Allen-Bradley

InView Communications

2706-PRIO, 2706-PDH485, 2706-PDHP, 2706-PDNET, 2706-PCNET, 2706-PENET, 2706-PENET1

User Manual

Rockwell Automation

Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (publication SGI-1.1 available from your local Rockwell Automation sales office or online at http://literature.rockwellautomation.com) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

WARNING 	Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.
ATTENTION 	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence
SHOCK HAZARD 	Labels may be located on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.
BURN HAZARD 	Labels may be located on or inside the equipment, for example, a drive or motor, to alert people that surfaces may be dangerous temperatures.

This document describes the InView Communication Module.

Revision bars in the margin identify updated information. Changes for this version of the document include:

Change	Page
Added a note that communication modules should be configured serially before it is mounted to the display	1-5
Added that the communication utility creates files with the extension of .ivc which is different from InView message files which have the extension of .ivp	1-7
Added a note for the user to check the InView web pages for new or updated information	4-1
Added a note that communication modules should be configured serially before it is mounted to the display	4-28
Removed appendix with InView labs	Appendix A

Appendix A

InView Communication Module Specifications

Index

Introduction to InView Connectivity

InView message displays come standard with RS-232 and RS-485 communications for quick and easy integration. For applications requiring industrial or commercial networks, InView communications modules can be used to integrate your display into new and existing networks.

InView Communication Option

Network	Communication Module		
	2706-P22R	**2706-P42R, -P42C, -P43R, -P43C, -P44R, -P44C**	**2706-P72CN2, -P74CN2, -P72CN1, -P74CN1**
Remote I/O	2706-PRIOP	2706-PRIOM	2706-PRIOK
DH-485	2706-PDH485P	2706-PDH485M	2706-PDH485K
DH+	2706-PDHPP	2706-PDHPM	2706-PDHPK
DeviceNet	2706-PDNETP	2706-PDNETM	2706-PDNETK
ControlNet	2706-PCNETP	2706-PCNETM	2706-PCNETK
EtherNet IP	2706-PENETP	2706-PENETM	2706-PENETK
Ethernet TCP/IP	(1)	2706-PENET1	

(1) Rockwell Automation recommends using a third party DIN rail mounted Ethernet TCP/IP solution with the InView P22R panel mount display. Lantronixs and Digi both supply a DIN rail Ethernet TCP/IP solution for connectivity to a personal computer.

Controller Based Communications

InView controller based communication can be used to trigger messages and update variables on an InView display. InView communication allows for connection into new and existing control environments.

Point-to-point RS-232 Serial Communications

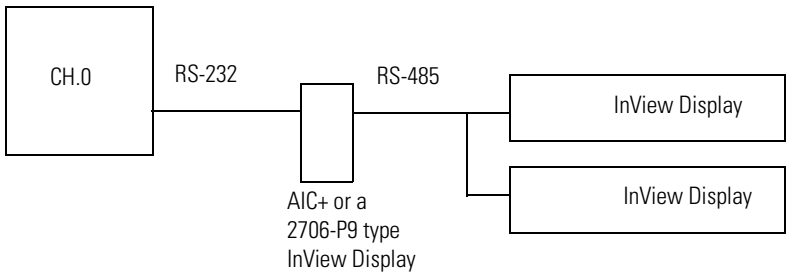
Point-to-point serial communications allow the use of a controller to trigger messages and update variables on an InView display. RS-232 serial communications support a single display connection with a limited distance of 15.24 m (50 ft).

RS-232 Serial Communications

Multi-drop RS-485 Serial Communications

RS-485 Multi-drop networks allow for Serial communications from a single controller to multiple InView displays. With the use of an AIC+ (RS-232 to RS-485 converter) or a 2706-P9 type InView display, you can daisy chain multiple InView displays off channel zero of an Allen-Bradley controller. Each InView display can have a unique address, allowing for individual display control over the network with a maximum distance of 1219 m (4000 ft).

RS-485 Serial Communications



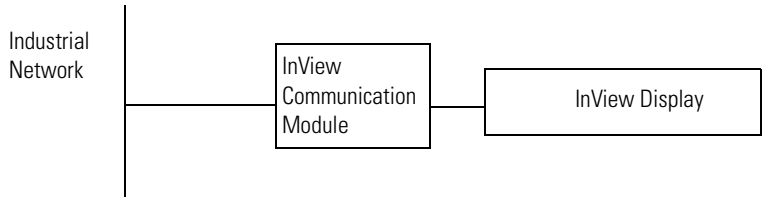
Industrial Network Communications

InView communication modules allow InView displays to communicate with controllers over the following networks.

- Data Highway Plus
- DH-485
- Remote I/O
- DeviceNet
- ControlNet
- Ethernet

The InView communication modules take controller based communications one step farther. They allow InView message displays to communicate on the core Allen Bradley networks. The InView software includes a communication utility to set up the tags in the communication module to correspond to a controller's data tables. The data tables within a controller are used to trigger messages and or update variables.

Industrial Network Communications



PC Based Communications

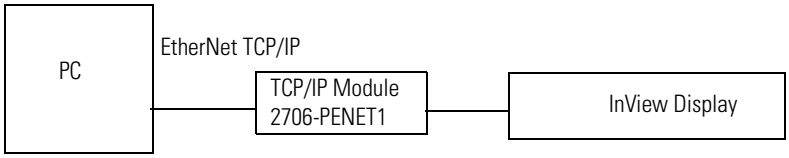
InView PC based communications can be used to download message files and trigger message/update variables on your InView display. This can be done using the InView messaging software, the Instant Messenger, or via the InView ActiveX control added to a VBA project or container. The InView messaging software allows for the creation, downloading and triggering of messages, where the Instant Messenger software is more suited for triggering the message. The ActiveX control allows custom applications to be created using a VBA environment such as RSView32. This allows for the most flexibility and functionality when creating an application to drive an InView.

Ethernet TCP/IP

InView Ethernet TCP/IP communication modules let you integrate your displays into Information System and Supervisor Control PC based systems. Ethernet TCP/IP communications let you make use of

your existing office network to communicate information to the entire factory.

See publication 2706-IN008, for information on installing and setting up Ethernet TCP/IP.

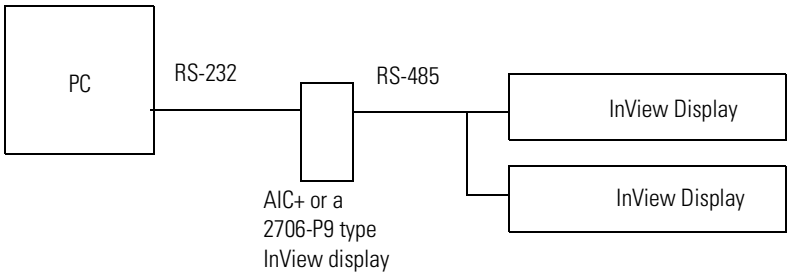


Serial RS-232 Communications

PC based RS-232 connection to communicate to an InView display. This is done via the InView messaging software, Instant Messenger, or the ActiveX control in RSView32 software. This is effective for a single display located 15.24 m (50 ft) from the PC or when downloading message applications.

Serial RS-485 Communications

PC based RS-485 serial networks. For multi-drop connection to an InView display, an AIC+ (RS-232 to RS-485 converter) or a 2706-P9 type InView display can be used off the PC comm port. This allows individual control of multiple displays on a single network up to 1219 m (4000 ft).



Set the 2706-PENET1 IP Address

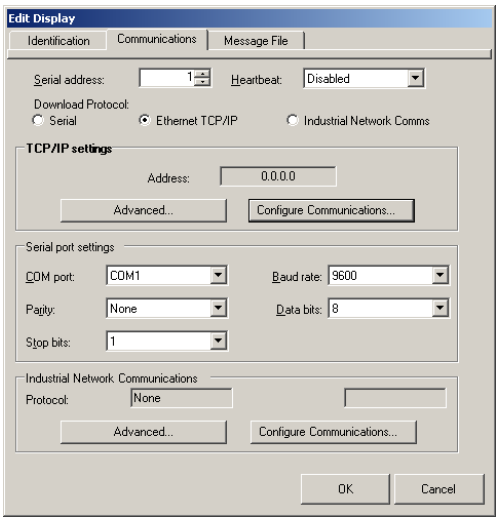
IMPORTANT The Ethernet communications modules should be configured serially before mounting to the InView display or hanging/mounting the display in a high or remote location. Communication modules require an initial setup to establish node or IP address before being able to function on a network. The serial configuration requires a 2706-NC13 cable and the InView message software.

To set the 2706-PENET1 IP address:

1. Open the InView software.
2. Add a display to the project.
3. Under the display management portion of the interface, right click the display to add and click Edit Display.

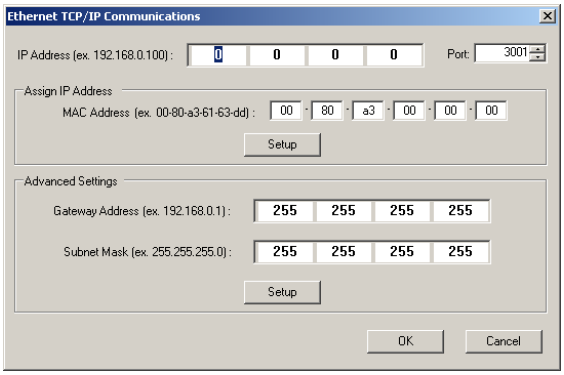
   The Edit Display dialog opens.

4. Navigate to the Communications tab.



5. Assure Ethernet TCP/IP is selected under the Download Protocol.

6. Click the Configure Communications button to set the IP Address.



The Ethernet TCP/IP Communications Configuration dialog opens.

7. Enter IP Address desired, the MAC Address and click Setup.

- MAC ID is case sensitive
- The PC being used to set the IP should be on the same subnet and should be in the same range of IP addresses as the 2706-PENET1.

Create a New InView Network Communication Application

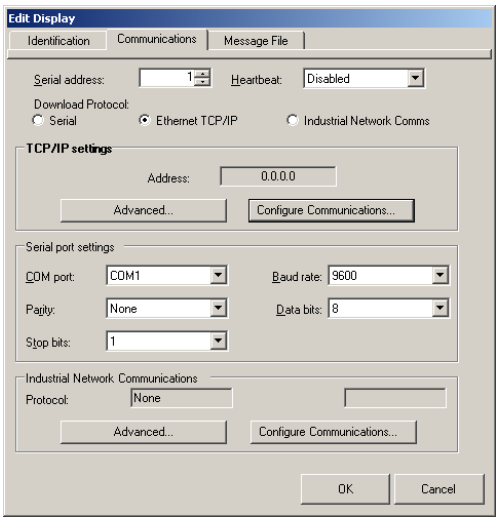
The communication utility allows the InView message display to be configured to communicate with an Allen-Bradley controller over an industrial network. The communication utility creates a file of extension .ivc, which you can save, reuse, or edit. This is separate from InView message files, which is of extension .ivp.

All communication and tag parameters are configured from a common dialog. Your configuration is saved to an .ivc file for later use or editing.

To create a new InView network communication application:

1. Open the InView software.
2. Add a display to the project.
3. Under the display management portion of the interface, right click the display to add and click Edit Display.

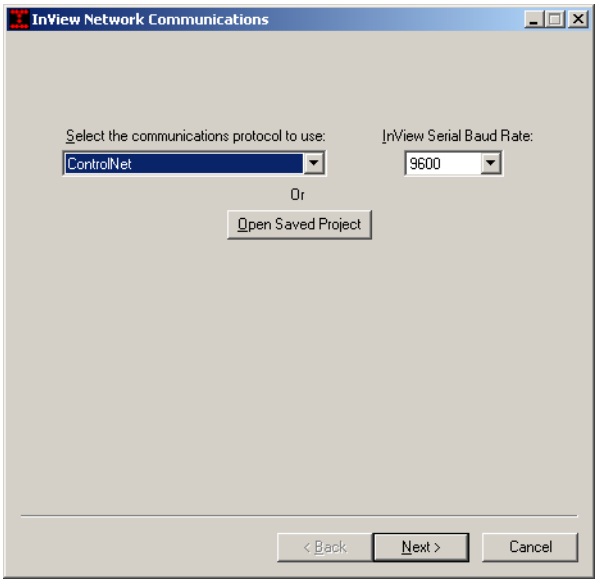
   The Edit Display dialog opens.
4. Navigate to the Communications tab.



5. Assure Industrial Network Communications is selected under the download protocol.

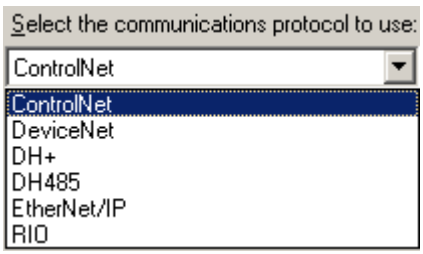
6. Click the configure communications button in the Industrial Networks Communications section on the bottom of the communications tab.

   The following dialog appears.

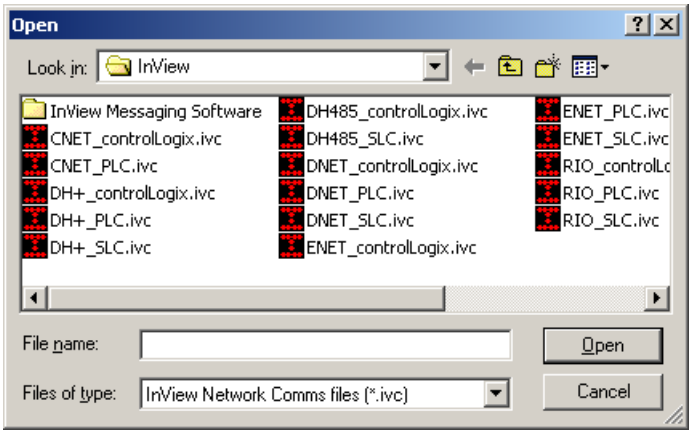


7. Select a communication protocol or click the Open Saved Project button to open a previously saved .ivc configuration file.

   Either dialog appears.



or



   A saved InView Network Communications file (*.ivc) can still be edited within the utility and either downloaded to the communication module or saved.

8. If creating a new InView network communications file, select a protocol from the list. Then, choose an InView serial communication rate.

This is the communication rate that the communication module and the InView display communicate at.

Currently all InView displays communicate at 9600 bps, with the exception of the 2706-P92 and 2706-P94 displays. Those can communicate at either 9600 bps or 19200 bps.

9. Setup the communication and tag setup screens dependent upon the protocol and type of controller.

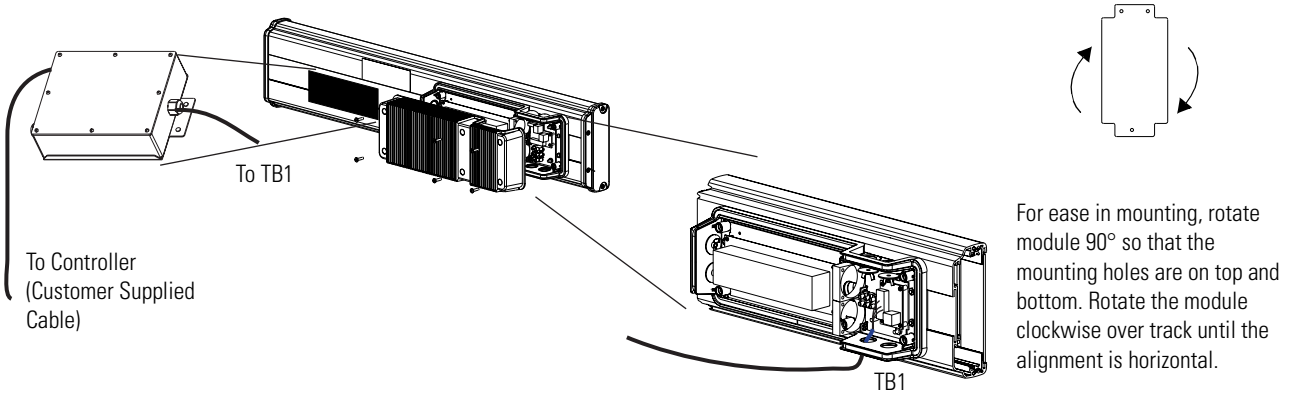
How to setup the communication and tag setup screens is described in Chapter 4.

Install InView Communication Modules

Mount Module to 2706-P42, 2706-P43 and 2706-P44 Displays

The InView communication module is designed to mount to the track of the InView 2706-P42, 2706-P43 and 2706-P44 displays.

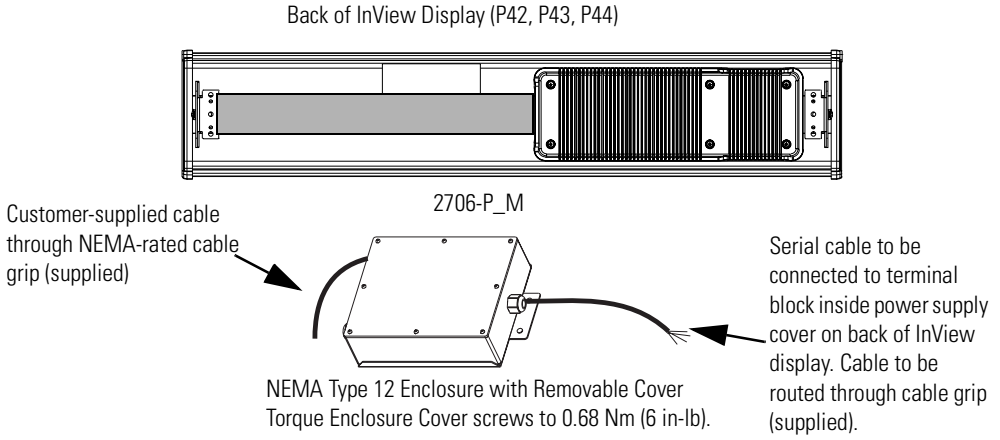
1. Align the tabs on the back plate of the module to the track on the display.
2. Tighten mounting screws until they bottom out against the back plate.



Wire Communication Module to InView Display 2706-P42, 2706-P43, 2706-P44

Below is an illustration and description of the InView communication module and its connectors with relation to an InView 2706-P4*x* display.

Wire Communication Module to InView Display



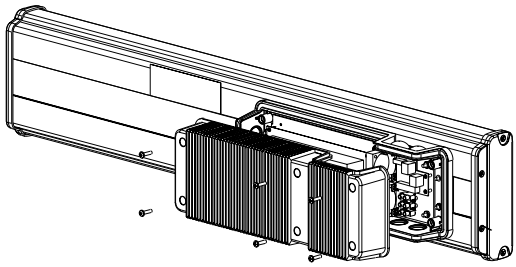
To wire the communication module to the InView display:

1. Disconnect power to InView display.

ATTENTION

Hazardous voltage. Contact with high voltage may cause death or serious injury. Always disconnect power to the InView display prior to servicing.

