EXOR® *Tech-note*

Connecting UniOP to A-B Ethernet

This Technical Note contains the information needed to connect UniOP to the A-B SLC500 controllers using the Ethernet network built-in in the 5/05 CPU. The "A-B ENET" protocol is associated to the Designer file UPLC168.DLL.

Contents

1. Introduction

The UniOP operator panels can be connected to the Allen-Bradley SLC500 series controllers via
Ethernet. This driver has been tested with built-in Ethernet port of the 1747 – L551 CPU (SLC5/05).
UniOP must be equipped with the SCM11 Ethernet Interface module and the ETAD01 adapter.
In the Designer 'Change Controller Driver…' dialog box, the communication driver 'A-B ENET'
must be selected for communication via Ethernet.

2. Designer Configuration

2.1 Designer Controller Setup

Figure 1 shows the Designer Controller Setup dialog box for the A-B ENET driver.
The Ethernet IP address of the controller connected to the operator panel must be defined in the "IP
address" field.
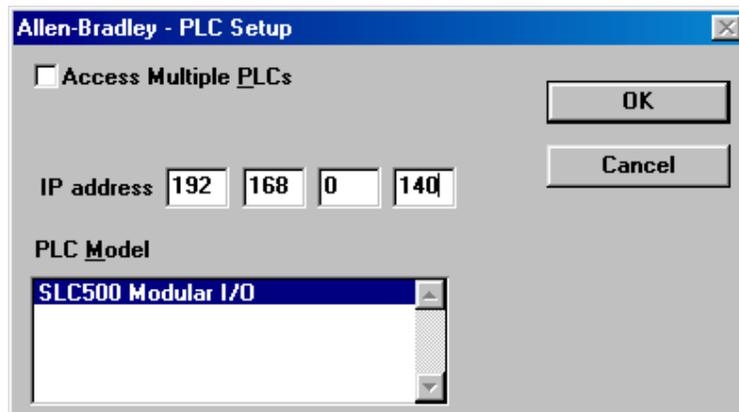
Figure 1– Controller Setup dialog box

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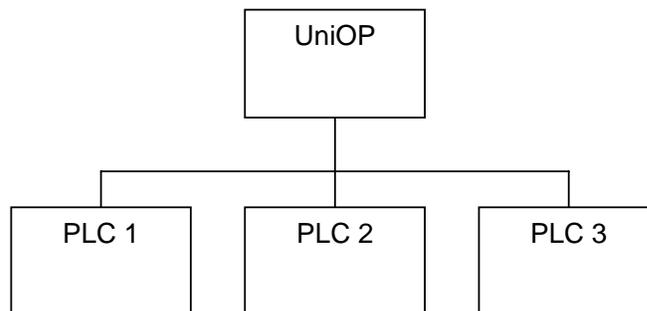
Figure 2– Multiple controller connection

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.
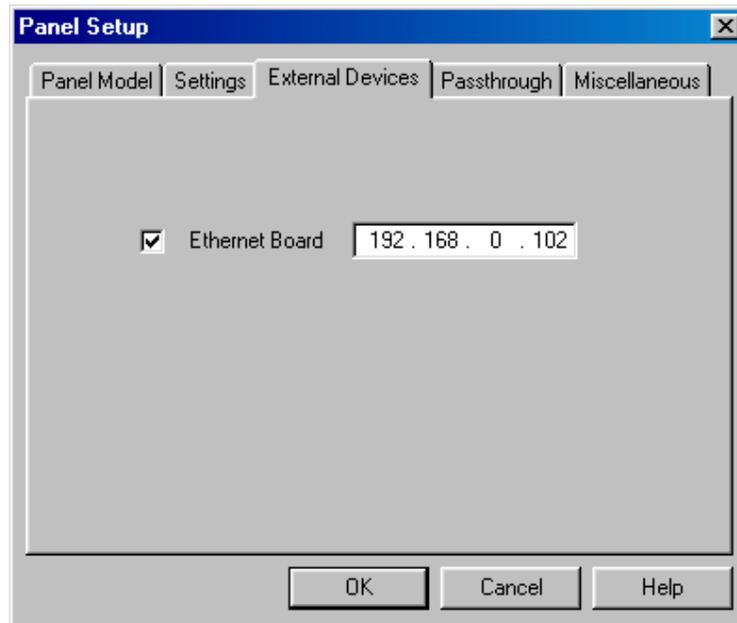
Figure 3

