



Specialists in Information Displays

**Electronic Displays, Inc.
EDV111 Series LED Signs
Allen Bradley
AOI (Add on Instruction)
Software Manual**



Version Control

Version	Date	Author	Change Description
2.0	07/21/2019	c.elston	Updated for EDI ED-3500 Gateway
1.0	12/01/2012	c.elston	Initial release

TABLE OF CONTENTS

1	INTRODUCTION	4
1.1	Supported PLC Controllers	4
1.2	Add-On Instructions	4
1.3	Supported LED Signs.....	5
2	SYSTEM BLOCK DIAGRAM	6
2.1	Typical Connection Diagram	6
2.2	Internal EDV111 Connection Diagram.....	7
2.3	Single Sign Connection.....	8
2.4	Multiple Sign Connection (Less than 50 Feet apart).....	8
2.5	Multiple Sign Connection (More than 50 Feet apart)	9
3	CUSTOMIZE THE IP ADDRESS EDI ED-3500 GATEWAY	10
3.1	CUSTOMIZE SIGN COMMUNICATION SETTING RS232/485	12
3.2	CUSTOMIZE ASCII SETTING	13
3.3	VERIFY COMMUNICATION WITH SIGN (WITHOUT PLC LADDER).....	14
4	QUICK START USING TEMPLATE PLC PROGRAM	17
4.1	Quick Start with Template PLC Program	17
4.2	Update Sign IP Address in Sample PLC Program.....	18
4.3	Update Messages and Sign Format Tags	19
4.4	Create and Customize Ladder Logic	20
5	IMPORTING WITH NEW PROGRAM OR EXISITING PLC PROGRAM	21
5.1	Start a new project with RS Logix 5000	21
5.2	Create a New Ethernet Connection	22
5.3	Importing Data-Types.....	26
5.4	Importing Add-on Instructions	28

6	USING THE AOI INSTRUCTIONS IN THE PROJECT	32
6.1	Add AOIs to Ladder Programming via Drag and Drop	32
6.2	Creating Unique Tags for AOI.....	33
6.3	Creating Unique Tags for Sign Parameters	34
6.4	Setting up the Sign Tag	36
6.5	Mapping Sign Tag to AOI Function Block in Ladder Logic	38
7	ELECTRONIC DISPLAY AOI INSTRUCTIONS.....	39
7.1	Send Sign Message AOI.....	39
7.2	Reset Sign AOI	40
7.3	Setup Sign Variables AOI	40
7.4	Update Sign Variables AOI	41
7.5	Expert Sign AOI	41

1 INTRODUCTION

This manual is provided as a guide for using EVD111 series LED Signs with RS Logix 5000 software by Allen Bradley. This manual provides detailed configuration instructions to configure Ethernet/IP and importing AOIs (add-on-instructions) to RS Logix 5000 software projects.

1.1 Supported PLC Controllers

At this time only Allen Bradley CompactLogix and ControlLogix PLC CPUs that use RS Logix 5000 software are supported. Sample projects can be downloaded from the Electronic Displays, Inc. website.

Allen Bradley Micrologix, SLC500 or PLC5 PLC CPUs are **NOT supported** using RS Logix 500 software. Please refer to the ASCII protocol manual for examples. Typically, you will need to connect the serial port from the PLC directly to the LED sign using the DF1 channel 0 port with these types of PLCs.

1.2 Add-On Instructions

Add-on instructions provided in this manual are used to make ladder logic based programming very easy. These set of AOIs can be imported into your project and reused in ladder flow.

1.3 Supported LED Signs

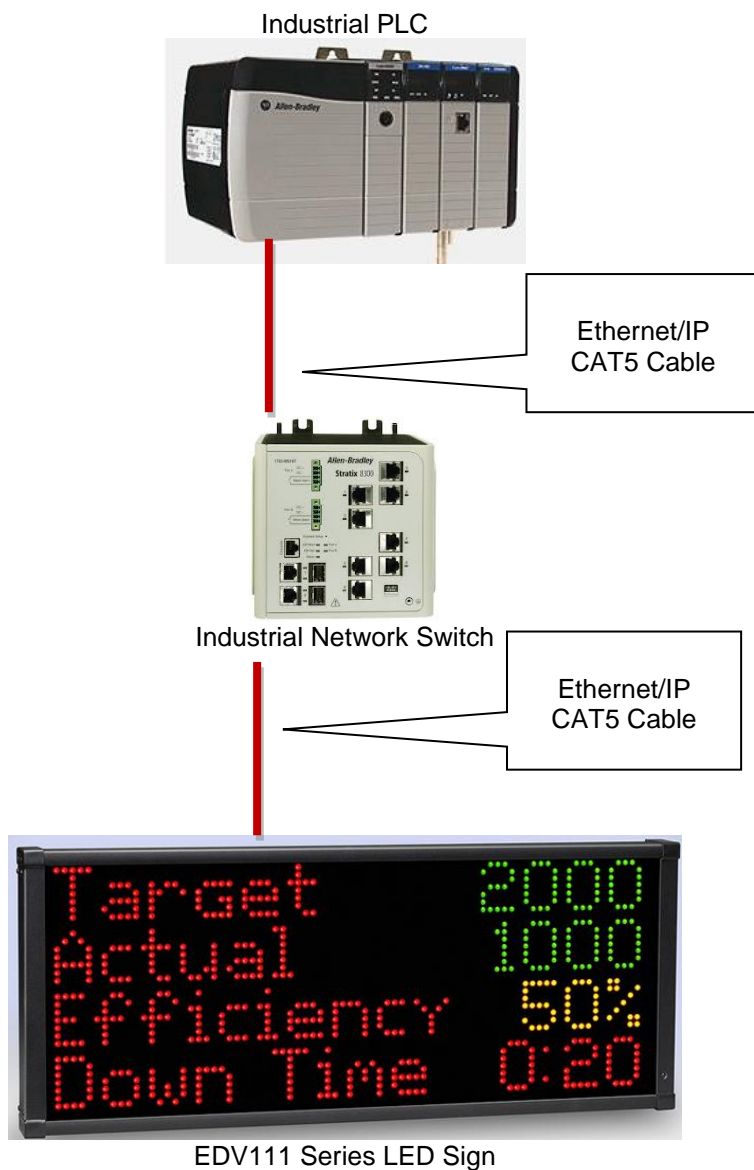
- EDV111-3280-IND, EDV111-16160-IND, EDV111-16128-IND
- EDV111-1680-IND, EDV11132340-IND, EDV111-16240-IND
- EDV111-24160-IND



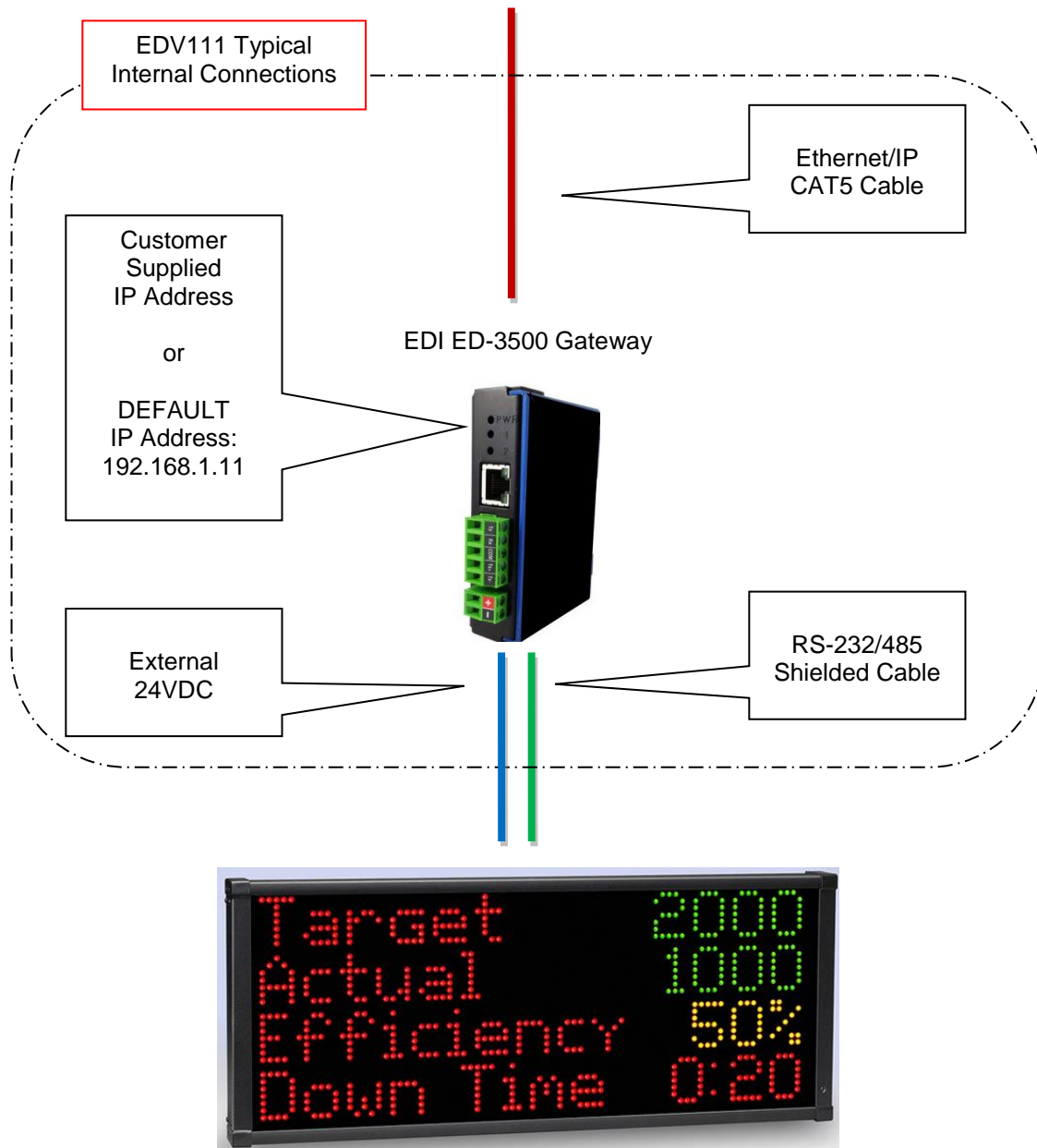
2 SYSTEM BLOCK DIAGRAM

EDV111 LED signs come equipped with an Electronic Displays ED-3500 gateway device that exchanges the Ethernet/IP protocol into ASCII serial strings compatible with the LED signs. This allows for the LED signs to be connected via an Ethernet CAT5 cable and not limited to a short distance RS-232 cable typically connected to traditional LED signs displays.