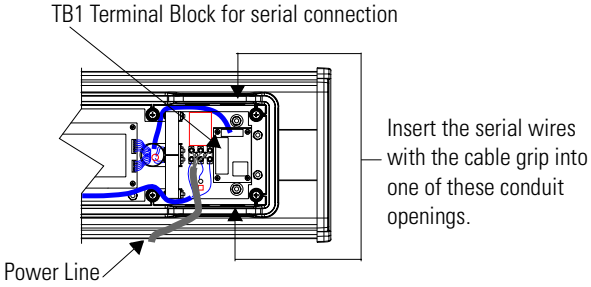
2. Remove six screws on the power supply cover (on 2706-P4*x*).



2706-P42, 2706-P43, 2706-P44

3. Route the serial cable through the cable grip (shipped with module).

4. Insert the serial wires through the conduit opening on either the top or the bottom of the InView display.

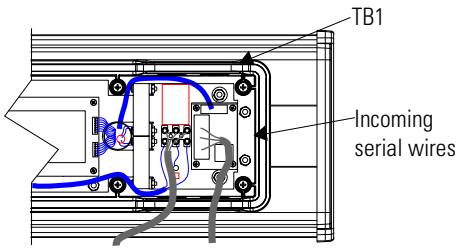


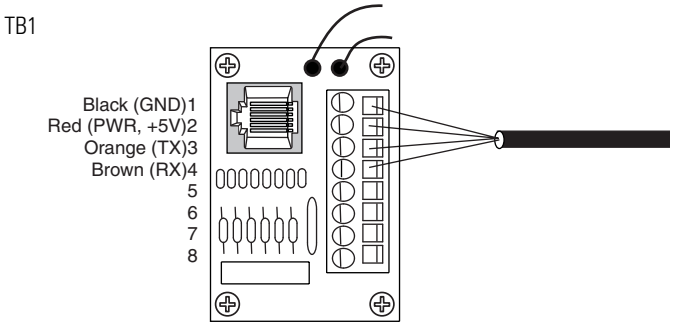
5. Mount the cable grip to the InView display housing.

6. Tighten the locknut finger-tight and rotate an additional 1/2 turn.

7. Connect the incoming serial wires to the TB1 terminal block.

TIP Be sure to place the wires so they are not caught by screws when replacing the power supply cover, and also so they do not interfere with fan operation.





TIP The 2706-P_M communication modules are powered through the serial cable by the display (Series C).

8. Tighten the cable grip cap until the cable is securely fastened.
9. Replace the power supply back cover with the 6 screws (on 2706-P4*x*).
10. Torque the screws to 2.7Nm (24 in-lbs).
11. Connect the power supply to a power source.

Mount Communication Kit to 2706-P72, 2706-P74, 2706-P92 and 2706-P94 Displays

The 2706-P72, 2706-P74, 2706-P92 and 2706-P94 displays are equipped with a mounting plate inside the case for mounting the Communication Kit.

ATTENTION Hazardous Voltage. Contact with high voltage may cause death or serious injury. Always disconnect power to the InView display prior to servicing.

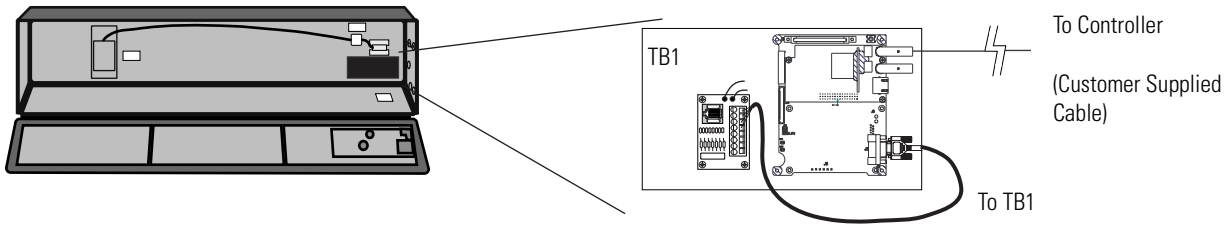
To mount the communication module to the InView display:

1. Disconnect power to the InView display.

2. Open the front of the InView case by turning the latches counter clockwise and carefully lower the front of the case.

3. Install the Communication Kit (2706-P_K) to the mounting plate located near TB1 using the supplied standoffs and screws.

4. Torque the screws to 0.68 Nm (6 in-lbs).

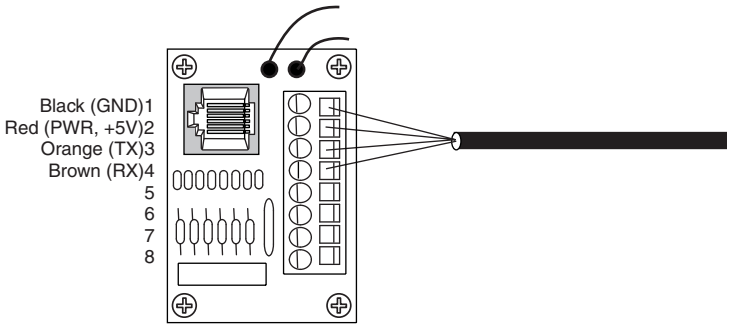


Wire Communication Kit to 2706-P72, 2706-P74, 2706-P92 and 2706-P94 Displays

The power to the communication module is provided by the InView display (series C).

To wire the communication module to the InView display:

1. Connect the serial wires to the TB1 terminal block in the InView display.



TIP The 2706-P_K communication kits are powered through the serial cable by the display (series C).

2. Route the customer supplied network cable through the cable grip and locknut that is provided.

3. Connect the customer supplied network cable to the Communication Kit.

   Verify that there is adequate slack in the cable by making a loop of cable inside the InView case.

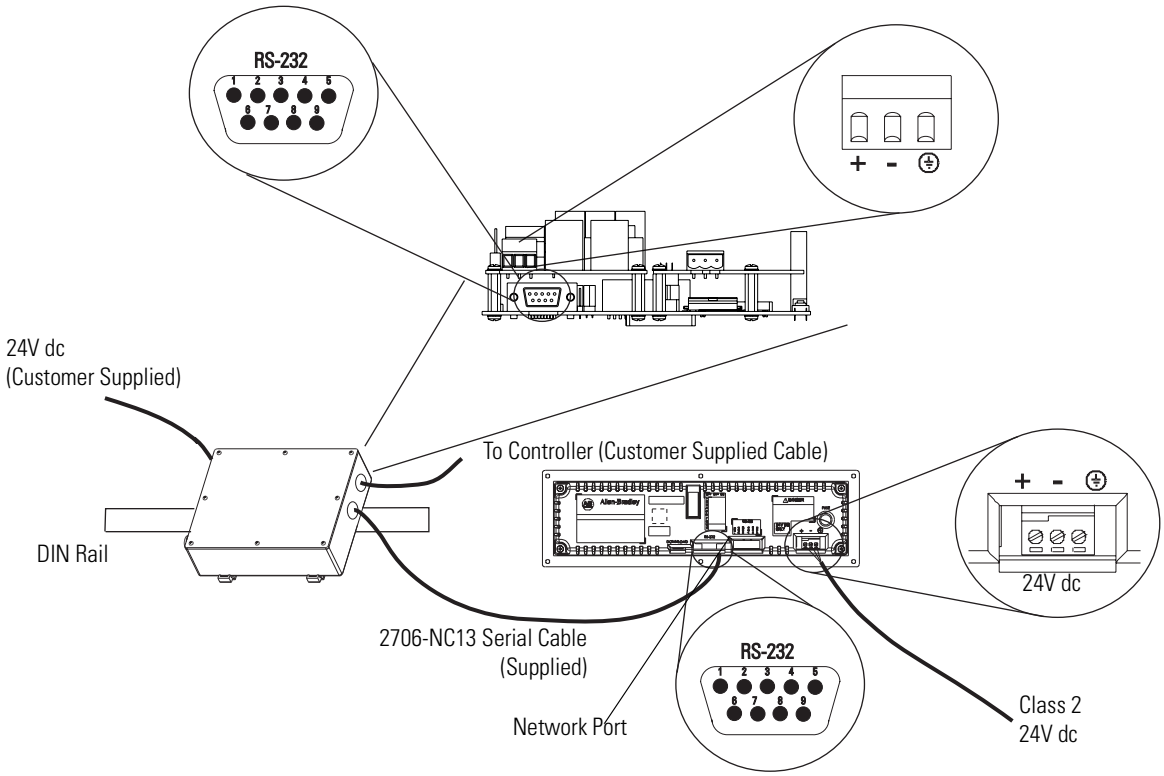
4. Mount the cable grip to the InView display housing.
5. Tighten the locknut finger-tight and rotate an additional 1/2 turn.
6. Tighten the cable grip cap until the cable is securely fastened.
7. Carefully close the InView case and tighten the latches by turning them clockwise.
8. Connect the InView to a power source.

Use Communication Module with a 2706-P22R Display

The 2706-P22R InView panel mount display can be used with a 2706-P_P communication module. The module is mounted on a DIN rail inside the enclosure the 2706-P22R display is mounted. This maintains the NEMA 4x, 12 or 13 rating. The 2706-P_P communication module also requires a separate 24V dc power supply. This module does not receive power from the InView display.

To use the communication module with the InView display:

1. Disconnect power to the enclosure.
2. Mount DIN rail somewhere in the enclosure, near the 2706-P22R display.
3. Snap the communication module to the DIN rail, and lock the latches.
4. Connect the customer supplied network cable to the communication module.



5. Connect the communications module to the 2706-P22R display by using the supplied serial cable.

6. Provide 24 volts ±25 percent, 1A DC to the communications module.

InView Communication Module Connections

Chapter Objectives

This chapter describes network and device connections for InView communication modules.

- Wire and Safety Guidelines
- Cable Tables
- Remote I/O Connections
- DH+ Connections
- DH-485 Terminal Connections
- ControlNet Connections
- DeviceNet Connections
- EtherNet/IP Connections
- Connect a Computer

Wire and Safety Guidelines

Use Electrical Safety Requirements for Employee Workplaces, publication NFPA 70E, when you wire the InView communication module. Also, consider these guidelines.

- Route communication cables to terminal by a separate path from incoming power

IMPORTANT Do not run signal wiring and power wiring in the same conduit.

- Where power and communication lines must cross, they should cross at right angles. Communication lines can be installed in the same conduit as low level DC I/O lines (less than 10 volts)
- Grounding minimizes noise from Electromagnetic Interference (EMI) and is a safety measure in electrical installations
- Use the National Electric Code published by the National Fire Protection Association as a source for grounding

WARNING

EXPLOSION HAZARD

Do not connect or disconnect equipment unless power has been switched off and area is known to be non-hazardous.

Cable Tables

Refer to the following tables for a summary of InView communication module connections to controllers and network interface modules.

Runtime Communication Cables - To Processors

InView to SLC

Protocol	InView Standard Comm Port	SLC-500, 5/01, 5/02 CH1 RJ45 (DH-485)	SLC-5/03, 5/04, 5/05 CH0 (9-pin RS-232) (DF1 or DH-485)	SLC 5/03 CH1 (RJ45) (DH-485)	SLC 5/04 CH1 (DH+)	SLC 5/05 CH1 (ENET)
DH-485	DH-485 Communication Port (RJ45)	1747-C10 (2m/6ft) 1747-C11 (0.3m/1ft) 1747-C20 (6m/20ft)	use AIC+ Module (1761-NET-AIC) Connect to Port 3	1747-C10 (2m/6ft) 1747-C11 (0.3m/1ft) 1747-C20 (6m/20ft)	N/A	N/A
DeviceNet	DeviceNet Communication Port	to SLC 5/02 with 1747-SDN and DeviceNet cable	use 1747-SDN Module with DeviceNet cable			
ControlNet	ControlNet Communication Port	N/A	not applicable - InView communication module does not support SLC ControlNet configurations			
EtherNet/IP	Ethernet Comm Port	N/A	N/A	N/A	N/A	Ethernet cable

InView to PLC-5, ControlLogix, MicroLogix1000, MicroLogix 1200, and MicroLogix 1500LSP

Protocol	InView Communication Module Standard Comm Port	PLC-5, PLC-5C, PLC-5E CH0 (25-pin RS-232) (DF1)	ControlLogix CH0 (9-pin RS-232) (DF1)	MicroLogix 1000, 1200, 1500LSP CH0 (8-pin Mini DIN) (DF1 or DH-485)
DH-485	DH-485 Communication Port (RJ45)	N/A	N/A	use AIC+ Module (1761-NET-AIC) Connect to Port 3
DeviceNet	DeviceNet Communication Port	use 1771-SDN Module with DeviceNet cable	use 1756-DNB Module with DeviceNet cable	use 1761-NET-DNI Module with DeviceNet cable
ControlNet	ControlNet Communication Port	to PLC-5C with ControlNet cable	use 1756-CNB Module with ControlNet cable	N/A

InView to PLC-5, ControlLogix, MicroLogix1000, MicroLogix 1200, and MicroLogix 1500LSP

Protocol	InView Communication Module Standard Comm Port	PLC-5, PLC-5C, PLC-5E CH0 (25-pin RS-232) (DF1)	ControlLogix CH0 (9-pin RS-232) (DF1)	MicroLogix 1000, 1200, 1500LSP CH0 (8-pin Mini DIN) (DF1 or DH-485)
EtherNet/IP	Ethernet Communication Port	to PLC-5E with Ethernet cable	Use 1756-ENET Module with Ethernet cable	Use 1761-NET-ENI Module with Ethernet cable
Remote I/O	Remote I/O Communication Port	shielded twinaxial cable (1770-CD)	use 1756-DHRIO Module with shielded twinaxial cable (1770-CD)	N/A
DH+	DH+ Communication Port	shielded twinaxial cable (1770-CD)	use 1756-DHRIO Module with shielded twinaxial cable (1770-CD)	N/A

InView to MicroLogix 1500LRP, CompactLogix, and FlexLogix

Protocol	InView Communication Module Standard Comm Port	MicroLogix 1500LRP CH1 (9-pin RS-232) (DF1 or DH-485)	CompactLogix CH0 (9-pin RS-232) (DF1 or DH-485)	FlexLogix CH0 (9-pin RS-232) (DF1)
DH-485	DH-485 Communication Port (RJ45)	use AIC+ Module (1761-NET-AIC) Connect to Port 3	use AIC+ Module (1761-NET-AIC) Connect to Port 3	N/A
DeviceNet	DeviceNet Communication Port	use 1761-NET-DNI Module with DeviceNet cable		N/A
ControlNet	ControlNet Communication Port	N/A	N/A	use 1788-CNC module with ControlNet cable
EtherNet/IP	Ethernet Communication Port	use 1761-NET-ENI Module with Ethernet cable	use 1761-NET-ENI Module with Ethernet cable	use 1761-NET-ENI Module with Ethernet cable
Remote I/O	Remote I/O Communication Port	N/A	N/A	N/A
DH+	DH+ Communication Port	N/A	N/A	N/A

Runtime Communication Cables - to Network Interface Module

InView to 1747-AIC, 1761-NET-AIC, 1761-NET-DNI, and 1761-NET-ENI

Protocol	InView Communication Module Standard Comm Port	1747-AIC	1761-NET-AIC			1761-NET-DNI or 1761-NET-ENI
DH-485	DH-485 Communication Port (RJ45)	1747-C10 (2m/6ft) 1747-C11 (0.3m/1 ft) 1747-C20 (6m/20ft)	N/A	N/A	1761-CBL-AS03 (3m/10ft) 1761-CBL-AS09 (9m/30ft)	N/A

Application File Download (Direct) Cables

Download Cables

InView Communication Module Standard Type	Cable to Personal Computer
DH-485 Comm Port only or DH-485 Comm Port and RS-232 Port	1747-PIC
DeviceNet Comm Port and RS-232 Port	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft) 2706-NC13 (3 m/10 ft)
ControlNet Comm Port and RS-232 Port	
Remote I/O Comm Port and RS-232 Port	
Ethernet Comm Port and RS-232 Port	
DH+ Comm Port and RS-232 Port	

Remote I/O Connections

This section describes connections for the remote I/O InView communication modules including:

- remote I/O port.
- supported controllers.
- making remote I/O connections.
- remote I/O Pass-through.

Remote I/O Terminal Ports

The Remote I/O versions of the InView communication module has a remote I/O port and an RS-232 port. Use the remote I/O port to:

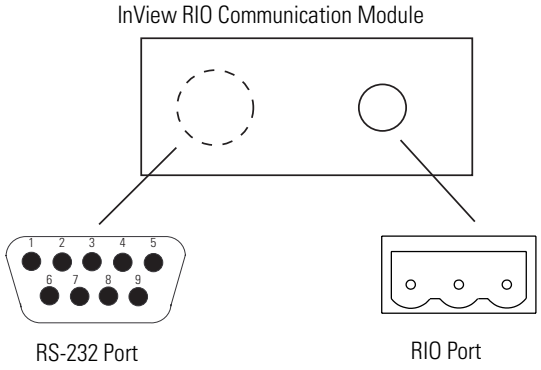
- communicate with the remote I/O scanner port on a PLC controller.
- communicate with SLC controllers using a 1747-SN remote I/O scanner module.
- communicate with other remote I/O scanners.

Use the RS-232 Port to:

- transfer InView communication module applications between a computer and the InView communication module.
- connect an InView display to trigger messages.

For details on connecting to the RS-232 port, see Connect a Computer in this chapter.

InView Communication Module RIO Ports



Supported Controllers

The remote I/O terminal connects to any Allen-Bradley 1771 remote I/O link. Applicable host controllers include almost all Allen-Bradley PLCs, computers, VME controllers, and DEC Q-Bus controllers with a remote I/O scanner module. New PLC product releases that support 1771 remote I/O will also work with RIO InView communication module.

When connecting an InView communication module to a controller, refer to the user manual for your controller or scanner module for connection diagrams and any remote I/O limitations.

