

**EZ-ETHERPLUS**

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**APPENDIX**

**B**

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## Introduction

The EZ-ETHERPLUS adapter is an enhancement of the EZ-Ethernet communications controller family that, in addition to the Host Protocol, provides MODBUS/TCP connectivity. Those familiar with the EZ-Ethernet configuration and operation should find using Modbus to be straightforward. Those who are not familiar with the package may wish to review the entire manual.



*Note: You must have EZ-TOUCHEDIT Software version 3.1 or later, and EZ-TOUCH firmware version D2 or later to use EZ-ETHERPLUS. You also must have an EZ-ETHERPLUS card installed in any -F or -FS panel (EZ-T10C-FS, for example).*

The standard Modbus 1-based addressing scheme is supported, as shown in Table 1 below.

**Table 1 Supported Addresses**

	Designator	Range	Minimum	Maximum
Input Discrete	0	1-9999	00001	09999
Status	1	1-9999	10001	19999
Input Register	3	1-9999	30001	39999
Holding Register	4	1-9999	40001	49999

The following data types are supported:

**Table 2 Data Types**

	Length (bytes)	Length (bits)	Range
Discrete	1	8	
Unsigned INT	2	16	
Signed INT	2	16	
Unsigned Long INT <sup>1</sup>	4	32	
Signed Long INT	4	32	
Floating Point	4	32	
Char	1	8	40

<sup>1</sup> The EZ-ETHERPLUS supports the Modicon/AEG standard for long integer and floating point storage. That is, each of these 32-bit types is stored in two contiguous 16-bit locations, starting with the specified address. For example, a LONG stored at 40032 uses both 40032 and 40033 to store the value. 32-bit register mode is not supported.

### Before You Start

Before proceeding, you should know the following information about the Modbus slave device you wish to monitor.

1. The name of the Modbus slave device. (Optional)
2. The Internet Protocol (IP) address of the Modbus slave device.
3. The Internet Protocol (IP) address of the network gateway if the panel is not on the same network segment as the Modbus slave device.

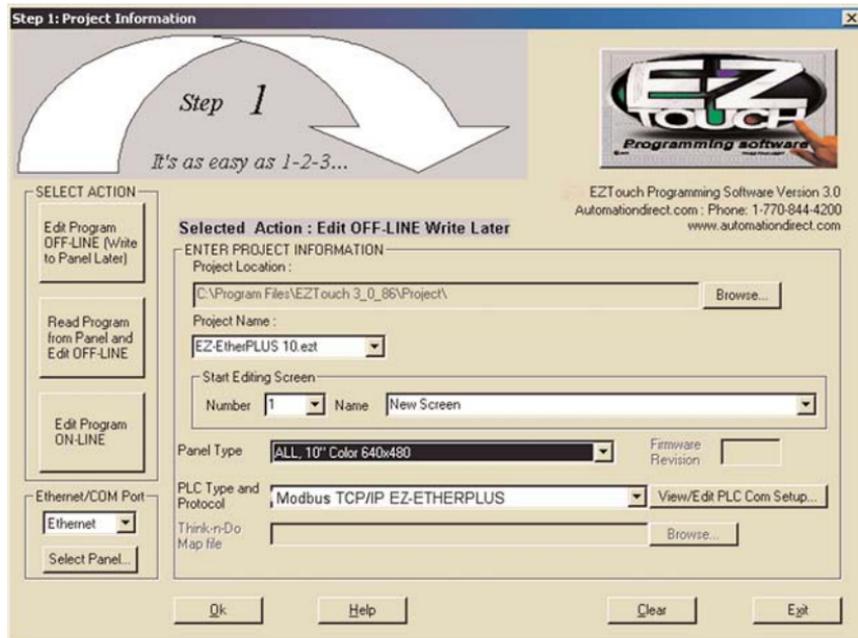


*Note: If you are using a general-purpose network, i.e., an intranet, as the communication media, we recommend you consult first with your network administrator before connecting any device to the network.*

## Configuring MODBUS/TCP Nodes

Modbus controllers are configured similarly to Koyo nodes by using the EZ-Touch Panel Configuration utility shown below; however, unlike Koyo nodes, you must manually enter the configuration for each Modbus node. This is done in “Offline” mode. Please follow the steps below to configure the EZ-ETHERPLUS adapter.

1. Choose your Project Name, select Panel Type, then select Modbus TCP/IP. To enter the Configuration Utility, select “View/Edit PLC Com Setup.”
2. You must be in “Connected to Network” Configuration Mode to use the



Select Panel feature. If the panel is not available online, you may complete the configuration by selecting the “Not Connected to Network” Configuration Mode and entering the appropriate data for each field in the “PC to Panel Config” section.

3. If this is a new panel configuration and the panel is online, press the ‘Select

**Edit EZ-Touch Panel Configuration**

Configuration Mode

Connected to Network - Koyo Plcs Only     Not Connected to Network - Koyo or Modbus/TCP

PC to Panel Config

Protocol

TCP/IP     IPX

Advanced Settings

Timeout: 100

Address Mode

Module ID: 0

Module Name: PANEL #1

IP Address: 192 . 168 . 38 . 28

MAC Address: 00:E0:62:60:10:28

Select Panel

Upg. Firmware...

Panel to Node Config

#	Name	Description
< 1 >		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Add Koyo Node...

Remove Node...

Add/Edit Panel to Node...

OK    Cancel    NetEdit...    Download to Panel    Help

Panel’ button to bring up a list of available panels. Select the one you wish to configure and press OK.