2.1 Typical Connection Diagram



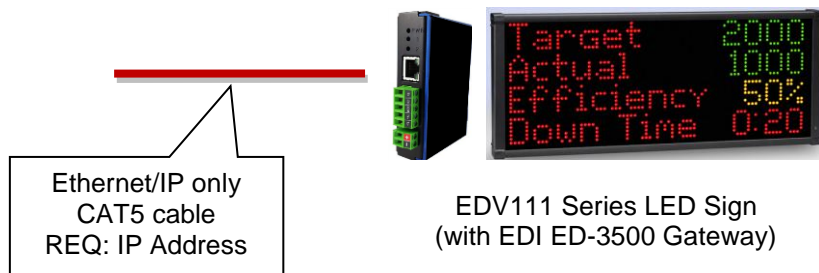
2.2 Internal EDV111 Connection Diagram



EDV111 Series LED Sign

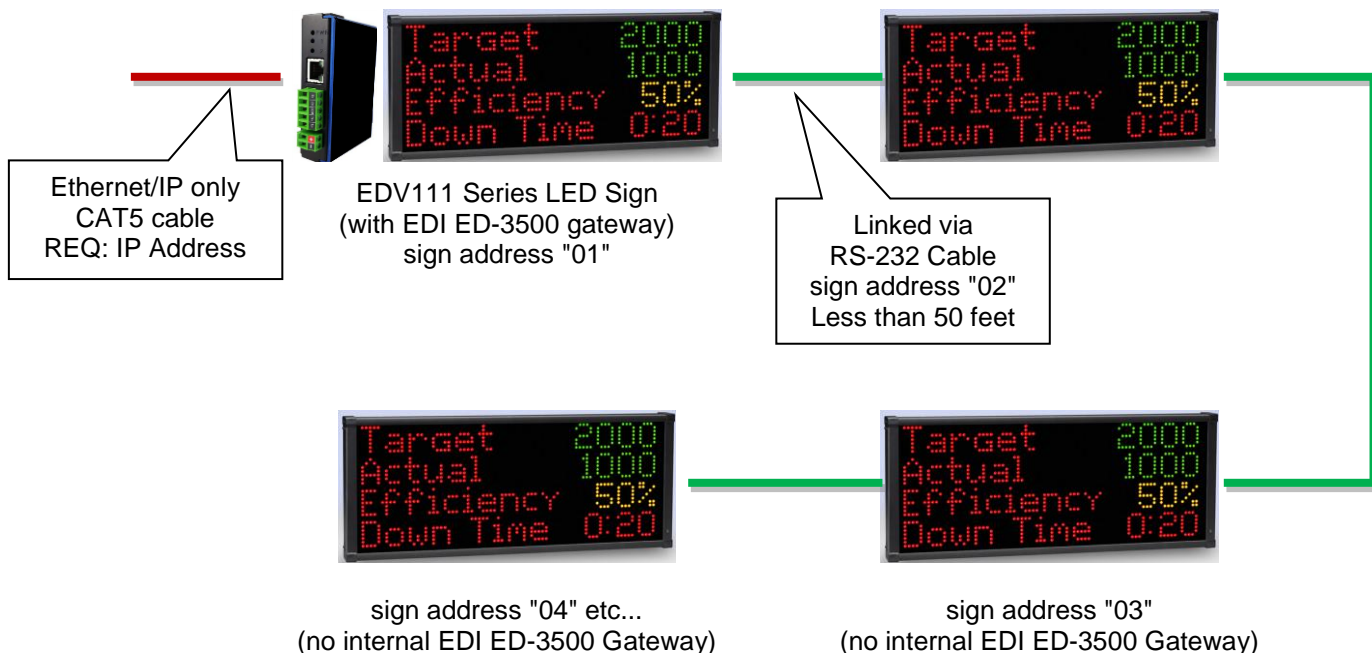
2.3 Single Sign Connection

Single sign connection must have an installed "Master" EDI ED-3500 gateway device.



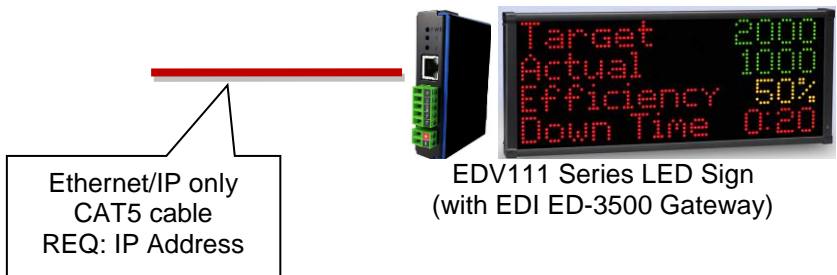
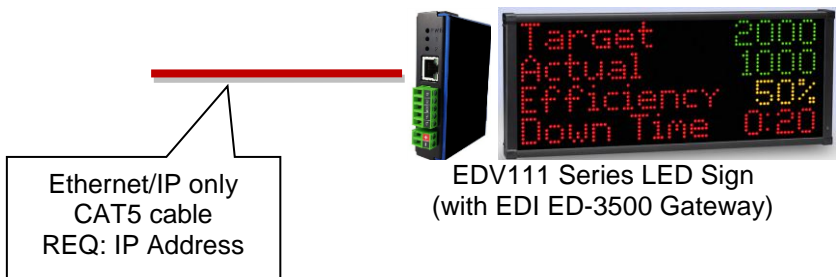
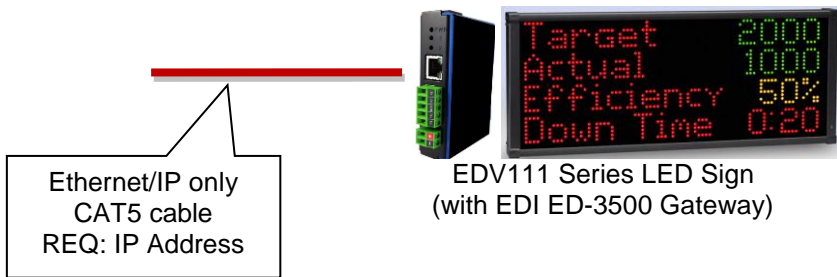
2.4 Multiple Sign Connection (Less than 50 Feet apart)

At least one EDV111 sign must have an installed "Master" EDI ED-3500 Gateway device. This master can reproduce RS-232 signals in a repeater fashion to slave signs by linking multiple EDV111 series signs together using a standard RS-232 cable. Signs must not be mounted more than 50 feet apart. Downstream "slave" signs will not require internal EDI ED-3500 Gateway.



2.5 Multiple Sign Connection (More than 50 Feet apart)

Each sign will require an EDV111 to be internally installed as a "Master" EDI ED-3500 Gateway device.



3 CUSTOMIZE THE IP ADDRESS EDI ED-3500 Gateway

Using Google Chrome or web browser. Type in ED-3500 IP address into URL bar.

192.168.1.11 (default IP)

The screenshot displays the EDI ED-3500 Gateway web interface. The header includes the EDI logo and the website URL www.electronicdisplays.com. The main navigation bar shows "Specialists in Information Displays" and "MODE: RUNNING ED-3500".

On the left side, there are navigation buttons for "Configuration Mode" and "Main Page". Below these are sections for "CONFIGURATION" (Network Configuration, Port Configuration, ASCII, EIP Adapter), "DIAGNOSTICS" (with a "-Select-" dropdown), and "OTHER" (with a "-Select-" dropdown).

The main content area is titled "Main Page" and features a "Device Description" field with the value "Application Description" and a "Save Parameters" button. Below this is a table showing the "Network Status":

Network Status	Link Status	MAC Address	IP Address
Ethernet Port	100Mbps, Full Duplex	00:03:F4:0C:40:46	192.168.1.11

Below the network status table, there are sections for "ASCII Status" and "Ethernet/IP Adapter Status", each showing device status, queued messages, last parsed error, and LED status.

The footer contains the text: "ED-3500 - Revision 6.4.12 - Support (800) 367-6056 - www.electronicdisplays.com" and "(c)2012-2019 Electronic Displays Inc."

Press "Configuration Mode" to stop the Gateway.

192.168.1.11 says
 Press OK to put the gateway into Configuration Mode. This will STOP all communications from running.
 Press Cancel to resume communication.

OK Cancel

Configuration Mode

Main Page

Device Description: Application Description

Save Parameters

CONFIGURATION

- Network Configuration
- Port Configuration
- ASCII
- EIP Adapter

DIAGNOSTICS

-Select-

OTHER

-Select-

Network Status

Ethernet Port	Link Status	MAC Address	IP Address
	100Mbps, Full Duplex	00:03:F4:0C:40:46	192.168.1.11

ASCII Status

Device Status: Connected and Running
 Queued Messages: See Device Level
 Last Parsed Error:
 LED Status: Connection Status: Connected

Ethernet/IP Adapter Status

Device Status: Connected and Running
 Last I/O FwdOpen Error: Connection already in use
 LED Status: Connection Status: Connected

Click on Network Configuration and change the IP Setting. "Restart Now" the Gateway.

www.electronicdisplays.com

MODE: CONFIGURING
ED-3500

Specialists in Information Displays

Main Page

Network Configuration

Help

CONFIGURATION

- Network Configuration
- Port Configuration
- ASCII
- EIP Adapter
- Restart Now

DIAGNOSTICS

-Select-

OTHER

-Select-

Ethernet Configuration

Ethernet MAC Address: 00:03:F4:0C:40:46
 Ethernet Link: Auto-Negotiate
 IP Setting: Static IP
 IP Address: 192.168.1.11
 Subnet: 255.255.255.0
 Default Gateway: 192.168.1.1
 DNS Gateway: 0.0.0.0

Save Parameters

3.1 CUSTOMIZE SIGN COMMUNICATION SETTING RS232/485

Click on Port Configuration

Verify Serial Port is Enable

Verify RS-232 or RS485

Verify Serial Settings

Verify wiring on correct terminals as pictured.

Consult with Electronic Display Technical Support to confirm your sign model number serial settings.

Default setting for EV111 series signs are shown below

The screenshot displays the EDI web interface for configuring the ED-3500 sign. The header includes the EDI logo, the website URL www.electronicdisplays.com, and the status 'MODE: CONFIGURING ED-3500'. The main content area is titled 'Comm Ports Configuration' and features a sidebar with navigation options: 'Main Page', 'CONFIGURATION' (with sub-options: Network Configuration, Port Configuration, ASCII, EIP Adapter, Restart Now), 'DIAGNOSTICS' (-Select-), and 'OTHER' (-Select-). The main configuration area includes the following settings:

- Enable Serial Port:
- Mode: RS232 (dropdown)
- Serial Baud: 9600 (dropdown)
- Parity: None (dropdown)
- Data Bits: 8 (dropdown)
- Stop Bits: 1 (dropdown)

Below the settings is a diagram titled 'RS232' showing a 5-pin terminal block. The pins are numbered 1 through 5. Pin 1 is labeled 'TX' (green), pin 2 is labeled 'RX' (blue), and pin 3 is labeled 'GND' (black). Pins 4 and 5 are unlabelled. A 'Save Parameters' button is located at the bottom of the configuration area.

3.2 CUSTOMIZE ASCII SETTING

Click on ASCII

Verify Port “Serial Port”

Verify Receive Data is Enabled and 32 chars (default)

Verify Transmit Data is Enable and 496 chars (default)

IMPORTANT: To make sure sign is updating as fast as possible, confirm delimiters as shown in picture below.

Start “1” and STX 2

End “1” and EXT 3

The screenshot displays the 'ASCII Configuration' page for ED-3500. The page is titled 'Specialists in Information Displays' and 'MODE: CONFIGURING ED-3500'. The main configuration area is for 'ASCII Device 1', which is currently 'Enabled'. The port is set to 'Serial Port' and the device label is 'ASCII01'. The 'LED Inactivity' is set to 0 seconds. The 'Receive Data (ASCII to 460ESA)' section is enabled with a max message length of 32 characters and a receive character timeout of 0 milliseconds. The 'Transmit Data (460ESA to ASCII)' section is also enabled with a max message length of 496 characters, a transmit timeout of 0 milliseconds, and a delay between messages of 0 milliseconds. The 'Delimiters' section shows the Start character set to '1' and the End character set to '1'. The 'Add Delimiters to ASCII Message' section is also visible, with Start and End characters set to '0'. A 'Save Parameters' button is located at the bottom of the configuration area.

3.3 VERIFY COMMUNICATION WITH SIGN (WITHOUT PLC LADDER)

The ED-3500 supports an easy troubleshooting method to confirm communication and wiring without using a PLC

After configuration of IP Address Configuration, Port Configuration and ASCII Configuration, while the Gateway is in run mode, confirm "Mode: Running" in upper right corner.

