Connecting UniOP to Baldor Controllers

This Technical Note contains all the information required to connect the UniOP panels to the Baldor controllers.

Important: *this Technical Note applies to the Baldor communication driver identified by the name 'Baldor ' and included in the Designer file UPLC130.DLL.*

Contents

1. Introduction

The protected communication routines allow exchange of data between UniOP and Baldor Mint motion control products (Smartmove, Nextmove Box and Mintdrive). UniOP can read and write data to all 99 'Comms Array' variables.
Please see below for the keywords necessary to activate the protected protocol.

2. Configuring UniOP for Connection to Baldor

To configure a UniOP HMI panel for use with the Baldor controllers in Designer, follow the procedure described in this chapter.

1) Select the option 'Project/Change Controller Driver' and choose 'SmartMove/Mintdrive ' or 'Nextmove'. See figure.

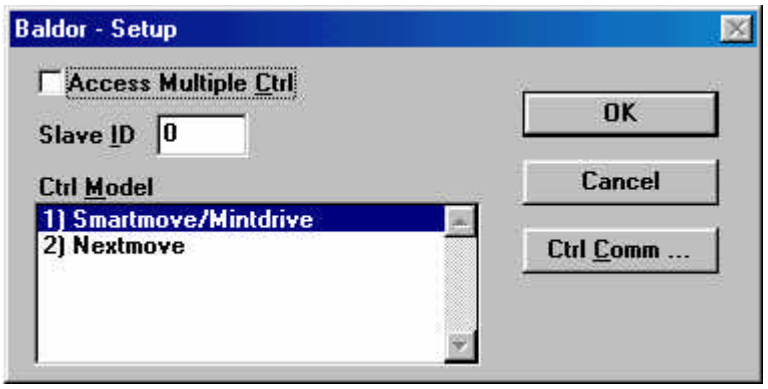

Figure 1 - Controller Setup

2) A UniOP panel can access multiple controllers in a RS-485 multidrop connection. To every controller in the network must be assigned its own unique address. You can specify controller addresses using the 'Panel Slave ID' edit box in the Controller Setup dialog box. See figure above.

3) The Real Time Clock information in the Reserved Data Area (RDA) is coded in BCD

4) The Current Page and the Page Request registers in the RDA are coded in binary. Numerical values have to be scaled 1/1000: write 1000 in the Page Request register to select page 1.

5) Access to the COMMS variables can simply be obtained entering the corresponding address in the Define Field Dialog Box. See figure below.

