Connecting UniOP Using Festo EasyIP

This Technical Note contains the information needed to connect UniOP to Festo IPC/FEC controllers on the Ethernet network using the EasyIP protocol. The "Festo EasyIP" protocol is associated to the Designer 6 file D32uplc153.dll.

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1. Introduction

The UniOP operator panels can be connected to the Festo IPC/FEC controllers using the Ethernet network. The Festo controller must be equipped with an Ethernet Interface; UniOP must be equipped with the TCM10 or SCM11 Ethernet interface module and the ETAD01 adapter.
In the Designer 'Configure Controller…' dialog box, the communication driver 'Festo EasyIP' must be selected.

2. Designer Configuration

2.1 Designer Controller Setup

Figure 1 shows the Designer Controller Setup dialog box for the Festo EasyIP driver.
The Ethernet IP address of the controller connected to the operator panel must be entered in the "IP address" field.

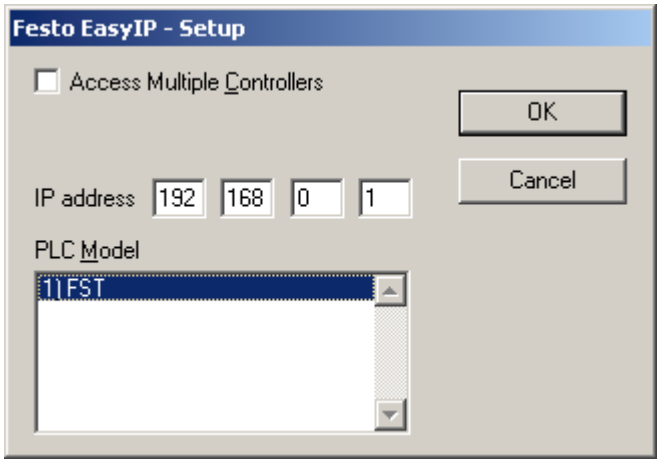

Figure 1– Controller Setup dialog box

The protocol allows the connection of multiple controllers to one operator panel, as shown in Figure 2. To set-up multiple connections, check the "Access Multiple Drives" checkbox in the Controller Setup dialog box, see Figure 1.

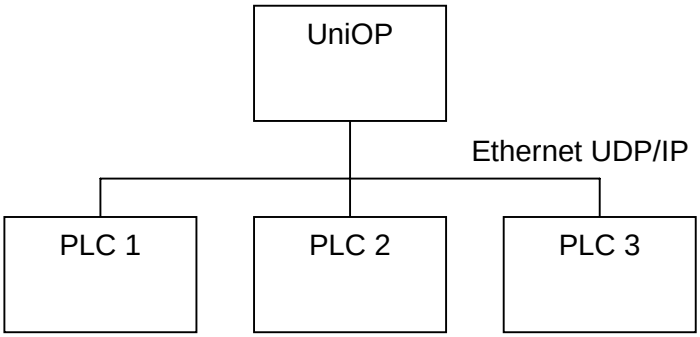

Figure 2– Multiple controller connection

2.2 Designer Panel Setup

The UniOP panel has a unique IP address assigned to it. The IP address for UniOP has to be entered in the Panel Setup dialog box under the tab “External Devices”.
Enter the IP address in the field “Ethernet Board” as shown in Figure 3 below.

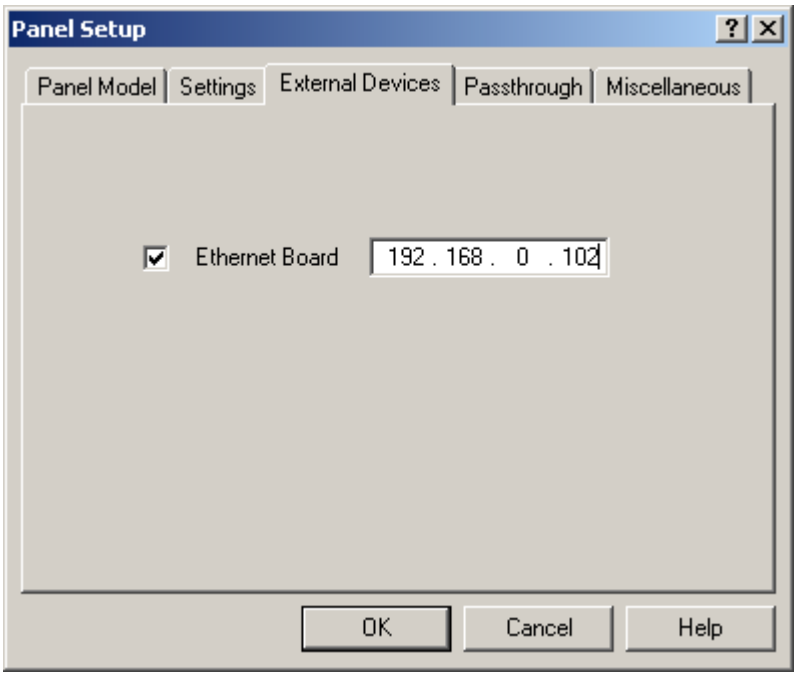

Figure 3

3. PLC Configuration

The EasyIP protocol supported in the IPC/FEC controllers is based on the UDP/IP protocol.
The Port number of the PLC connection is fixed and needs not to be defined in Designer.
The IPC/FEC controller must be properly configured with the TCP/IP Ethernet driver using the FST software.
The Figure 4 below shows the Driver Configuration dialog box of FST version 4.02.

