

Mitsubishi FX Ethernet Driver for JMobile

This document contains the information needed to connect the panels to Mitsubishi FX Series controllers using an Ethernet connection to the FX3U-ENET module.

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Mitsubishi FX Ethernet Driver

The Mitsubishi FX3U controller must be equipped with an appropriate Ethernet interface. The following Ethernet communication modules can be used for communication: FX3U-ENET

The Communication driver implements the MELSEC-F (or MC) communication protocol described in the Mitsubishi document "FX3U-ENET USER'S MANUAL", chapter 8 "Communication using MC protocol".

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Version	1.00

Settings

Mitsubishi FX ETH		×
PLC Network		ОК
IP address	0.0.0.0	Cancel
Port	5551]
PLC Models		
FX3U		
FX3G FX1N FX2N		

Figure 1

IP address	Ethernet IP address of the controller
Port	Specifies the port number (decimal) used in the communication with the PLC.
PLC Model	Defines the PLC model connected
PLC Network	The protocol allows the connection of multiple controllers to one operator panel. To set-up multiple connections, check "PLC network" checkbox and enter IP Address for all controllers.



Mitsubishi FX ETH		23
PLC Network	ОК	
IP address	0 . 0 . 0 . 0 Cancel	
Port	5551	
PLC Models		
FX3G FX1N FX2N		
Slaves	Add Delete Modify	
Slave Id	Model Mitsubishi FX ETH	×
		OK Cancel
	P address 0 . 0 . 1 Port 5551	
	PLC Models FX3U FX3G FX1N FX2N	
PLC Models FX3G FX1N FX2N Slaves Slave Id	Add Delete Modify Model Mitsubishi FX ETH IP address 0 . 0 . 0 . 1 Port 5551 IP C Models FX3U FX3G FX1N FX2N IP address IP address	OK Cancel

Figure 2

Recommendations for Controller Settings

The Mitsubishi FX3U system must be properly configured for Ethernet communication using the Mitsubishi FX Configurator 1.00 (SW1D5C-FXENET-EL) or higher.

The figure below shows an example of network configuration for Ethernet communication. In the controller Configurator settings are required for "Operation settings" and "Open settings" areas.



👫 FX Configurator-EN C:\Public\AG\FX3U\FX3U_0B.fen - [Ethernet operational settings]	
<u>File View H</u> elp	
Communication data code Initial timing Initial timing Do not wait for OPEN (Communications impossible at STOP time) ASCII code Always wait for OPEN (Communication possible at STOP time)	
Paddress	
Input format DEC.	
IP address 192 168 206 213 C IEEE802.3	
TCP Existence confirmation setting Image: Concelement of the set of	
Ready	NUM ///

Figure 3

Please note that the panel communication protocol supports only Binary code communication.

The figure below shows the Ethernet "Open settings" configuration.

The detailed explanation of the meaning of each setting is available in Chapter 5.5 of the Mitsubishi "FX3U-ENET USER'S MANUAL".

Please note that the use of more than one panel communicating with the same controller requires to define proper settings in the "Open settings" configuration dialog: one connection per each panel must be configured with proper properties.



Eil	FX Co e <u>V</u> iev	nfigurator « Help	-EN C:\Public\AG\FX	3U\	\FX3U_0	C.fe	n - [Ethernet open	sel	ttings]							
		Protocol	Open system		Fixed bu	ffer	Fixed buffer communication procedure		Pairin open	,	Existence confirmation	n	Host station Port No. (DEC.)	Transmission target device IP address	Transmission target device Port No. (DEC.)	
	1	тср 🔻	Unpassive	•	Send	•	Procedure exist(MC)	•	Disable	•	No confirm	•	5551			1
	2	•		•		•		•		•		•				4
	3	•		•		•		•		•		•				4
	4			-		÷		-		÷		-				4
	5			Ť		Ť		Ť		÷		• •				-
	7			-		-		•		Ŧ		-				1
	8	-		•		•		•		Ŧ		-				1
End																
∢)

Figure 4

Last aspect of PLC configuration is concerning Timeout settings.

For proper communication between panel and controller it is required to change the default "Destination existence confirmation starting interval" from the default value of 1200 to 10ms. Please see figure below).

With default settings, in case of communication error, the controller keeps alive the connection for a too long time before to allow a new connection from the HMI.

	Setting value	Default value	In units
TCP ULP timer		60	X500ms
TCP zero window timer		20	X500ms
TCP resend timer		20	X500ms
TCP end timer		40	X500ms
IP assembly timer		10	X500ms
Response monitoring timer		60	X500
Destination existence confirmation starting interval	10	1200	X500ms
Diastinistion existence confirmation interval times		20	¥500 mc
Destination existence confirmation resend		3	Times

Figure 5

Communication Status

The current communication status can be displayed using the dedicated system variables. Please refer to the User Manual for further information about available system variables and their use.



The codes supported for this communication driver are:

Error	Notes				
NAK Returned in case the controller replies with a not acknowledge					
Timeout	Returned when a request is not replied within the specified timeout period; ensure the controller is connected and properly configured to get network access				
Invalid response	The panel did receive from the controller a response, but its format or its contents is not as expected; ensure the data programmed in the project are consistent with the controller resources				
General Error	Error cannot be identified; should never be reported; contact technical support				