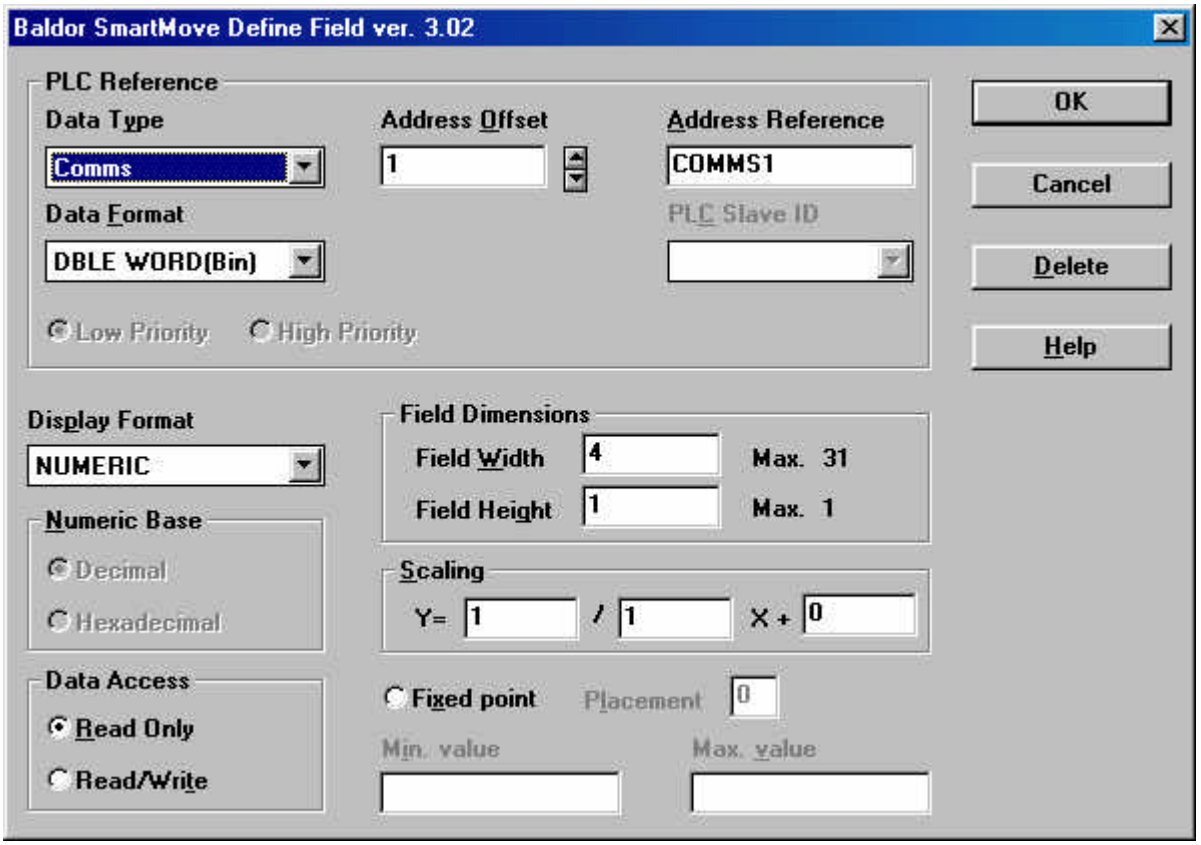

Figure 2 – Define Field Dialog Box

3. Configuring the Baldor Controllers

3.1 Smartmove Controller

The protected protocol is activated by placing the COMMSON keyword in the Mint Configuration file. If there is an AUTO instruction in the configuration file (to execute the Mint program on power up) then COMMSON should be placed as the second line in this file. If there is no AUTO instruction then COMMSON should be placed as the first instruction in this file.

The controller's Mint program must be running for communication to take place between the UniOP and Smartmove. The serial port on the Smartmove controller is configured for operation at 9600 baud, 8 bits, 1 Stop bit, No parity – ensure the UniOP panel's 'Controller is configured to suit this.

All read/write data operates on a three decimal place basis. The range is +/-2147483.647.

To format displayed data the scaling equation (y=mx+c) can be used to suit the number of decimal places actually required on the screen.

3.2 NextMove Controller (v3 firmware)

The protected protocol is activated by placing COMMSMODE._tmRS232=1 in the Mint Configuration or Program file. The serial port on the Nextmove controller is configured for operation at 9600 baud, 8 bits, 1 Stop bit, No parity by default but can be set as high as 19200 baud via the SERIALBAUD keyword (refer to Baldor's Mint for Nextmove manual for further details) – ensure the UniOP panel's 'Controller Setup' is configured to suit the Nextmove settings.

The controller's Mint program must be running for communication to take place between the UniOp and Nextmove.

All read/write data operates on a four decimal place basis. The range is +/-2147483.647.

To format displayed data the scaling equation (y=mx+c) can be used to suit the number of decimal places actually required on the screen.

3.3 NextMove Controller (v4 firmware)

The protected protocol is activated by default.
The serial port on the Nextmove controller is configured for operation at 9600 baud, 8 bits, 1 Stop bit, No parity by default but can be set as high as 19200 baud via the SERIALBAUD

keyword (refer to Baldor's Mint v4 Programming manual for further details) ensure the UniOP panel's 'Controller Setup' is configured to suit the Nextmove settings.

All read/write data operates on a four decimal place basis. The range is +/-2147483.647.

To format displayed data the scaling equation (y=mx+c) can be used to suit the number of decimal places actually required on the screen.

3.4 MintDrive Controller

The protected protocol is activated by default.

The serial port on the Mintdrive controller is configured for operation at 57600 baud, 8 bits, 1 Stop bit, No parity by default although it can be set to lower rates – ensure the UniOP panel's 'Controller Setup' is configured to suit the Mintdrive.

All read/write data operates on a three decimal place basis. The range is +/-2147483.647.

To format displayed data the scaling equation (y=mx+c) can be used to suit the number of decimal places actually required on the screen.

Appendix 1 - Communication Error Codes

Current communication status is displayed in the System Menu of the UniOP.
The error status is described by a message and a numeric error code. The number shows the code of the current communication error and, 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.
05	Timeout	The controller has stopped sending NodeGuarding messages) after initiating the NodeGuarding procedure
06	Response error	Error in response from controller
07	General communication error	Internal software error

Table 1 – Communication Error Codes

Appendix 2 - Technical Data and Connection Information

UniOP communicates via the serial port on the controllers (X7 for the MintDrive).
The part number of the cable for RS-232 communication (without hardware handshaking) is CA202.
The part number of the cable for Mintdrive RS-422 communication is CA203.
The part number of the cable for Smartmove and Nextmove Box RS-422 communication is CA204.

The default baud rate varies for each controller. The UniOP setting can be changed to match that configured in the controller.