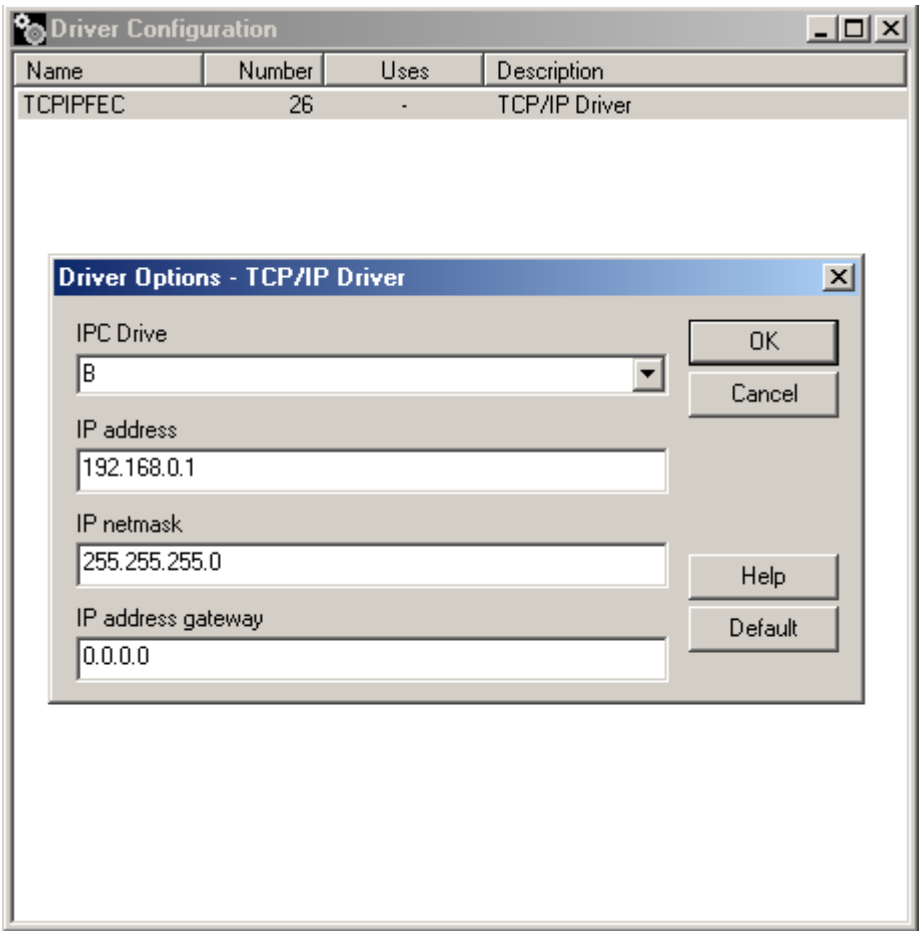

Figure 4

Obviously the IP address configured in the controller must match the address entered in the Designer Controller Setup.

4. Converting Designer Projects

Projects created using "Festo" driver (for communication with IPC/FEC controllers via serial port) can be converted to projects using the "Festo EasyIP" driver (for communication with IPC/FEC controllers via Ethernet).
In the current implementation the data available via the Ethernet connection is a subset of the data available via serial port.
This means, that some of the functions used in the original project may not be supported after switching to the "EasyIP driver.
The following table shows the differences:

Data Type	Festo	Festo EasyIP
Input	Yes	Yes
Output	Yes	Yes
Flag	Yes	Yes
Timer status	Yes	
Timer data	Yes	
Timer preselect	Yes	Yes
Counter status	Yes	
Counter data	Yes	
Counter preselect	Yes	
Data register	Yes	Yes
Function unit	Yes	
String	Yes	Yes

Table 1

4.1 Converting a Serial Project for use with Festo EasyIP

1. Open the Designer project file configured for the Festo driver.
2. Convert the project to Festo EasyIP using Designer Controller Setup.
3. Open the Controller Setup dialog box and create the PLC network including n nodes with unique IP addresses.
4. Review the Controller references used in the project according to the table in the previous section.

4.2 Converting Festo EasyIP Projects for Use with Serial Communication

1. Open the Designer project file configured for Festo EasyIP
2. Convert the project to the Festo serial driver.

Please note that the serial communication does not support connection to multiple controllers; all the controllers defined in the Ethernet network will collapse to the single controller in the serial configuration.

Appendix A. Communication Error Codes

Current communication status is displayed in the System Menu of the UniOP.
A message and a numeric error code describe the error status.
The message reports the current communication status. The number shows the code of the current communication error or, if the communication is correct, the code of the last error encountered. When the error code 0 is shown, it means there have been no communication errors since this system start-up.

Code	Description	Notes
0	**No error**	There are no communication errors and there have been no errors since start-up.
5	**Time out**	No response received from the controller within the timeout period.
6	**Response error**	The PLC has returned an error condition
7	**General communication error**	Software error or UniOP cannot open the socket for communication with the PLC.
9	**Time out**	Time out, ARP not resolved
12	**Response error**	Bad response from PLC.

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