Choose Diagnostics, then Diagnostic Info

The screenshot shows the EDI web interface for an ED-3500 device. The top navigation bar includes the EDI logo, the website URL www.electronicdisplays.com, and the status 'MODE: RUNNING ED-3500'. Below the navigation bar, there are buttons for 'Configuration Mode' and 'Main Page'. The 'Main Page' section contains a 'Device Description' field with the value 'Application Description' and a 'Save Parameters' button. The 'CONFIGURATION' section has a dropdown menu with options: 'Network Configuration', 'Port Configuration', 'ASCII', and 'EIP Adapter'. The 'DIAGNOSTICS' section has a dropdown menu with options: '-Select-', '-Select-', 'Diagnostic Info', and 'Logging'. A red arrow points to the 'Diagnostic Info' option. The 'OTHER' section contains 'Device Status: Connected and Running', 'Queued Messages: See Device Level', 'Last Parsed Error:', and 'LED Status: Connection Status: Connected'. Below this, the 'Ethernet/IP Adapter Status' section shows 'Device Status: Connected and Running', 'Last I/O FwdOpen Error: Connection already in use', and 'LED Status: Connection Status: Connected'.

Choose ASCII then View

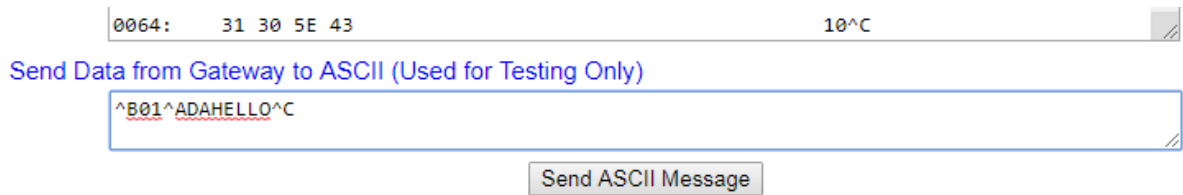
The screenshot shows the EDI software interface. At the top, it says 'Specialists in Information Displays' and 'MODE: RUNNING ED-3500'. The 'Diagnostics' section is active, showing a dropdown menu with 'ASCII' selected. A red arrow points to the 'View' button next to 'ASCII'. The interface also shows 'All Device Status' and 'System' options, and a 'View' button next to 'All Device Status'. The 'LED Status' section shows 'Connection Status: Connected'. The 'Variables' section shows statistics for transmit and receive counts, and the 'Status Strings' section shows 'Queued Messages: See Device Level'.

Next Choose Serial Port then View

The screenshot shows the EDI software interface. At the top, it says 'Specialists in Information Displays' and 'MODE: RUNNING ED-3500'. The 'Diagnostics' section is active, showing a dropdown menu with 'Serial Port' selected. The interface also shows 'All ASCII' and 'All ASCII' options, and a 'View' button next to 'All ASCII'. The 'LED Status' section shows 'Connection Status: Connected'. The 'Variables' section shows statistics for transmit and receive counts, and the 'Status Strings' section shows 'Queued Messages: See Device Level'.

At the bottom copy and paste this ASCII command:

^B01^ADAHELLO^C



Confirm sign says "HELLO" on the display

Sign should be ready for PLC ladder logic.

4 QUICK START USING TEMPLATE PLC PROGRAM

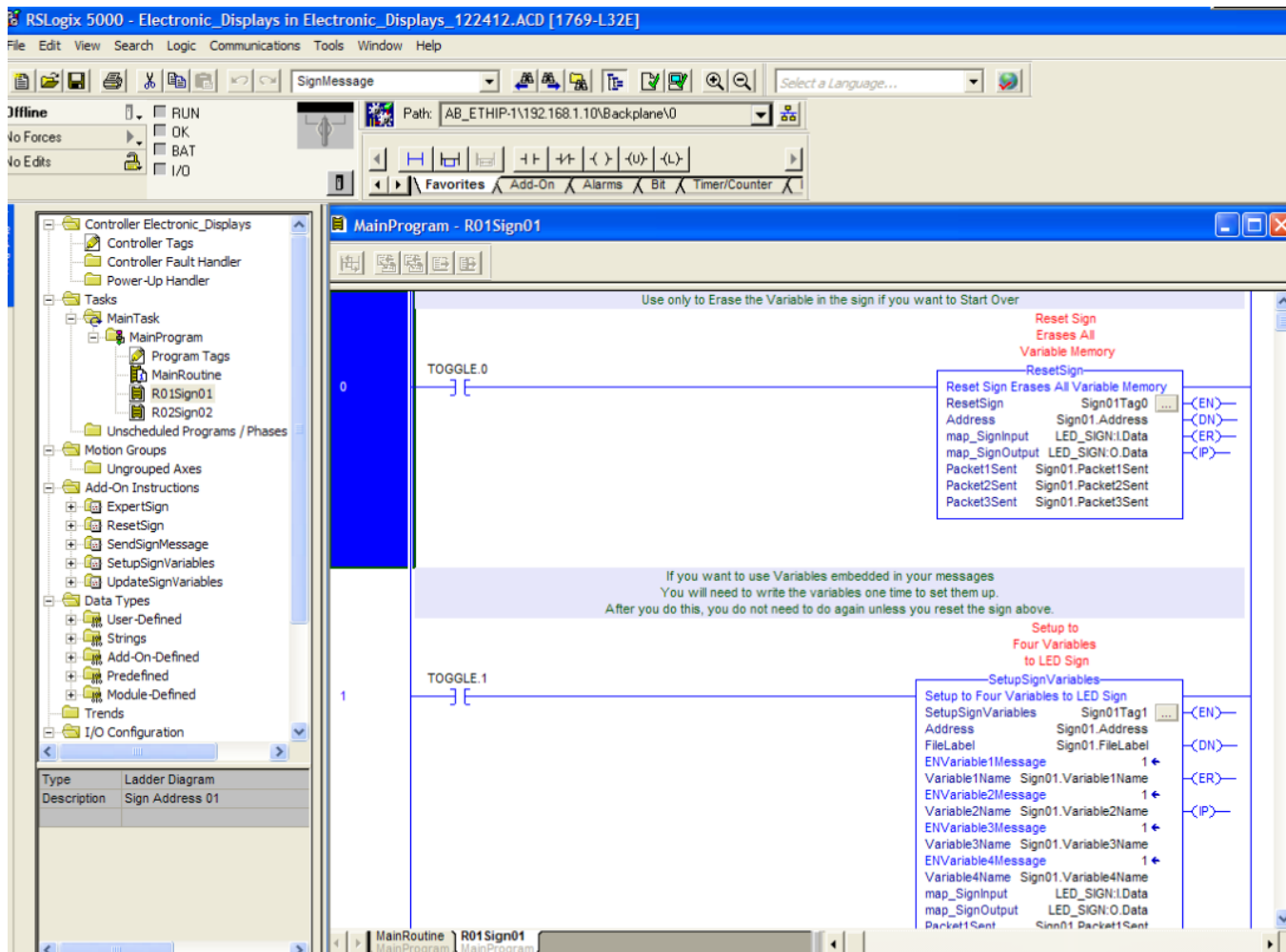
Download the sample PLC program from the Electric Displays website.

Electronic_Displays_122412.acd
(or latest version supplied in ZIP file)

4.1 Quick Start with Template PLC Program

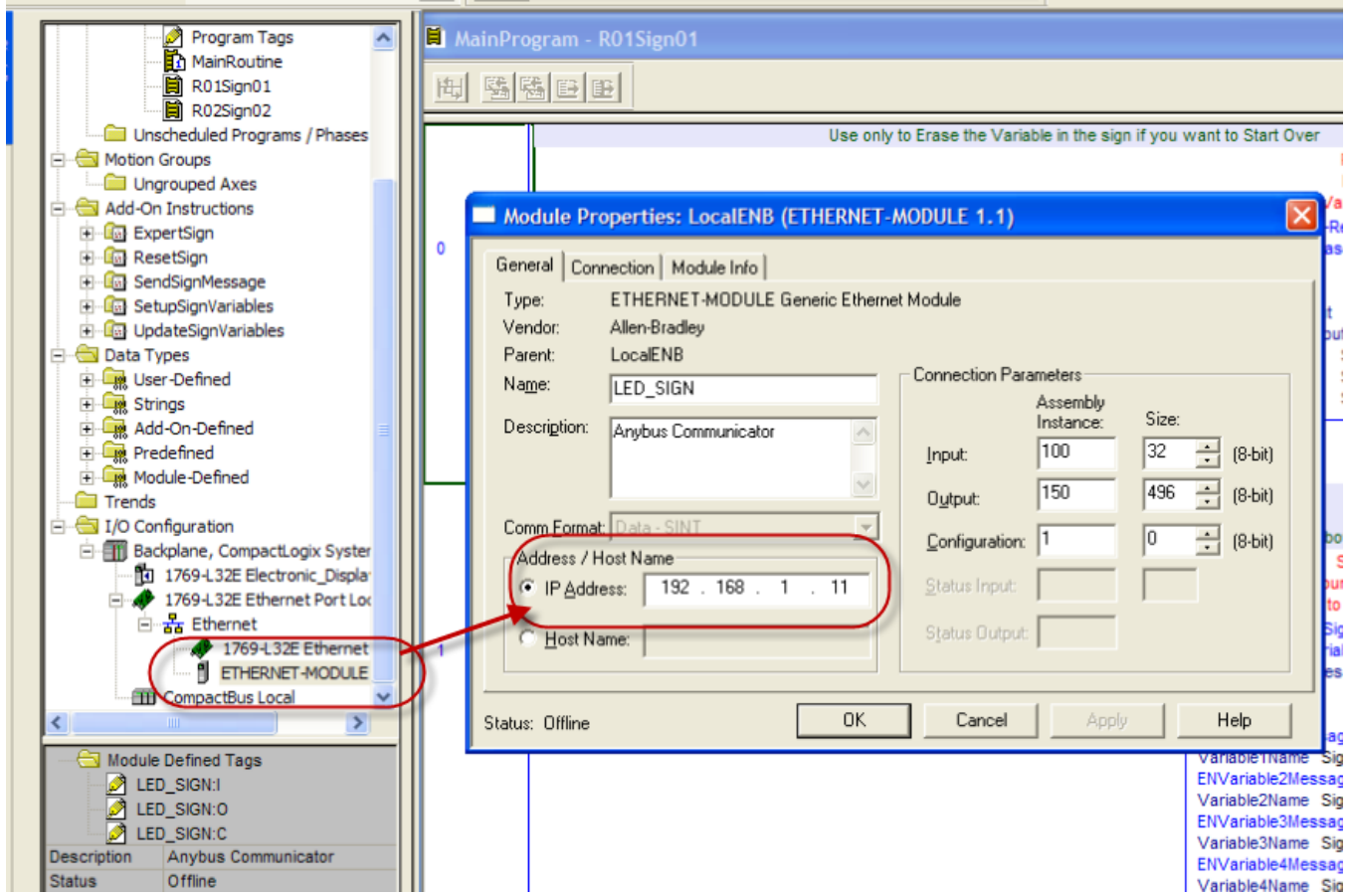
The purpose of the template sample program is provide a bases of settings and tags that are setup in the PLC along with sample ladder logic that can be written to send messages to the sign.

This template file is design to communicate with two signs. Sign #1 is a master sign which is connected via an RS-232 cable daisy chained to Sign #2.



4.2 Update Sign IP Address in Sample PLC Program

Open the Ethernet Module setting and update the IP Address of the sample program. The sample program is setup with the default sign IP address of 192.168.1.11. If you customized your IP, you will need to update this target address below.



