NZ2GF-ETB FB Library Reference Manual

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Reference Manual Revision History

Reference manual number	Date	Description
FBM-M074-A	2012/1/26	First edition

1. Overview

1.1. Overview of FB libraries

FB libraries described in this manual are for a CC-Link IE Field Network Ethernet adapter (NZ2GF-ETB).

1.2. Function overview

No.	Item	Description
1	M+NZ2GF-ETB_OndemandUserCon	This FB sends on-demand data from the master station to the Ethernet device connected to an Ethernet adapter using the connection for users.
2	M+NZ2GF-ETB_OndemandAutoUDP	This FB sends on-demand data from the master station to the Ethernet device connected to an Ethernet adapter using the auto-open UDP port.

1.3. Relevant manuals

CC-Link IE Field Network Ethernet Adapter Module User's Manual

MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual

MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual

1.4. Note

Before use, please read the user's manuals for the products used.

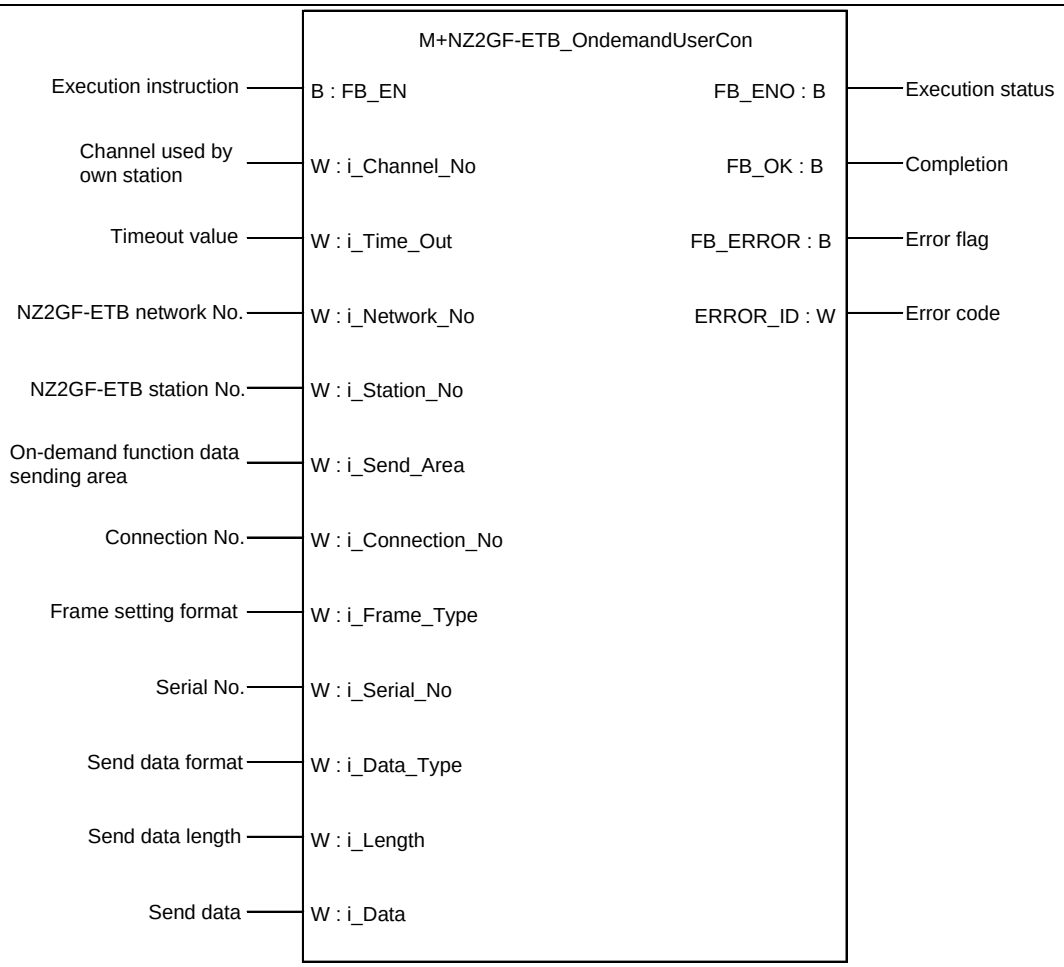
2. Description of FB Libraries

2.1. M+NZ2GF-ETB_OndemandUserCon (on-demand data sending using the connection for users)

FB Name

M+NZ2GF-ETB_OndemandUserCon

Function Overview

Item	Description
Function overview	This FB sends on-demand data to an Ethernet device using the connection for users.
Symbol	
Applicable hardware and software	Module

