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 MicroLogix Series (DF1 CRC)

Summary

Maple Systems' **HMI5000 Series** Human/Machine Interface Terminals (Maple HMIs) communicate with Allen-Bradley MicroLogix Series PLCs using the DF1 Full Duplex protocol. When configured with EZware-5000, the Maple HMI is the master.

Compatible PLCs

PLC Family	PLC Model
MicroLogix 1000 Series	All
MicroLogix 1100 Series	All
MicroLogix 1200 Series	All
MicroLogix 1400 Series	All
MicroLogix 1500 Series	All

Communications Cable

The Maple HMI can be connected directly to the Programming port 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.

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

Full Duplex Operation must be set.
No Hardware Handshaking must be set.
Error Checking is CRC.

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 or 32-bit format on the Maple HMI

(Note: d=decimal)

PLC Register Type	Address Range	Format	PLC Register Description
T4SV	0 to 255	ddd	Timer Preset Values
T4PV	0 to 255	ddd	Timer Accumulated Values
C5SV	0 to 255	ddd	Counter Preset Values
C5PV	0 to 255	ddd	Counter Accumulated Values
TfnSV	0 to 255255	fffnnn File No. fff: 4, 10-255 Element No. nnn: 0-255	Timer Preset Values
TfnPV	0 to 255255	fffnnn (see above)	Timer Accumulated Values
CfnSV	0 to 255255	fffnnn File No. fff: 5, 10-255 Element No. nnn: 0-255	Counter Preset Values
CfnPV	0 to 255255	fffnnn (see above)	Counter Accumulated Values
N7	0 to 255	ddd	Integer Data
N10-N15	0 to 255	ddd	Integer Data
Nfn	0 to 255255	fffnnn File No. fff: 7, 10-255 Element No. nnn: 0-255	Integer Data
F8	0 to 255	ddd	Floating Point Data
Ffn	0 to 255255	fffnnn File No. fff: 8, 10-255 Element No. nnn: 0-255	Floating Point Data
S	0 to 255	ddd	Status Data
Lfn	0 – 255	fffnnn	Long Integer Data

NOTE: The device type of Ffn allows access to any data file (fff) and element address (nnn) in Floating Point (F) memory. Nfn allows access to any data file and element address in Integer (N) memory. For example to specify Integer data file 97, address 45 (N97:45), select device type Nfn. Then enter 097045 into the device address field. Ensure that data is entered using leading zeroes 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 Bit Type	Address Range	Format	PLC Bit Description
O0*	00 to 25515	dddbb	Discrete Outputs
I1*	00 to 25515	dddbb	Discrete Inputs
B3	00 to 25515	dddbb	Discrete Inputs
B10-B13	00 to 25515	dddbb	Discrete Inputs
Bfn	00300000 to 25525515	fffnnnbb File No. fff: 3, 10-255 Element No. nnn: 0-255 Bit Address bb: 0-15	Bit Data
NfnBit	00700000 to 25525515	fffnnnbb File No. fff: 7, 10-255 Element No. nnn: 0-255 Bit Address bb: 0-15	Integer Bit Data
S_Bit	00200 to 25515	nnnbb Element No. nnn: 0-255 Bit Address bb:	Status Bit Data

NOTE: When accessing bit data, use the syntax described above in the Device Address field. The element word and bit values must contain a leading 0 when necessary. For example, to address bit 8 in element word 5, the Device Address field would contain '508'. To address file 7, element word 3 and bit address 2 in NfnBit, the Device Address field would contain '700302'.

*Only base I/O is addressable. For units with more than 16 base inputs or outputs, bits above address x:0/15 (x:1/15, x:2/15, etc.) are not accessible. To use data from non-accessible addresses, map data to accessible addresses such as B3 bits.

Important Memory Considerations

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

Memory Not Supported

Slot Addressing (Expansion Cards)

EZware Settings

The following table lists the communications settings that must be configured in EZware. These settings can be found in the *Edit-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 MicroLogix controllers.
- The **Options** column lists EZware's options; your PLC may not support every option

Name	Recommended Settings	Options	Important Notes
Name:	Allen-Bradley SLC500 & MicroLogix (DF1 CRC)		Description of Comm Port
HMI or PLC	PLC		
Location	Local	Local, Remote	Select *Local* if PLC directly connected to HMI, *Remote* if PLC connected thru another HMI.
PLC type	Allen-Bradley SLC500 & MicroLogix (DF1 CRC)		
PLC I/F:	RS232	RS-232, RS-485 2W, RS-485 4W, Ethernet	Must match the PLC port setting.
PLC default station no.:	1	0-255	Must match the default station no. assigned to the PLC.
Settings:	COM 1	COM1-COM3	Serial port of HMI connected to PLC.
Settings: Baud rate:	9600	9600, 19200, 38400, 57600, 115200	Must match the PLC's port setting. Use the fastest baud rate supported by the PLC.
Settings: Data bits:	8	7 or 8	Must match the PLC's port setting.
Settings: Stop bits:	1	1 or 2	Must match the PLC's port setting.

Name	Recommended Settings	Options	Important Notes
Settings: Parity:	None	Even, Odd, None	Must match the PLC's 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		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 HMI5000 Series Programming Manual (Maple p/n 1010-1007)
Max. read-command size (words):	32		Not Adjustable
Max. write-command size (words):	32		Not Adjustable

Online Simulator	Yes
Broadcast Command	Not Supported