4.3 Update Messages and Sign Format Tags

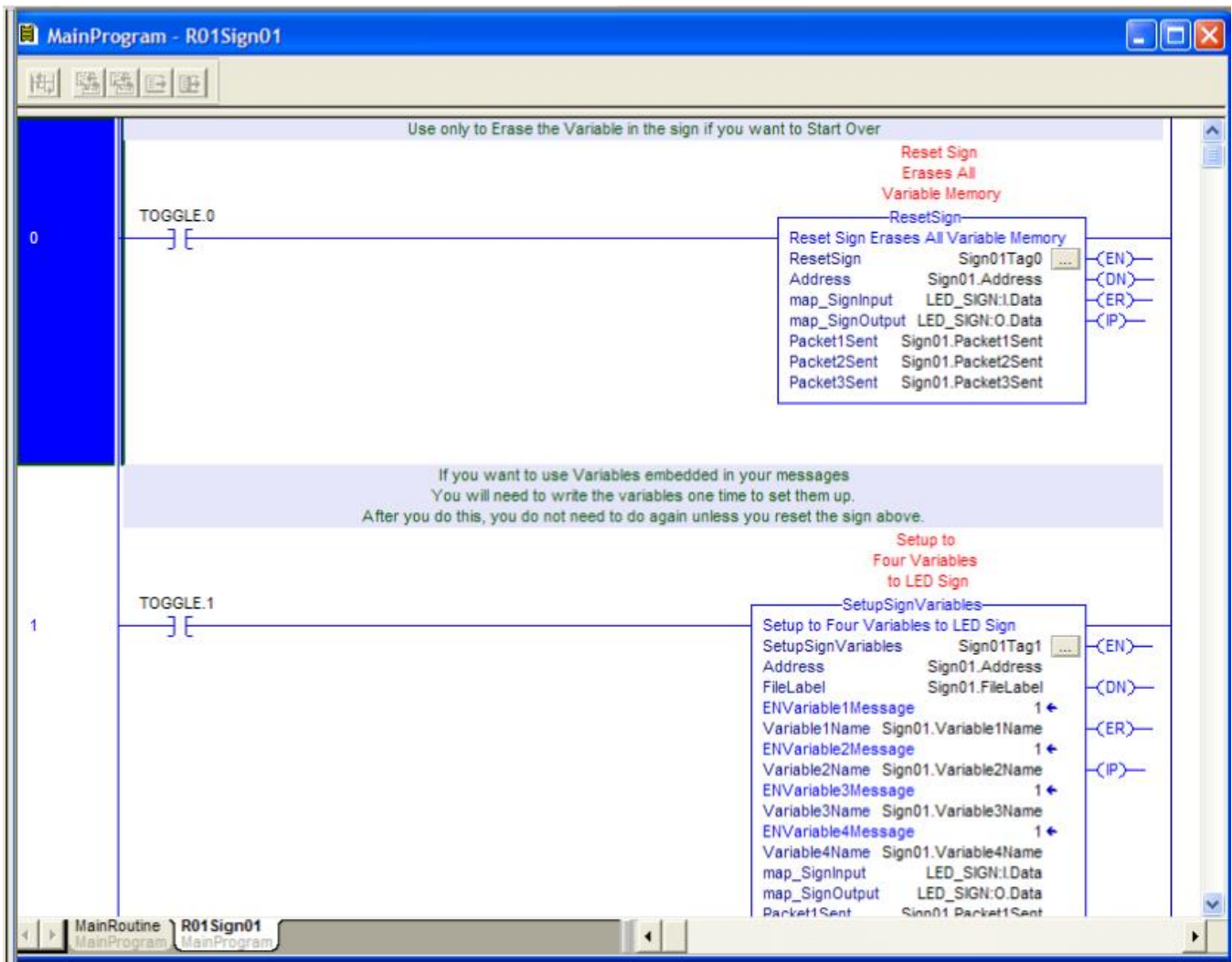
Open the Controller Tags and update the Sign01 and Sign02 tags with the message and formatting you desire. See the description or AOI help file to determine which options are available.

The screenshot shows the AOI software interface. On the left, a tree view shows the project structure, with 'Controller Tags' selected under 'Controller Electronic_Displays'. The main window, titled 'Controller Tags - Electronic_Displays(controller)', displays a table of tags for 'Sign01'. A red box highlights the 'Sign01' tag and its associated properties.

Name	Value	Style	Data Type	Description
OEEScore	99.82241	Float	REAL	
Sign01	{...}		LEDSIGN	
+ Sign01.Address	'01'		STRING	"00"=all signs "01"=sign address 1 "02"=sign address 2 etc... per protocol (must be t...
+ Sign01.CommandCode	'A'		STRING	'A'=write restart 'B'=write variable 'C'=special 'D'=write no restart
+ Sign01.FileLabel	'A'		STRING	Default is = A
+ Sign01.Text1Message	'Total '		STRING	Actual Text Line 1
+ Sign01.Text2Message	'Rejects '		STRING	Actual Text Line 2
+ Sign01.Text3Message	'Cycle Time '		STRING	Actual Text Line 3
+ Sign01.Text4Message	'OEE Score '		STRING	Actual Text Line 4
+ Sign01.TextFont	'0'		STRING	'0'=SS7 '1'=SF7 '2'=SF10 '3'=SS16 '4'=SF16
+ Sign01.TextColor	'1'		STRING	'0'=Red '1'=Green '2'=Yellow '3'=Rainbow
+ Sign01.TextAlign	'L'		STRING	'M'=middle line 'T'=top line 'B'=bottom line 'F'=fill (best for variables) 'L'=left 'R'=r...
+ Sign01.TextAttribute	'0'		STRING	'0'=flashing off '1'=flashing on '2'=wide off '3'=wide on '4'=bold off '5'=bold on
+ Sign01.TextEffect	'H'		STRING	'S'=scrolls 'H'=hold 'F'=flash 'A'=slide up 'B'=slide down 'C'=slide left 'D'=slide r...
+ Sign01.TextSpeed	'3'		STRING	Options = 1 - 8, 3:Default 1=Fast 8=Slow
+ Sign01.TextPause	'02'		STRING	Options = 00 - 99, 02:Default defined in seconds (must be two digits) if not will not work
+ Sign01.Variable1Name	'U'		STRING	Name of variable Default is = U
+ Sign01.Variable2Name	'V'		STRING	Name of variable Default is = V
+ Sign01.Variable3Name	'W'		STRING	Name of variable Default is = W
+ Sign01.Variable4Name	'X'		STRING	Name of variable Default is = X
+ Sign01.Variable1Value	'10136'		STRING	Actual Variable1 to be Sent (text format)
+ Sign01.Variable2Value	'18'		STRING	Actual Variable2 to be Sent (text format)
+ Sign01.Variable3Value	'0.763'		STRING	Actual Variable3 to be Sent (text format)
+ Sign01.Variable4Value	'99.82'		STRING	Actual Variable4 to be Sent (text format)
+ Sign01.VariableFont	'0'		STRING	'0'=SS7 '1'=SF7 '2'=SF10 '3'=SS16 '4'=SF16
+ Sign01.VariableColor	'0'		STRING	'0'=Red '1'=Green '2'=Yellow '3'=Rainbow
+ Sign01.VariableAttribute	'4'		STRING	'0'=flashing off '1'=flashing on '2'=wide off '3'=wide on '4'=bold off '5'=bold on
+ Sign01.Packet1Sent	'*B01*ABU10136*C*B...		STRING	The actual packet sent to the sign. (Packet1)
+ Sign01.Packet2Sent	''		STRING	The actual packet sent to the sign. (Packet2)

4.4 Create and Customize Ladder Logic

Create ladder logic to enable the rungs in sequence to send message to the sign. If this is the first time you have connect the PLC to the sign, enable the Reset Sign function block, which erases all variable date allocated in the sign, then enable the SetupSignVariables which will allocated memory space in the sign to accept dynamic variables that can be written to the sign using the UpdateSignVariable AOI. Send message to the sign by enabling the SendSignMessage AOI.



5 IMPORTING WITH NEW PROGRAM OR EXISITING PLC PROGRAM

5.1 Start a new project with RS Logix 5000

Click File, New Project to start a new PLC project.

Choose PLC Type.

Choose PLC firmware revision.

Name your PLC Project.

New Controller

Vendor: Allen-Bradley

Type: 1769-L32E CompactLogix5332E Controller

Revision: 16
17 Safety Enabled

Name:

Description:

Chassis Type: <none>

Slot: 0 Safety Partner Slot:

Create In: C:\RSLogix 5000\Projects

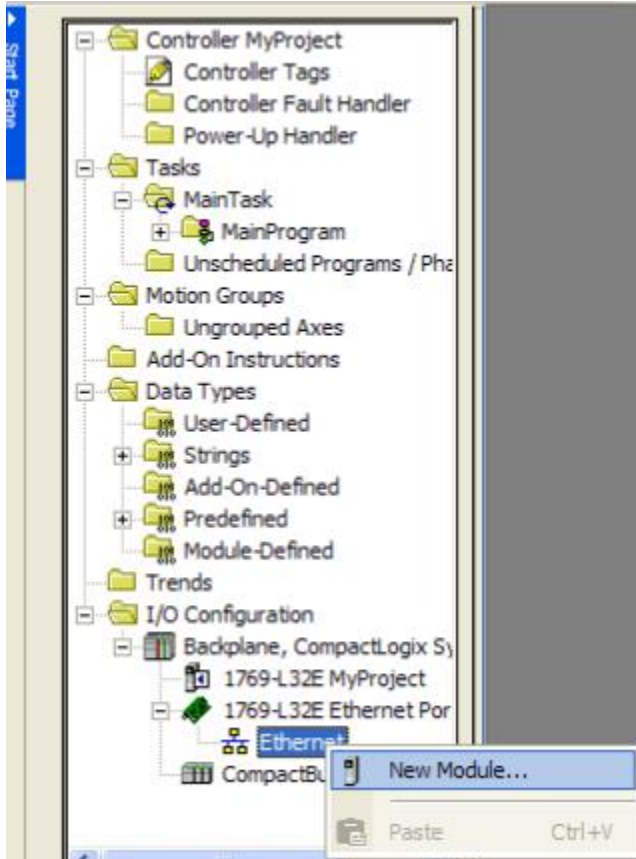
Buttons: OK, Cancel, Help, Browse...

5.2 Create a New Ethernet Connection

In the controller tree view.

Right click the Ethernet ICON

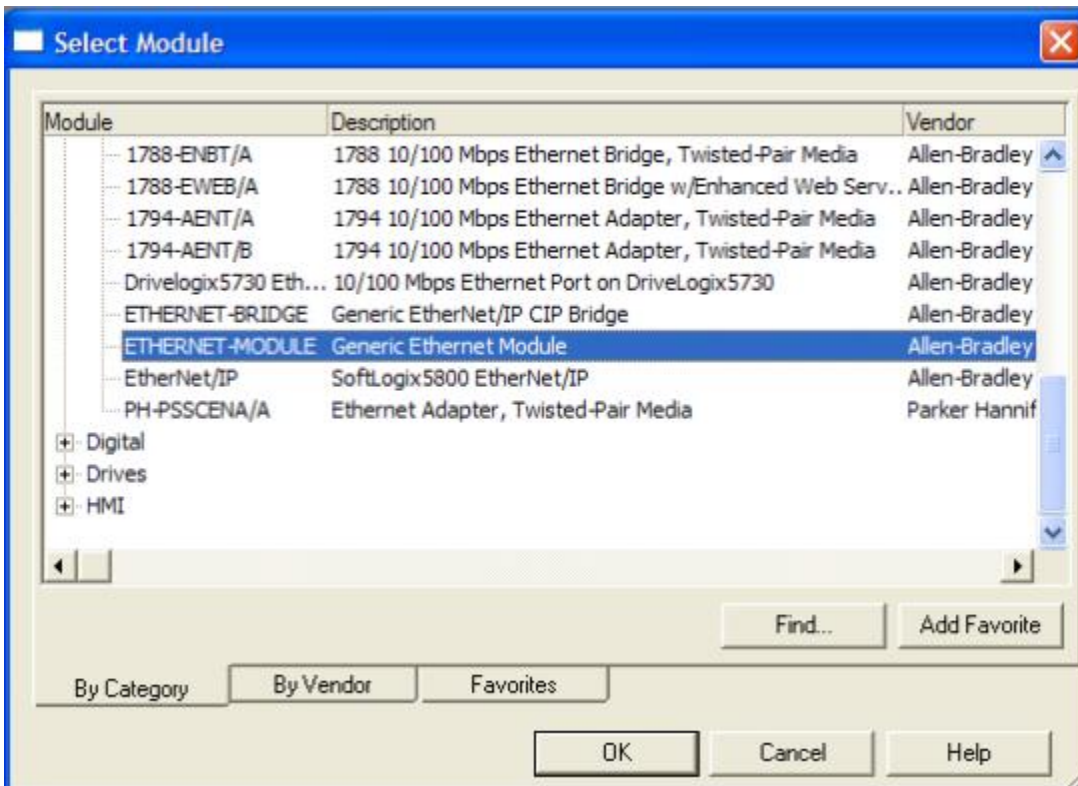
Choose New Module



Choose Communication.

