

# Allen-Bradley

## PLC-5 Family (DF1)

### Overview

Maple Systems' **Silver Series/HMI500 Series** Operator Interface Terminals (Maple OITs) communicate with Allen-Bradley PLC-5 Family PLCs using the DF1 Full Duplex protocol. When configured with EZware-500, the Maple OIT is the master in a point-to-point single master, single slave format. Please refer to the *Silver Series Installation and Operation Manual* for information on connecting multiple Maple OITs to a single DF1 port.

Compatible PLCs	
Family	Model
PLC-5 Family	PLC-5/10, PLC-5/11, PLC-5/15, PLC-5/20, PLC-5/25, PLC-5/30, PLC-5/40

### Communications Cable

For the PLC-5/10, PLC-5/15 and PLC-5/25 the Maple OIT should be connected to:

- the DF1 port on the 1785-KE module;

for the PLC-5/11, PLC-5/20, PLC-5/30 and PLC-5/40 the Maple OIT should be connected to:

- the Channel 0 Port on the PLC.

**NOTE:** The Maple OIT can be connected directly to any PLC-5 Family processor that contains a serial port that supports the DF1 protocol.

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](http://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.



# PLC Settings

Full 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 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
T4SV	0-254	ddd (d=decimal)	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
N10	0-254	ddd	Integer Data
N11	0-254	ddd	Integer Data
N12	0-254	ddd	Integer Data
N13	0-254	ddd	Integer Data
N14	0-254	ddd	Integer Data
N15	0-254	ddd	Integer Data
Ffn	0-254254	fffnnn <sup>1</sup>	Floating Point Data
Nfn	0-254254	fffnnn <sup>1</sup>	Integer Data

<sup>1</sup> NOTE: The device type "Ffn" allows access to any data file (fff) and address (nnn) in the Floating Point (F) memory area. Likewise, the device type "Nfn" allows access to any data file (fff) and address (nnn) in the Integer (N) memory area. In the format column, fff specifies the data file 000-254, and nnn specifies the data address 000-254. For example, to specify data file 97, address 45 (N97:45), 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 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 Bit Type	Address Range	Format	PLC Bit Description
O	0.0 to 254.15	ddd.bb (d=decimal, b=bit)	Discrete Outputs
I	0.0 to 254.15	ddd.bb	Discrete Inputs
B3	0.0 to 254.15	ddd.bb	Bit Data
B10	0.0 to 254.15	ddd.bb	Bit Data
B11	0.0 to 254.15	ddd.bb	Bit Data
B12	0.0 to 254.15	ddd.bb	Bit Data
B13	0.0 to 254.15	ddd.bb	Bit Data

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

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

## Memory Not Supported

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

- Status File (S2)
- 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-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 Allen-Bradley PLC-5 PLC
- the **Options** column lists EZware-500's options; your PLC may not support every option

Name	Recommended Settings	Options	Important Notes
PLC type:	AB DF1 PLC5		
Serial port I/F:	RS232	RS232, RS485	
Data Bits:	8	7 or 8	Must match the DF1 port setting.
Stop Bits:	1	1 or 2	Must match the DF1 port setting
Baud Rate:	19200	9600,19200, 38400,57600, 115200	Must match the DF1 port setting. Use the fastest baud rate supported by the PLC
Parity:	None	Even, Odd, None	Must match the DF1 port setting.
HMI station No.:	0	0-31	Must match the address assigned to the DF1 port.
PLC station No.:	1	0-31	Must match the node address assigned on the Data Highway network.
Multiple HMI:	Disable	Disable, Master, Slave	use for multiple OITs
HMI-HMI link speed:	38400	38400, 115200	use for multiple OITs
PLC time out constant (sec)	3.0	1.5 to 5.0	adjust if longer timeout is required
PLC block pack:	0	0-10	see <i>Silver Series Installation and Operation Manual</i>