3. PLC Configuration

The PLC has to be properly configured only to match the IP address configured under Designer. No major changes are required respect the default PLC configuration. An example is shown in the picture below.
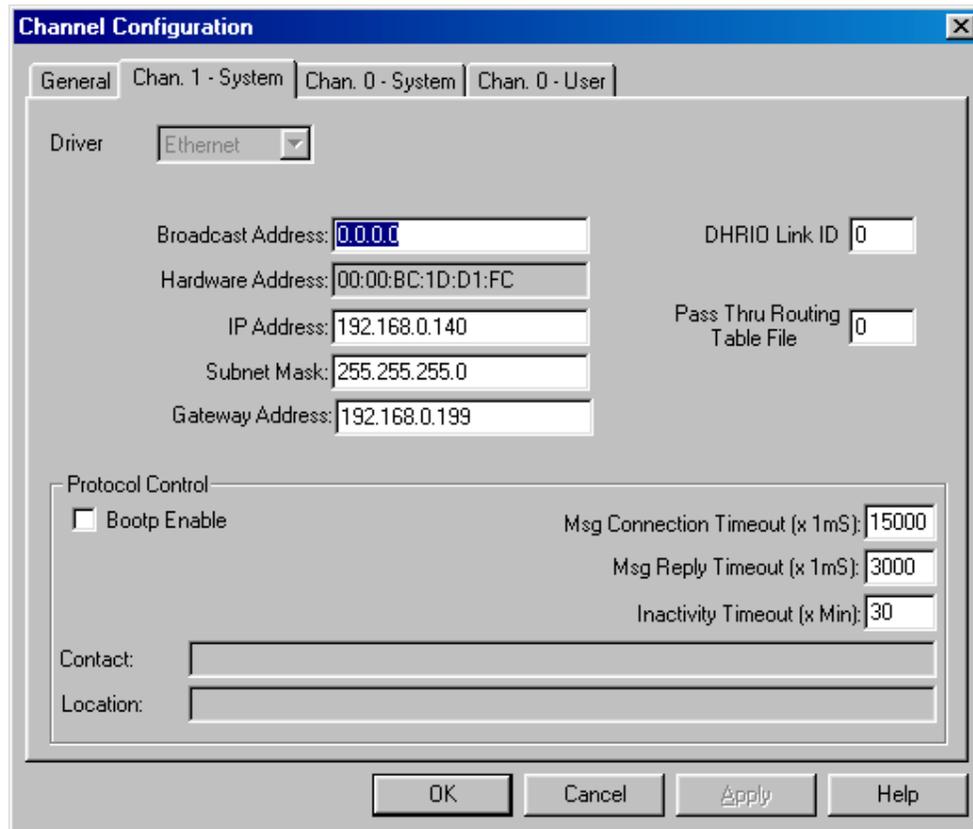
Figure 4

4. Converting Projects

Projects created using "A-B ENET" driver (for communication with A-B controllers via Ethernet) and those created using the "A-B DF1" and "A-B DH-485" drivers (for communication with Allen-Bradley controllers via serial port) are fully compatible. In other words, there is exactly the same view and access to all the variables of the controller with any communication drivers. Project files can be converted from serial protocols to Ethernet protocol and viceversa.

However, as the "A-B ENET" is an Ethernet-based protocol, some special steps must be followed when converting to or from a project created for serial protocols ("A-B DF1" or "A-B DH-485").

4.1   Converting a Serial Project to the A-B ENET project

1. Modify PLC Nodes in the project configured for the serial protocol and make sure that they all follow the increasing sequence 1,2,3...n, where n is the number of nodes used in the project.

2. Convert the project to A-B ENET.

3. Open the Controller Setup dialog box and create the PLC network including n nodes with unique IP addresses. The driver will link the first A-B ENET node to all PLC references previously linked to the PLC with PLC Node number 1 and so on.

4.2   Converting A-B ENET Projects to a Serial Projects

Please note that the A-B DF1 driver does not support Access to Multiple controllers (it only supports Full Duplex operation mode), the conversions steps are only valid when the target driver is the A-B DH-485. In case of the A-B DF1 all the node numbers collapse to a single node number.

1. Convert the project to the serial driver.

2. Open the Controller Setup dialog box and create the PLC network with as many nodes as there were before the conversion (n). Set PLC Node numbers in the increasing sequence 1,2,3...n.

3. The first IP address in the list is converted to PLC Node number 1, the second IP address in the list is converted to PLC Node number 2, and so on.

4. Return to Controller Setup and adjust the PLC Node numbers according to the actual configuration of the serial DH-485 network.

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 or 12	**Response Error**	The controller replay does not match the expected one. The requested data could not be present in the controller memory.
7	**General communication error**	Software error. The panel firmware could not support TCP/IP connections. Contact the manufacturer.
9	**TCP Connection not established**	It may happen if the controller becomes unavailable after the socket is opened, but before the frame is sent.