

MELSEC iQ-R series compatible FL-net (OPCN-2) Interface module ER-1FL2-T

FL-net system with MELSEC iQ-R series products

MELSEC iQ-R series products manufactured by Mitsubishi are available for constructing an FL-net (OPCN-2) system. The FL-net (OPCN-2) can be interconnected to devices such as programmable controllers, computerized numerical controllers (CNC), and personal computers which are manufactured by various manufacturers, providing control and monitoring.

Easy programming

The module supports the functions of GX Works3 manufactured by Mitsubishi, making programming easier.

- Event history
- Module diagnostics
- Intelligent function module monitor
- Module label
- Module FB (Function block)

Full-scale

Two types of communication functions to match the application

- 1) Common memory function that uses cyclic transmission to allow each node to always share the same data
- 2) Message communication function that allows only the required data to be exchanged when needed

Masterless and large-scale network

Absence of a master enables each node to connect or disconnect to the network, without affecting the communication of the other nodes. In addition, the nodes can be powered on/off or maintained freely, and a maximum of 254 modules (*1) can be connected to the network.

*1 Of the 254 modules, 249 can be used for control. The remaining five modules are assigned for failure diagnosis.



Support message list |

Message	1:1	1:n	Server function	Client function
Byte block read	○	—	—	○ (*1)
Byte block write	○	—	—	○ (*1)
Word block read	○	—	○	○ (*1)
Word block write	○	—	○	○ (*1)
Network parameter read	○	—	○	○
Network parameter write	○	—	—	○ (*1)
Operate/stop command	○	—	—	○ (*1)
Device profile read	○	—	○	○
Log information read	○	—	○	○
Log information clear	○	○	○	○
Message return	○	—	○	○ (*1)
Transparent message transmission	○	○	○	○

Server function:.....Functions that create a response frame for the request message that has been received and send it.

Client function:.....Functions that send the response message and receive the response frame.

*1 Realized by the transparent message transmission

Module FB list |

FB Name	Function
P+MEE-007ER-1FL2-T_Initialize_R	Sets the network parameter area of the local node.
P+MEE-007ER-1FL2-T_ByteBlockRead_R	Reads the byte block.
P+MEE-007ER-1FL2-T_ByteBlockWrite_R	Writes the byte block.
P+MEE-007ER-1FL2-T_WordBlockRead_R	Reads the word block.
P+MEE-007ER-1FL2-T_WordBlockWrite_R	Writes the word block.
P+MEE-007ER-1FL2-T_NetworkParameterRead_R	Reads the network parameter/join node information.
P+MEE-007ER-1FL2-T_NetworkParameterWrite_R	Writes the network parameter.
P+MEE-007ER-1FL2-T_OperateCommand_R	Issues the operation command.
P+MEE-007ER-1FL2-T_StopCommand_R	Issues the stop command.
P+MEE-007ER-1FL2-T_DeviceProfileRead_R	Reads the device profile.
P+MEE-007ER-1FL2-T_LogInformationRead_R	Reads the log information.
P+MEE-007ER-1FL2-T_LogInformationClear_R	Clears the log information.
P+MEE-007ER-1FL2-T_MessageReturn_R	Returns the message.
P+MEE-007ER-1FL2-T_SendTransparentMessage_R	Sends the transparent type message.
P+MEE-007ER-1FL2-T_ReceiveTransparentMessage_R	Receives the transparent message.
P+MEE-007ER-1FL2-T_RefreshCyclicDataOther_R	Refreshes the cyclic data of other nodes.
P+MEE-007ER-1FL2-T_RefreshCyclicDataLocal_R	Refreshes the cyclic data of the local node.

Performance specifications |

Item		Specifications
Standard		Protocol specification for control network standard (JIS B 3521) FL-net (OPCN-2) Ver.3 (*1)
Transmission specifications	Data transmission speed	10BASE-T/100BASE-TX
	Communication mode	10BASE-T Half-duplex
		100BASE-TX Full-duplex/Half-duplex
	Transmission method	Base band
	Maximum segment length	100m (length between hub and node) (*2)
	Maximum number of nodes in system	254
	Maximum number of cascade connections	10BASE-T: maximum four stages (*3) 100BASE-TX: maximum two stages (*3)
	Cyclic data volume	Maximum (8 k bits + 8 k words)/system Maximum (8 k bits + 8 k words)/node
	Message data volume	Maximum 1024bytes
Link data specifications	Common memory area	Area 1 (bit area): 8 k bits Area 2 (word area): 8 k words
	Message area (Transient area)	Maximum 1024 bytes×2 (1 for each of transmit and receive)
Number of occupied I/O points		32 points
Internal current consumption (5VDC)		0.54A
External dimensions		106(H)×27.8(W)×110(D)mm (Base unit mounting side: 98mm(H))
Weight		0.17kg

Product configuration |

ER-1FL2-T		
Name	Model	Remarks
FL-net (OPCN-2) Interface module	ER-1FL2-T	•ER-1FL2-T (Module) •User's manual (Hardware Edition)
User's manual (Detailed Edition) (Japanese)	ER-1FL2-T-M1J	Specifications and programming of the FL-net (OPCN-2) Interface module
User's manual (Detailed Edition) (English)	ER-1FL2-T-M1E	


*1 Since there is no compatibility between FL-net (OPCN-2) Ver. 3 and FL-net (OPCN-2) Ver. 1, connections and communications are not allowed between these versions.

*2 The maximum segment length of the Ethernet cable is 100m. However, the length may be shorter depending on the operating environment of the cable. For details, contact your cable manufacturer.

*3 This applies when a repeater hub is used. For the number of levels that can be constructed when using a switching hub, consult the manufacturer of the switching hub used.

Precautions for Choosing the Products

This catalog explains the typical features and functions of the MELSEC IQ-R series compatible FL-net (OPCN-2) Interface module and does not provide restrictions and other information on usage and module combinations. When using the products, always read the user's manuals and operating manuals of the products. Mitsubishi Electric Engineering will not be held liable for damage caused by factors found not to be the cause of Electric Engineering; machine damage or lost profits caused by faults in the Mitsubishi Electric Engineering products; damage, secondary damage, accident compensation caused by special factors unpredictable by Mitsubishi Electric Engineering; damages to products other than Mitsubishi Electric Engineering products; and to other duties.

 For safe operations

- This product has been manufactured as a general-purpose part for general industries, and has not been designed or manufactured to be incorporated in a device or system used in purposes related to human life.
- Before using the product for special purposes such as nuclear power, electric power, aerospace, medicine or passenger movement vehicles, consult with Mitsubishi Electric Engineering.
- This product has been manufactured under strict quality control. However, when installing the product where major accidents or losses could occur if the product fails, install appropriate backup or failsafe functions in the system.

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