Ready	
M12	(	Completion	

# (3) Programs

# M+CPU- DataLink\_Read (for data link – READ instruction)

The following describes a	program example usir	ng labels listed in the	following table.

Label name	Setting value	Description	
Connection number	1	Specify "1" for the connection number where data reading is	
		performed.	
Target station's CPU type	03FFh	Specify the target station CPU/own system CPU (03FFh).	
Target station network number	0	Specify "0" for the network number including the target station.	
Target station number	FFh	Specify "FFh" for the target station number.	
Number of resends	3	Specify "3" for the number of resends performed when a process is	
		not completed within the arrival monitoring time.	
Arrival monitoring time	10	Specify "10" seconds for arrival monitoring time.	
Device name	W	Specify "W" for the device name from which data are read.	
Start device number	100h	Specify "100h" for the W device number from where data reading is	
		started.	
Read data length	2	Specify "2" for the number of words of read data.	

When M0 is turned ON, the following program reads data from the target station and outputs the read data.

1			1	
MU Instruct ion exec ution re quest	Read B:FB_EN Executio n comman d	_I FB_ENO:B Executio n status		(M1) Ready
[к1 ]	Wii_RConnection_No Read con nection No.	FB_OK:B Completi on		(M2 ) Completi on
[H3FF ]	W:i_CPU_Type Target s tation's CPU typ e	FB_ERROR:B Error fl ag		(Y10) Error fl ag
[ко ]	W:i_Network_No Target s tation n etwork N o.	ERROR_ID:W Error co de	{D100 } Error co de	
LHOFF :	W:i_Station_No Target s tation N o.	o_Result:W Executio n result	[D102 ] Read dat a	
[КЗ ]	W:i_Num_ReSend Number o f resend s	o_Num_ReSend:W Number o f resend s	{D101 } Number o f resend s	
[К10 ]	W:i_Monitor_Time Arrival monitori ng time			
[″w″ ]	Si <u>i</u> Device Device n ame			
[H100 ]	W:i_Addr Device N o.			
[к2 ]	W:i_RLength Read dat a length			

# M+CPU- DataLink\_Write (for data link – WRITE instruction)

The fellowing describes a	a na ama na la via na alla via la a	بمالمة مطنية لتمنعه المامام	ملطمة بمقان
I ne following describes a	program example usinc	i ladels listed in the follow	wing table.

Label name	Setting value	Description	
Connection number	2	Specify "2" for the connection number where data writing is	
		performed.	
Target station's CPU type	03FFh	Specify the target station CPU/own system CPU (03FFh).	
Target station network number	0	Specify "0" for the network number including the target station.	
Target station number	FFh	Specify "FFh" for the target station number.	
Number of resends	3	Specify "3" for the number of resends performed when a process	
		not completed within the arrival monitoring time.	
Arrival monitoring time	10	Specify "10" seconds for arrival monitoring time.	
Device name	W	Specify "W" for the device name to which data are written.	
Device number	100h	Specify "100h" for the W device number from where data writing is	
		started.	
Write data length	2	Specify "2" for the number of words of write data.	
Write data	D1000	Specify "D1000" for the storage location of write data.	

When M10 is turned ON, the following program writes data stored in D1000 by two words to W100.

MIO	1	M:.	1	1	
Instruct ion exec ution re quest		B:FB_EN Executio n comman d	FB_ENO:B Executio n status		(M11 ) Ready
[[к	:2 ]	W:i_WConnection_No Write co nnection No.	FB_OK:B Completi on		(M12 ) Completi on
[[н	13FF ]	W:i_CPU_Type Target s tation's CPU typ e	FB_ERROR:B Error fl ag		(Y20) Error fl ag
[[к	:0 ]	W:i_Network_No Target s tation n etwork N o.	ERROR_ID:W Error co de	{D200 } Error co de	
Ен	IOFF ]	W:i_Station_No Target s tation N o.	o_Num_ReSend:W Number o f resend s	{D201 } Number o f resend s	
Ек	3 ]	W:i_Num_ReSend Number o f resend s			
[[к	:10 ]	W:i_Monitor_Time Arrival monitori ng time			
[[″	w″ }	S:i_Device Device n ame			
[н	1100 ]	W:i_Addr Device N o.			
[[к	2 }	W:i_WLength Write da ta lengt h			
L ED W ta	1000 } rite da	W:i_Write_Data Write da ta			