Supported RIO Connections

Controller	Scanner	Comments
ControlLogix	1756-DHRIO	Connect InView communication modules through the 1756-DHRIO module.
PLC-5/11, 5/15[1], 5/20, 5/25, 5/30, 5/60, 5/80, 5/250	PLC Integral 1771-SN	Connect InView communication modules directly to the remote I/O port (scanner mode). Connect InView communication modules through the 1771-SN subscanner module.
PLC-5/10, 5/12	1771-SN	Connect InView communication modules through the 1771-SN subscanner module.
PLC-2	1771-SN or 1772-SD2[2]	Connect InView communication modules to the PLC-2 family of processors through a 1771-SN I/O subscanner module.
PLC-3 and PLC-3/10	None PLC-3/10 Remote I/O Scanner[3]	Connect InView communication modules directly to a PLC-3. Connect InView communication modules to the PLC-3/10 through the remote I/O scanner.
SLC 5/02, 5/03, 5/04, 5/05	1747-SN	Connect InView communication modules through the 1747-SN subscanner module. Each module provides an additional remote I/O link for up to 4 racks.[4]
IBM PC	6008-SI	6008-SI I/O scanner is compatible with IBM PC or compatible computers. The scanner provides a computer access to the 1771 remote I/O link.
VME	6008-SV	6008-SV I/O scanner provides access to the 1771 remote I/O link for VME controllers.
DEC Q-BUS	6008-SQ	6008-SQ I/O scanner provides access to the 1771 remote I/O link for DEC Q-BUS controllers.

(1) If using a PLC-5/15 with partial rack addressing and block transfers, you must use Series B, Rev. J or later.

(2) If using a 1772-SD2 Remote Scanner/Distribution Panel, use revision 3 or later.

(3) If using a 1775-S4A Remote Scanner/Distribution Panel, use Series B or later.

(4) Only Series B and later versions of the 1747-SN subscanner support block transfers.

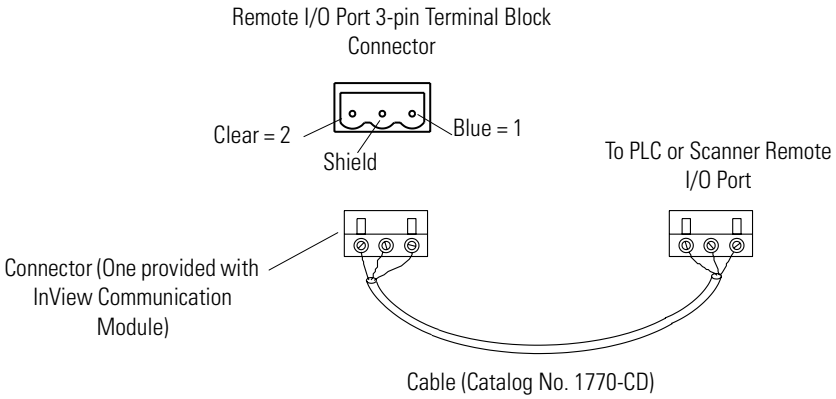
Make Remote I/O Connections

To connect an InView communication module to a remote I/O scanner, use cable Catalog No. 1770-CD (equivalent to Belden 9463). The maximum cable length (link distance) is determined by the communication rate.

- 2,800 m (10,000 ft) for 57.6 Kbps
- 1,400 m (5,000 ft) for 115.2 Kbps
- 700 m (2,500 ft) for 230.4 Kbps

See Programmable Controller Wiring and Grounding Guidelines, publication 1770-4.1. The user manual for the I/O scanner module also provides cabling information.

Remote I/O Connections



TIP The polarity of the remote I/O connector on the InView communication module is reversed from the PLC scanner connector. However, the polarity is the same as the scanner card connection to the SLC.

DH+ Connections

This section describes connections for the DH+ InView communication modules including:

- DH+ ports.
- typical DH+ system configuration.
- making DH+ connections.

DH+ Ports

The DH+ versions of the InView communication modules have a DH+ port and an RS-232 port.

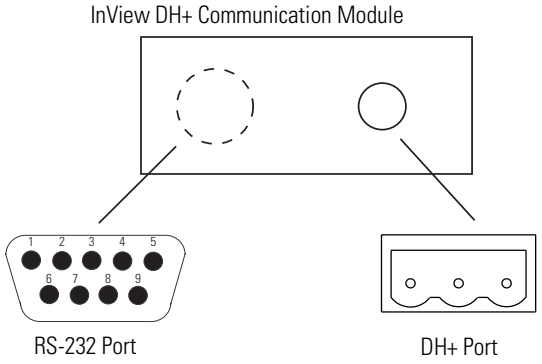
Use the DH+ port to:

- communicate with a PLC-5 controller on the Allen-Bradley DH+ link via the processor's DH+ port.
- communicate with an SLC 5/04 controller (Channel 1 port) on the Allen-Bradley DH+ link via the processor's DH+ port.
- communicate with a ControlLogix controller on the Allen-Bradley DH+ link via the 1756-DHRIO module.
- transfer applications over the DH+ link from a computer with a DH+ connection.

Use the RS-232 port to:

- transfer InView communication module applications between a computer and the DH+ InView communication module using a direct connection;
- connect an InView display to trigger messages.

InView Communication Module DH+ Ports

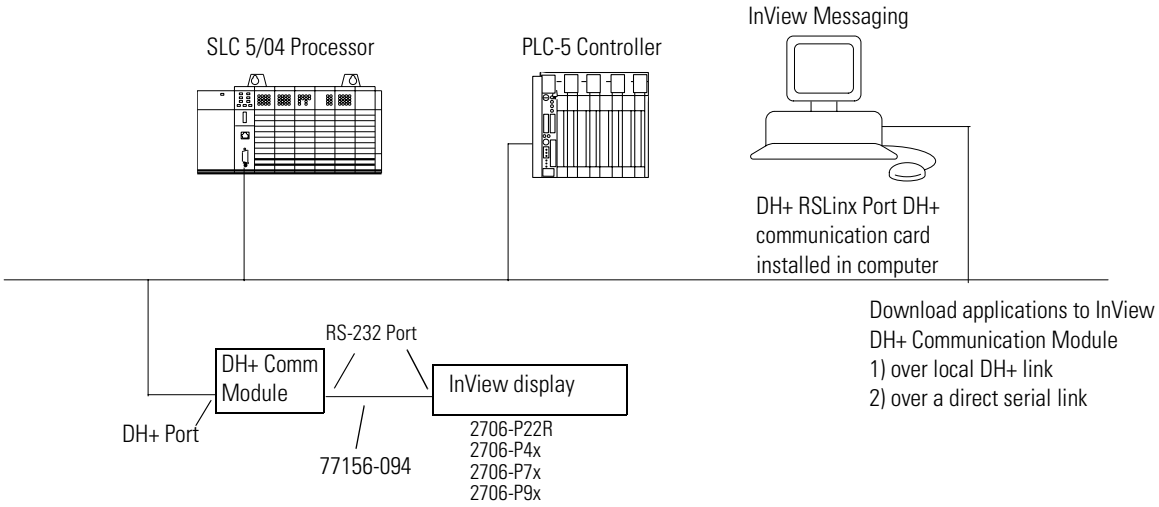


Typical DH+ System Configuration

For more information on the Allen-Bradley DH+ link, refer to:

- Enhanced PLC-5 Programmable Controllers Installation Instructions, publication 1785-5.7.
- Data Highway/Data Highway Plus/Data Highway II/Data Highway 485 Cable Installation Manual, publication 1770-6.2.2.

DH+ System Configuration



Make DH+ Connections

Use the Belden 9463 twin axial cable (1770-CD) to connect a DH+ InView communication module to the DH+ link.

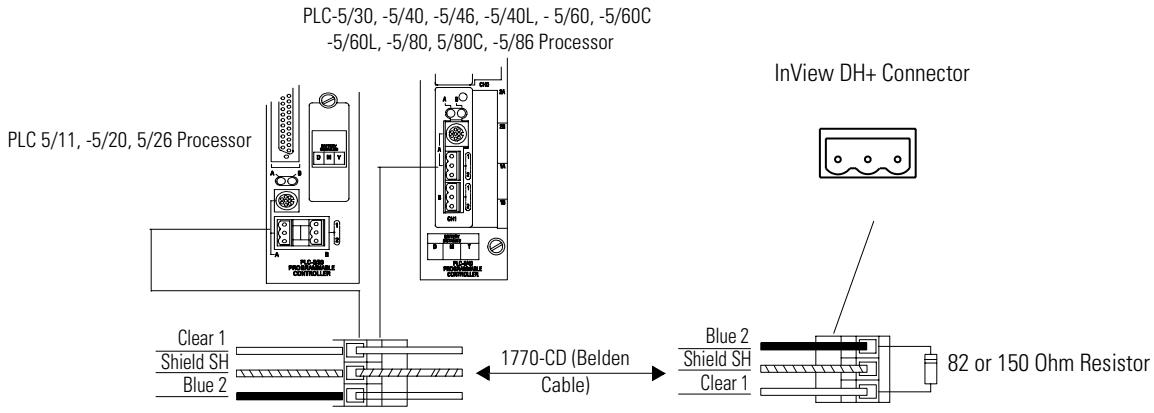
You can connect a DH+ link in 2 ways.

- Trunk line/drop line - from the drop line to the connector screw terminals on the DH+ connectors of the processor.
- Daisy chain - to the connector screw terminals on the DH+ connectors on the processor.

Follow these guidelines when installing DH+ communication links.

- Do not exceed these cable lengths:
  - Trunk line-cable length: 3,048 m (10,000 cable ft)
  - Drop-cable length: 30.4 m (100 cable ft)
- Do not connect more than 64 stations on a single DH+ link

DH+ Connections



DH-485 Terminal Connections

This section describes connections for the DH-485 InView communication modules.

- DH-485 communication module ports
- Connecting to a single SLC controller (Point-to-Point)
- Connecting to a DH-485 network
- Connecting a computer

DH-485 Ports (RJ45)

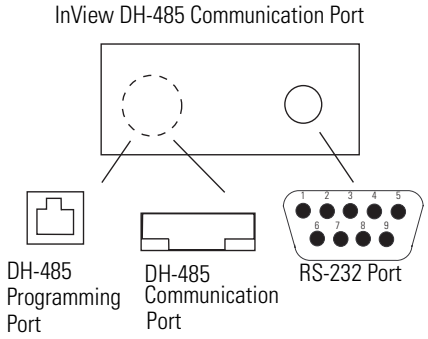
DH-485 InView communication modules have two DH-485 ports and an RS-232 port.

Use the DH-485 communications port to communicate with single or multiple SLC controllers over a DH-485 network.

Use the DH-485 SLC programming connector to download InView communication module applications.

Use the RS-232 port to connect an InView display to trigger messages.

InView Communication Module DH-485 Ports

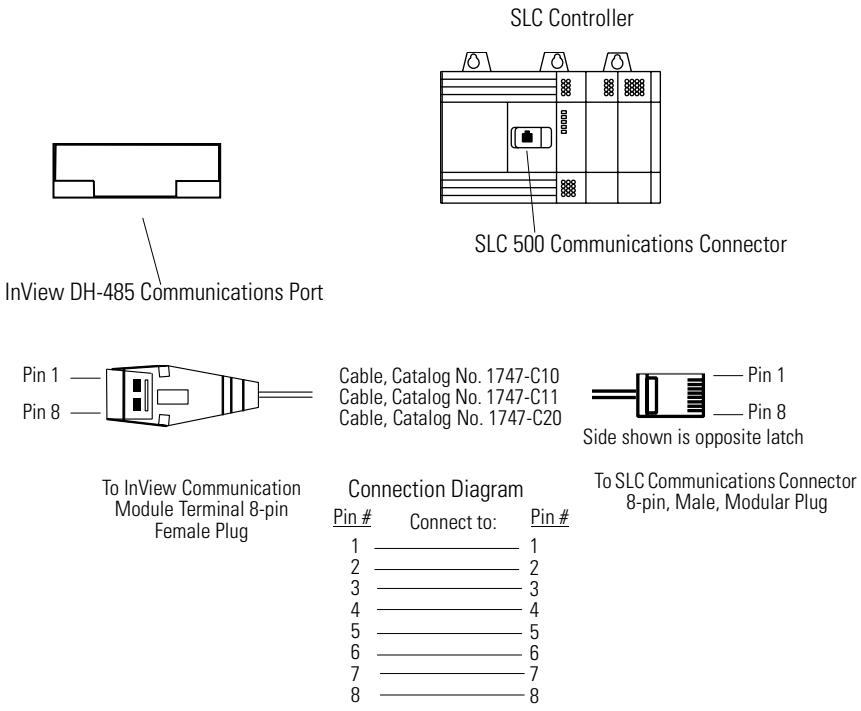


Connect to a Single SLC Controller (Point-to-Point)

To connect a DH-485 InView communication module to a single SLC controller use one of these cables.

- 0.3 m (1 ft) catalog no. 1747-C11
- 1.83 m (6 ft) catalog no. 1747-C10
- 6.1 m (20 ft) catalog no. 1747-C20

InView to SLC Controller Connections



The DH-485 connectors are not electrically isolated. If electrical isolation is required, use link couplers (Catalog No. 1747-AIC).

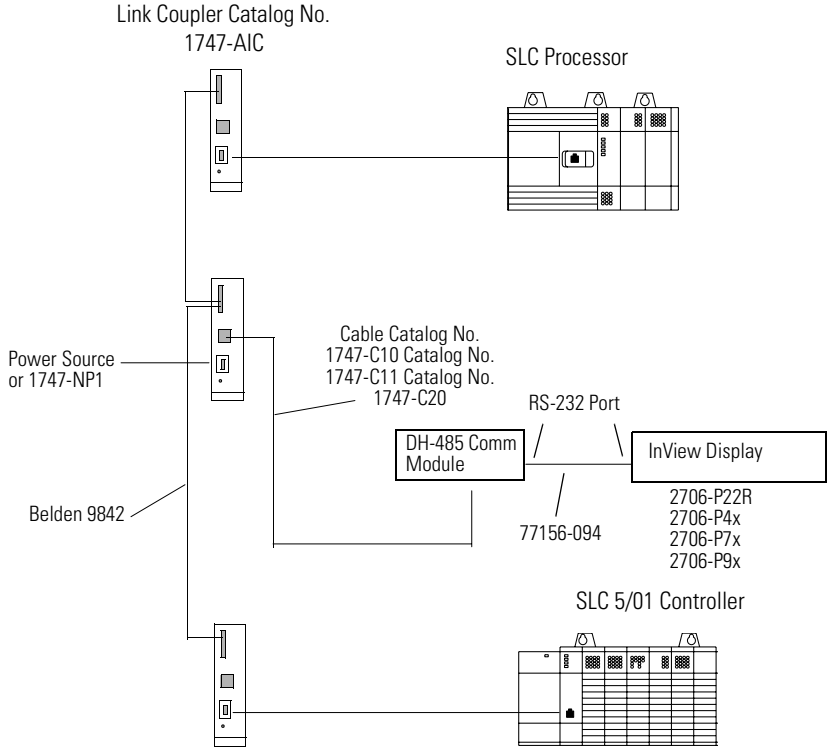
ATTENTION

Electrical isolation using link couplers (Catalog No. 1747-AIC) is required where the distance between the InView communication module and the SLC is greater than 6.1 m (20 ft).

Connect to a DH-485 Network

This section shows how to connect an InView DH-485 communication module to multiple SLC controllers on a DH-485 network through the AIC link coupler.

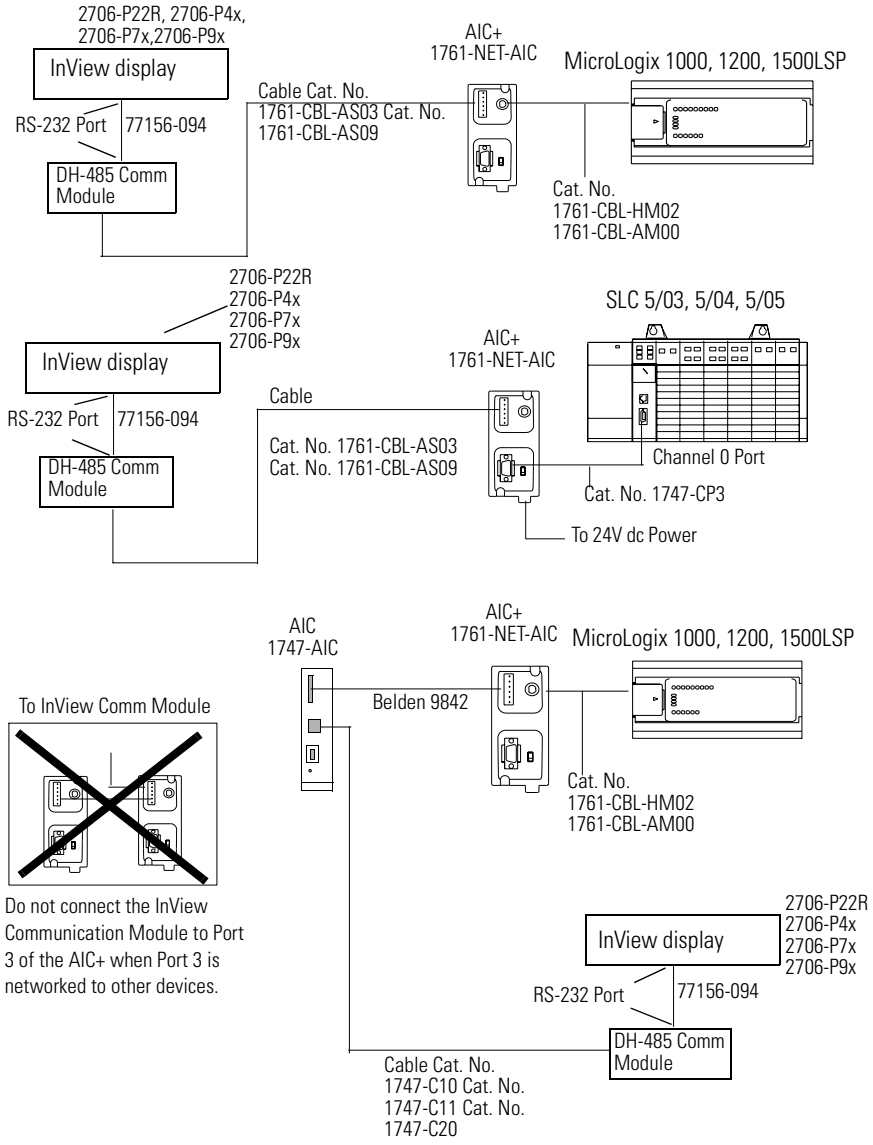
DH-485 Connections



IMPORTANT The DH-485 network cable requires proper shielding, grounding and termination. Refer to Data Highway / Data Highway Plus / Data Highway-485 Cable Installation Manual, publication 1770-6.2.2.

The illustration below shows how to connect an InView DH-485 communication module to a MicroLogix or SLC controller using the AIC+ link coupler (Catalog No. 1761-NET-AIC).

InView Display Connected to MicroLogix or SLC with an AIC+



Connect a Computer

On InView DH-485 communication modules, applications are transferred:

- through the DH-485 programming connector to the InView communication module.
- through any node on a DH-485 network.