## 4. Select the “Not Connected to Network -- Modbus/TCP” Configuration Mode.

**Edit EZ-Touch Panel Configuration**

Configuration Mode

Connected to Network - Koyo Plcs Only     Not Connected to Network - Koyo or Modbus/TCP

PC to Panel Config

Protocol

TCP/IP     IPX

Advanced Settings

Timeout: 100

Address Mode

Module ID: 0

Module Name: PANEL #1

IP Address: 192 . 168 . 38 . 28

MAC Address: 00:ED:62:60:10:28

Select Panel

Upp. Firmware...

Panel to Node Config

#	Name	Description
< 1 >		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Add Koyo Node...

Remove Node...

Add/Edit Panel to Node...

OK    Cancel    NetEdit...    Download to Panel    Help

## 5. Select the row in the ‘Panel to Node Configuration’ section in which you wish to insert the Modbus device.

6. Select the 'Add/Edit Panel to Node' button. This will bring up a new dialog box.

**Edit Panel to Node Settings**

Name:

Protocol:  Host  Modbus/Tcp

Settings:

Retries:

Timeout:

Port:

Address Mode:

Module ID:

IP Address:

Gateway:

MAC Address:

OK Cancel Help

7. Enter the name of the Modbus device, if one exists. The name is for reference only. It is not used to connect the node to the panel.
8. Select the 'Modbus/TCP' protocol. This will disable all addressing mode fields except IP and the Gateway. Also note that the Port field is changed to the assigned Modbus/TCP port of 502.



*Note: It is recommended to select either "Modbus/TCP" or "Host" for all nodes. Do not mix the two protocols.*

9. Enter the IP address of the Modbus device.
10. Enter the gateway address only if you are going through a gateway. Otherwise, leave this field to the default of zeros.

**Edit Panel to Node Settings**

Name:

Protocol:  Host  Modbus/Tcp

Settings:

Retries:

Timeout:

Port:

Address Mode:

Module ID:

IP Address:

Gateway:

MAC Address:

OK Cancel Help

11. Select 'OK' to save the current configuration. You may select another 'Panel to Node Config' slot (1 - 10) to add more devices, or proceed to download the current configuration to the target EZ-Touch panel.

**Edit EZ-Touch Panel Configuration**

Configuration Mode  
 Connected to Network - Koyo Plcs Only     Not Connected to Network - Koyo or Modbus/TCP

PC to Panel Config

Protocol  
 TCP/IP     IPX

Advanced Settings  
 Timeout: 100

Address Mode  
 Module ID: 0  
 Module Name: PANEL #1  
 IP Address: 192 . 168 . 38 . 28  
 MAC Address: 00.E0.62.60.10.28

Panel to Node Config

#	Name	Description
< 1 >	EDRIVE #1	Modbus Protocol: IP Address = 192.168.38.100
2		
3		
4		
5		
6		
7		
8		
9		
10		

Buttons: OK, Cancel, NetEdit..., Download to Panel, Help, Select Panel, Upp. Firmware..., Add Koyo Node..., Remove Node..., Add/Edit Panel to Node...

12. Now that you have added a node to the panel configuration, you must connect to the EZ-ETHERPLUS Card, so the configuration can be loaded to it. Click "Download to Panel" and then click "OK".



*Note 1: If the configuration is not downloaded, the EZ-ETHERPLUS card will not know which nodes to communicate with.*

*Note 2: As more nodes are added, the addressing format will change slightly. For example, if a node is added to line 5, the addressing for objects tied to that node would be 5-400001, 5-300001, etc.*

**Edit EZ-Touch Panel Configuration**

Configuration Mode  
 Connected to Network - Koyo Plcs Only     Not Connected to Network - Koyo or Modbus/TCP

PC to Panel Config

Protocol  
 TCP/IP     IPX

Advanced Settings  
 Timeout: 100

Address Mode  
 Module ID: 0  
 Module Name: PANEL #1  
 IP Address: 192 . 168 . 38 . 28  
 MAC Address: 00.E0.62.60.10.28

Select Panel  
 Upg. Firmware...

Panel to Node Config

#	Name	Description
< 1 >	EDRIVE #1	Modbus Protocol: IP Address = 192.168.38.100
2		
3		
4		
5		
6		
7		
8		
9		
10		

Add Koyo Node...  
 Remove Node...  
 Add/Edit Panel to Node...

OK    Cancel    NetEdit...    Download to Panel    Help

Your EZ-ETHERPLUS adapter is now configured. You may exit this utility and proceed to configure your custom user screens in EZ-Touch Edit.

## Netedit

Netedit does not display or configure Modbus slave nodes unless the slave is a product of Host Engineering, Inc., such as our Ethernet Motor Controller. However, you may still use NetEdit to configure the EZ-Ethernet Plus adapter. See page 2-27 of this manual for further information concerning NetEdit.

## Things to Remember

TSince Modbus/TCP is a connection-oriented service, it is possible to have an active connection without actually receiving data from the PLC. Such a condition results in the panel displaying “Read tags retries exceeded”. However, if the actual TCP connection is broken, then the message “PLC’s xx is offline” displays (where xx is a number 1 to 10).

The EZ-ETHERPLUS is designed to communicate with all slave devices through the standard assigned MODBUS/TCP port 502. This parameter is not configurable.

The EZ-ETHERPLUS may be used only on a one node per IP address basis. That is, changing the Modbus Slave ID will not affect the communications.

The EZ-ETHERPLUS is designed to ignore this setting and to use the IP address of the slave to distinguish devices on a given network.

**IMPORTANT:** Never assign duplicate IP addresses. Doing so could result in erratic behavior by the EZ-ETHERPLUS device.

When configuring Modbus slaves, keep in mind that the adapter operates more efficiently when the nodes are configured in contiguous slots, starting with slot number one.