Tech-note

Connecting UniOP to Copley Controls Drives

This Technical Note contains the information needed to connect UniOP to the Copley Controls Accelnet, Stepnet and Xenus drives.

Sitek S.p.A.
Tn265
Ver. 1.00

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1 Introduction

The Copley serial communication driver is delivered with the Designer file D32uplc214.dll.
To create a Designer project for communication to the Copley Controls drives, select the driver "Copley" from the list of drivers in the Configure Controller… dialog box.

The Copley ASCII Interface is a set of ASCII format commands that can be used to operate and monitor Copley Controls Accelnet, Stepnet, and Xenus series amplifiers over an RS-232 serial connection.

The Indexer has 32 registers that can be accessed via the amplifiers RS-232 serial port using simple ASCII commands.
These registers can be used to select and execute sequences and pass numeric parameters to the program.
Within an Indexer Program sequence, most numeric parameters, such as gains and trajectory settings, can be passed as a variable parameter via one of the Indexer Program registers.

2 Setting up UniOP for Communication

2.1 Controller Setup

Figure 1 shows the Controller setup dialog box use to configure the drive and the communication parameters. The Comm… button provide access to the Baud rate, data bits, stop bits and parity settings.

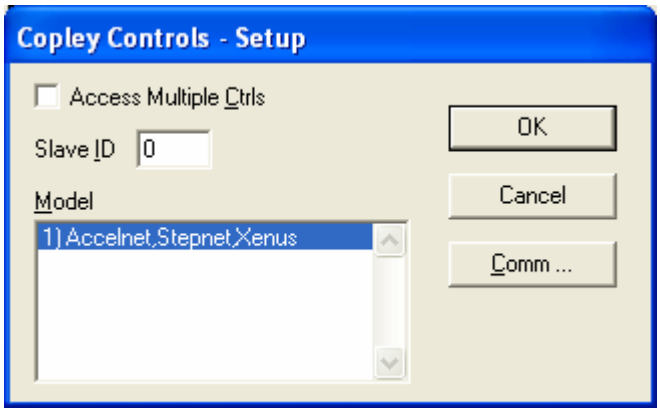

Figure 1 – Controller setup dialog box

2.2 Connecting to Multiple Drives

Both a single axis and multidrop connections are available. In the case of a network connection, CAN is used to connect each amplifier in the chain. Only the first node is connected serially. Please refer to Copley's documentation for details on wiring multiple drives together.

If UniOP is to communicate to multiple drives, check the Access Multiple controller box and configure each node for the correct SlaveID (range 1 to 127).

For point to point connection please use the cable CA249.

3 Available Data Types and Commands

3.1 Read/write Data Types

The Indexer has 32 registers that can be accessed via the amplifiers RS-232 serial port using simple ASCII commands. These registers can be used to select and execute sequences and pass numeric parameters to the program.
Within an Indexer Program sequence, most numeric parameters, such as gains and trajectory settings, can be passed as a variable parameter via one of the Indexer Program registers.

The data types currently available in the driver are:

- Registers (Offset 0 to 32)
- Amplifier status (Individual bits can be accessed to display motor, alarm or motion status)
- Input States
- Output States
- Actual Current
- Actual Motor Velocity
- Actual Motor Position
- Desired State Variable (Program mode selection)

3.2 Commands

UniOP can issue special commands to the controller using the Send Command macro option. You can find the Send Command macro button in the Macro Editor.

The following Reset and Trajectory commands are available:

- Reset Amplifier
- Abort Move
- Start/Update Move
- Initiate Home Sequence

Figure 2 below shows the Command macro icon in the macro editor.

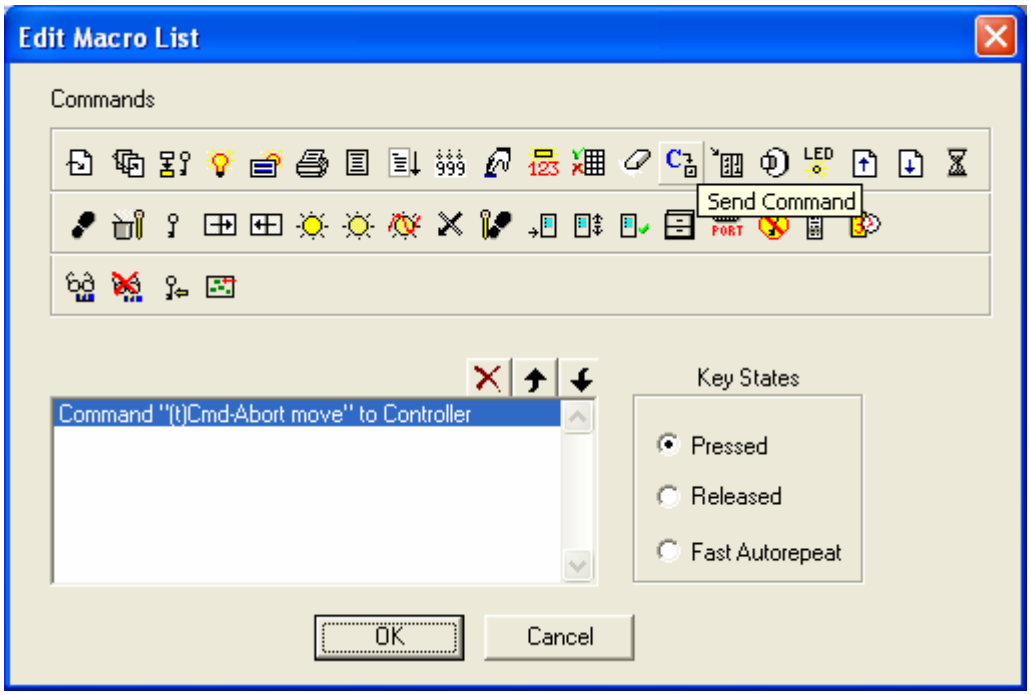

Figure 2 – Command macro editor

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 acknowledge	The controller returned a NAK response
05	Time out	No response received from the controller within the timeout period
06	Response error	Received frame is not correct
07	General communication error	Software error. Contact manufacturer.