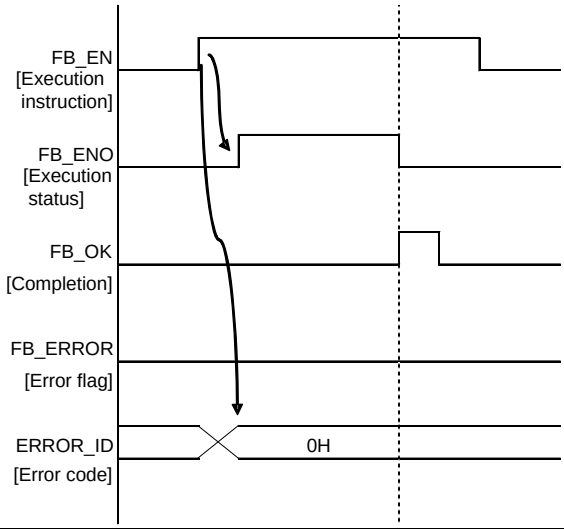
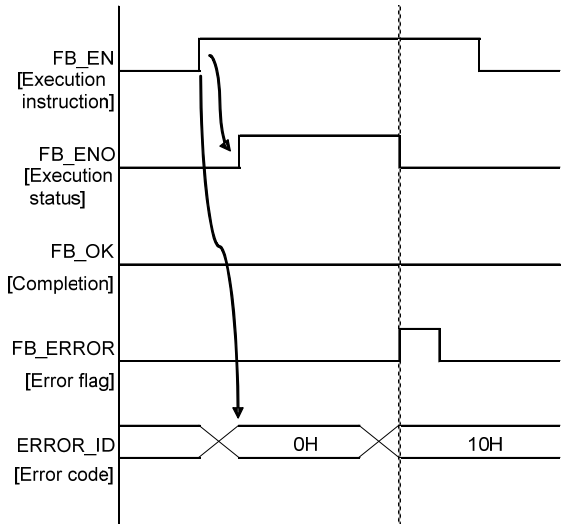
Q series	QJ71GF11-T2
L series	LJ71GF11-T2
Ethernet adapter module	NZ2GF-ETB (serial number "13012" or later)

CPU module

Q series	Universal model QCPU
L series	LCPU

Engineering tool

Q series	GX Works2 Version 1.31H or later
L series	GX Works2 Version 1.53F or later

Item	Description
Programming language	Ladder
Number of steps (maximum value)	Universal model QCPU: 1218 *The value is the number of steps in a label program and therefore is a reference value. For details, refer to the GX Works2 Version 1 Operating Manual (Simple Project).
Function description	By turning on FB_EN (Execution instruction), this FB sends on-demand data to an Ethernet device through the connection for users of an Ethernet adapter.
FB compilation type	Macro type
Restrictions and precautions	1) This FB does not include error recovery processing. Program the processing separately in accordance with the system and requirements. 2) This FB uses dedicated instructions, "REMFR" and "REMTO".
FB operation type	Pulsed execution (multiple scan execution type)
Timing chart	[Completion]  [Abend] (Including the case of a module error) 
Relevant manual	CC-Link IE Field Network Ethernet Adapter Module User's Manual MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual

Error Codes

■ Error code list

Error code	Description	Action
10 (Decimal)	The On-demand function data sending area is out of range.	Change the value set to On-demand function data sending area.
11 (Decimal)	The send data format is out of range.	Change the value set to Send data format.
12 (Decimal)	The data length is out of range.	Change the data length.
13 (Decimal)	An error occurs in the REMFR/REMTO instruction used by the FB.	Check the error details by the error code stored in REMFR/REMTO instruction execution status (SW0080 to SW009F) corresponding to the own station and take action.
14 (Decimal)	A timeout error occurs.	Check if cables are properly connected and the line is normal.
100 to 7FF (Hexadecimal)	These codes indicate error codes occur in the module.	Check the error details with reference to the NZ2GF-ETB manual and take action.

