


C O N T R O L L E R I N F O R M A T I O N S H E E T

Maple Model(s)	PLC or Controller
HMI5000 Series	Allen-Bradley SLC500 & MicroLogix Series (DH485 point-to-point)



Summary

Maple Systems' **HMI5000 Series** Human/Machine Interface Terminals (Maple HMIs) communicate with Allen-Bradley SLC500 and MicroLogix Series PLCs using the DH485 protocol. When configured with EZware-5000, the Maple HMI is the master in a point-to-point single master, single slave format. Please refer to the *HMI5000 Series Installation and Operation Manual* for information on connecting multiple Maple HMIs 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 "N, NH, TH, and X" models only.*

Communications Cable

The Maple HMI 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.

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

PLC Settings:

The PLC must be set to a different DH485 Address than the HMI.
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The PLC node ID must be configured in the PLC.
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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 HMIs are able to access. Please note that your PLC's memory range may be *smaller* or *larger* than that supported by these HMIs. The following register memory can be displayed in 16, 32, or 64 bit format on the Maple HMI.

(Note: d=decimal)

PLC Register Type	Address Range	Format	PLC Register Description
T4SV	Element, ddd: 000-254	ddd	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 ¹	File, fff:, 000-254	fffddd	Any Timer File Preset
TfnPV ¹	File, fff:, 000-254	fffddd	Any Timer File Accumulated
CfnSV ¹	File, fff:, 000-254	fffddd	Any Counter File Preset
CfnPV ¹	File, fff:, 000-254	fffddd	Any 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 ¹	File, fff:, 000-254	fffddd	Any Integer File data
S	Element, ddd: 000-254	ddd	Integers in the Status File

NOTE¹: The device type of Ffn allows access to any data file (fff) and address (nnn) in the Floating Point (F) memory area. Likewise, the device type of Nfn allows access to any data file (fff) and address (nnn) in the Integer (N) memory area. fff specifies the data file 000-254. For example, to specify Integer data file 97, address 45 (N95:45), select device type as Nfn and enter 097045 in to the device address field. Ensure that the data file and data addresses are entered using leading zeros when necessary.

Discrete Memory

The following table lists the PLC's discrete memory ranges that the Maple HMIs are able to access. Please note that your PLC's memory range may be *smaller* or *larger* than that supported by these HMIs. The following discrete memory is displayable in single-bit format on the Maple HMI. (**Note: d=decimal, b=bit**)

PLC Register Type	Address Range	Format	PLC Register Description
I1	Element, ddd: 000-254 Bit, bb: 00-15	ddd bb	Input Bits
O0	Element, ddd: 000-254 Bit, bb: 00-15	ddd bb	Output Bits
² B3	Element, ddd: 000-254 Bit, bb: 00-15	ddd bb	Bits in B3 file
² B10	Element, ddd: 000-254 Bit, bb: 00-15	ddd bb	Bits in B10 file
² B11	Element, ddd: 000-254 Bit, bb: 00-15	ddd bb	Bits in B11 file
² B12	Element, ddd: 000-254 Bit, bb: 00-15	ddd bb	Bits in B12 file
² B13	Element, ddd: 000-254 Bit, bb: 00-15	ddd bb	Bits in B13 file
^{1, 2} Bfn	File, fff:003, 010-254 Element, ddd: 000-254 Bit, bb: 00-15	fffddd bb	Bits in any B file; B3, B10-B254. All fields are padded w/ leading 0's.
^{1, 2} NfnBit	File, fff:007, 010-254 Element, ddd: 000-254 Bit, bb: 00-15	fffddd bb	Bits in any N file; N7, N10-N254. All fields are padded w/ leading 0's.
S_Bit	Element, ddd: 000-254 Bit, bb: 00-15	ddd bb	Bits in the status file

¹ File and Element numbers must be 3 digits. Use Leading Zeros where necessary.

² 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 HMIs:

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

Important Memory Considerations

<p>If your PLC's memory range is smaller than the range supported by the Maple HMIs, it is possible to configure the HMI to monitor a PLC memory address which does not exist. Since this can cause unpredictable results, when you configure the HMI please ensure that all selected PLC memory addresses are valid for your PLC model.</p>
<p>Do not configure the HMI to write to any PLC memory address which should only be written to by the PLC.</p>

EZware Settings

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

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

Name	Recommended Settings	Options	Important Notes
Name:	Allen-Bradley DH485, SLC500 and Micro		Description label
HMI or PLC:	PLC		
Location:	Local	Local, Remote	Select <i>Local</i> if PLC directly connected to HMI; <i>Remote</i> if PLC connected through another HMI.
PLC Type:	Allen-Bradley DH485, SLC500 and Micro		
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.

Name	Recommended Settings	Options	Important Notes
Settings: COM:	COM1	COM1-COM3	Serial port of HMI 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 controller port setting.
Settings: Stop Bits	1	1 or 2	Must match the controller port setting.
Settings: Parity:	Even	Even, Odd, None	Must match the controller port setting.
Settings: Timeout (sec)	1.0	0.1 to 25.5	Adjust if longer timeout is required.
Settings: Turn around delay (ms):	0	0-1000	Timeout period between HMI polls.
Settings: Send ACK Delay	0	0 – 9999	Not Applicable
Settings: Parameter 1 :	0		Not Applicable
Settings: Parameter 2:	0		Not Applicable
Settings: Parameter 3:	0		Not Applicable
Interval of block pack (words):	5	0-512	See <i>HMI5000 Series Programming Manual</i> (Maple p/n 1010-1007)
Max. read-command size (words):	32		Not Adjustable
Max. write-command size (words):	32		Not Adjustable