Choose ETHERNET-MODULE (Generic Ethernet Module)

Click OK



Name the Ethernet Connection:

LED_SIGN

(This will be the prefix name of the tags in the controller.)

Enter the Anybus Communicator Default IP address or your custom IP address:

192.168.1.11

or

custom IP address

(xxx.xxx.xxx.xxx)

Choose Comm Format

Data-SINT

(Important)

Enter Required Assembly Instance

Input: 100 and 32 bytes

Output: 150 and 496 bytes

Configuration: 1 and 0 bytes

Click OK

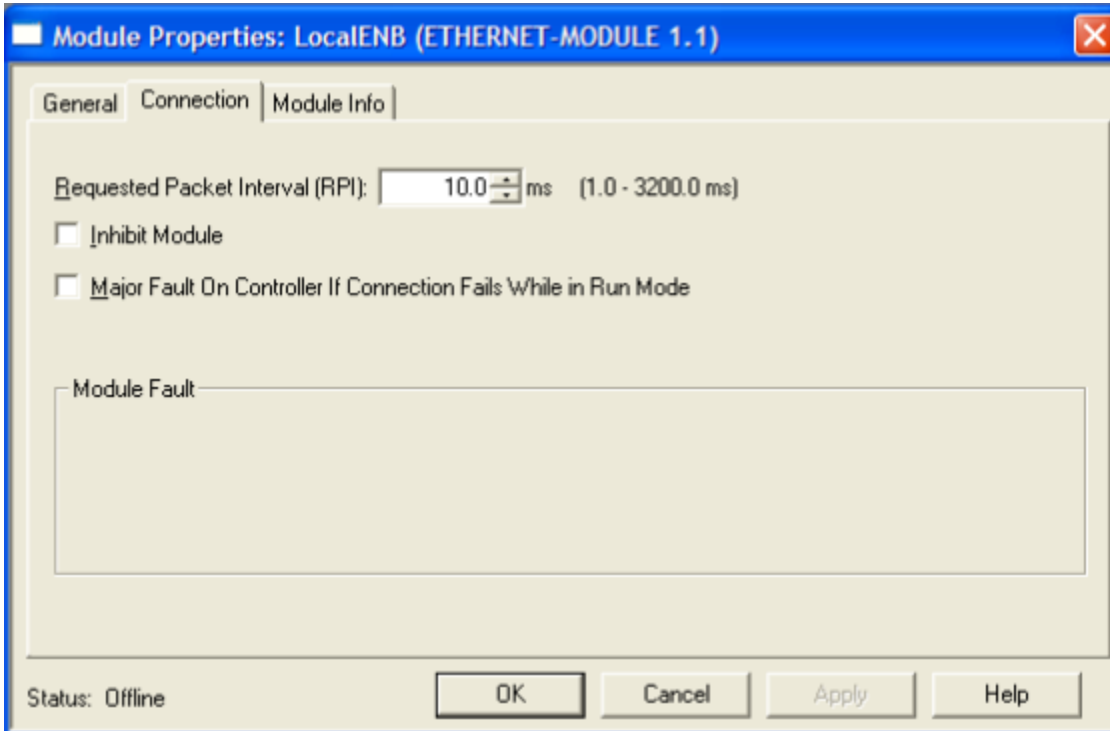
New Module

Type: ETHERNET-MODULE Generic Ethernet Module
Vendor: Allen-Bradley
Parent: LocalENB
Name: LED_Sign
Description:
Comm Format: Data - SINT
Address / Host Name
 IP Address: 192 . 168 . 1 . 11
 Host Name:
Connection Parameters
Input: 100 (Assembly Instance) 32 (Size) (8-bit)
Output: 150 (Assembly Instance) 496 (Size) (8-bit)
Configuration: 1 (Assembly Instance) 0 (Size) (8-bit)
Status Input:
Status Output:
 Open Module Properties
OK Cancel Help

Choose RPI interval:

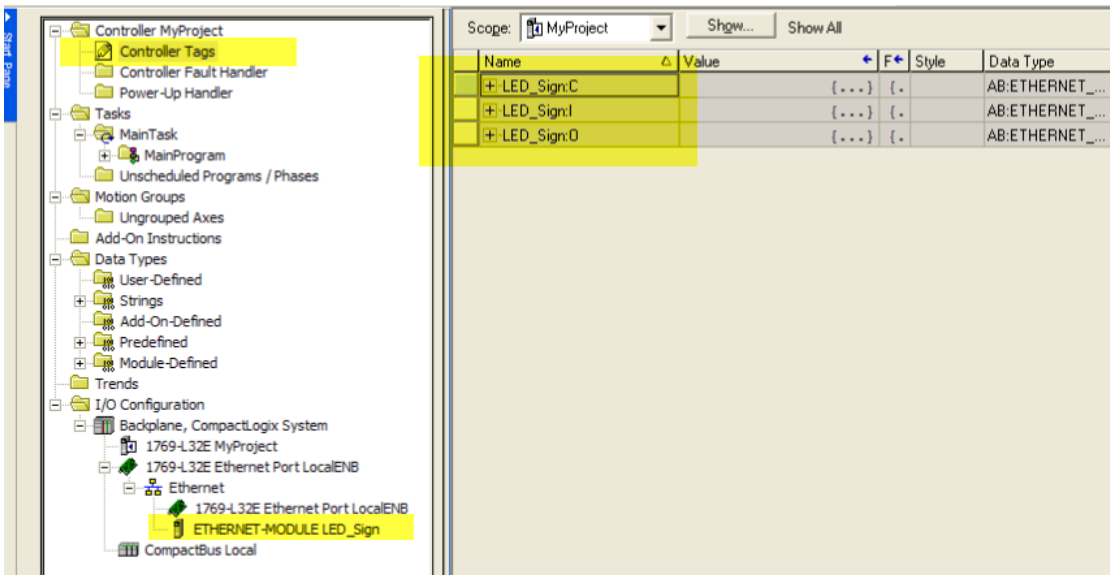
Default 10.0 ms is ok

Click OK



Confirm Controller Tags

Confirm Ethernet Module is configured

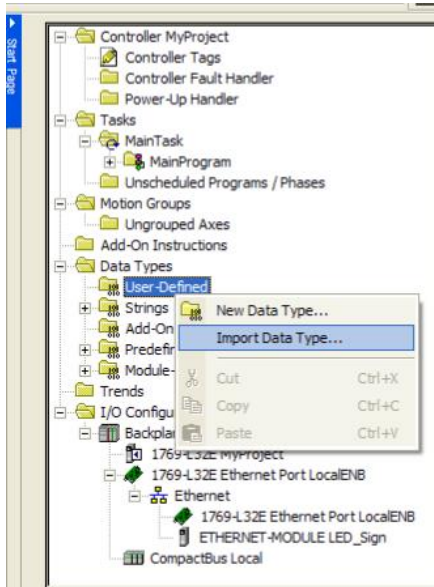


5.3 Importing Data-Types

In the controller tree view

Right click User-Defined under "Data Types"

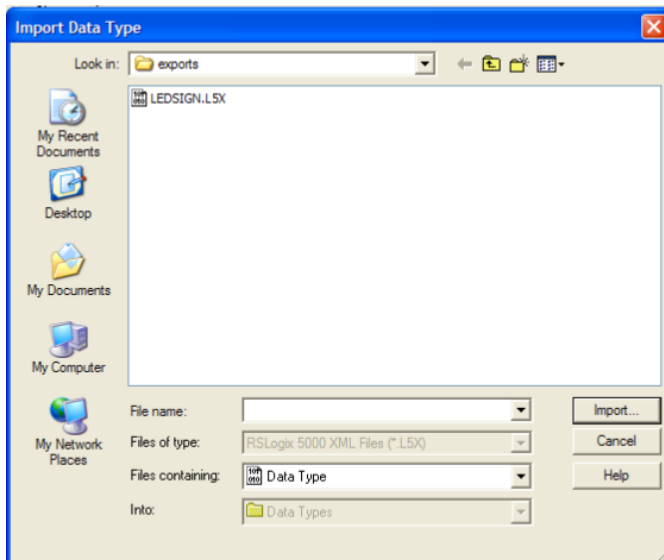
Choose Import Data Type



Browse to the folder containing Data Type

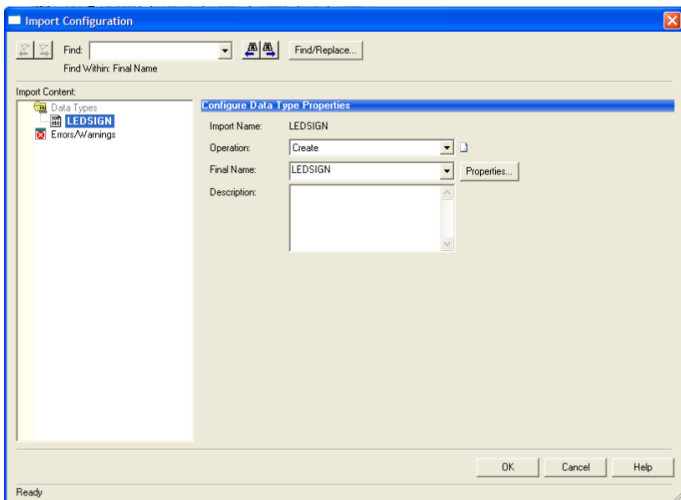
Import LEDSIGN.L5X file

Click OK

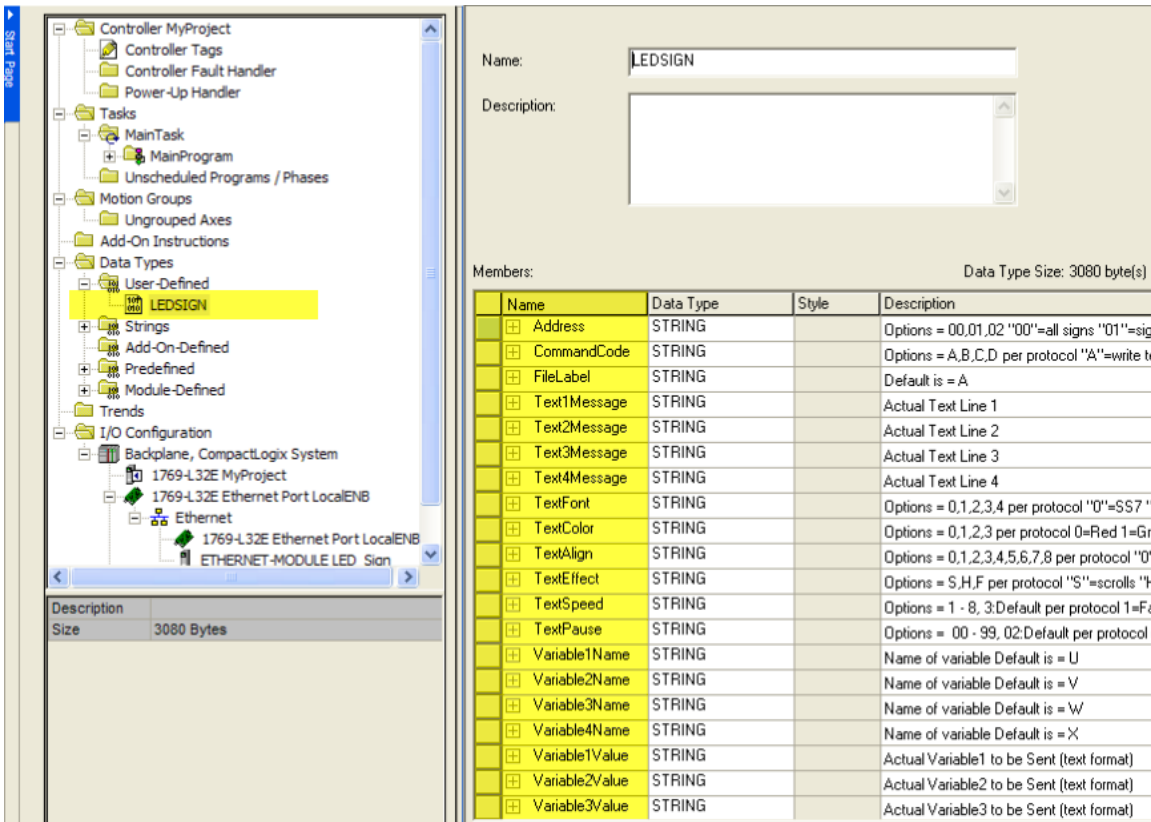


Confirm no version conflicts

Click OK



Confirm Data Type "LEDSIGN"