Labels

■ Input labels

Name	Variable name	Data type	Setting range	Description
Execution instruction	FB_EN	B	-	ON: The FB is activated. OFF: The FB is not activated.
Channel used by own station	i_Channel_No	W	1 to 32	Specify the channel used by the own station. (Specify the channel set to "Channels used by own station" for dedicated instructions, REMFR and REMTO, used by the FB.)
Timeout value	i_Time_Out	W	1 to 65535 (second)	Input timeout time after the FB is activated until the FB ends processing by seconds. When no value or "0" is input, "30" seconds is automatically input.
NZ2GF-ETB network number	i_Network_No	W	1 to 239	Input the network number of the CC-Link IE Field Network where the NZ2GF-ETB that sends on-demand data is mounted.

Name	Variable name	Data type	Setting range	Description
NZ2GF-ETB station number	i_Station_No	W	1 to 120	Input the station number of the CC-Link IE Field Network where the NZ2GF-ETB that sends on-demand data is mounted.
On-demand function data sending area	i_Send_Area	W	1 to 4 (channel)	Specify the On-demand function data sending area of the NZ2GF-ETB that sends on-demand data.
Connection number	i_Connection_No	W	1 to 32	Specify the number of the connection for users through which on-demand data is sent from the NZ2GF-ETB.
Frame setting format	i_Frame_Type	W	0: A serial number is not added. 1: A serial number is added.	Specify whether to add a serial number to the subheader of on-demand data.
Serial number	i_Serial_No	W	0 to 65535	Input the serial number added to the subheader of on-demand data.
Send data format	i_Data_Type	W	0: Byte unit specification - binary code 1: Byte unit specification - ASCII code 2: Word unit specification - binary code 3: Word unit specification - ASCII code	Specify the format of send data.
Send data length	i_Length	W	0 to 1920 (When byte unit specification is set for "Send data format") 0 to 960 (When word unit specification is set for "Send data format")	Input the length of on-demand send data.
Send data	i_Data	W	-	Input the start device that stores on-demand send data.

■ Output labels

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

Upgrade History

Version	Date	Description
1.00A	2012/1/26	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.

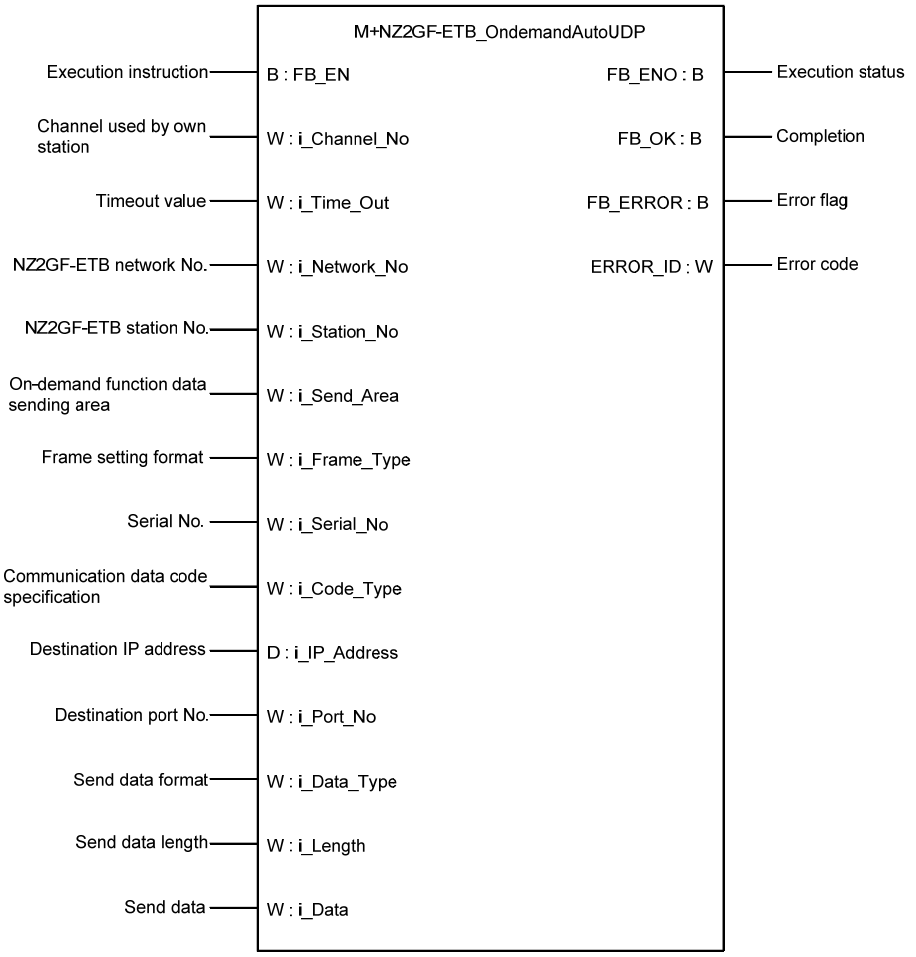
Before use, please read the user's manuals for the products used.

