

Controller Information Sheet



Allen-Bradley *PLC-5 Family (DF1)*

Overview

Maple Systems' **Silver 5000 Series** Operator Interface Terminals (all Maple OITs that use the EZware-5000 configuration software) communicate with Allen-Bradley PLC-5 Family PLCs using the DF1 Full Duplex 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 Series Installation and Operation Manual* for information on connecting multiple Maple OITs to a single DF1 port.

Compatible PLCs	
Family	PLC 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.

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 or 32 bit format on the Maple OIT.

PLC Register Type	Address Range	Format	PLC Register Description
S	0-254	ddd (d=decimal)	Status
T4SV	0-254	ddd	Timer Preset Values
TfnSV	0-254254	fffddd (f=file)	Timer Preset Values
T4PV	0-254	ddd	Timer Accumulated Values
TfnPV	0-254254	fffddd	Timer Accumulated Values
C5SV	0-254	ddd	Counter Preset Values
CfnSV	0-254254	fffddd	Counter Preset Values
C5PV	0-254	ddd	Counter Accumulated Value
CfnPV	0-254254	fffddd	Counter Accumulated Value
N7	0-254	ddd	Integer Data
N10-N15	0-254	ddd	Integer Data
F8	0-254	ddd	Floating Point Data
Nfn	0-254254	fffddd ¹	Integer Data
Ffn	0-254254	fffddd	Floating Point Data

¹**NOTE:** 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 the data address are entered using leading zeroes when necessary.

Discrete Memory

The following table lists the PLCs discrete memory ranges that Maple OITs are able to access. Please note that your PLCs memory range may be *smaller* or *larger* than that supported by these OITs. The following discrete PLC memory is displayable in single bit format on the Maple OIT.

PLC Bit Type	Address Range	Format	PLC Bit Description
I1	0 to 254 (ddd) 0 to 15 (bb)	ddd (dd) (d=decimal) bb (b= bit)	Input
O0	0 to 254 (ddd) 0 to 15 (bb)	ddd (dd)	Output
S_Bit	0 to 254 (ddd) 0 to 15 (bb)	ddd (dd)	Status bit level
B3	0 to 254 (ddd) 0 to 15 (bb)	ddd (dd)	Bit Data
B10-B13	0 to 254 (ddd) 0 to 15 (bb)	ddd (dd)	Bit Data
Bfn	0 to 254254	fffddd (f= file)	Bit Data
NfnBit	0 to 254254	fffddd	Integer data file bit level

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:

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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:

- 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 Settings

The following table list the communications setting that must be configured in EZware-5000. These settings are found in the Edit Systems 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 PLC-5 PLC.
- The **Options** column lists EZware options; your PLC may not support every option.

Name	Recommended Settings	Options	Important Notes
Name:	AB PLC5 (DF1)		Description label
HMI or PLC	PLC		
Location	Local	Local, Remote	Select local if PLC directly connected to OIT, remote if PLC connected thru another OIT
PLC type:	Allen-Bradley PLC5 (DF1)		
PLC I/F:	RS232	RS-232	
PLC default station no.:	1	1-31	Must match the DF1 port setting
Settings: COM:	COM 1	COM1-COM3	Serial port of OIT connected to PLC
Settings: Baud rate:	19200	4800, 9600, 19200, 38400, 57600, 115200	Must match the DF1 port setting. Use the fastest baud rate supported.
Settings: Data bits:	8	7,8	Must match the DF1 port setting
Settings: Stop bits:	1	1, 2	Must match the DF1 port setting
Settings: Parity:	Even	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 OIT polls

Settings: Reserved 1:	0		Not Applicable
Settings: Reserved 2:	0		Not Applicable
Settings: Reserved 3:	0		Not Applicable
Interval of block pack (words):	5 ¹	0-512	See <i>Silver Series Installation and Operations Manual (P/N 1010-1007)</i>
Max. read-command size (words):	32		Not Adjustable
Max. write-command size (words):	32		Not Adjustable

¹Note: The Interval of block pack setting determines how much data is collected by the HMI from the PLC per information packet. If you are experiencing sporadic loss of communications to your PLC, try adjusting this setting to 0.