To connect a computer to the InView communication module, you need:

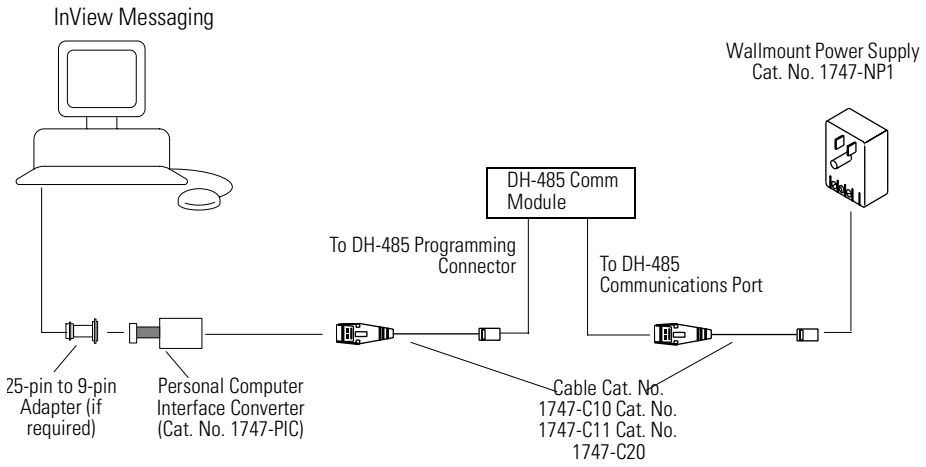
- a cable (same cables used to transfer applications from APS software to SLC)
  - 0.3 m (1 ft) cable, catalog no. 1747-C11
  - 1.83 m (6 ft) cable, catalog no. 1747-C10
  - 6.1 m (20 ft) cable, catalog no. 1747-C20
- Personal Computer Interface Converter (PIC), catalog no. 1747-PIC. The PIC connects to the computer. The cable connects the PIC to the DH-485 programming connector.

Personal Computer Interface Converter (PIC)

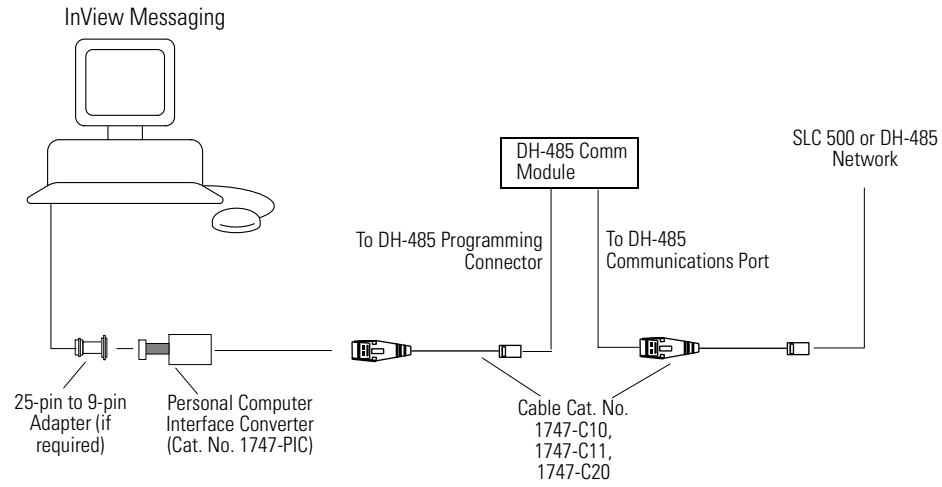
The PIC receives power from a controller through DH-485 connections. When connecting a computer directly to a InView communication module without a controller connected, you need to use a power supply (Catalog No. 1747-NP1). The power supply connects to the DH-485 communications connector with the same cables used to connect an SLC processor.

IMPORTANT The InView DH-485 communication module must be connected to an SLC processor, DH-485 network, or power supply (Catalog No. 1747-NP1). This connection provides power to the PIC.

Connecting a Computer to DH-485 Connector Using a Power Supply



Connecting a Computer to DH-485 Connector Using a DH-485 Powered Device



TIP The computer can connect to any node on the network. It is not necessary to directly connect the computer to the InView communication module.

ControlNet Connections

This section describes connections for the ControlNet InView communication modules including:

- ControlNet Protocol.
- compatible ControlNet Controllers.
- ControlNet ports on the InView communication module.
- typical ControlNet network.
- making ControlNet connections.

Related Information

For more information on ControlNet products, refer to the following publications.

- ControlNet System Overview, publication 1786-2.9
- ControlNet System Planning and Installation Manual, publication 1786-6.2.1
- ControlNet Cable System Component List, publication AG-2.2

The Allen-Bradley website (www.rockwellautomation.com) provides information and product descriptions of ControlNet products. Under the Products and Services heading, select Communications.

ControlNet Protocol

The InView communication module supports release 1.5 or higher of ControlNet, including Unscheduled PLC-5C processor and ControlLogix messaging, and redundant cabling.

ControlNet allows a flexible control architecture that can work with multiple processors and up to 99 nodes (via taps) anywhere along the trunk cable of the network. There is no minimum tap separation and you can access the ControlNet network from every node (including adapters).

Compatible ControlNet Controllers

The ControlNet InView communication module communicates with a PLC-5C (using PCCC commands) or a ControlLogix processor (using CIP protocol) using unscheduled messaging. The following controllers are supported.

- ControlLogix using 1756-CNB module
- PLC-5/20C, -5/40C, -5/60C, -5/80C processors

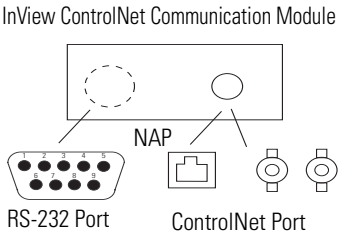
ControlNet Ports

ControlNet versions of the InView communication module have a ControlNet communication port and an RS-232 serial port.

- Use the ControlNet port to connect to devices on a ControlNet network and transfer applications over a ControlNet network
- Use the RS-232 port to transfer applications between a computer and the InView communication module using a direct connection
- Use the RS-232 port to connect an InView display to trigger messages

For details on connecting to the RS-232 port, see Connect a Computer in this chapter.

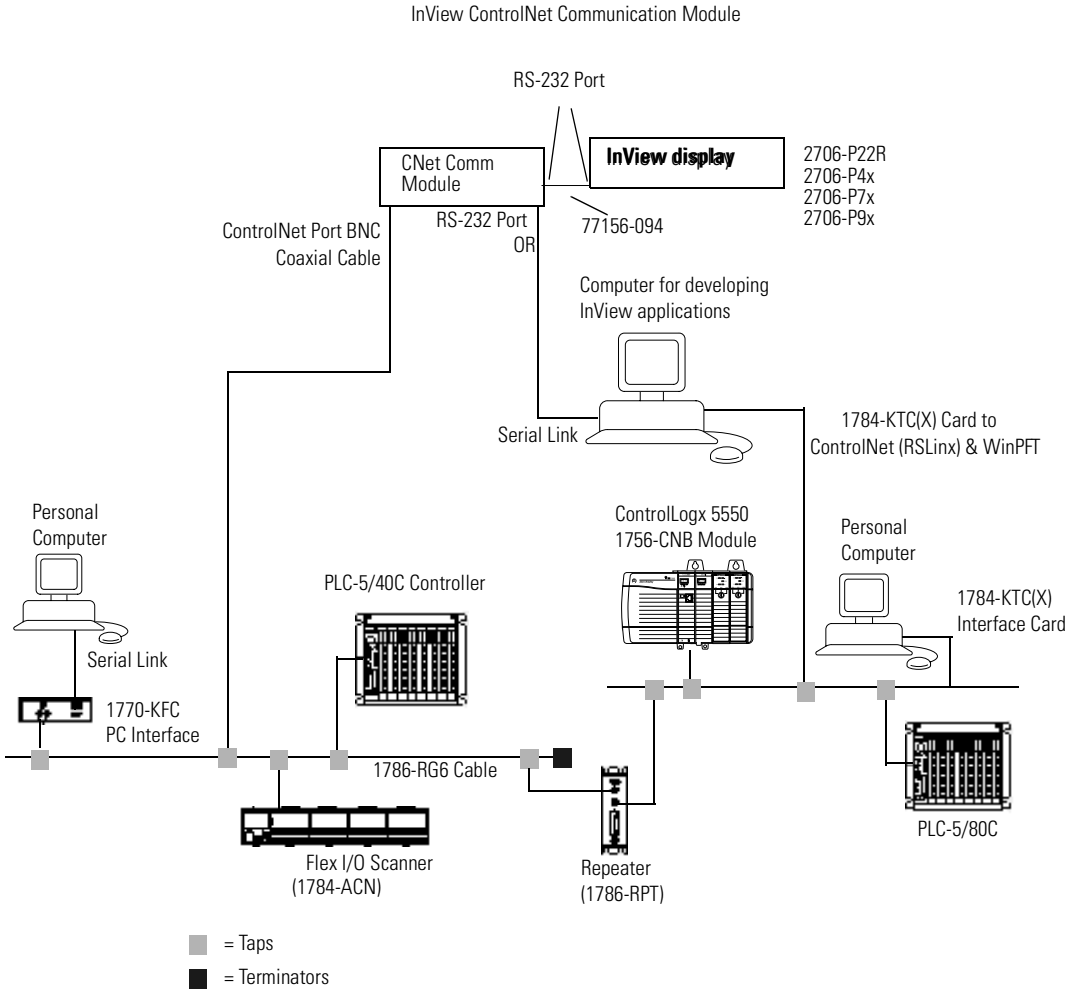
InView Communication Module ControlNet Ports



Typical ControlNet Network

Below is a typical ControlNet network with a InView communication module installed on a network drop.

InView Display on ControlNet Network

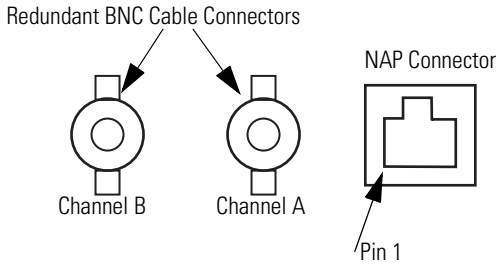


Make ControlNet Connections

Use the pinout information below to connect the InView communication module to a ControlNet network.

IMPORTANT Follow the ControlNet network layout and design as specified in the ControlNet Cable System Planning and Installation Manual, publication 1786-6.2.

ControlNet Connections



NAP Connector Details

Pin #	NAP Signal
1	Signal Common
2	No Connection
3	TX_H
4	TX_L
5	RX_L
6	RX_H
7	No Connection
8	Signal Common
Shell	Earth Ground

NAP and Redundant Cables

Refer to the ControlNet Cable System Planning and Installation manual, publication 1786-6.2.1, for descriptions of cables, taps, and connectors. For information on purchasing these items, refer to the Allen-Bradley ControlNet Cable System Component List, Publication AG-2.2.

ControlNet Cables, Taps, and Connectors

Item	Cat. No.
RG-6 quad-shield	1786-RG6
Coax repeater	1786-RPT, 1786-RPTD
Coax taps	1786-TPR, 1786-TPS, 1786-TPYR, 1786-TPYS
Network access cable	1786-CP
Coax tool kit	1786-CTK
Segment terminators	1786-XT
BNC connectors	1786-BNC, 1786-BNCJ, 1786-BNCP, 1786-BNCJ1

IMPORTANT Do not connect to a network using both the redundant cable BNC connector and the Network Access Port (NAP).

DeviceNet Connections

This section describes connections for the DeviceNet InView communication modules including:

- DeviceNet connectors.
- connections.
- typical DeviceNet network.

DeviceNet Ports

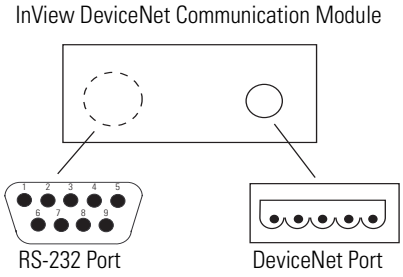
The DeviceNet versions of the InView communication modules have a DeviceNet port and an RS-232 serial port.

- Use the DeviceNet port to connect to devices on a DeviceNet network or transfer applications over a DeviceNet network.
- Use the RS-232 port to transfer applications between a computer and the InView communication module using a direct connection.

- Use the RS-232 port to connect an InView display to trigger messages.

For details on connecting to the RS-232 port, see the last section in this chapter.

InView Communication Module DeviceNet Ports



Make DeviceNet Connections

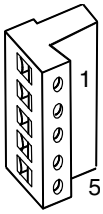
Use one of the cables below to connect the DeviceNet version of the InView communication module to a DeviceNet network.

DeviceNet Cables

Cable	Cat. No.
DeviceNet Cable, 50 m (164 ft)	1485C-P1A50
DeviceNet Cable, 100 m (328 ft)	1485C-P1A150
DeviceNet Cable, 150 m (492 ft)	1485C-P1A300

IMPORTANT Refer to DeviceNet Cable System Planning and Installation manual, publication 1485-6.7.1, for network layout and design information

Terminal Block Wiring

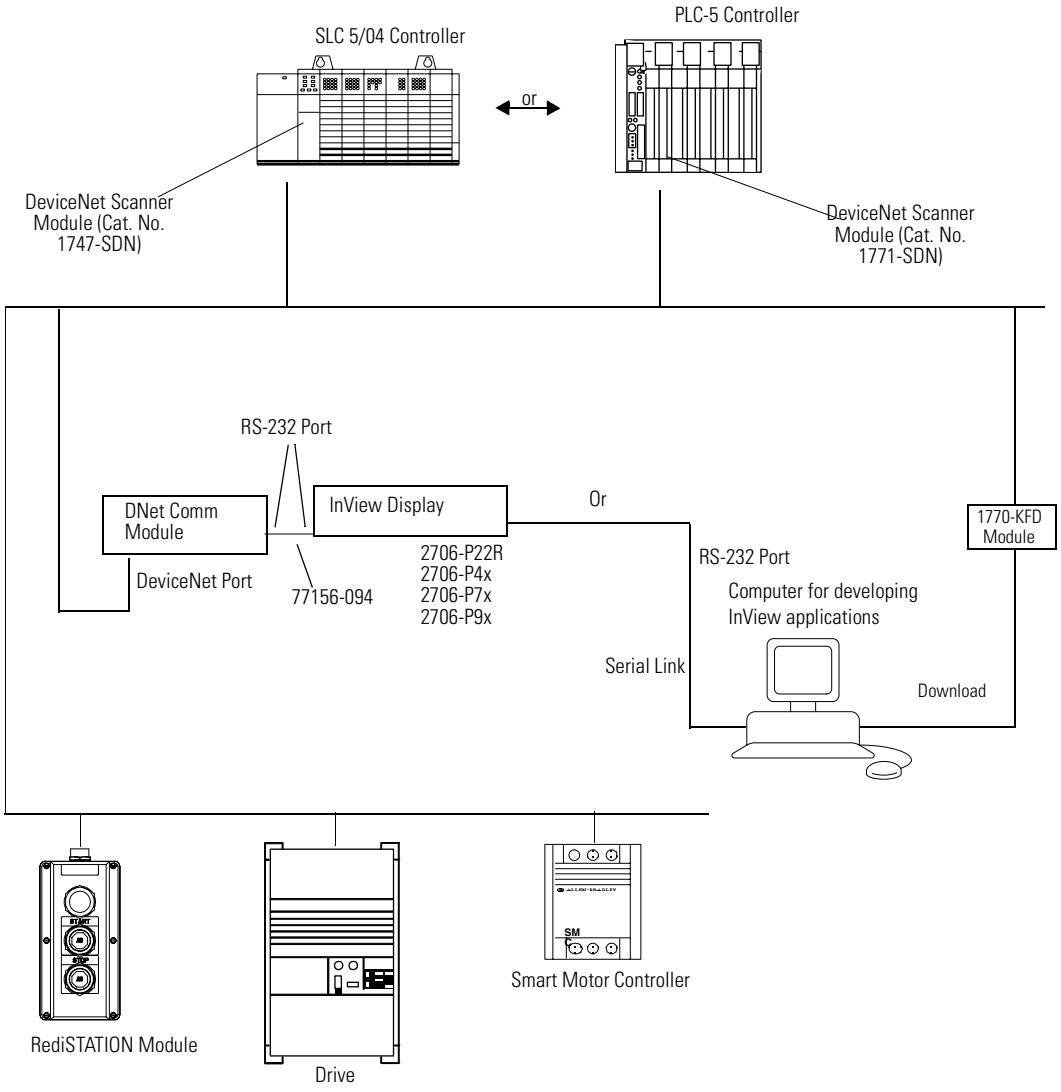
DeviceNet Terminal Block	Terminal	Signal	Function	Color
	1	COM	Common	Black
	2	CAN_L	Signal Low	Blue
	3	SHIELD	Shield	Uninsulated
	4	CAN_H	Signal High	White
	5	VDC+	Power Supply	Red

Typical DeviceNet Network

Below is a typical DeviceNet network with InView communication modules installed on 2 of the network drops.

A DeviceNet network requires a 24V dc power supply. DeviceNet power consumption is 24 mA to 90 mA at 24V dc. The InView communication module does not receive its power from the network.

DeviceNet Network



EtherNet/IP Connections

The EtherNet/IP InView communication module can communicate on an EtherNet TCP/IP network with the following devices.

- PLC-5E or PLC-5 controllers with 1761-NET-ENI or 1785-ENET module
- SLC-5/05 or SLC controllers with 1761-NET-ENI module
- ControlLogix controller with 1756-ENET/B or 1761-NET-ENI module
- MicroLogix, CompactLogix, or FlexLogix with 1761-NET-ENI module
- Another EtherNet/IP InView communication module
- Any device that can process CIP messages

EtherNet/IP Ports

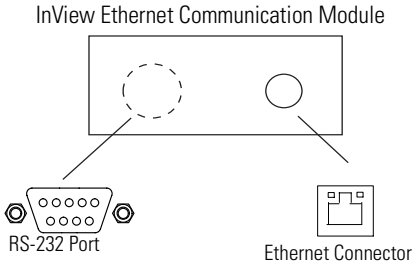
The EtherNet/IP versions of the InView communication modules have an Ethernet RJ45 communications port and an RS-232 serial port.

- Use the RJ45 port to communicate with a logic controller on an EtherNet/IP network and transfer applications over an EtherNet/IP network.
- Use the RS-232 serial port to transfer applications between a computer and the InView communication module using a direct connection.

  For connection details, see Connect a Computer on page 3-26.

- Use the RS-232 port to connect an InView display to trigger messages.

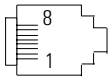
InView Communication Module EtherNet/IP Ports



Ethernet Connector

The Ethernet connector is an RJ45, 10/100Base-T connector. The pinout for the connector is shown below.