2.2. M+NZ2GF-ETB_OndemandAutoUDP (on-demand data sending using the auto-open UDP port)

FB Name

M+NZ2GF-ETB_OndemandAutoUDP

Function Overview

Item	Description
Function overview	This FB sends on-demand data to an Ethernet device using the auto-open UDP port.
Symbol	
Applicable hardware and software	Module

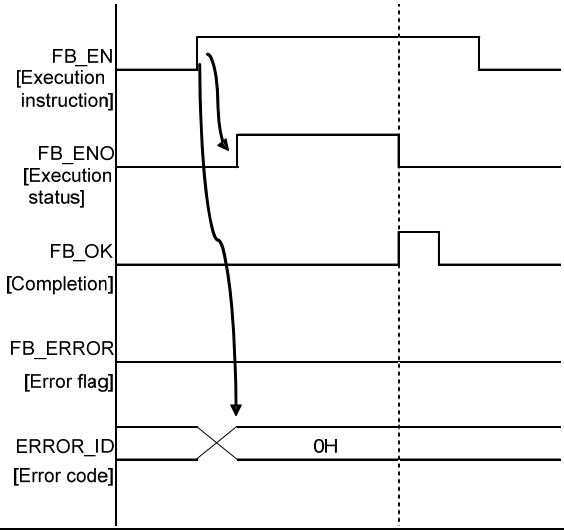
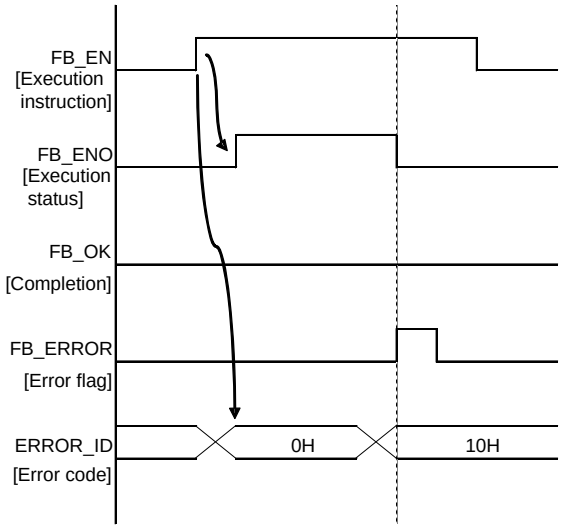
	Q series	QJ71GF11-T2
	L series	LJ71GF11-T2
	Ethernet adapter module	NZ2GF-ETB (serial number "13012" or later)

CPU module

Q series	Universal model QCPU
L series	LCPU

Engineering tool

Q series	GX Works2 Version 1.31H or later
L series	GX Works2 Version 1.53F or later

