

Copley Xenus Controller

Controllers

Overview

Maple Systems' **Silver Series** Operator Interface Terminals (Maple OITs) communicate with Copley Xenus Controllers using the Copley ASCII Interface protocol. When configured with EZware-500, the Maple OIT is the master in a single master, multiple slave format. Please refer to the *Silver Series Installation and Operation Manual* for information on connecting multiple Maple OITs to a single PLC port.

Compatible PLCs	
Family	Model
Xenus	All

Communications Cable

The Maple OIT should be connected to the serial communications port.

A list of communications cables offered by Maple Systems as well as cable assembly instructions to assist you in assembling your own communications cable are available on our website at www.maple-systems.com/cables.htm.

WARNING: If your communications cable is not wired exactly as shown in our cable assembly instructions, damage to the OIT or loss of communications can result.

Controller Settings

The Controller must be set to CAN Address 0.



Accessible PLC Memory

Register Memory

The following table lists the PLC's register memory ranges that the Maple OITs are able to access. Please note that your PLC's memory range may be *smaller* or *larger* than that supported by these OITs. The following register memory can be displayed in 16, 32, or 64 bit format on the Maple OIT.

PLC Register Type	Address Range	Format	PLC Register Description
Register	0-31	dd (d=decimal)	Read/Write Controller Register
FlashWord	00-FF	hh (h=hexadecimal)	Read/Write Flash Memory Address
RamWord	00-FF	hh	Read/Write Ram Memory Address
Trajectory	N/A	N/A	Read/Write Trajectory Generator

Discrete Memory

The following table lists the PLC's discrete memory ranges that the Maple OITs are able to access. Please note that your PLC's memory range may be *smaller* or *larger* than that supported by these OITs. The following discrete memory is displayable in single-bit format on the Maple OIT.

PLC Register Type	Address Range	Format	PLC Register Description
RegisterBit	0.00-31.15	dd.bb (d=decimal, b=bit) ¹	Read/Write a specific bit in a Controller Register.
FlashBit	0.00-FF.15	hh.bb (h=hexadecimal, b=bit) ¹	Read/Write a specific bit in a Flash Memory address.
RamBit	0.00-FF.15	hh.bb ¹	Read/Write a specific bit in a Ram Memory address
CopyFlashToRam	00-FF	hh	Copy a value from the specified Flash memory address to the same address in Ram
CopyRamToFlash	00-FF	hh	Copy a value from the specified Ram memory address to the same address in Flash.

Note: 1 When specifying a bit, use 2 digits for the bit. Use leading zeroes if necessary.

Important Memory Considerations

If your PLC's memory range is smaller than the range supported by the Maple OITs, it is possible to configure the OIT to monitor a PLC memory address which does not exist. Since this can cause unpredictable results, when you configure the OIT please ensure that all selected PLC memory addresses are valid for your PLC model.

Do not configure the OIT to write to any PLC memory address which should only be written to by the PLC.

EZware-500 Settings

The following table lists the communications settings that must be configured in EZware-500. These settings can be found in the Edit-Set System Parameters menu under the PLC tab. Please note:

- the **Recommended Settings** column provides the recommended setting based upon the default settings most commonly used in the Xenus Controller.
- the **Options** column lists EZware-500's options; your PLC may not support every option

Name	Recommended Settings	Options	Important Notes
PLC type:	Copley Xenus v X.YZ		
Serial port I/F:	RS232	RS-232; RS-485 Default; RS-485, 2W; RS-485, 4W	
Data Bits:	8	7 or 8	Must match the PLC's port setting.
Stop Bits:	1	1 or 2	Must match the PLC's port setting
Baud Rate:	9600	9600, 19200, 38400, 57600, 115200	Must match the PLC's port setting. Use the fastest baud rate supported by the PLC.
Parity:	None	Even, Odd, None	Must match the PLC's port setting.
HMI Station No.:	0	0-255	Does not apply to this protocol.
PLC station No.:	0	0-127	Must match the PLC's port setting.
Turn-around Delay:	0	1-5	Specifies a time delay between when the HMI receives a reply to a command, and when the next command is sent. Use this if communications are erratic due to a slow response from the controller. Set in units of 10 milliseconds.

Parameter 6:	0	0-8998	Address of Station Number Offset: If greater than 0, this specifies the Local Word (LW) address containing the Station Number. The offset is added to the specified PLC Station Number Offset. This allows the station number to be changed dynamically, by using a macro to change the value in the specified local word.
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Communication Troubleshooting

Error Message	Possible Causes
PLC No Response	<ol style="list-style-type: none"> 1. Bad cable 2. Check that EasyBuilder's <i>PLC Station Number</i> setting is 0, and that the Xenus' <i>CAN Address</i> is also set to 0. 3. Communications settings mismatch. Make sure the Baud Rate, Data Bits, Parity, and Stop Bits in EasyBuilder match how the PLC is set up.
PLC Response Error/ Always Respond Error	<ol style="list-style-type: none"> 1. Check that EasyBuilder's <i>PLC Station Number</i> setting is 0, and that the Xenus' <i>CAN Address</i> is also set to 0. 2. The controller returned one of the error codes listed below. Check the value in HMI Local Word 8999 (LW8999) for the most recent error code from the controller.

Xenus Error Codes (as of February 2007)

Code	Meaning
1	Too much data passed with command.
3	Unknown command code.
4	Not enough data was supplied with the command.
5	Too much data was supplied with the command.
9	Unknown variable ID.
10	Data value out of range.
11	Attempt to modify read-only variable.
14	Unknown axis state.
15	Variable doesn't exist on requested page.
18	Illegal attempt to start a move while currently moving.
19	Illegal velocity limit for move.
20	Illegal acceleration limit for move.
21	Illegal deceleration limit for move.
22	Illegal jerk limit for move.
25	Invalid trajectory mode.
27	Command is not allowed while CVM is running.
31	Invalid node ID for serial port forwarding.
32	CAN Network communications failure.
33	ASCII command parsing error.