Connecting UniOP to Omron PLCs with the FINS Protocol

This Technical Note contains the information needed to connect UniOP operator panels to Omron PLCs using the Omron FINS serial communication protocol.
The Omron FINS/SER driver is associated to the Designer file D32UPLC190.DLL.

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1. Introduction

To create a Designer project for connection to Omron controllers using the FINS protocol, select the driver "Omron FINS/SER" from the list of available communication drivers in the 'Configure Controller' dialog box.

***Note**: In the case the Omron FINS/SER driver does not appear in the list, make sure the D32UPLC190.DLL file is present in the Designer installation folder and then press the Refresh button.*

When Omron FINS/SER driver is selected, the UniOP panel will communicate to Omron PLC sending FINS commands over the Host Link protocol.

The UniOP panel must be connected to the PLC using the appropriate communication cable.

The Omron FINS/SER driver is compatible with the 'Omron C Series' driver: you may easily convert project files created for the 'Omron C Series' driver for use with the FINS protocol. The vice versa is not always true as the FINS protocol allows for a much wider addressing range.

2. Controller Setup

Figure 1 below shows the "Controller Setup..." dialog box for the Omron FINS/SER driver.

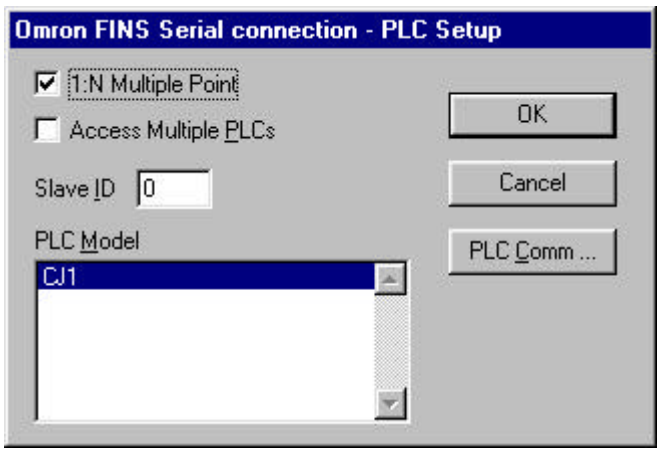

Figure 1 – Controller Setup Dialog Box

In the case of point-to-point communication (the UniOP panel communicates with a single PLC), the "1:N Multiple Point" can be unchecked. Otherwise the Slave ID address identifies the PLC node number on the network.

Communication parameters for serial communication can be adjusted by clicking the "PLC Comm..." button. The default communication parameters are set to 9600,E,7,2.

The current implementation includes only one Omron PLC model, the CJ1.

The protocol allows the connection to multiple PLCs connected to one operator panel. In that case, the "Access Multiple PLCs" option must be used. When Access Multiple PLCs is checked, the dialog box will change and will appear as shown in Figure 2 below.

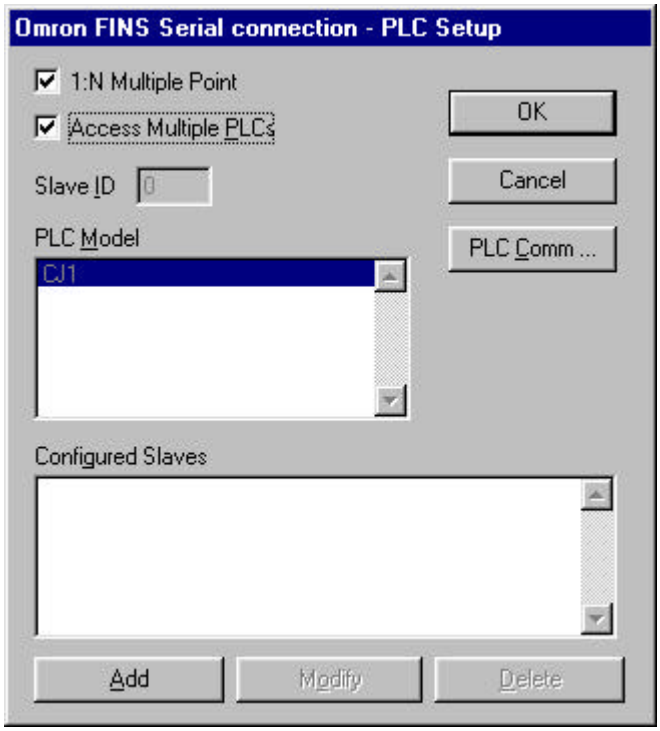

Figure 2 – Controller Setup Dialog Box for multiple controllers setup

Press the "Add" button to add new PLC nodes to the network configuration. Enter unique Slave ID address for every PLC node added.

3. The Data Field Properties dialog box

The Omron FINS/SER Data Field Properties dialog box is shown in the figure below.

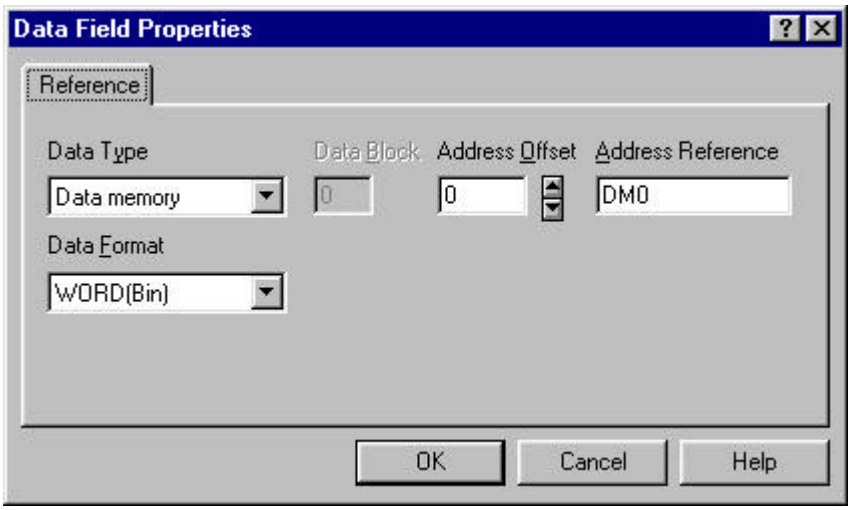

Figure 3 – the Data Field Properties dialog box

The "Data Type" combo box is used to select the referenced memory area.
The following memory areas can be selected:

I/O Area
Aux. Memory relay
Holding relay
Link relay
Timer state
Time present value
Data memory
Extended data memory (15 data blocks)

4. RDA, Alarms, Mailbox and Data Transfer

Only the "Data memory" area can be used for the RDA, Alarms, Mailbox and Data Transfer.

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
00	No error	There are no communication errors and there have been no errors since start-up.
04	Negative ACK	NAK returned by the controller.
05	Time out	No response received form the controller within the timeout period.
06	Response error	Unexpected/unrecognized response from the controller
07	General communication error	General unknown communication error.
11	Line Error	Parity error or similar

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