#### 2) The target station is an Ethernet interface module

# (1) System Configuration



# (2) Device Lists

External output (check)						
Device	FB name	Application (at ON)				
Y10	Socket communication – Data link instruction (READ)	Abnormally ended				
Y20 Socket communication – Data link instruction (WRITE)		Abnormally ended				
Data register						
Device	FB name	Application (at ON)				
D100		Error code				
D101	Socket communication – Data link instruction	Number of resends (result)				
1	L (READ)	Number of resenus (result)				
D102	(READ)	Read data				
D102 D200	(READ)	Read data Error code				
D102 D200 D201	(READ) Socket communication – Data link instruction (WRITE)	Read data Error code Number of resends (result)				

R	elay			
	Device	FB name	Application (at ON)	
Γ	MO	Socket communication – Data link instruction	Instruction execution request	
Γ	M1		Ready	
	M2	(·)	Completion	
	M10		Instruction execution request	
	M11	I1 Socket communication – Data link instruction	Ready	
	M12	(·····- <u>-</u> )	Completion	

# (3) Programs

# M+CPU- DataLink\_Read (for data link – READ instruction)

The following describes a	program examp	le using labels	listed in the following table.

Label name	Setting value	Description
Connection number	1	Specify "1" for the connection number where data reading is
		performed.
Target station's CPU type	03FFh	Specify the target station CPU/own system CPU (03FFh).
Target station network number	1	Specify "1" for the network number including the target station.
Target station number	1	Specify "1" for the target station number.
Number of resends	3	Specify "3" for the number of resends performed when a process is
		not completed within the arrival monitoring time.
Arrival monitoring time	10	Specify "10" seconds for arrival monitoring time.
Device name	SW	Specify "SW" for the device name from which data are read.
Device number	100h	Specify "100h" for the SW device number from where data reading
		is started.
Read data length	10	Specify "10" for the number of words of read data.

When M0 is turned ON, the following program reads data from the target station and outputs the read data.

				1	
M0 Instruct ion exec ution re quest		Read_ B:FB_EN Executio n comman d	FB_ENO:B Executio n status		(M1 ) Ready
	-[к1 ]	W:i_RConnection_No Read con nection No.	FB_OK:B Completi on		(M2 ) Completi on
	-[H3FF ]	W:LCPU_Type Target s tation's CPU typ e	FB_ERROR:B Error fl ag		(Y10 ) Error fl ag
	-[K1 ]	W:_Network_No Target s tation n etwork N o.	ERROR_ID:W Error co de	[D100 ] Error co de	
	-[к1 ]	W:i_Station_No Target s tation N o.	o_Result:W Executio n result	[D102 ] Read dat a	
	-[кз ]	W:i_Num_ReSend Number o f resend s	o_Num_ReSend:W Number o f resend s	[D101 ] Number o f resend s	
	-[K10 ]	W:i_Monitor_Time Arrival monitori ng time			
	-[″sw″ ]	S:i_Device Device n ame			
	-[H100 ]	W:i_Addr Device N o.			
	-[K10 ]	W:∟RLength Read dat a length			

# M+CPU- DataLink\_Write (for data link – WRITE instruction)

The following	describes a	nroaram avam	nla usina	lahale lietad	in the following table
The following	uescribes a	piùgiani exam	pie using	Ianeis listeu	in the following lable.

