



# Allen-Bradley

## SLC500 & MicroLogix Series (DH485 point-to-point)

### Overview

Maple Systems' **Silver Plus Series** Operator Interface Terminals (Maple OITs) communicate with Allen-Bradley SLC500 and MicroLogix Series PLCs using the DH485 protocol. When configured with EZware-5000, the Maple OIT is the master in a point-to-point single master, single slave format. Please refer to the *Silver Plus Series Installation and Operation Manual* for information on connecting multiple Maple OITs to a single DH485 port.

Compatible PLCs	
Family	Model
SLC500 Series	SLC5/01, SLC5/02, SLC5/03, SLC5/04, SLC5/05
MicroLogix Series	ML1000 DH-485/HD Slave, ML1200, ML1500

**Note:** This driver requires a higher processor. Using with "T" models will result in diminished performance. We recommend this driver be used with "X" models only.

### Communications Cable

The Maple OIT should be connected to the DH485 connection on the PLC.

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.maplesystems.com/cables.htm](http://www.maplesystems.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.

### PLC Settings

The PLC must be set to a different DH485 Address than the OIT.

The PLC node ID must be configured in the PLC.

The DH485 CPU port's Baud Rate, Parity, Data Bits, and Stop Bits settings must match the settings in EZware-5000.

# 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 or 32 bit format on the Maple OIT.

PLC Register Type	Address Range	Format	PLC Register Description
T4SV	Element, ddd: 000-254	ddd (d=decimal)	Timer File 4 Preset
T4PV	Element, ddd: 000-254	ddd	Timer File 4 Accumulated
C5SV	Element, ddd: 000-254	ddd	Counter File 5 Preset
C5PV	Element, ddd: 000-254	ddd	Counter File 5 Accumulated
TfnSV <sup>1</sup>	File, fff:, 000-254 Element, ddd: 000-254	fffddd	<i>Any</i> Timer File Preset
TfnPV <sup>1</sup>	File, fff:, 000-254 Element, ddd: 000-254	fffddd	<i>Any</i> Timer File Accumulated
CfnSV <sup>1</sup>	File, fff:, 000-254 Element, ddd: 000-254	fffddd	<i>Any</i> Counter File Preset
CfnPV <sup>1</sup>	File, fff:, 000-254 Element, ddd: 000-254	fffddd	<i>Any</i> Counter File Accumulated
F8	Element, ddd: 000-254	ddd	Floating Point File 8 data.
N7	Element, ddd: 000-254	ddd	Integer File 7 data.
N10	Element, ddd: 000-254	ddd	Integer File 10 data.
N11	Element, ddd: 000-254	ddd	Integer File 11 data.
N12	Element, ddd: 000-254	ddd	Integer File 12 data.
N13	Element, ddd: 000-254	ddd	Integer File 13 data.
N14	Element, ddd: 000-254	ddd	Integer File 14 data.
N15	Element, ddd: 000-254	ddd	Integer File 15 data.
Nfn <sup>1</sup>	File, fff:, 000-254 Element, ddd: 000-254	fffddd	<i>Any</i> Integer File data
S	Element, ddd: 000-254	ddd	Integers in the Status File

## 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
I1	Element, ddd: 000-254 Bit, bb: 00-15	ddd <sup>1</sup> bb <sup>2</sup>	Input Bits
O0	Element, ddd: 000-254 Bit, bb: 00-15	ddd <sup>1</sup> bb <sup>2</sup>	Output Bits
B3 <sup>2</sup>	Element, ddd: 000-254 Bit, bb: 00-15	ddd <sup>1</sup> bb <sup>2</sup>	Bits in B3 file
B10 <sup>2</sup>	Element, ddd: 000-254 Bit, bb: 00-15	ddd <sup>1</sup> bb <sup>2</sup>	Bits in B10 file
B11 <sup>2</sup>	Element, ddd: 000-254 Bit, bb: 00-15	ddd <sup>1</sup> bb <sup>2</sup>	Bits in B11 file
B12 <sup>2</sup>	Element, ddd: 000-254 Bit, bb: 00-15	ddd <sup>1</sup> bb <sup>2</sup>	Bits in B12 file
B13 <sup>2</sup>	Element, ddd: 000-254 Bit, bb: 00-15	ddd <sup>1</sup> bb <sup>2</sup>	Bits in B13 file
Bfn <sup>1,2</sup>	File, fff:003, 010-254 Element, ddd: 000-254 Bit, bb: 00-15	fffddd <sup>1</sup> bb <sup>2</sup>	Bits in <i>any</i> B file; B3, B10-B254. All fields are padded w/ leading 0's.
NfnBit <sup>1,2</sup>	File, fff:007, 010-254 Element, ddd: 000-254 Bit, bb: 00-15	fffddd <sup>1</sup> bb <sup>2</sup>	Bits in <i>any</i> N file; N7, N10-N254. All fields are padded w/ leading 0's.
S_Bit	Element, ddd: 000-254 Bit, bb: 00-15	ddd <sup>1</sup> bb <sup>2</sup>	Bits in the status file

<sup>1</sup> File and Element numbers must be 3 digits. Use Leading Zeros where necessary.

<sup>2</sup> Bit numbers must be 2 digits. Use Leading Zeros where necessary.

**NOTE:** Although the tables list data files 10 - 13 as both Bit and Integer, a PLC Data File can exist only as one data type.

**NOTE:** Although EZware-5000 allows objects to be tagged to PLC memory addresses I1 and O0, these addresses are not supported on the SLC products, and only local I/O on the MicroLogix is supported.

## Memory Not Supported

The following PLC memory areas are not currently supported by the Maple OITs:

- Data File 9 (of any type)
- Control Files (Type R)

## 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-5000 Settings

The following table lists the communications settings that must be configured in EZware-5000. 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 Allen-Bradley SLC500 & MicroLogix PLCs
- the **Options** column lists EZware-5000's options; your PLC may not support every option

Name	Recommended Settings	Options	Important Notes
Name:	Allen-Bradley DH485		Description label
HMI or PLC:	PLC		
Location:	Local	Local, Remote	Select Local if PLC directly connected to OIT, remote if PLC connected through another OIT.
PLC Type:	Allen-Bradley DH485		
PLC I/F:	RS232	RS232, RS485 2W, RS485 4W, Ethernet	Must match the PLC port setting.
PLC Default Station No:	1	0-255	Must match the node address on the Data Highway network.
Settings: COM:	COM1	COM1-COM3	Serial port of OIT connected to PLC.
Settings: Baud Rate.:	19200	9600, 19200, 38400, 57600, 115200	Must match the port setting. Use the fastest baud rate supported by the controller.

Settings: Data Bits:	8	7 or 8	Must match the port setting.
Settings: Stop Bits:	1	1 or 2	Must match the port setting.
Settings: Parity:	Even	Even, Odd, None	Must match the port setting.
Settings: Timeout (sec):	1.0	0.1-25.5	Adjust if longer timeout required.
Settings: Turnaround delay (ms):	0	0-1000	Timeout period between OIT polls.
Send Ack Delay:	0		Not Applicable
Parameter 1:	0		Not Applicable
Parameter 2:	0		Not Applicable
Parameter 3:	0		Not Applicable
Interval of block pack (words):	5	0-512	See <i>Silver Plus Series Installation and Operation Manual</i>
Max read-command size (words):	32		Not Adjustable
Max write command size (words):	32		Not Adjustable