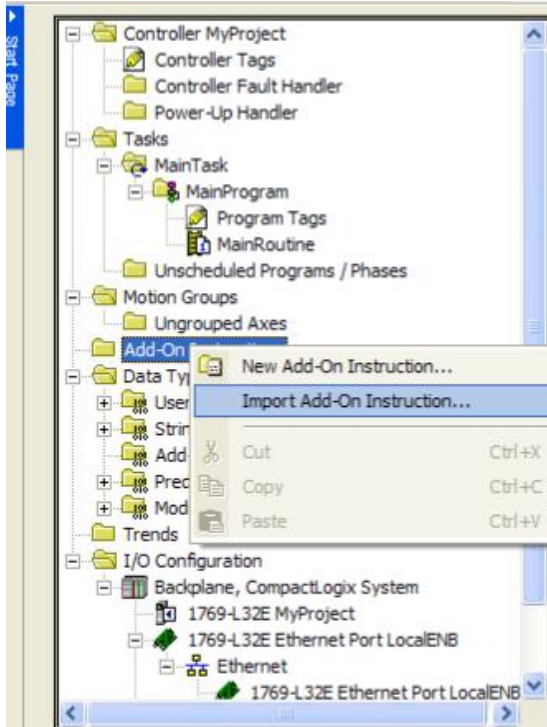


5.4 Importing Add-on Instructions

In the controller tree view

Right click Add-On Instruction

Choose Import Add-On Instruction

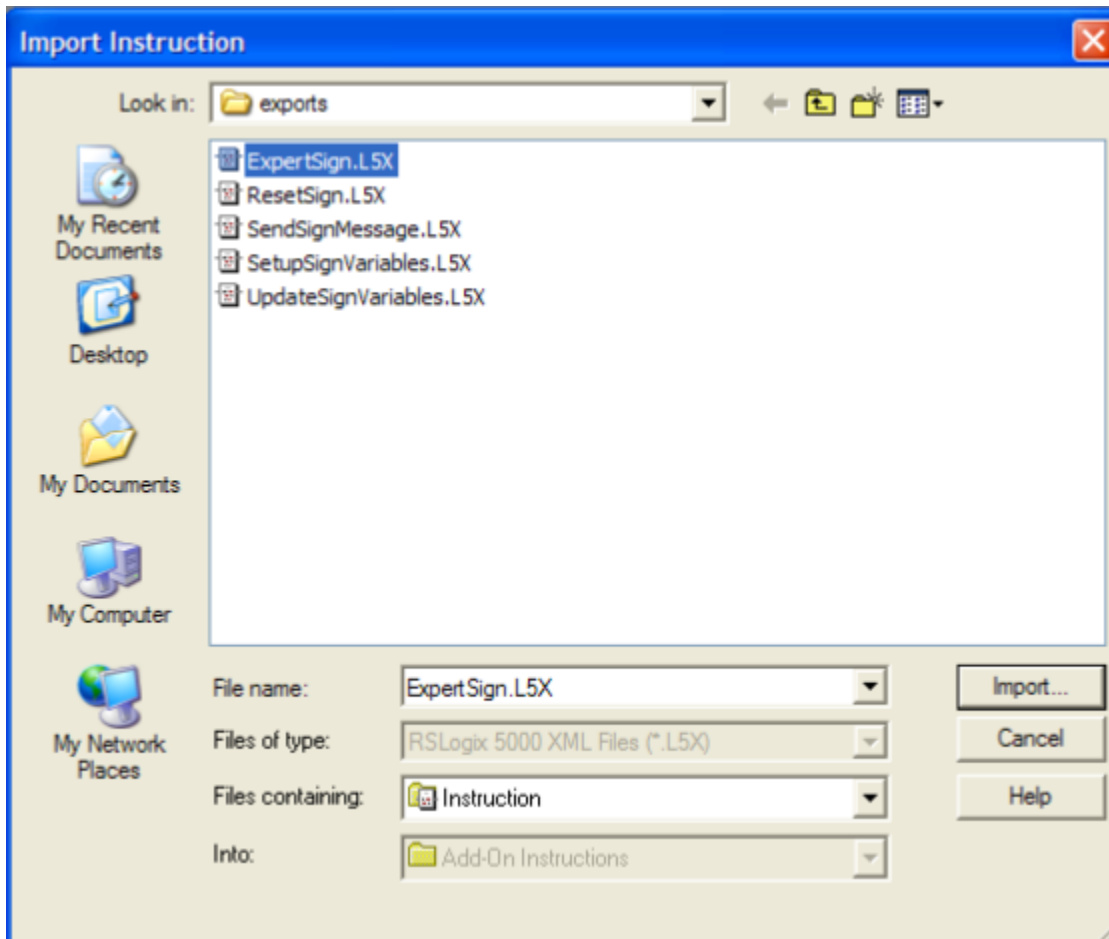


Browse to the folder containing Add-On Instructions

Import all files with .L5X extension.

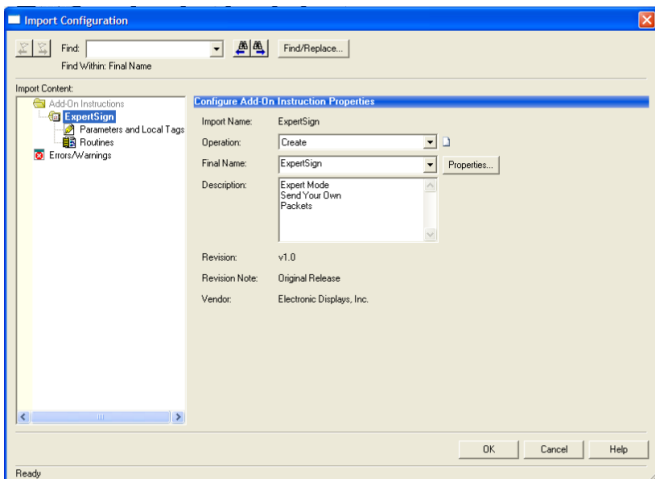
Do this process until all add-on instructions are imported.