Label name	Setting value	Description
Connection number	2	Specify "2" for the connection number where data writing is
		performed.
Target station's CPU type	03FFh	Specify the target station CPU/own system CPU (03FFh).
Target station network number	1	Specify "1" for the network number including the target station.
Target station number	1	Specify "1" for the target station number.
Number of resends	3	Specify "3" for the number of resends performed when a process is
		not completed within the arrival monitoring time.
Arrival monitoring time	10	Specify "10" seconds for arrival monitoring time.
Device name	W	Specify "W" for the device name to which data are written.
Device number	100h	Specify "100h" for the W device number from where data writing is
		started.
Write data length	10	Specify "10" for the number of words of write data.
Write data	D2000	Specify "D2000" for the storage location of write data.

# When M10 is turned ON, the following program writes data stored in D2000 by ten words to W100.

Write_I Write_I   Instruct B:FB_EN   ion exec Executio   ution re d   quest [K2]   W:i_WConnection_No FB_OK:B   Write co Completi   nnection on	(M11 ) Ready (M12 ) Completi on
[K2] W:i_WConnection_No FB_OK:B   Write co Completi   nnection on	(M12 Completi on
No.	
[H3FF] W:i_CPU_Type FB_ERROR:B   Target s Error fl   tation's ag   CPU typ e	(Y20  ) Error fl ag
[K1]   W:i_Network_No   ERROR_ID:W   [D200]     Target s   Error co   Error co     tation n   de   de     etwork N   o.   o.	
[K1]   W:i_Station_No   o_Num_ReSend:W   [D201]     Target s   Number o   Number o     tation N   f resend   f resend     o.   s   s	
EK3 W:i_Num_ReSend Number o f resend s	
EK10 W:i_Monitor_Time Arrival monitori ng time	
[″W″ ] S:i_Device Device n ame	
EH100 B W:i_Addr Device N o.	
EK10 W:i_WLength Write da ta lengt h	
U2000 W:i_Write_Data Write da ta	

Application example of Data link instruction (communications using random access buffer) FB

# (1) System Configuration



# (2) Device Lists

External input (command)					
Device	FB name	Application (at ON)			
X00	Socket communication - Random access communication	Communication data code (ON: ASCII data)			
External or	utput (check)				
Device	FB name	Application (at ON)			
Y10	Socket communication – Random access communication	Socket communication - Random access communication FB abnormally ended			
Data register					
Device	FB name	Application (at ON)			
D100	Socket communication – Random access communication	Socket communication - Random access communication FB error code			
Link register					
Device	FB name	Application (at ON)			
VV100	Socket communication - Random access communication	Socket communication - Random access communication buffer area			

Target station

Relay		
Device	FB name	Application (at ON)
M3	Socket communication - Random access communication	Socket communication - Random access communication request
M100	Socket communication - Random access communication	Socket communication - Random access communication ready
M101	Socket communication - Random access communication	Socket communication - Random access communication completion

# (3) Program

M+CPU- DataLink\_RandomAccess (for data link – communications using random access buffer)

	The following describes	a program exam	ple using labels	listed in the following tab	le.
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Label name	Setting value	Description
Receive connection number	1	Specify "1" for the connection number where data reception is
		performed.
Communication data code	ON	Specify "ASCII code" for communication data code.
Start device number	W100	Specify "W100" for the device number from where communications
		using a random access buffer are started.

When M3 is turned ON, data is processed according to the request packet received from the target station.

M3	RandomAc	cess_1		
Random a ccess co mm reque st	── B:FB_EN Executio n comman d	FB_ENO:B Executio n status		(M100 ) Ready fo r commun ication
[кі	W:i_RConnection_No Receive connecti on No.	FB_OK:B Completi on		(M101 Communic ation co mpletion
X0 Comm dat a code ( ON: ASCI I code)	B:i_DataCode_Type Communic ation da ta code	FB_ERROR:B Error fl ag		(Y10) Communic ation er ror flag
EW100 Buffer a rea	W:i_Device_No Random a ccess bu ffer are a	ERROR_ID:W Error co de	{D100 } Error co de	