

Allen-Bradley

Logix Series EtherNet I/P

ControlLogix, CompactLogix, & FlexLogix

Overview

Maple Systems' **Silver Plus Series** Operator Interface Terminals (Maple OITs) communicate with Allen-Bradley Logix Family of Programmable Controllers using the CIP protocol using the Ethernet port located on the PLC or communication module.

Compatible PLCs	
Family	Model(s)
ControlLogix Series	1756-L55M12, M13, M14, M16, M22, M23, M24 1756-L63
CompactLogix Series	1769-L31x, 1769-L32x, 1769-L35x
FlexLogix Series	1794-L33x, 1794-L34x

Communications Cable

The Maple OIT should be connected directly to the Ethernet port located on the Logix controller. If connecting to the PLC/module directly from the Maple OIT, a crossover cable is required.

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 Controller Settings

The IP address and subnet mask must be consistent with the Maple OIT's IP setup.

When using a ControlLogix PLC:

- Use the IP address of the communications module in EasyBuilder
- Multiple PLCs in a single rack are not supported

Accessing PLC Memory

RSLogix 5000 Configuration:

Note: This document assumes that the reader is familiar with the RSLogix 5000 software.

Tag Names in the PLC program must match the following format:

Note: *If the format is not followed exactly, the Maple OIT will be unable to communicate with the PLC.*

<Data File Type><Data File Number, padded to 3 digits>

Tags must be created as arrays.

For Example

OIT Device Type	Address	Corresponding PLC Tag Name
Bx_INT	003100	B003; reads/writes array element 100, type INT
Nx_INT	105002	N105; reads/writes array element 2, type INT
F8_REAL	174	F008; reads/writes array element 174, type REAL
Fx_REAL	153100	F153; reads/writes array element 100, type REAL
Cx.ACC	005011	C005; reads/writes array element 11, type COUNTER
Cx.PRE	005011	C005; reads/writes array element 11, type COUNTER
Tx.ACC	004199	T004; reads/writes array element 199, type TIMER
Tx.PRE	004199	T004; reads/writes array element 199, type TIMER
Bx_BOOL	1501000	B015; reads/writes bit 0 of array element 10
N_BOOL	9917715	N099; reads/writes bit 15 of array element 177

Supported Register Memory:

PLC Register Types supported	Size	Format	Address Range	PLC Register Description
Bx_INT	W	fffddd	File # fff: 003, 010-255 Element # ddd: 000-255	Bit data as a 16-bit word. B12:57 would be 012057. Leading zeros for File and Element numbers are required
Nx_INT	W	fffddd	File # fff: 000-255 Element # ddd: 000-255	Integer Value. N50:198 would be 050198. Leading zeros for File and Element numbers are required.
F8_REAL	DW	ddd	Element # ddd: 000-255	Floating Point Value. F8:240 would be 240. Only file F8 is supported. Set Data Type to "32-bit float."
Fx_REAL	DW	ddd	File # fff: 005, 010-255 Element # ddd: 000-255	Floating Point Value. F75:101 would be 075101. Leading zeroes for file and element numbers are required. Set Data Type to "32-bit float."
Cx.ACC	DW	fffddd	File # fff: 005, 010-255 Element # ddd: 000-255	Counter Accumulated value. C26:109.ACC would be 026109. Leading zeros for File and Element numbers are required. Set Data Type to "32-bit signed."
Cx.PRE	DW	fffddd	File # fff: 005, 010-255 Element # ddd: 000-255	Counter Preset value. C5:14.PRE would be 005014. Leading zeros for File and Element numbers are required. Set Data Type to "32-bit signed."
Tx.ACC	DW	fffddd	File # fff: 004, 010-255 Element # ddd: 000-255	Timer Accumulated value. T64:208.ACC would be 064208. Leading zeros for File and Element numbers are required. Set Data Type to "32-bit signed."
Tx.PRE	DW	fffddd	File # fff: 004, 010-255 Element # ddd: 000-255	Timer Preset value. T15:101.PRE would be 015101. Leading zeros for File and Element numbers are required. Set Data Type to "32-bit signed."

W = Word (16-bit); DW = Double Word (32-bit)

Discrete Memory

Bx_BOOL	Bit	ffdddabb	File # ff: 03, 10-99 Element # ddd: 000-255 Bit number bb: 00-15	Bit data from B files. B64:101/6 would be 6410106. Leading zeros for File, Element, and Bit numbers are required.
N_BOOL	Bit	ffdddabb	File # ff: 03, 10-99 Element # ddd: 000-999 Bit number bb: 00-15	Bit data from N files. N12:14/15 would be 1201415. Leading zeros for File, Element, and Bit numbers are required.

Important PLC 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.

Troubleshooting Notes:

If the OIT attempts to address an invalid register reference, the OIT may display "PLC No Response". Also, the AB PLC itself will set a "MINOR FAULT" error in its processor status.

If communications are erratic, the Logix PLC may not be devoting enough time to the communication task.

- On the Advanced tab of the Controller Properties dialog, increase the System Overhead Time Slice percentage.
- For Periodic tasks, increase the Period setting and/or lower the Priority.

For more information, refer to the RSLinx documentation.

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 default settings most commonly used in the Allen-Bradley Logix PLCs.
- the **Options** column lists EZware's options; your controller may not support every option

Name	Recommended Settings	Options	Important Notes
Name:	Allen-Bradley Logix Series (EtherNet /IP)		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 Logix Series (EtherNet /IP)		
PLC I/F:	Ethernet	Ethernet	
PLC default station no.:	1	0-255	Not Applicable.
Settings: IP Address:			Set the IP options below.
IP Address:	xxx.xxx.xxx.xxx		Must match the IP address of the PLC.
Port No:	44818	44818	Do not change this setting
Settings: Timeout (sec):	1.0	0.1-25.5	Adjust if longer timeout required.
Settings: Turn around delay (ms)	0	0-1000	Timeout period between OIT 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>Silver Plus Series Installation and Operation Manual</i>

Name	Recommended Settings	Options	Important Notes
Max. read-command size (words):	120		Not Adjustable
Max. write command size (words):	120		Not Adjustable