Click OK

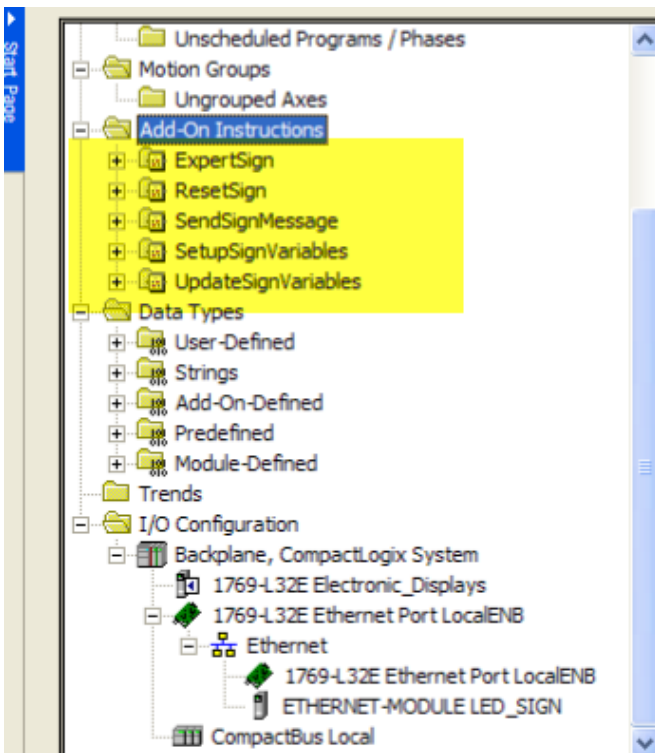


Confirm no version conflicts

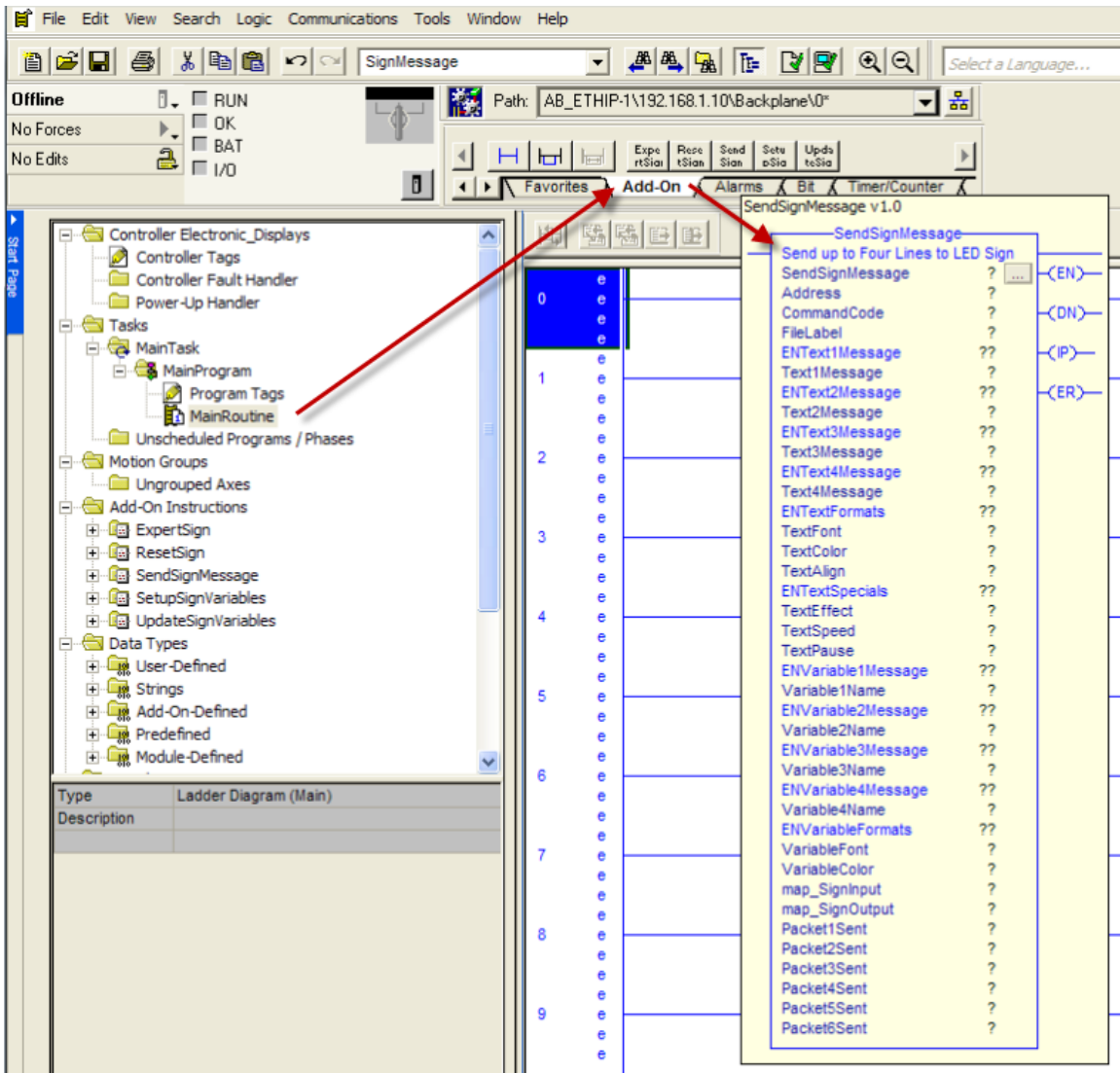
Click OK



Confirm all Add-on Instructions are imported



Confirm AOIs are added to Toolbar in RS Logix 5000

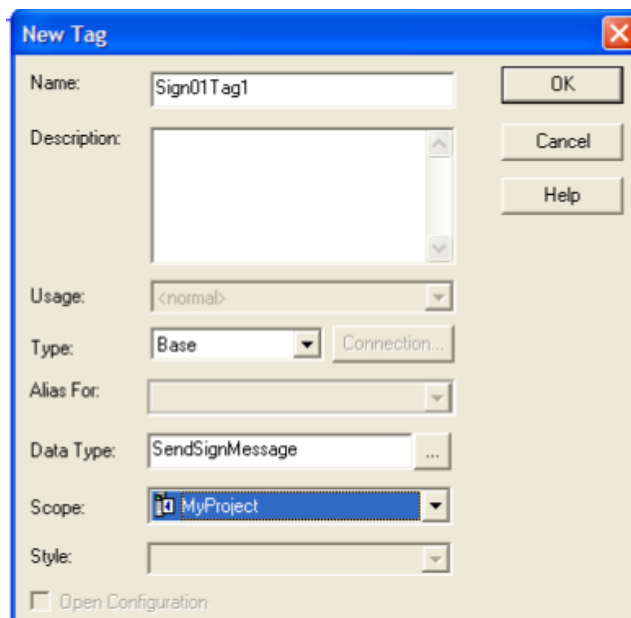
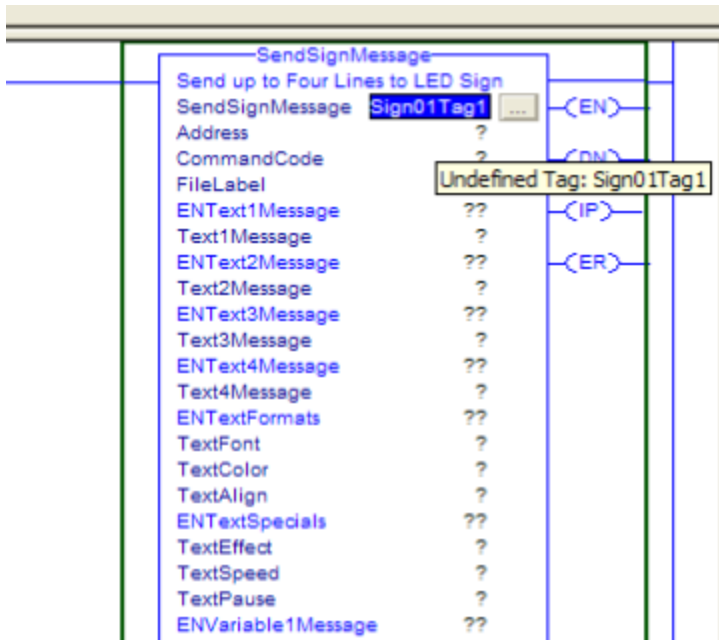


6.2 Creating Unique Tags for AOI

Under the AOI "Tag" parameter, begin to type a desired tag name.

Best Practice here might be to name the tag with the sign address. In this case, the default sign address is "01". Sign01Tag1 might be an example.

Be sure you scope your tag properly.

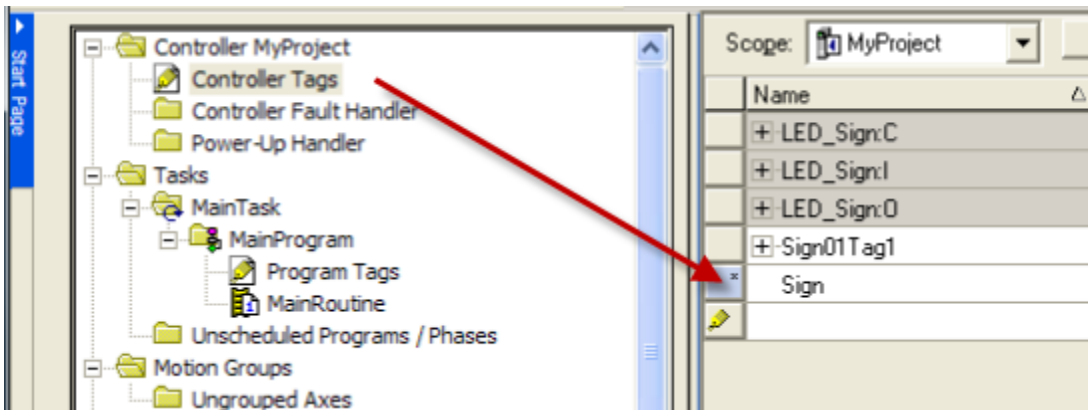


6.3 Creating Unique Tags for Sign Parameters

Each sign, needs a "parameter" file which it retrieves all information and settings from the PLC to the sign.

Best practice would be to create a tag with the name of your sign.

Choose LEDSIGN as the



Name	Alias For	Base Tag	Data Type	Style
+ LED_Sign:C			AB:ETHERNET_...	
+ LED_Sign:I			AB:ETHERNET_...	
+ LED_Sign:O			AB:ETHERNET_...	
+ Sign01Tag1			SendSignMessage	
* Sign			DINT	Decimal



Map the DATA TYPE of your "Sign" tag to the LEDSIGN data type.
 (This data type was imported earlier)

The screenshot shows the 'MyProject' scope with a table of tags. A 'Select Data Type' dialog box is open, showing a list of data types. 'LEDSIGN' is selected in the list. The dialog also includes 'Array Dimensions' for Dim 2, Dim 1, and Dim 0, all set to 0, and a 'Show Data Types by Groups' checkbox.

Name	Alias For	Base Tag	Data Type	Style
+ LED_Sign:C			AB:ETHERNET_...	
+ LED_Sign:I			AB:ETHERNET_...	
+ LED_Sign:O			AB:ETHERNET_...	
+ Sign01Tag1				
+ Sign				

The screenshot shows the same table as above, but the 'Sign' tag is highlighted in yellow, and its data type is now 'LEDSIGN'.

Name	Alias For	Base Tag	Data Type
+ LED_Sign:C			AB:ETHERNET_...
+ LED_Sign:I			AB:ETHERNET_...
+ LED_Sign:O			AB:ETHERNET_...
+ Sign01Tag1			SendSignMessage
+ Sign			LEDSIGN

6.4 Setting up the Sign Tag

Sign tag will now need parameter information filled out.

Click the **■■■** ICON to begin filling in initial information.

Use the description column for "help".

Several of the parameters have "defaults" that can be used.

Hover mouse over description column to see details.

Scope: MyProject		Shgw...	Show All				
Name	Value	Force Mask	Style	Data Type	Description		
[-] Sign	{...}	{...}		LEDSIGN	Sign Parameters		
+ Sign.Address	■■■	**	{...}	STRING	Sign Parameters Options = 00,01,02 'C		
+ Sign.CommandCode		**	{...}	STRING	Sign Parameters Options = A,B,C,D pe		
+ Sign.FileLabel		**	{...}	STRING	Sign Parameters Default is = A		
+ Sign.Text1Message		**	{...}	STRING	Sign Parameters Actual Text Line 1		
+ Sign.Text2Message		**	{...}	STRING	Sign Parameters Actual Text Line 2		
+ Sign.Text3Message		**	{...}	STRING	Sign Parameters Actual Text Line 3		
+ Sign.Text4Message		**	{...}	STRING	Sign Parameters Actual Text Line 4		
+ Sign.TextFont		**	{...}	STRING	Sign Parameters Options = 0,1,2,3,4 pe		
+ Sign.TextColor		**	{...}	STRING	Sign Parameters Options = 0,1,2,3 per		
+ Sign.TextAlign		**	{...}	STRING	Sign Parameters Options = 0,1,2,3,4,5,		
+ Sign.TextEffect		**	{...}	STRING	Sign Parameters Options = S,H,F per p		
+ Sign.TextSpeed		**	{...}	STRING	Sign Parameters Options = 1 - 8, 3:Def		
+ Sign.TextPause		**	{...}	STRING	Sign Parameters Options = 00 - 99, 02		
+ Sign.Variable1Name		**	{...}	STRING	Sign Parameters Name of variable Def.		
+ Sign.Variable2Name		**	{...}	STRING	Sign Parameters Name of variable Def.		
+ Sign.Variable3Name		**	{...}	STRING	Sign Parameters Name of variable Def.		
+ Sign.Variable4Name		**	{...}	STRING	Sign Parameters Name of variable Def.		
+ Sign.Variable1Value		**	{...}	STRING	Sign Parameters Actual Variable1 to be		
+ Sign.Variable2Value		**	{...}	STRING	Sign Parameters Actual Variable2 to be		
+ Sign.Variable3Value		**	{...}	STRING	Sign Parameters Actual Variable3 to be		

Scope: MyProject		Shgw...	Show All				
Name	Value	Force Mask	Style	Data Type	Description		
[-] Sign	{...}	{...}		LEDSIGN	Sign Parameters		
+ Sign.Address	'01'	**	{...}	STRING	Sign Parameters Options = 00,01,02 '00'=all signs		
+ Sign.CommandCode	'A'	**	{...}	STRING	Sign Parameters Options = A,B,C,D per protocol 'X		
+ Sign.FileLabel	'A'	**	{...}	STRING	Sign Parameters Default is = A		
+ Sign.Text1Message	'Message1'	**	{...}	STRING	Sign Parameters Source: (Type) <LEDSIGN.CommandCode>		
+ Sign.Text2Message	'Message2'	**	{...}	STRING	Sign Parameters		
+ Sign.Text3Message	'Message3'	**	{...}	STRING	Sign Parameters Options = A,B,C,D		
+ Sign.Text4Message	'Message4'	**	{...}	STRING	Sign Parameters per protocol		
+ Sign.TextFont	■■■	**	{...}	STRING	Sign Parameters "A"=write text		
+ Sign.TextColor		**	{...}	STRING	Sign Parameters "B"=write variable		
+ Sign.TextAlign		**	{...}	STRING	Sign Parameters "C"=special		
		**	{...}	STRING	Sign Parameters "D"=write text no restart		
		**	{...}	STRING	Sign Parameters Options = 0,1,2,3,4,5,6,7,0 per p		

Example shown below of Sign Tag with all parameters filled in.

Sign "01" will receive all these parameters when AOI instruction is executed.

Scope: <input type="text" value="Electronic_Displk"/>		Show...		Show All	
Name	Value	Style	Data Type		
- Sign	{...}	{.	LEDSIGN		
+ Sign.Address	'01'	{.	STRING		
+ Sign.CommandCode	'A'	{.	STRING		
+ Sign.FileLabel	'A'	{.	STRING		
+ Sign.Text1Message	'Total : '	{.	STRING		
+ Sign.Text2Message	'Rejects : '	{.	STRING		
+ Sign.Text3Message	'Cycle : '	{.	STRING		
+ Sign.Text4Message	'OEE : '	{.	STRING		
+ Sign.TextFont	'1'	{.	STRING		
+ Sign.TextColor	'1'	{.	STRING		
+ Sign.TextAlign	'0'	{.	STRING		
+ Sign.TextEffect	'd'	{.	STRING		
+ Sign.TextSpeed	'3'	{.	STRING		
+ Sign.TextPause	'02'	{.	STRING		
+ Sign.Variable1Name	'U'	{.	STRING		
+ Sign.Variable2Name	'V'	{.	STRING		
+ Sign.Variable3Name	'W'	{.	STRING		
+ Sign.Variable4Name	'X'	{.	STRING		
+ Sign.Variable1Value	'30990'	{.	STRING		
+ Sign.Variable2Value	'30990'	{.	STRING		
+ Sign.Variable3Value	'30990'	{.	STRING		
+ Sign.Variable4Value	'30990'	{.	STRING		
+ Sign.VariableFont	'1'	{.	STRING		
+ Sign.VariableColor	'0'	{.	STRING		
+ Sign.Packet1Sent	'^B01^AAA^F1^01^U0...	{.	STRING		
+ Sign.Packet2Sent	'^00^NW^F1^01^MOEE...	{.	STRING		
+ Sign.Packet3Sent	'''	{.	STRING		
+ Sign.Packet4Sent	'''	{.	STRING		
+ Sign.Packet5Sent	'''	{.	STRING		
+ Sign.Packet6Sent	'''	{.	STRING		
+ Sign.ExternPacket1	'^B01^AAA^GTH^02^F...	{.	STRING		

Monitor Tags / Edit Tags

6.5 Mapping Sign Tag to AOI Function Block in Ladder Logic

Begin mapping all the sign tags to the fields in the AOI function blocks.

