

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 Series (DF1 Serial)



Summary

Maple Systems' **HMI5000 Series** Human/Machine Interface Terminals (Maple HMIs) communicate with Allen-Bradley SLC500 Series PLCs using the DF1 Full Duplex protocol. When configured with EZware-5000, the Maple HMI is the master in a point-to-point single master, multiple slave format.

Compatible PLCs

PLC Family	PLC Model
SLC500 Series	SLC5/01, SLC5/02, SLC5/03, SLC5/04, SLC5/05

Communications Cable

For the SLC5/01 and SLC5/02, the Maple HMI should be connected to:

- The DF1 port on the 1747-KE or 1770-KF3 module;

For the SLC5/03, SLC5/04, and SLC5/05 the Maple HMI should be connected to:

- The Channel 0 (RS-232) 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

Fill Duplex Operation must be set.
No Hardware Handshaking must be set.
The Checksum must be set to CRC (this is the default).

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	0-254	ddd	Timer Preset Values
T4PV	0-254	ddd	Timer Accumulated Values
C5SV	0-254	ddd	Counter Preset Values
C5PV	0-254	ddd	Counter Accumulated Values
N7	0-254	ddd	Integer Data
F8	0-254	ddd	Floating Point Data
Ffn	0-254254	fffnnn ¹	Floating Point Data
Nfn	0-254254	fffnnn ¹	Integer Data

¹ **NOTE:** 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, and nnn specifies the data address 000-254. For example, to specify Integer data file 97, address 45 (N97:45), select device type as Nfn and enter 097045 into the device address field. Ensure that the data file and data address are 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
B3	0.0 to 254.15	ddd.bb ²	Bit Data
Bfn	00300000-25425415	fffnnnbb ³	Bit Data
Nfn Bit	00700000-25425415	fffnnnbb ³	Bit Data

² **NOTE:** When accessing bit data, use the following syntax in the Device Address field: <word>.<bit>
The bit value must contain the leading 0. For example, to address bit 8 in word 5, the Device Address field would contain: 5.08

³ **NOTE:** The Bfn and Nfn Bit devices allow access to bits in any bit data file and any word data file respectively. In the former, fff refers to the data file (000-254), nnn refers to the data address (000-254), and bb refers to the bit number (00-15). For example, Nfn bit 01110702 refers to N11:107.2. Note that the leading zeroes are required in all three fields.

Memory Not Supported

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

- Input File (I1)
- Output File (O0)
- Status File (S2)
- Data File 9 (of any type)
- Control Files (Type *R*)

Note Although input files (*I1*) and output files (*O0*) are listed in EZware-5000, these are only supported for Allen-Bradley MicroLogix PLCs.

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.

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 Allen-Bradley SLC500 PLC.
- The **Options** column lists EZware's options; your PLC may not support every option.

Name	Recommended Settings	Options	Important Notes
Name:	Allen-Bradley DF1		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 thru another HMI.

Name	Recommended Settings	Options	Important Notes
PLC type	Allen-Bradley DF1		
PLC I/F:	RS-232	RS-232, RS-485 2W, RS-485 4W, Ethernet	Must match the DF1 port setting.
PLC default station no.:	1	0-255	Must match the node address assigned on the Data Highway network.
Settings: COM:	COM 1	COM1-COM3	Serial port of HMI connected to PLC.
Settings: Baud rate:	19200	4800, 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 DF1 port setting.
Settings: Stop bits:	1	1 or 2	Must match the DF1 port setting.
Settings: Parity:	None	Even, Odd, None	Must match the DF1 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 <i>HMI5000 Series Programming Manual</i> (Maple p/n 1010-1007)

Name	Recommended Settings	Options	Important Notes
Max. read-command size (words):			Not Adjustable
Max. write-command size (words):			Not Adjustable