Ethernet Connector Details

Pin	Pin	Pin Name
RJ45 Connector 	1	TD+
	2	TD-
	3	RD+
	4	NC
	5	NC
	6	RD-
	7	NC
	8	NC

Direct point-to-point 10/100Base-T cables, with cross over pin-out (1 to 3, 2 to 6, 3 to 1, 6 to 2), connect the InView communication module Ethernet port directly to another SLC 5/05 Ethernet port (or a computer 10/100Base-T port).

Cables

Category 5 shielded and unshielded twisted-pair cables with RJ45 connectors are supported. The maximum cable length between the InView communication module Ethernet port and a 10/100Base-T port on an Ethernet hub (without repeaters or fiber) is 100 m (328 ft). However, in an industrial application, the cable length should be kept to a minimum.

WARNING

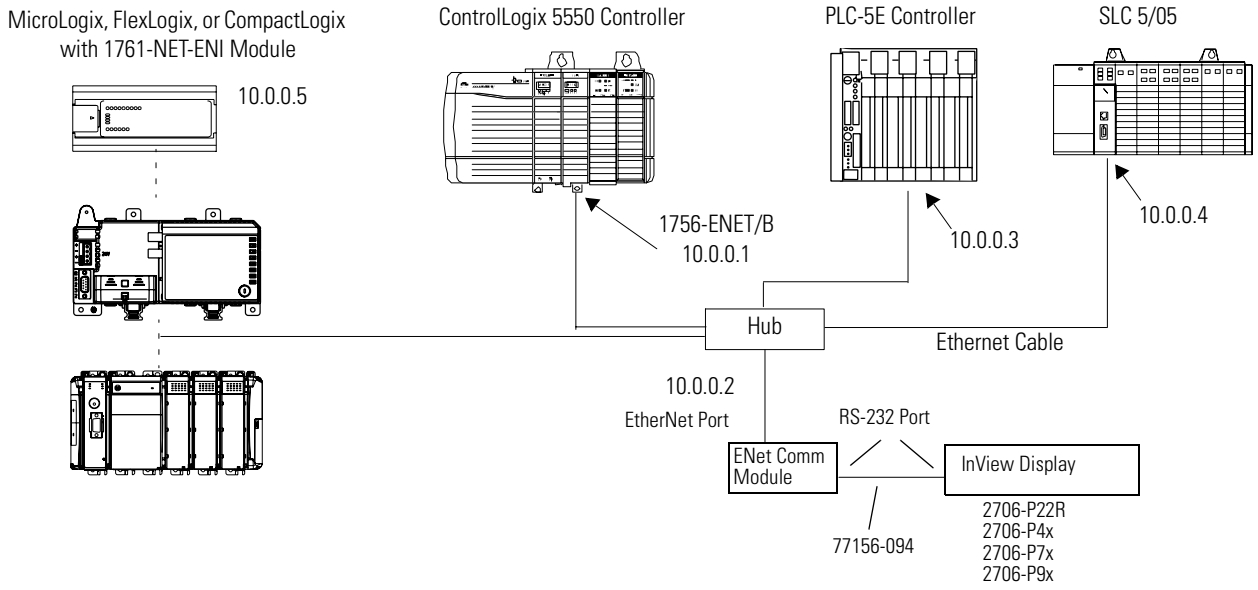
EXPLOSION HAZARD

If you connect or disconnect the Ethernet cable with power applied to the InView communication module or any device on the network, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

Typical EtherNet/IP Configuration

The following illustration shows a ControlLogix controller (with 1756-ENET/B modules), a PLC-5E controller, SLC 5/05, a MicroLogix/CompactLogix/FlexLogix (with 1761-NET-ENI module), and an Ethernet InView communication module connected to an EtherNet/IP network. Note that each node has a unique IP address.

EtherNet/IP Network



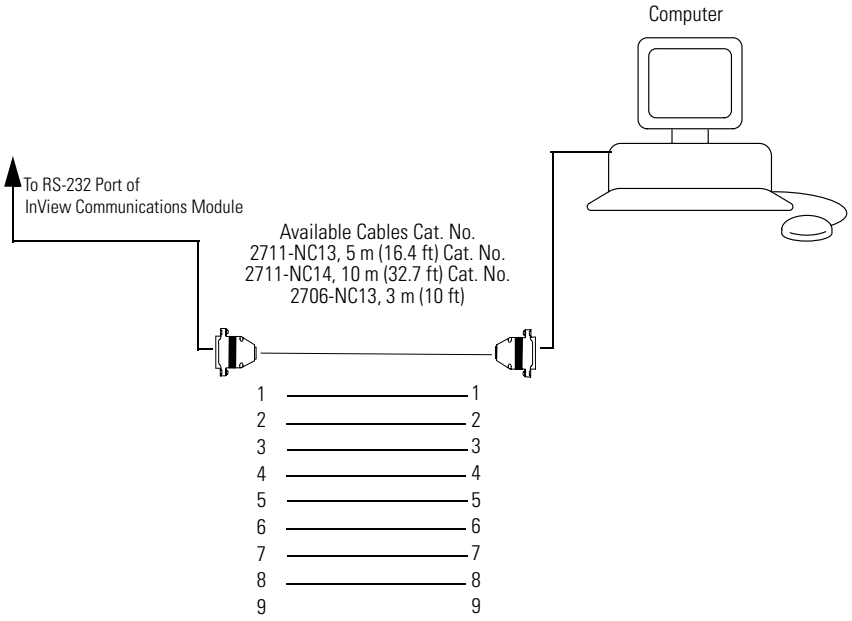
Connect a Computer

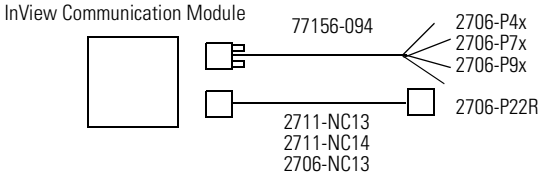
The InView communication modules have an RS-232 serial port to:

- download applications over a serial link.
- connect an InView display to trigger messages.

Communication parameters for the RS-232 port are set on the Printer Setup screen of the Configuration Mode menu.

Computer Connection





Application Guide

New techniques and application notes using InView displays are continually being added and updated. Please refer to these web pages for new or updated information.

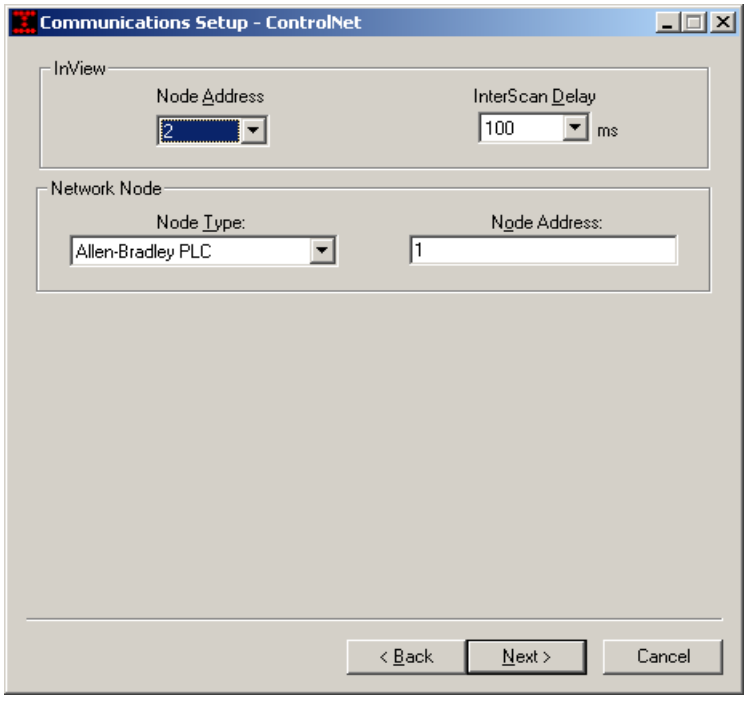
- http://www.ab.com/eoi/inview/
- http://support.rockwellautomation.com/

ControlNet Communication and Tag Setup Screens

The InView message display communicates with PLC processors, FlexLogix controllers, or ControlLogix 5000 controllers on a ControlNet network using Unscheduled Messaging.

PLC Processor

ControlNet Communications Setup



InView Parameters

- Node address. Node address (1 to 99 decimal) of the InView display on the ControlNet network.
- Interscan Delay. Time interval (in ms) between display updates. The range is 100 to 1,000 ms. The default is 100. This parameter determines how frequently the InView display requests unscheduled data.

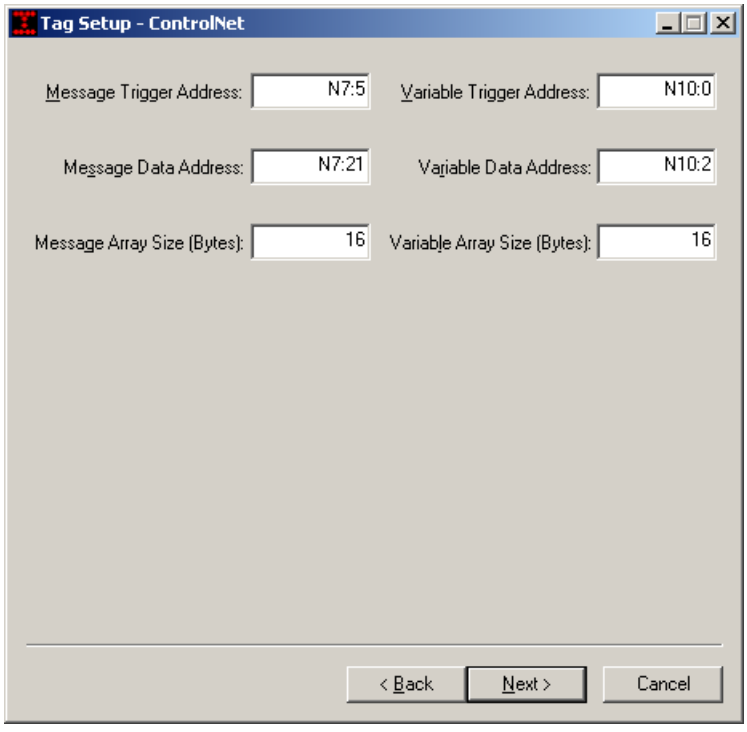
Network Node Parameters

- Node Type. The type of controller that the InView display communicates with.
- Node Address. The node address of the controller on the ControlNet network.

  For a PLC, a valid node address is 1 to 99.

IMPORTANT All four tags for Message Trigger Address, Message Data Address, Variable Trigger Address, Variable Data Address, and the array sizes must be entered and established in the controller as valid tags even if they are not used.

ControlNet Tag Setup



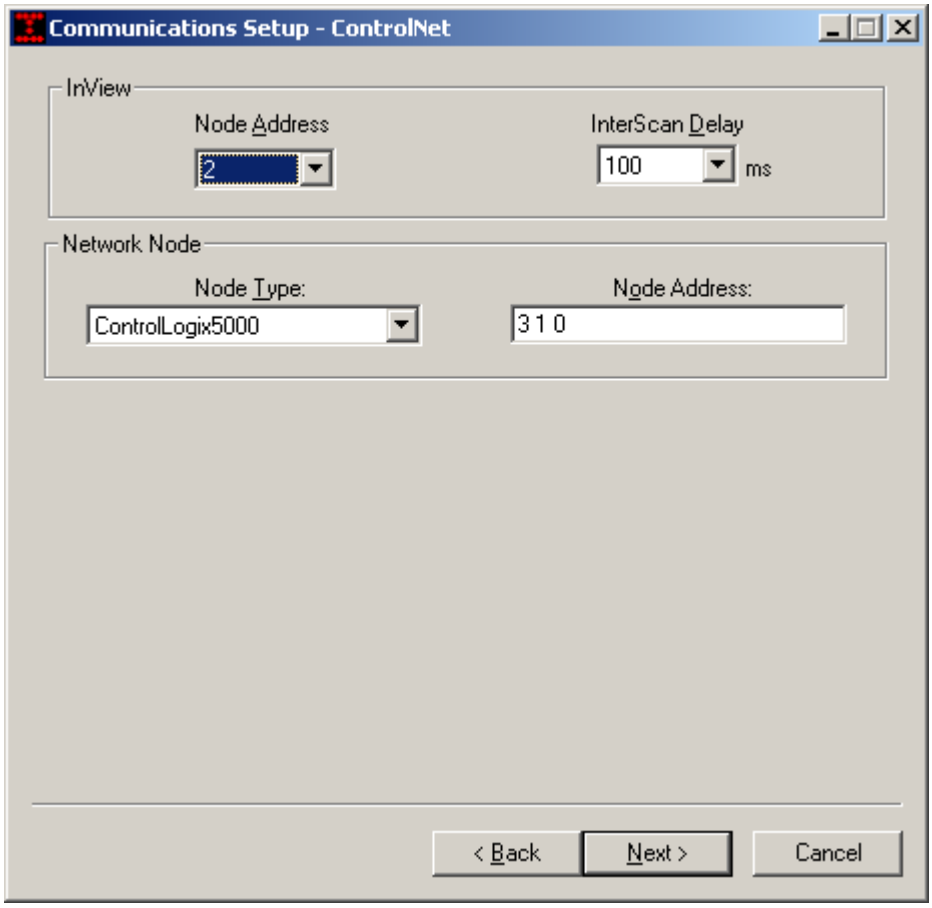
- Message Trigger Address. The controller address that triggers a message to display. This toggles between 0 and 1 in the controller.
- Message Data Address. The starting address of the message data displayed. The message data contains the trigger command that the InView display recognizes (^T[message number]^M).
- Message Array Size. The size of the array (16 to 128 characters for ControlNet) containing the message data. The maximum array size is dependent on the controller and must be an even integer.
- Variable Trigger Address. The controller address that triggers a message variable to display. This toggles between 0 and 1 in the controller.
- Variable Data Address. The starting address of the variable data displayed. The variable data contains the update variable command that the InView display recognizes (^V[variable data]\[variable number]^M).
- Variable Array Size. The size of the array (16 to 128 characters for ControlNet) containing the variable data. The maximum array size is dependent on the controller and must be an even integer.

The address tags are either an Integer (N) or ASCII (A) data file. Both the Message Trigger and Message Data addresses fall entirely within a single 128 byte block, including the Message Data array size. You can choose to use either an Integer or ASCII data file, but you cannot use more than one data file. For example, a Message Trigger address of N7:0 and a Message Data address of N9:0 is not valid. At the same time, a Message Trigger address of N7:0 and a Message Data address of N7:60, with a Message Data array size of 16, is not valid because the array falls outside of the 64 word (128 byte) block.

IMPORTANT Variable Trigger and Variable Data addresses work the same as Variable Array Size.

ControlLogix 5000 Controller

ControlNet Communications Setup



InView Parameters

- Node address. Node address (1 to 99 decimal) of the InView display on the ControlNet network.
- Interscan Delay. Time interval (in ms) between display updates. The range is 100 to 1,000 ms. The default is 100. This parameter determines how frequently the InView display requests Unscheduled data.

Network Node Parameters

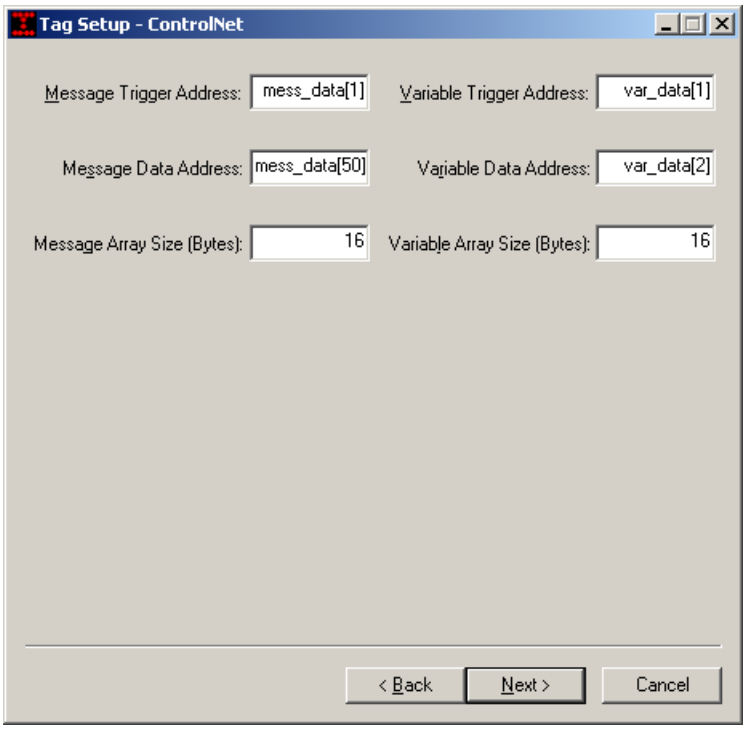
- Node Type. The type of controller that the InView display communicates with.
- Node Address. The node address of the controller on the ControlNet network.

For a Logix controller, a valid address consists of the ControlNet module's node number (1 to 99) followed by a space, a Logix backplane number (usually 1) followed by a space, and a Logix slot number.

Example: 99 1 99

IMPORTANT All four tags for Message Trigger Address, Message Data Address, Variable Trigger Address, Variable Data Address, and the array sizes must be entered and established in the controller as valid tags even if they are not used.

ControlNet Tag Setup



- Message Trigger Address. The controller address that triggers a message to display. This toggles between 0 and 1 in the controller.
- Message Data Address. The starting address of the message data displayed. The message data contains the trigger command that the InView display recognizes (^T[message number]^M).
- Message Array Size. The size of the array (16 to 128 characters for ControlNet) containing the message data. The maximum array size is dependent on the controller and must be an even integer.

- Variable Trigger Address. The controller address that triggers a message variable to display. This toggles between 0 and 1 in the controller.
- Variable Data Address. The starting address of the variable data displayed. The variable data contains the update variable command that the InView display recognizes (^V[variable data]\[variable number]^M).
- Variable Array Size. The size of the array (16 to 128 characters for ControlNet) containing the variable data. The maximum array size is dependent on the controller and must be an even integer.

The address tags must be a SINT data type, however they can be named anything provided it is in the following syntax: Name[element number]. Both the Message Trigger and Message Data addresses fall entirely within a single 128 byte block, including the Message Data array size. You can choose to use any name, but you cannot use more than one data file. For example, a Message Trigger address of Mess_data[0] and a Message Data address of Message[1] is not valid. At the same time, a Message Trigger address of Mess_data[0] and a Message Data address of Mess_data[120], with a Message Data array size of 16, is not valid because the array falls outside of the 128 byte block.