Item	Description
Programming language	Ladder
Number of steps (maximum value)	Universal model QCPU: 1217 *The value is the number of steps in a label program and therefore is a reference value. For details, refer to the GX Works2 Version 1 Operating Manual (Simple Project).
Function description	By turning on FB_EN (Execution instruction), this FB sends on-demand data to an Ethernet device through the auto-open UDP port of an Ethernet adapter.
FB compilation type	Macro type
Restrictions and precautions	1) This FB does not include error recovery processing. Program the processing separately in accordance with the system and requirements. 2) This FB uses dedicated instructions, "REMFR" and "REMTO".
FB operation type	Pulsed execution (multiple scan execution type)
Timing chart	[Completion]  [Abend] (Including the case of a module error) 
Relevant manual	CC-Link IE Field Network Ethernet Adapter Module User's Manual MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual

Error Codes

■ Error code list

Error code	Description	Action
10 (Decimal)	The On-demand function data sending area is out of range.	Change the value set to On-demand function data sending area.
11 (Decimal)	The send data format is out of range.	Change the value set to Send data format.
12 (Decimal)	The data length is out of range.	Change the data length.
13 (Decimal)	An error occurs in the REMFR/REMTO instruction used by the FB.	Check the error details by the error code stored in REMFR/REMTO instruction execution status (SW0080 to SW009F) corresponding to the own station and take action.
14 (Decimal)	A timeout error occurs.	Check if cables are properly connected and the line is normal.
100 to 7FF (Hexadecimal)	These codes indicate error codes occur in the module.	Check the error details with reference to the NZ2GF-ETB manual and take action.

Labels

■ Input labels

Name	Variable name	Data type	Setting range	Description
Execution instruction	FB_EN	B	-	ON: The FB is activated. OFF: The FB is not activated.
Channel used by own station	i_Channel_No	W	1 to 32	Specify the channel used by the own station. (Specify the channel set to "Channels used by own station" for dedicated instructions, REMFR and REMTO, used by the FB.)
Timeout value	i_Time_Out	W	1 to 65535 (second)	Input timeout time after the FB is activated until the FB ends processing by seconds. When no value or "0" is input, "30" seconds is automatically input.
NZ2GF-ETB network number	i_Network_No	W	1 to 239	Input the network number of the CC-Link IE Field Network where the NZ2GF-ETB that sends on-demand data is mounted.

Name	Variable name	Data type	Setting range	Description
NZ2GF-ETB station number	i_Station_No	W	1 to 120	Input the station number of the CC-Link IE Field Network where the NZ2GF-ETB that sends on-demand data is mounted.
On-demand function data sending area	i_Send_Area	W	1 to 4 (channel)	Specify the On-demand function data sending area of the NZ2GF-ETB that sends on-demand data.
Frame setting format	i_Frame_Type	W	0: A serial number is not added. 1: A serial number is added.	Specify whether to add a serial number to the subheader of on-demand data.
Serial number	i_Serial_No	W	0 to 65535	Input the serial number added to the subheader of on-demand data.
Communication data code specification	i_Code_Type	W	0: Binary code communication 1: ASCII code communication	Specify a communication data code.
Destination IP address	i_IP_Address	D	H1 to HFFFFFFFF (0.0.0.1 to 255.255.255.255)	Set the IP address of the Ethernet device to which on-demand data is sent.
Destination port No.	i_Port_No	W	1 to 65535	Set the port number of the Ethernet device to which on-demand data is sent.
Send data format	i_Data_Type	W	0: Byte unit specification - binary code 1: Byte unit specification - ASCII code 2: Word unit specification - binary code 3: Word unit specification - ASCII code	Specify the format of send data.

Name	Variable name	Data type	Setting range	Description
Send data length	i_Length	W	0 to 1920 (When byte unit specification is set for "Send data format") 0 to 960 (When word unit specification is set for "Send data format")	Input the length of on-demand send data.
Send data	i_Data	W	-	Input the start device that stores on-demand send data.