Sign tag parameters are word for word matched.

Map all parameters.

The screenshot shows a ladder logic rung with a **SendSignMessage** function block. The block is labeled "Send up to Four Lines to LED Sign". The "Address" field is set to "Sign.Address". Below the rung is a parameter list window with the following table:

Name	Data Type	Description
-Sign	LEDSIGN	Sign Parameters
+ Sign.Address	STRING	Sign Parameters Options = 00,01,02 "00"...
+ Sign.CommandCode	STRING	Sign Parameters Options = A,B,C,D per pr...
+ Sign.FileLabel	STRING	Sign Parameters Default is = A
+ Sign.Text1Message	STRING	Sign Parameters Actual Text Line 1

Below the table are sections for "Controller" and "Program". At the bottom, it says "Show: LEDSIGN, STRING, ExpertSign, ResetSign, SendSignMessage, SetupSignVariables, U; >>".

This image shows a detailed view of the **SendSignMessage** function block. The block is labeled "Send up to Four Lines to LED Sign". The parameters are mapped as follows:

- SendSignMessage: Sign01Tag1 (EN)
- Address: Sign.Address (DN)
- CommandCode: Sign.CommandCode (IP)
- FileLabel: Sign.FileLabel (ER)
- ENText1Message: 0
- Text1Message: Sign.Text1Message
- ENText2Message: 0
- Text2Message: Sign.Text2Message
- ENText3Message: 0
- Text3Message: Sign.Text3Message
- ENText4Message: 0
- Text4Message: Sign.Text4Message
- ENTextFormats: 0
- TextFont: ?
- TextColor: ?
- TextAlign: ?
- ENTextSpecials: 0

7 ELECTRONIC DISPLAY AOI INSTRUCTIONS

7.1 Send Sign Message AOI

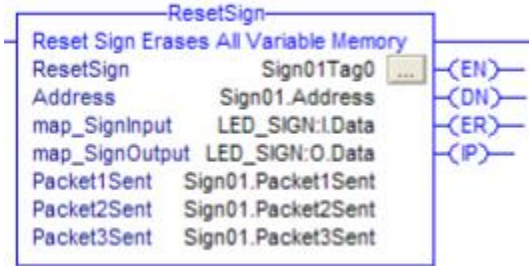
Instruction used to send up to four messages to a sign. (see video tutorials)



Operand	Type	Description
SendSignMessage	Tag	Unique Tag
Address	String	Two character sign address "00"
CommandCode	String	Protocol Command "A,B,C,D"
Filelabel	String	Protocol Command "A" typically
ENText1Message	Bool	Flag to send message 1=send 0=no
Text1Message	String	Actual message in string to send
ENText2Message	Bool	Flag to send message 1=send 0=no
Text2Message	String	Actual message in string to send
ENText3Message	Bool	Flag to send message 1=send 0=no
Text3Message	String	Actual message in string to send
ENText4Message	Bool	Flag to send message 1=send 0=no
Text4Message	String	Actual message in string to send
ENTextFormats	Bool	Flag to format message 1=yes 0=no
TextFont	String	Protocol Command Font Size
TextColor	String	Protocol Command Color
TextAlign	String	Protocol Command Text Align
TextAttribute	String	Protocol Command Text Styling
ENTextSpecials	Bool	Flag to format effects 1=yes 0=no
TextEffect	String	Protocol Command Text Special
TextSpeed	String	Protocol Command Text Speed
TextPause	String	Protocol Command Text Pause
ENVariable1Message	Bool	Flag to send variable 1=send 0=no
Variable1Name	String	Protocol Command Variable Name
ENVariable2Message	Bool	Flag to send variable 1=send 0=no
Variable2Name	String	Protocol Command Variable Name
ENVariable3Message	Bool	Flag to send variable 1=send 0=no
Variable3Name	String	Protocol Command Variable Name
ENVariable4Message	Bool	Flag to send variable 1=send 0=no
Variable4Name	String	Protocol Command Variable Name
ENVariableFormats	Bool	Flag to format variable 1=yes 0=no
VariableFont	String	Protocol Command Font Size
VariableColor	String	Protocol Command Color
VariableAttribute	String	Protocol Command Text Styling
map_SignInput	I:Data	Ethernet/IP Input Data Mapping
map_SignOutput	O:Data	Ethernet/IP Output Data Mapping
Packet1Sent	String	82 Length String Debug of Packet
Packet2Sent	String	82 Length String Debug of Packet
Packet3Sent	String	82 Length String Debug of Packet
Packet4Sent	String	82 Length String Debug of Packet
Packet5Sent	String	82 Length String Debug of Packet
Packet6Sent	String	82 Length String Debug of Packet
EN	Bool	Instruction is enabled
DN	Bool	Instruction is done sending message
IP	Bool	Instruction is in progress sending
ER	Bool	Instruction failed to send message

7.2 Reset Sign AOI

Instruction used to clean all variable data previously stored in sign. (see video tutorials)



Operand	Type	Description
ResetSign	Tag	Unique Tag
Address	String	Two character sign address "00"
map_SignInput	I:Data	Ethernet/IP Input Data Mapping
map_SignOutput	O:Data	Ethernet/IP Output Data Mapping
Packet1Sent	String	82 Length String Debug of Packet
Packet2Sent	String	82 Length String Debug of Packet
Packet3Sent	String	82 Length String Debug of Packet
EN	Bool	Instruction is enabled
DN	Bool	Instruction is done sending message
IP	Bool	Instruction is in progress sending
ER	Bool	Instruction failed to send message

7.3 Setup Sign Variables AOI

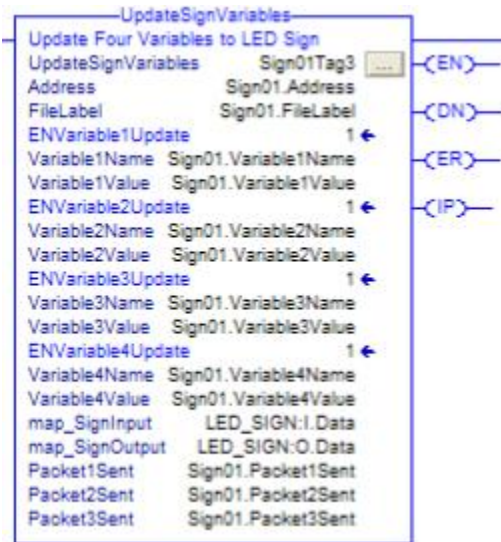
Instruction to write the memory area in the sign for variables up to 4 memory spots. (see video tutorials)



Operand	Type	Description
SendSignMessage	Tag	Unique Tag
Address	String	Two character sign address "00"
Filelabel	String	Protocol Command "A" typically
ENVariable1Message	Bool	Flag to send variable 1=send 0=no
Variable1Name	String	Protocol Command Variable Name
ENVariable2Message	Bool	Flag to send variable 1=send 0=no
Variable2Name	String	Protocol Command Variable Name
ENVariable3Message	Bool	Flag to send variable 1=send 0=no
Variable3Name	String	Protocol Command Variable Name
ENVariable4Message	Bool	Flag to send variable 1=send 0=no
Variable4Name	String	Protocol Command Variable Name
map_SignInput	I:Data	Ethernet/IP Input Data Mapping
map_SignOutput	O:Data	Ethernet/IP Output Data Mapping
Packet1Sent	String	82 Length String Debug of Packet
Packet2Sent	String	82 Length String Debug of Packet
Packet3Sent	String	82 Length String Debug of Packet
EN	Bool	Instruction is enabled
DN	Bool	Instruction is done sending message
IP	Bool	Instruction is in progress sending
ER	Bool	Instruction failed to send message

7.4 Update Sign Variables AOI

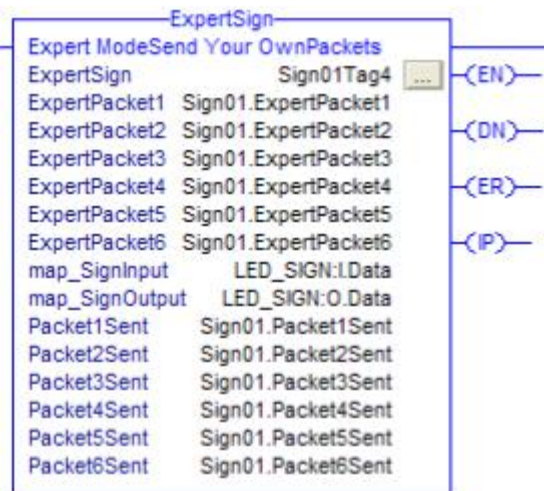
Instruction to update variable memory space in the sign (see video tutorials)



Operand	Type	Description
UpdateSignVariables	Tag	Unique Tag
Address	String	Two character sign address "00"
Filelabel	String	Protocol Command "A" typically
ENVariable1Update	Bool	Flag to update variable 1=send 0 =no
Variable1Name	String	Protocol Command Variable Name
Variable1Value	String	Actual variable data to send
ENVariable1Update	Bool	Flag to update variable 1=send 0 =no
Variable2Name	String	Protocol Command Variable Name
Variable2Value	String	Actual variable data to send
ENVariable1Update	Bool	Flag to update variable 1=send 0 =no
Variable3Name	String	Protocol Command Variable Name
Variable3Value	String	Actual variable data to send
ENVariable1Update	Bool	Flag to update variable 1=send 0 =no
Variable4Name	String	Protocol Command Variable Name
Variable4Value	String	Actual variable data to send
map_SignInput	I:Data	Ethernet/IP Input Data Mapping
map_SignOutput	O:Data	Ethernet/IP Output Data Mapping
Packet1Sent	String	82 Length String Debug of Packet
Packet2Sent	String	82 Length String Debug of Packet
Packet3Sent	String	82 Length String Debug of Packet
EN	Bool	Instruction is enabled
DN	Bool	Instruction is done sending message
IP	Bool	Instruction is in progress sending
ER	Bool	Instruction failed to send message

7.5 Expert Sign AOI

Instruction to make your own packets and send to the sign. (see video tutorials)



Operand	Type	Description
ExpertSign	Tag	Unique Tag
ExpertPacket1	String	82 Length String of Your Commands
ExpertPacket2	String	82 Length String of Your Commands
ExpertPacket3	String	82 Length String of Your Commands
ExpertPacket4	String	82 Length String of Your Commands
ExpertPacket5	String	82 Length String of Your Commands
ExpertPacket6	String	82 Length String of Your Commands
map_SignInput	I:Data	Ethernet/IP Input Data Mapping
map_SignOutput	O:Data	Ethernet/IP Output Data Mapping
Packet1Sent	String	82 Length String Debug of Packet
Packet2Sent	String	82 Length String Debug of Packet
Packet3Sent	String	82 Length String Debug of Packet
Packet4Sent	String	82 Length String Debug of Packet
Packet5Sent	String	82 Length String Debug of Packet
Packet6Sent	String	82 Length String Debug of Packet
EN	Bool	Instruction is enabled
DN	Bool	Instruction is done sending message
IP	Bool	Instruction is in progress sending
ER	Bool	Instruction failed to send message