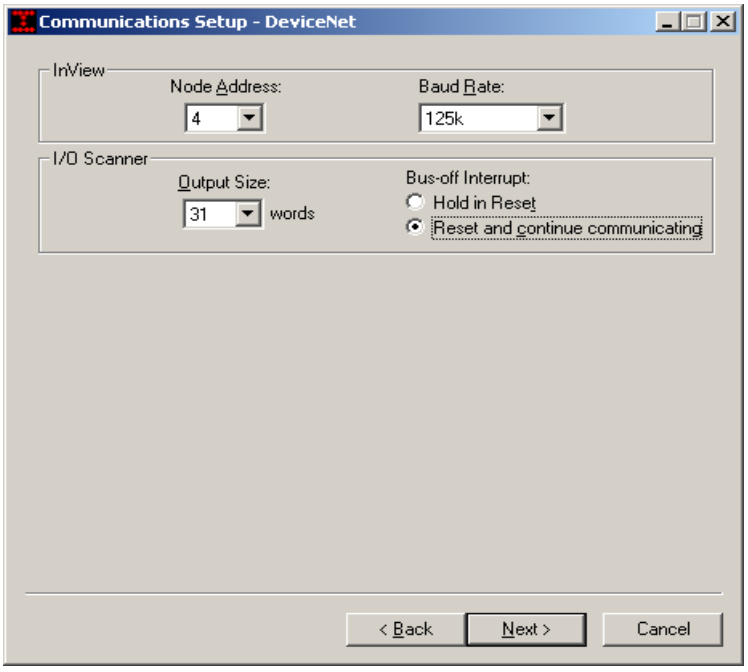
IMPORTANT Variable Trigger and Variable Data addresses work the same as Variable Array Size.

DeviceNet Communication and Tag Setup Screens

The InView display can communicate as a slave device to a PLC-5 controller, SLC controller, ControlLogix controller, MicroLogix controller, or CompactLogix controller with a DeviceNet module.

SLC Controller

DeviceNet Communications Setup



InView Parameters

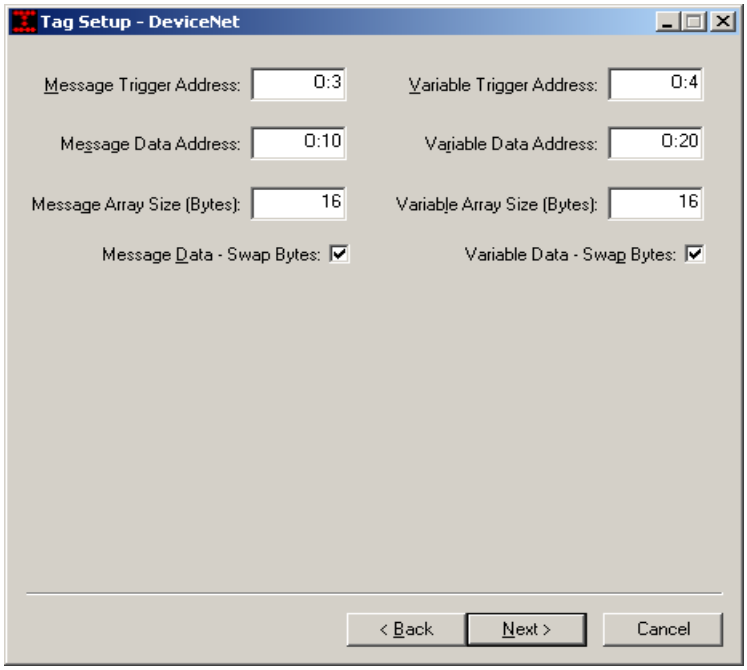
- Node Address. Unique address (0 to 63) of the InView display on the DeviceNet network. You can select 64 to use the most recent address stored on the communications card. If you select 64, the node address is set from the network using a DeviceNet network configuration tool.
- Baud Rate. Communication rate of the DeviceNet network. The options are AutoBaud, 125 Kbps, 250 Kbps, 500 Kbps, and PGM. The default is 125 Kbps. If you select AutoBaud, the InView display automatically detects the communication rate on startup (provided there is sufficient network traffic). If you select PGM, the InView display uses the most recent communication rate stored on the communications card. PGM also allows the communication rate to be set from the network using a DeviceNet network configuration tool. You must reset the display before the new communication takes effect. The maximum cable length is restricted at higher communication rates.

I/O Scanner Parameters

- Output Size. The number of words (0 to 64) received by the InView display from the scanner with each I/O message. The default is 0, which means no output I/O data is exchanged with the scanner. The output size must match the configuration in the master device. A minimum of 19 words is needed because the Message and Variable Data array sizes minimum are 16 bytes each plus 1 word each for the trigger.
- Bus-off Interrupt. The action to take when a Bus-off Interrupt occurs on the network. The options are Hold in Reset or Reset and Continue Communications. Hold in Reset holds the InView display and waits for DeviceNet communications to be reset. Reset and Continue Communications resets DeviceNet communications and attempts to re-establish the communications link.

IMPORTANT All four tags for Message Trigger Address, Message Data Address, Variable Trigger Address, Variable Data Address, and the array sizes must be entered and established in the controller as valid tags even if they are not used.

DeviceNet Tag Setup



- Message Trigger Address. The controller address that triggers a message to display. This toggles between 0 and 1 in the controller.

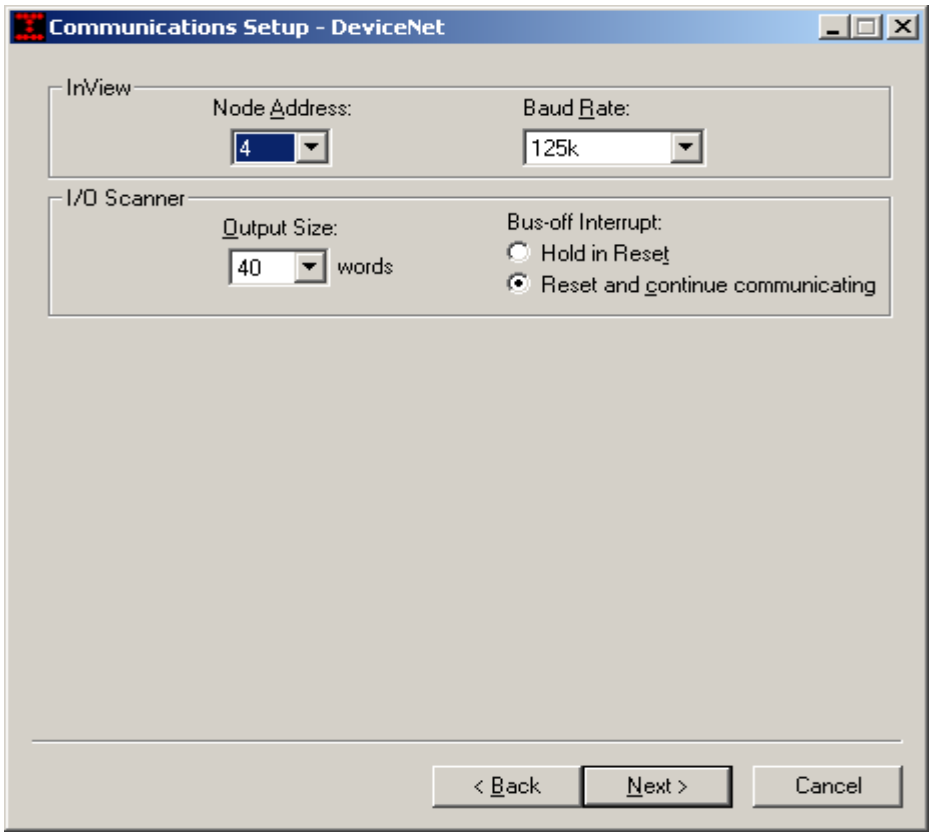
- Message Data Address. The starting address of the message data displayed. The message data contains the trigger command that the InView display recognizes (^T[message number]^M).
- Message Array Size. The size of the array (16 to 128 characters for DeviceNet) containing the message data. The maximum array size is dependent on the controller and must be an even integer.
- Message Data Swap Bytes. For DeviceNet, each message data tag can be set to swap (or not swap) the order of bytes within a 16 bit word. Select the check box to enable swapping. Clear the check box to disable swapping. You need to check the box when using a SLC or PLC.
- Variable Trigger Address. The controller address that triggers a message variable to display. This toggles between 0 and 1 in the controller.
- Variable Data Address. The starting address of the variable data displayed. The variable data contains the update variable command that the InView display recognizes (^V[variable data]\[variable number]^M).
- Variable Array Size. The size of the array (16 to 128 characters for DeviceNet) containing the variable data. The maximum array size is dependent on the controller and must be an even integer.
- Variable Data Swap Bytes. For DeviceNet, each variable data tag can be set to swap (or not swap) the order of bytes within a 16 bit word. Select the check box to enable swapping. Clear the check box to disable swapping. You need to check the box when using a SLC controller or PLC processor.

The address tags must be an Output data type, in the following syntax: O:[element number]. Both the Message Trigger and Message Data addresses fall entirely within the scanners output size or a maximum of 64 words, including the Message Data array size. For example, a Message Trigger address of O:10 and a Message Data address of O:32, with a scanner output size of 31 is not valid.

IMPORTANT Variable Trigger and Variable Data addresses work the same as Variable Data Swap Bytes.

PLC Processor

DeviceNet Communication Setup



InView Parameters

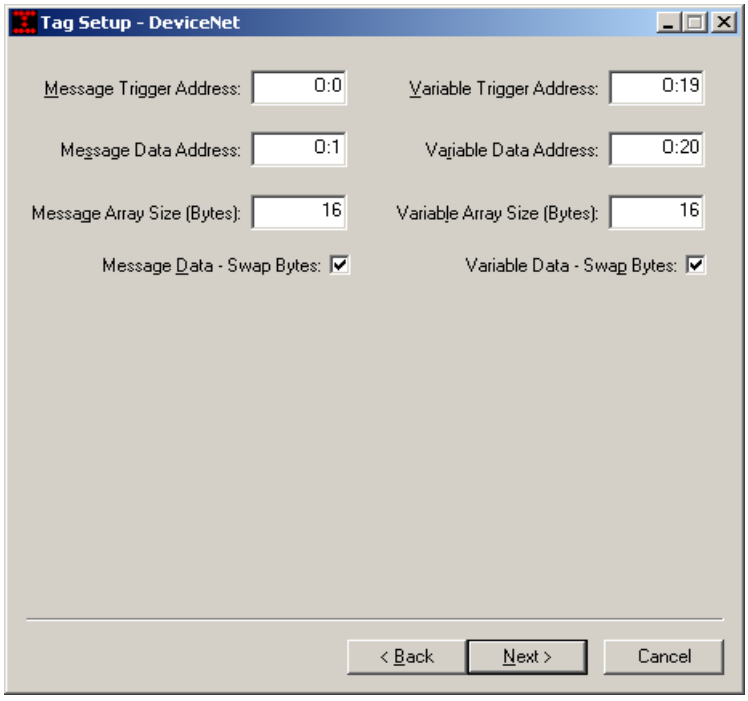
- Node Address. Unique address (0 to 63) of the InView display on the DeviceNet network. You can also select 64 to use the most recent address stored on the communications card. If you select 64, the node address can be set from the network using a DeviceNet network configuration tool.
- Baud Rate. Communication rate of the DeviceNet network. The options are AutoBaud, 125 Kbps, 250 Kbps, 500 Kbps, PGM. The default is 125 Kbps. If you select AutoBaud, the InView display automatically detects the communication rate on startup (provided there is sufficient network traffic). If you select PGM, the InView display uses the most recent communication rate stored on the communications card. PGM also allows the communication rate to be set from the network using a DeviceNet network configuration tool. You must reset the display before the new communication takes effect. The maximum cable length is restricted at higher communication rates.

I/O Scanner Parameters

- Output Size. The number of words (0 to 64) received by the InView display from the scanner with each I/O message. The default is 0, which means no output I/O data is exchanged with the scanner. The output size must match the configuration in the master device. A minimum of 19 words is needed because the Message and Variable Data array sizes minimums are 16 bytes each plus 1 word each for the trigger.
- Bus-off Interrupt. The action to take when a Bus-off Interrupt occurs on the network. The options are Hold in Reset or Reset and Continue Communications. Hold in Reset holds the InView display and waits for DeviceNet communications to be reset. Reset and Continue Communications resets DeviceNet communications and attempts to re-establish the communications link.

IMPORTANT All four tags for Message Trigger Address, Message Data Address, Variable Trigger Address, Variable Data Address, and the array sizes must be entered and established in the controller as valid tags even if they are not used.

DeviceNet Tag Setup



- Message Trigger Address. The controller address that triggers a message to display. This toggles between 0 and 1 in the controller.

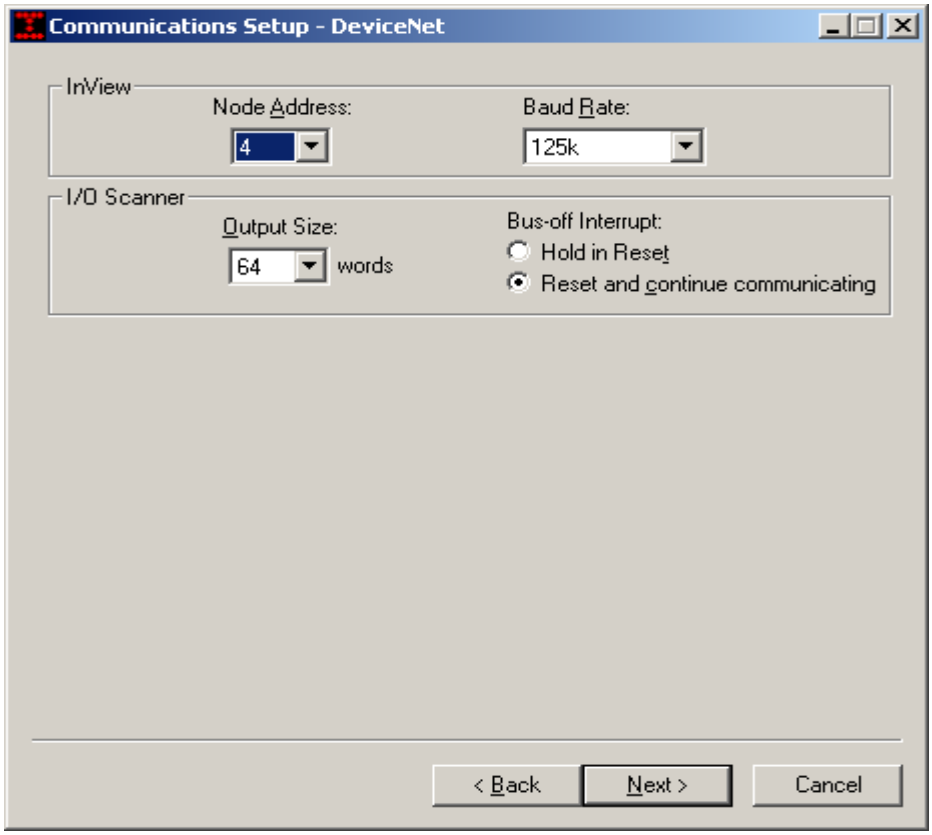
- Message Data Address. The starting address of the message data displayed. The message data contains the trigger command that the InView display recognizes (^T[message number]^M).
- Message Array Size. The size of the array (16 to 128 characters for DeviceNet) containing the message data. The maximum array size is dependent on the controller and must be an even integer.
- Message Data Swap Bytes. For DeviceNet, each message data tag can be set to swap (or not swap) the order of bytes within a 16 bit word. Select the check box to enable swapping. Clear the check box to disable swapping. You need to check the box when using a SLC controller or PLC processor.
- Variable Trigger Address. The controller address that triggers a message variable to display. This toggles between 0 and 1 in the controller.
- Variable Data Address. The starting address of the variable data displayed. The variable data contains the update variable command that the InView display recognizes (^V[variable data]\[variable number]^M).
- Variable Array Size. The size of the array (16 to 128 characters for DeviceNet) containing the variable data. The maximum array size is dependent on the controller and must be an even integer.
- Variable Data Swap Bytes. For DeviceNet, each variable data tag can be set to swap (or not swap) the order of bytes within a 16 bit word. Select the check box to enable swapping. Clear the check box to disable swapping. You need to check the box when using a SLC controller or PLC processor.

The address tags must be an Output data type, in the following syntax: O:[element number]. Both the Message Trigger and Message Data addresses must fall entirely within the scanners output size or a maximum of 64 words, including the Message Data array size. For example, a Message Trigger address of O:10 and a Message Data address of O:32, with a scanner output size of 31 is not valid.

IMPORTANT Variable Trigger and Variable Data addresses work the same as Variable Data Swap Bytes.

ControlLogix Controller

DeviceNet Communications Setup



InView Parameters

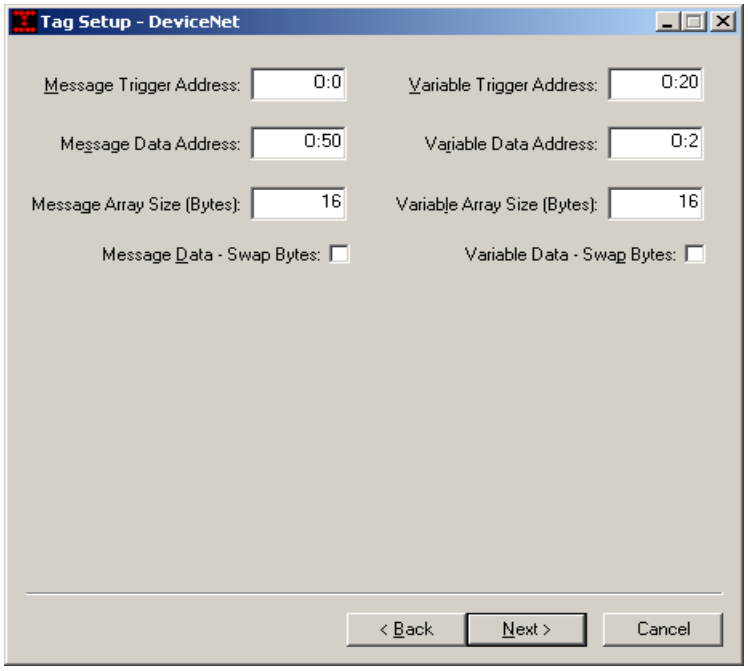
- Node Address. Unique address (0 to 63) of the InView display on the DeviceNet network. You can also select 64 to use the most recent address stored on the communications card. If you select 64, the node address can be set from the network using a DeviceNet network configuration tool.
- Baud Rate. Communication rate of the DeviceNet network. The options are AutoBaud, 125 Kbps, 250 Kbps, 500 Kbps, PGM. The default is 125 Kbps. If you select AutoBaud, the InView display automatically detects the communication rate on startup (provided there is sufficient network traffic). If you select PGM, the InView display uses the most recent communication rate stored on the communications card. PGM also allows the communication rate to be set from the network using a DeviceNet network configuration tool. The display must be reset before the new communication takes effect. The maximum cable length is restricted at higher communication rates.