■ Output labels

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

Upgrade History

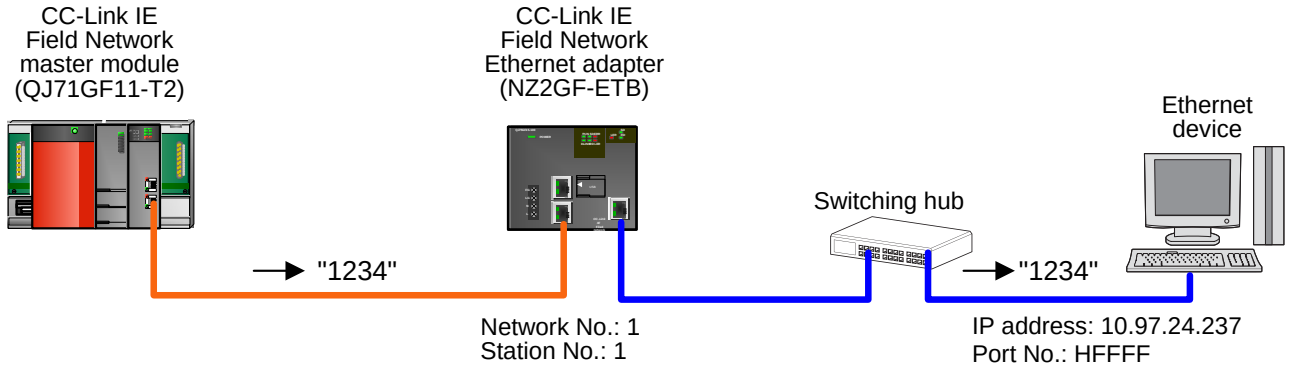
Version	Date	Description
1.00A	2012/1/26	First edition

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 example of FB libraries

(1) System Configuration



The CC-Link IE Field Network master module sends on-demand data to the Ethernet device connected to an Ethernet adapter with the following conditions.

	M+NZ2GF-ETB_OndemandUserCon (using the connection for users)	M+NZ2GF-ETB_OndemandAutoUDP (using the auto-open UDP port)
Channel used by own station	Channel 1	Channel 1
Timeout value	5 seconds	5 seconds
NZ2GF-ETB network number	Network number 1	Network number 1
NZ2GF-ETB station number	Station number 1	Station number 1
On-demand function data sending area	Channel 1 is used.	Channel 1 is used.
Connection number	Connection number 1	
Frame setting format	A serial number is added.	A serial number is added.
Serial number	"0001"	"0001"
Communication data code specification		ASCII code communication
Destination IP address		10.97.24.237 (H0A6118ED)
Destination port number		65535 (HFFFF)
Send data format	Byte unit specification - ASCII code	Byte unit specification - ASCII code
Send data length	2 bytes	2 bytes
Send data	"1234" (ASCII code)	"1234" (ASCII code)

(2) Device Lists

■ External input (command)

Device	FB name	Application (at ON)
M100	M+NZ2GF-ETB_OndemandUserCon	This FB sends on-demand data from the master station to the Ethernet device connected to an Ethernet adapter using the connection for users.
M110	M+NZ2GF-ETB_OndemandAutoUDP	This FB sends on-demand data from the master station to the Ethernet device connected to an Ethernet adapter using the auto-open UDP port.

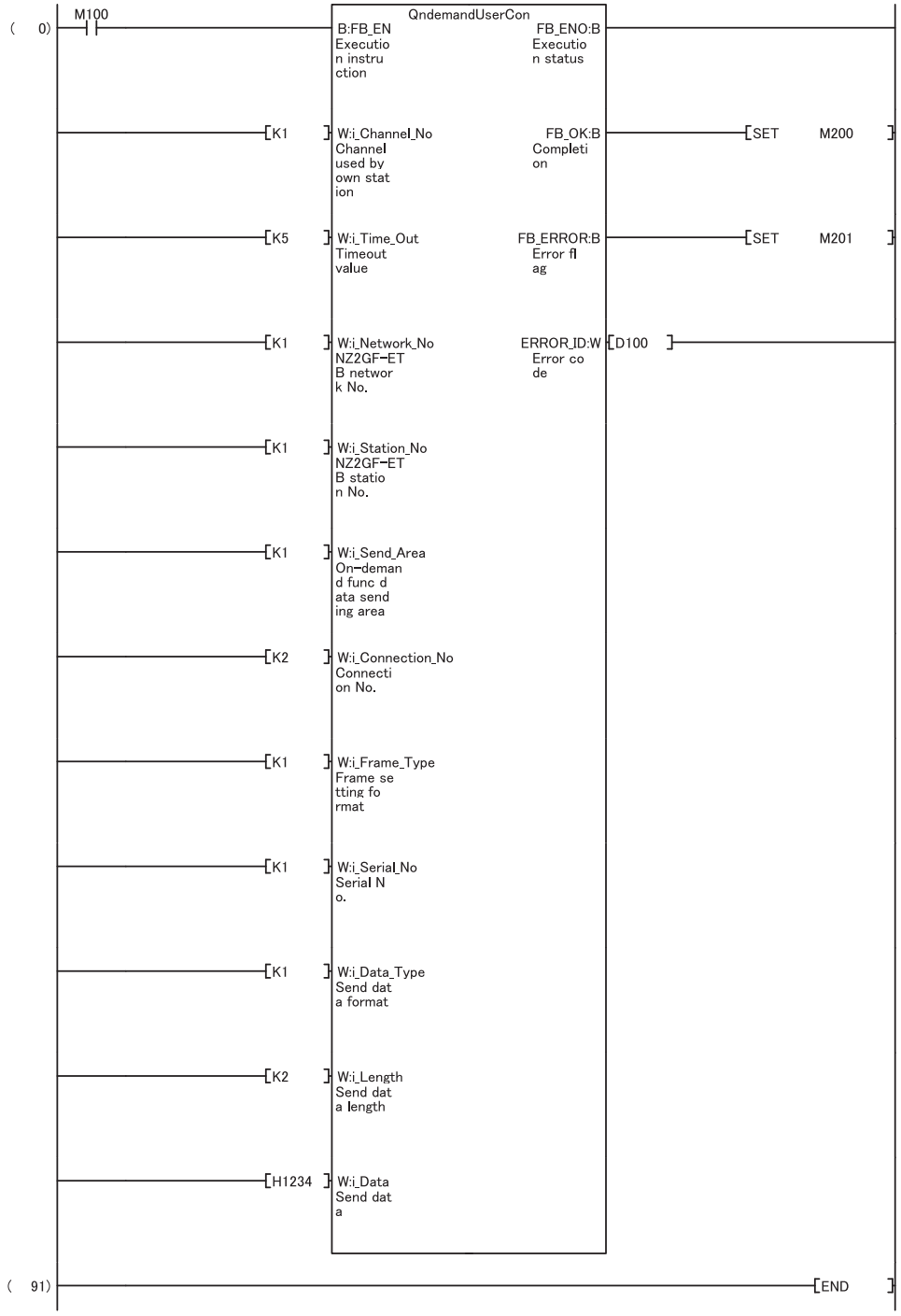
■ External output (check)

Device	FB name	Application (at ON)
M200	M+NZ2GF-ETB_OndemandUserCon	This device indicates that the FB completed sending on-demand data using the connection for users.
M201		This device indicates that the FB failed to send on-demand data using the connection for users.
M210	M+NZ2GF-ETB_OndemandAutoUDP	This device indicates that the FB completed sending on-demand data using the auto-open UDP port.
M211		This device indicates that the FB failed to send on-demand data using the auto-open UDP port.

■ Data register

Device	FB name	Application (at ON)
D100	M+NZ2GF-ETB_OndemandUserCon	An error code when the FB failed to send on-demand data using the connection for users is stored.
D200	M+NZ2GF-ETB_OndemandAutoUDP	An error code when the FB failed to send on-demand data using the auto-open UDP port is stored.

(1) M+NZ2GF-ETB_OndemandUserCon



(2) M+NZ2GF-ETB_OndemandAutoUDP