I/O Scanner Parameters

- Output Size. The number of words (0 to 64) received by the InView display from the scanner with each I/O message. The default is 0, which means no output I/O data is exchanged with the scanner. The output size must match the configuration in the master device. A minimum of 19 words is needed because the Message and Variable Data array sizes minimum are 16 bytes each plus 1 word each for the trigger.
- Bus-off Interrupt. The action to take when a Bus-off Interrupt occurs on the network. The options are Hold in Reset or Reset and Continue Communications. Hold in Reset holds the InView display and waits for DeviceNet communications to be reset. Reset and Continue Communications resets DeviceNet communications and attempts to re-establish the communications link.

IMPORTANT All four tags for Message Trigger Address, Message Data Address, Variable Trigger Address, Variable Data Address, and the array sizes must be entered and established in the controller as valid tags even if they are not used.

DeviceNet Tag Setup



- Message Trigger Address. The controller address that triggers a message to display. This toggles between 0 and 1 in the controller.

- Message Data Address. The starting address of the message data displayed. The message data contains the trigger command that the InView display recognizes (^T[message number]^M).
- Message Array Size. The size of the array (16 to 128 characters for DeviceNet) containing the message data. The maximum array size is dependent on the controller and must be an even integer.
- Message Data Swap Byte. For DeviceNet, each message data tag can be set to swap (or not swap) the order of bytes within a 16 bit word. Select the check box to enable swapping. Clear the check box to disable swapping. You need to check the box when using a SLC controller or PLC processor.
- Variable Trigger Address. The controller address that triggers a message variable to display. This toggles between 0 and 1 in the controller.
- Variable Data Address. The starting address of the variable data displayed. The variable data contains the update variable command that the InView display recognizes (^V[variable data]\[variable number]^M).
- Variable Array Size. The size of the array (16 to 128 characters for DeviceNet) containing the variable data. The maximum array size is dependent on the controller and must be an even integer.
- Variable Data Swap Bytes. For DeviceNet, each variable data tag can be set to swap (or not swap) the order of bytes within a 16 bit word. Select the check box to enable swapping. Clear the check box to disable swapping. You need to check the box when using a SLC controller or PLC processor.

The address tags must be an Output data type, in the following syntax: O:[element number]. Both the Message Trigger and Message Data addresses must fall entirely within the scanners output size or a maximum of 64 words, including the Message Data array size. For example, a Message Trigger address of O:10 and a Message Data address of O:32, with a scanner output size of 31 is not valid.

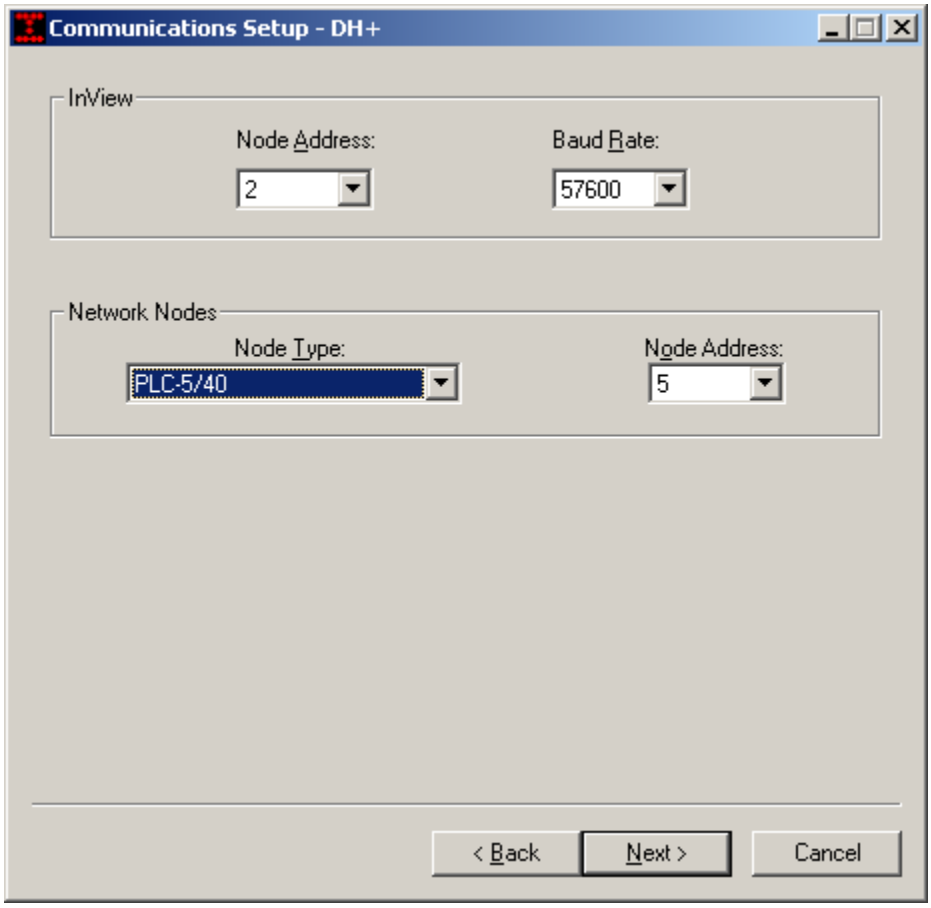
IMPORTANT Variable Trigger and Variable Data addresses work the same as Variable Data Swap Bytes.

Data Highway Plus (DH+) Communication and Tag Setup Screens

The InView message display communicates with PLC-5 controllers or SLC 5/04 controllers, ControlLogix 5000 controllers, or SoftLogix controllers on a DH+ network.

PLC-5 Controller

DH+ Communications Setup



InView Parameters

- Node address. Node address (0 to 77 octal) of the InView display on the DH+ network.
- Baud Rate. The communication rate (57.6 Kbps, 115.2 Kbps, 230.4 Kbps) of the DH+ network.

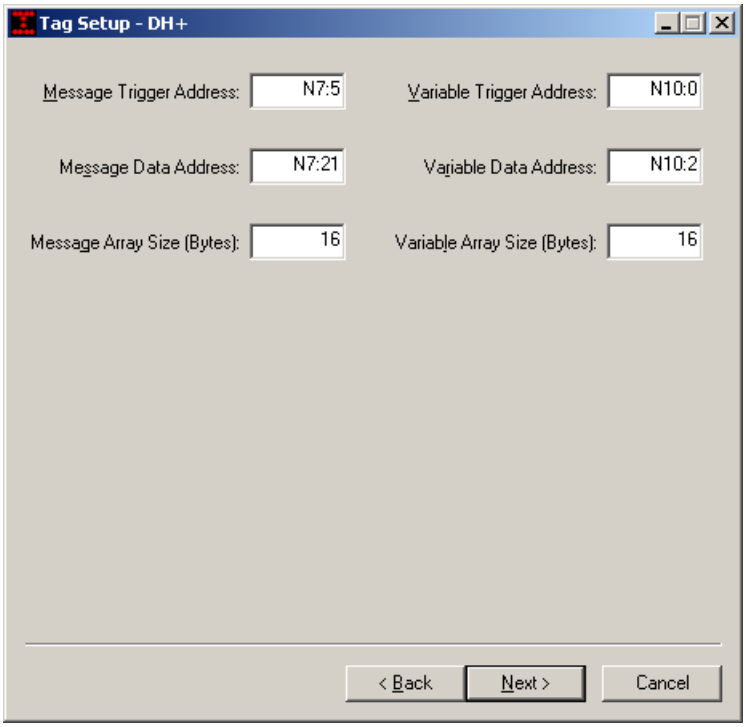
Network Node Parameters

- Node Type. The type of controller that the InView display communicates with.

- Node Address. The node address (0 to 77 octal) of the controller on the DH+ network.

IMPORTANT All four tags for Message Trigger Address, Message Data Address, Variable Trigger Address, Variable Data Address, and the array sizes must be entered and established in the controller as valid tags even if they are not used.

DH+ Tag Setup



- Message Trigger Address. The controller address that triggers a message to display. This toggles between 0 and 1 in the controller.
- Message Data Address. The starting address of the message data displayed. The message data contains the trigger command that the InView display recognizes (^T[message number]^M).
- Message Array Size. The size of the array (16 to 80 characters for DH+) containing the message data. The maximum array size is dependent on the controller and must be an even integer.
- Variable Trigger Address. The controller address that triggers a message variable to display. This toggles between 0 and 1 in the controller.
- Variable Data Address. The starting address of the variable data displayed. The variable data contains the update variable command that the InView display recognizes (^V[variable data]\[variable number]^M).

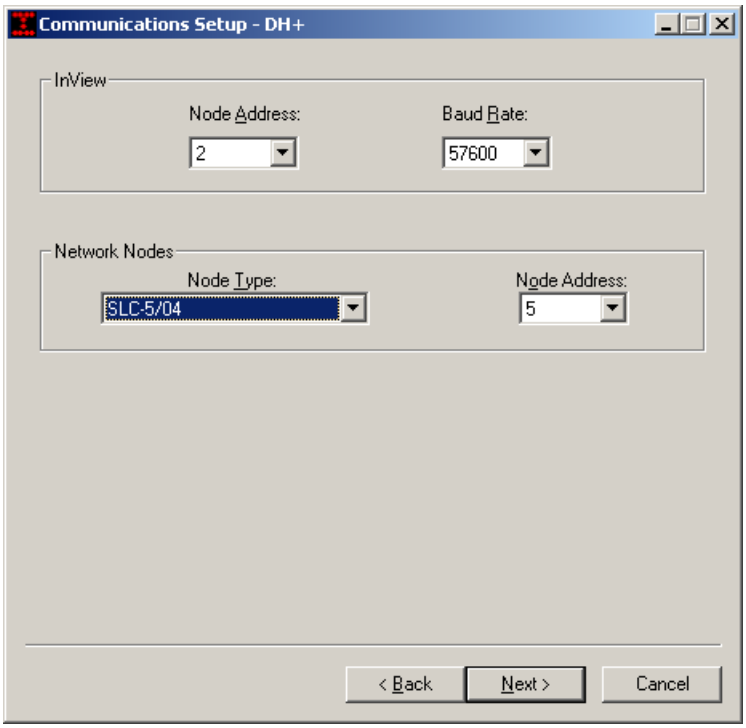
- Variable Array Size: The size of the array (16 to 80 characters for DHP) containing the variable data. The maximum array size is dependent on the controller and must be an even integer.

The address tags are either an Integer (N) or ASCII (A) data file. Both the Message Trigger and Message Data addresses must fall entirely within a single 80 byte block, including the Message Data array size. You can choose to use either an Integer or ASCII data file, you cannot use more than one data file. For example, a Message Trigger address of N7:0 and a Message Data address of N9:0 is not valid. At the same time, a Message Trigger address of N7:0 and a Message Data address of N7:35, with a Message Data array size of 16, is not valid because the array falls outside of the 40 word (80 byte) block.

IMPORTANT Variable Trigger and Variable Data addresses work the same as Variable Array Size.

SLC 5/04 Controller

DH+ Communication Setup



InView Parameters

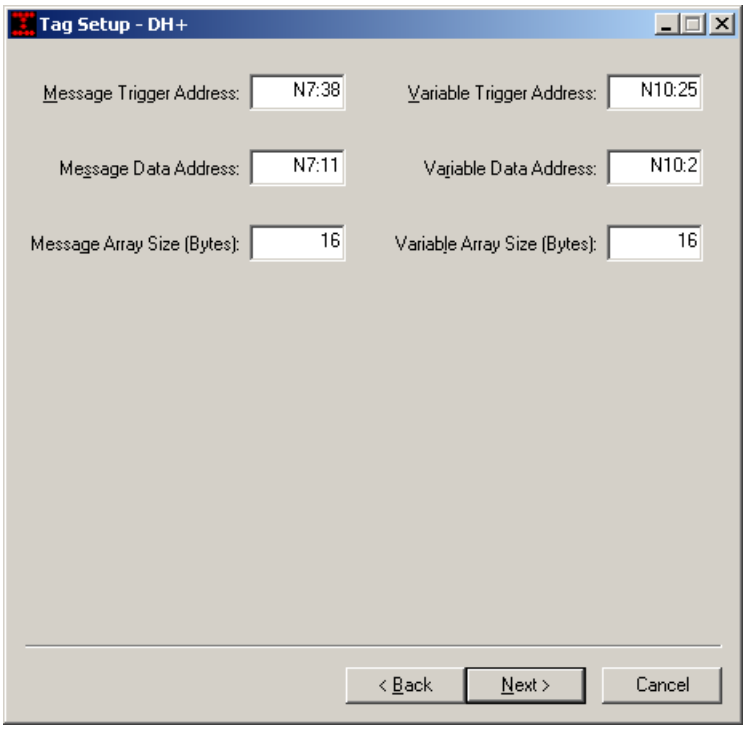
- Node address. Node address (0 to 77 octal) of the InView display on the DH+ network.
- Baud Rate. The communication rate (57.6 Kbps, 115.2 Kbps, 230.4 Kbps) of the DH+ network.

Network Node Parameters

- Node Type. The type of controller that the InView display communicates with.
- Node Address. The node address (0 to 77 octal) of the controller on the DH+ network.

IMPORTANT All four tags for Message Trigger Address, Message Data Address, Variable Trigger Address, Variable Data Address, and the array sizes must be entered and established in the controller as valid tags even if they are not used.

DH+ Tag Setup



- Message Trigger Address. The controller address that triggers a message to display. This toggles between 0 and 1 in the controller.

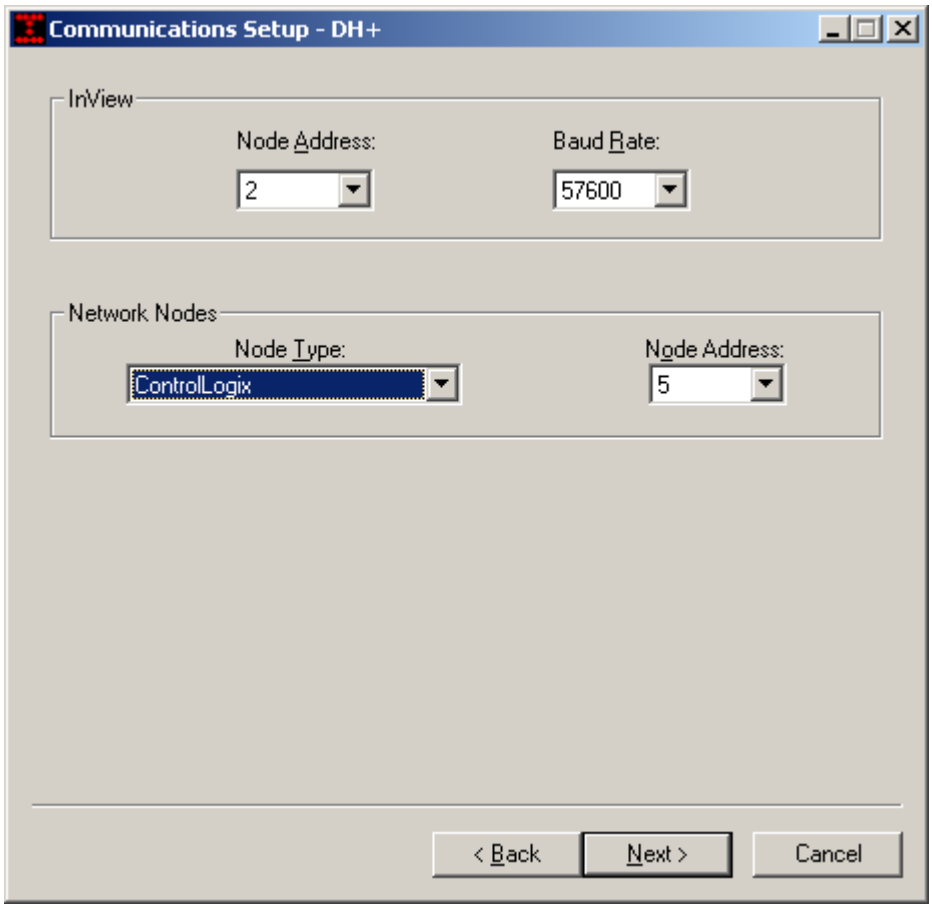
- Message Data Address. The starting address of the message data displayed. The message data contains the trigger command that the InView display recognizes (^T[message number]^M).
- Message Array Size. The size of the array (16 to 80 characters for DHP) containing the message data. The maximum array size is dependent on the controller and must be an even integer.
- Variable Trigger Address. The controller address that triggers a message variable to display. This toggles between 0 and 1 in the controller.
- Variable Data Address. The starting address of the variable data displayed. The variable data contains the update variable command that the InView display recognizes (^V[variable data]\[variable number]^M).
- Variable Array Size. The size of the array (16 to 80 characters for DHP) containing the variable data. The maximum array size is dependent on the controller and must be an even integer.

The address tags are either an Integer (N) or ASCII (A) data file. Both the Message Trigger and Message Data addresses must fall entirely within a single 80 byte block, including the Message Data array size. You can choose to use either an Integer or ASCII data file, you cannot use more than one data file. For example, a Message Trigger address of N7:0 and a Message Data address of N9:0 is not valid. At the same time, a Message Trigger address of N7:0 and a Message Data address of N7:35, with a Message Data array size of 16, is not valid because the array falls outside of the 40 word (80 byte) block.

IMPORTANT Variable Trigger and Variable Data addresses work the same as Variable Array Size.

ControlLogix 5000 Controller

DH+ Communication Setup



InView Parameters

- Node address. Node address (0 to 77 octal) of the InView display on the DH+ network.
- Baud Rate. The communication rate (57.6 Kbps, 115.2 Kbps, 230.4 Kbps) of the DH+ network.

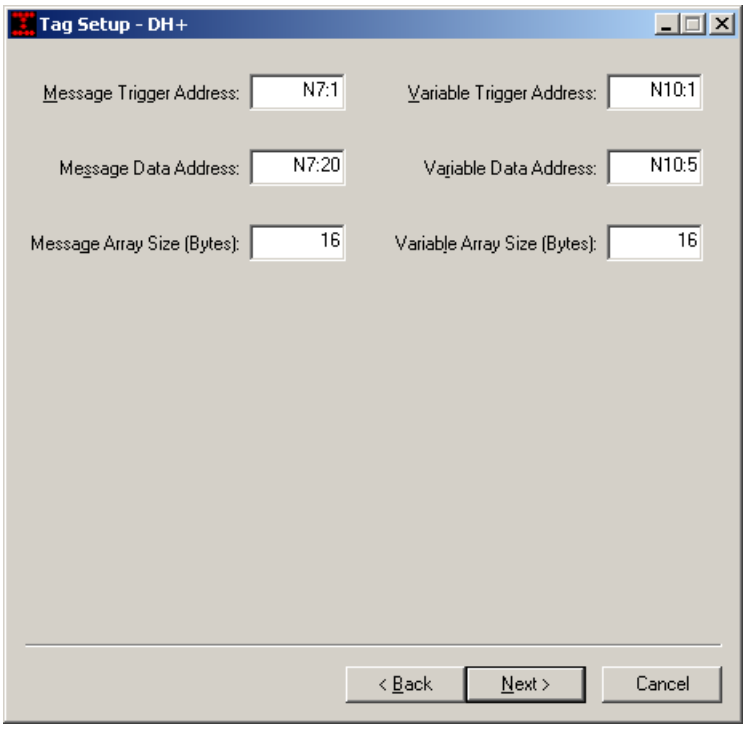
IMPORTANT Not all communication rates are supported by all 1756-DHRIO modules.

Network Node Parameters

- Node Type. The type of controller that the InView display communicates with.
- Node Address. The node address (0 to 77 octal) of the controller on the DH+ network.

IMPORTANT All four tags for Message Trigger Address, Message Data Address, Variable Trigger Address, Variable Data Address, and the array sizes must be entered and established in the controller as valid tags even if they are not used.

DH+ Tag Setup



- Message Trigger Address. The controller address that triggers a message to display. This toggles between 0 and 1 in the controller.
- Message Data Address. The starting address of the message data displayed. The message data contains the trigger command that the InView display recognizes (^T[message number]^M).
- Message Array Size. The size of the array (16 to 80 characters for DHP) containing the message data. The maximum array size is dependent on the controller and must be an even integer.
- Variable Trigger Address. The controller address that triggers a message variable to display. This toggles between 0 and 1 in the controller.
- Variable Data Address. The starting address of the variable data displayed. The variable data contains the update variable command that the InView display recognizes (^V[variable data]\[variable number]^M).

- Variable Array Size. The size of the array (16 to 80 characters for DHP) containing the variable data. The maximum array size is dependent on the controller and must be an even integer.

The address tags are an Integer (N) data file. Both the Message Trigger and Message Data addresses must fall entirely within a single 80 byte block, including the Message Data array size. You can choose to use any Integer data file, but you cannot use more than one data file. For example, a Message Trigger address of N7:0 and a Message Data address of N9:0 is not valid. At the same time, a Message Trigger address of N7:0 and a Message Data address of N7:35, with a Message Data array size of 16, is not valid because the array falls outside of the 40 word (80 byte) block.

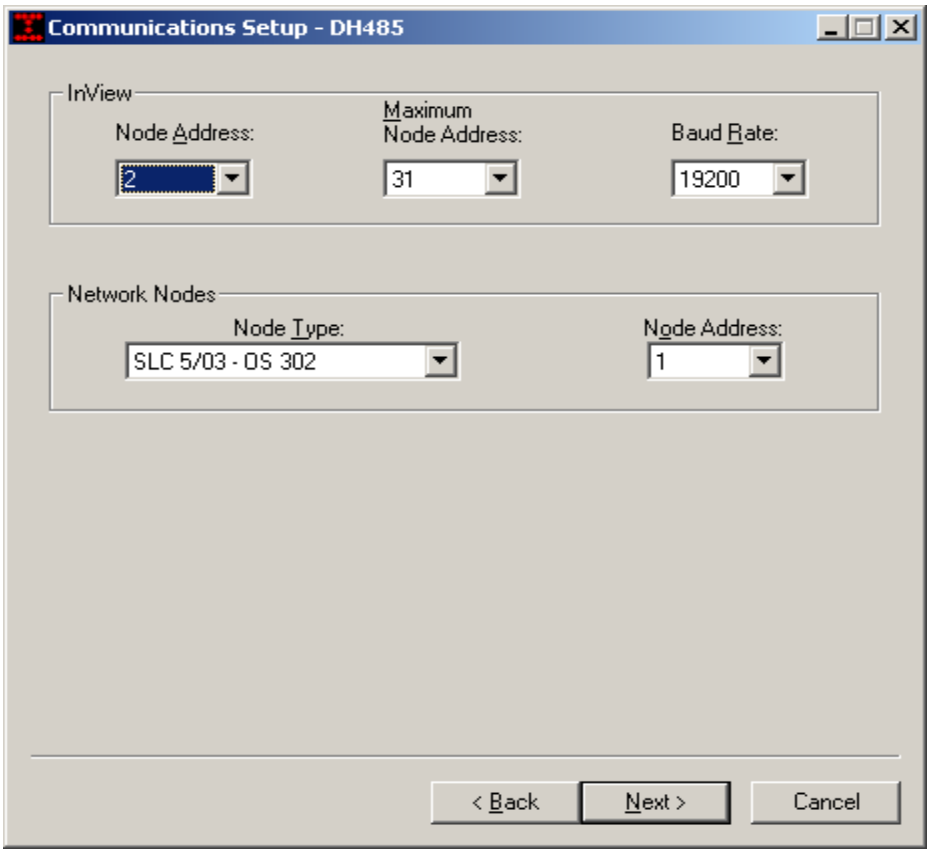
IMPORTANT Variable Trigger and Variable Data addresses work the same as Variable Array Size.

DH485 Communication and Tag Setup Screens

The InView message display can communicate with the following controllers on a DH485 network.

- SLC controller
- MicroLogix controller
- ControlLogix controller
- FlexLogix controller
- CompactLogix controller

DH485 Communication Setup



SLC Controller

InView Parameters

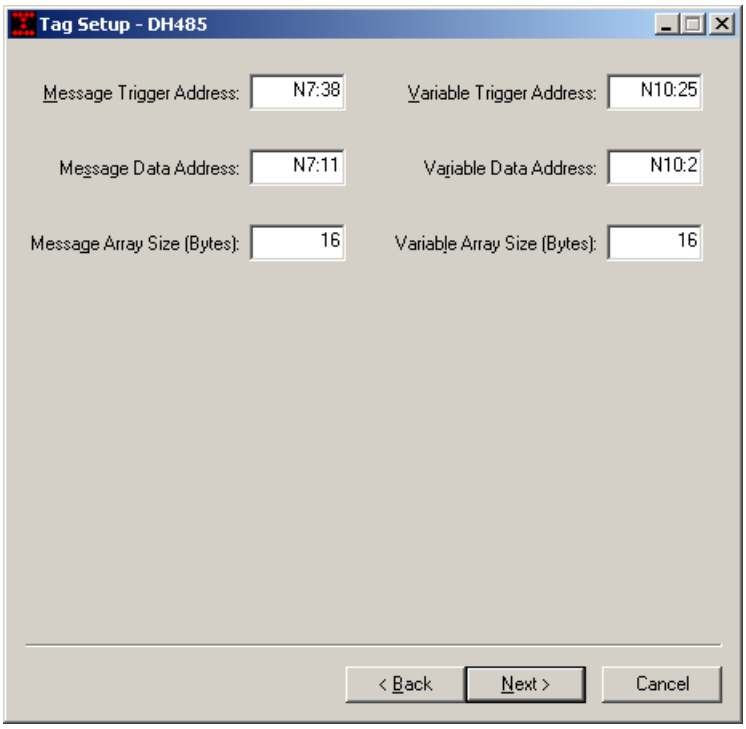
- Node address. Node address (0 to 31 decimal) of the InView display on the DH485 network.
- Maximum address. Address of the highest node on the network. The default is 31. A low maximum address improves network performance.
- Baud Rate. The communication rate (1.2 Kbps, 2.4 Kbps, 9.6 Kbps, 19.2 Kbps) of the DH485 network. The default is 19.2 Kbps.

Network Node Parameters

- Node Type. The type of controller that the InView display communicates with.
- Node Address. The address (0 to 31 decimal) of the controller on the DH485 network.

IMPORTANT All four tags for Message Trigger Address, Message Data Address, Variable Trigger Address, Variable Data Address, and the array sizes must be entered and established in the controller as valid tags even if they are not used.

DH485 Tag Setup



- Message Trigger Address. The controller address that triggers a message to display. This toggles between 0 and 1 in the controller.
- Message Data Address. The starting address of the message data displayed. The message data contains the trigger command that the InView display recognizes (^T[message number]^M).
- Message Array Size. The size of the array (16 to 80 characters for DH485) containing the message data. The maximum array size is dependent on the controller and must be an even integer.
- Variable Trigger Address. The controller address that triggers a message variable to display. This toggles between 0 and 1 in the controller.
- Variable Data Address. The starting address of the variable data displayed. The variable data contains the update variable command that the InView display recognizes (^V[variable data]\[variable number]^M).

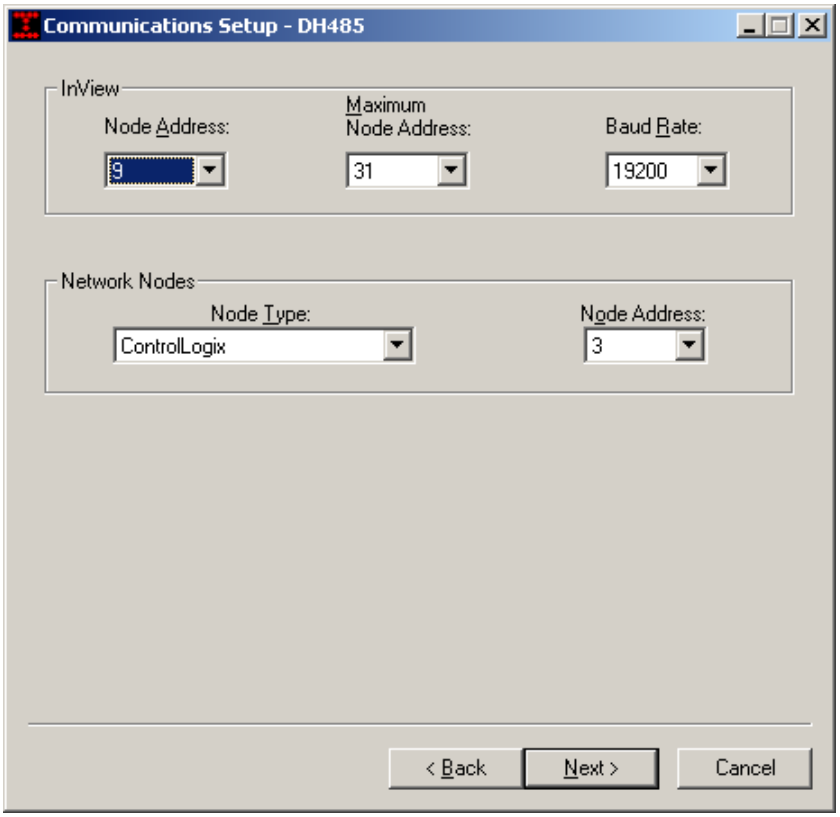
- Variable Array Size. The size of the array (16 to 80 characters for DH485) containing the variable data. The maximum array size is dependent on the controller and must be an even integer.

The address tags are either an Integer (N) or ASCII (A) data file. Both the Message Trigger and Message Data addresses must fall entirely within a single 80 byte block, including the Message Data array size. You can choose to use either an Integer or ASCII data file, but you cannot use more than one data file. For example, a Message Trigger address of N7:0 and a Message Data address of N9:0 is not valid. At the same time, a Message Trigger address of N7:0 and a Message Data address of N7:35, with a Message Data array size of 16, is not valid because the array falls outside of the 40 word (80 byte) block.

IMPORTANT Variable Trigger and Variable Data addresses work the same as Variable Array Size.

ControlLogix Controller

DH485 Communication Setup



InView Parameters

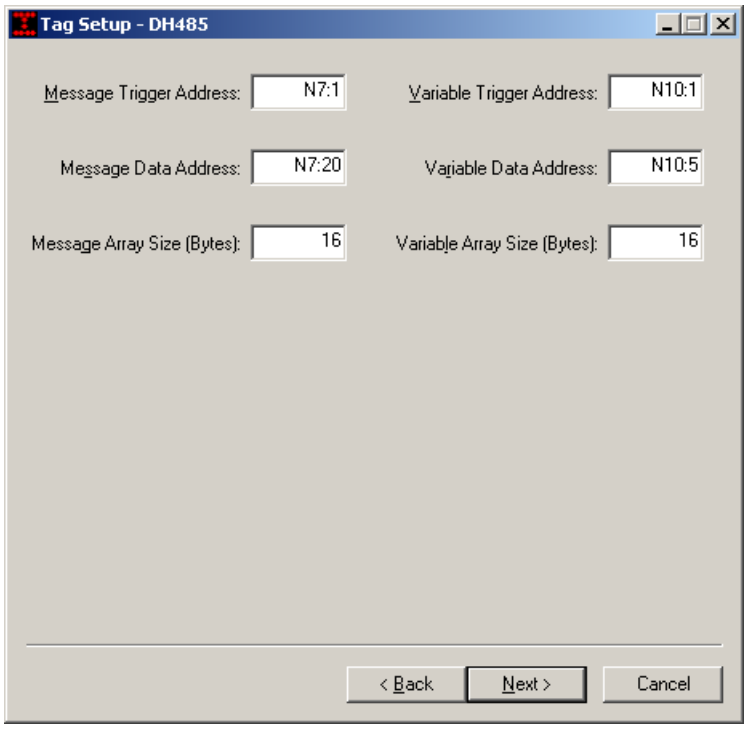
- Node address. Node address (0 to 31 decimal) of the InView Display on the DH485 network.
- Maximum address. Address of the highest node on the network. The default is 31. A low maximum address improves network performance.
- Baud Rate. The communication rate (1.2 Kbps, 2.4 Kbps, 9.6 Kbps, 19.2 Kbps) of the DH485 network. The default is 19.2 Kbps.

Network Node Parameters

- Node Type. The type of controller that the InView display communicates with.
- Node Address. The address (0 to 31 decimal) of the controller on the DH-485 network.

IMPORTANT All four tags for Message Trigger Address, Message Data Address, Variable Trigger Address, Variable Data Address, and the array sizes must be entered and established in the controller as valid tags even if they are not used.

DH485 Tag Setup



- Message Trigger Address. The controller address that triggers a message to display. This toggles between 0 and 1 in the controller.
- Message Data Address. The starting address of the message data displayed. The message data contains the trigger command that the InView display recognizes (^T[message number]^M).
- Message Array Size. The size of the array (16 to 80 characters for DH485) containing the message data. The maximum array size is dependent on the controller and must be an even integer.
- Variable Trigger Address. The controller address that triggers a message variable to display. This toggles between 0 and 1 in the controller.
- Variable Data Address. The starting address of the variable data displayed. The variable data contains the update variable command that the InView display recognizes (^V[variable data]\[variable number]^M).
- Variable Array Size. The size of the array (16 to 80 characters for DH485) containing the variable data. The maximum array size is dependent on the controller and must be an even integer.

The address tags are an Integer (N) data file. Both the Message Trigger and Message Data addresses must fall entirely within a single 80 byte block, including the Message Data array size. You can choose to use any Integer data file, but you cannot use more than one data file. For example, a Message Trigger address of N7:0 and a Message Data address of N9:0 is not valid. At the same time, a Message Trigger address of N7:0 and a Message Data address of N7:35, with a Message Data array size of 16, is not valid because the array falls outside of the 40 word (80 byte) block.

IMPORTANT Variable Trigger and Variable Data addresses work the same as Variable Array Size.

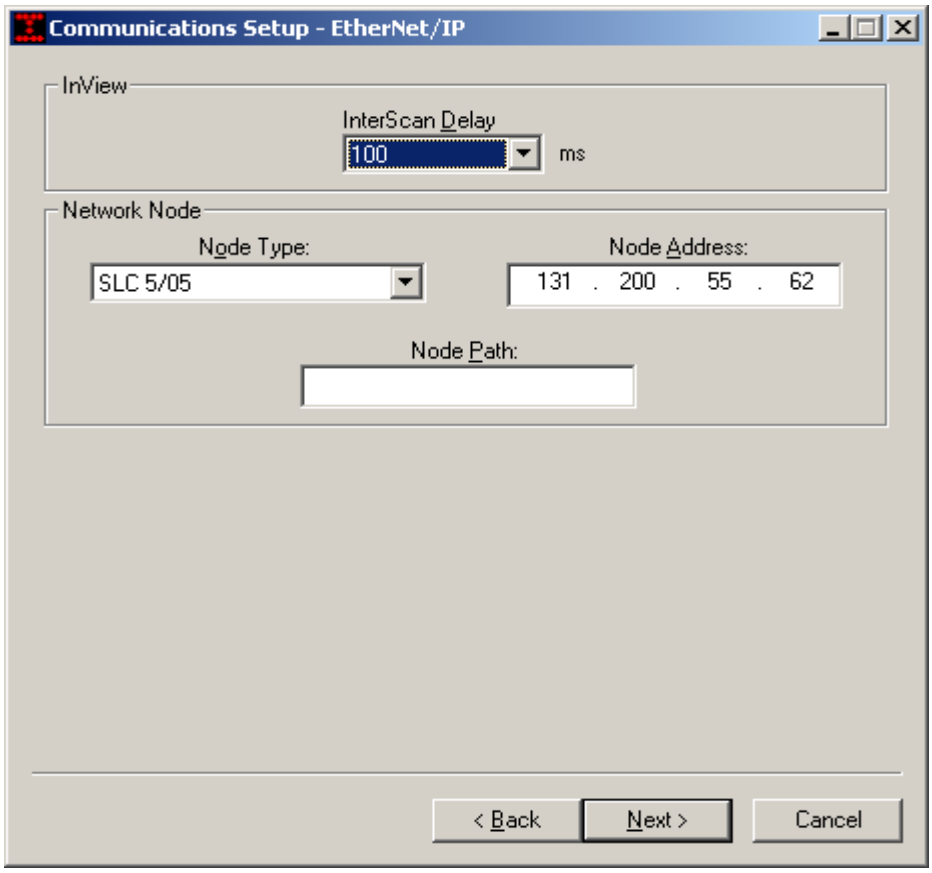
EtherNet Communication and Tag Setup Screens

The InView message display can communicate with the following controllers on an EtherNet/IP network. Be sure to set up the Ethernet communication module serially using a 2706-NC13 cable before hanging/mounting the unit. The Ethernet configuration must be set before it can function on the network.

- PLC-5E controller or SLC 5/05 controller
- ControlLogix controller (with 1756-ENET/B or /ENBx module)
- MicroLogix controller, FlexLogix controller, CompactLogix controller (with ENI module)

SLC 5/05 Controller

EtherNet/IP Communication Setup



InView Parameters

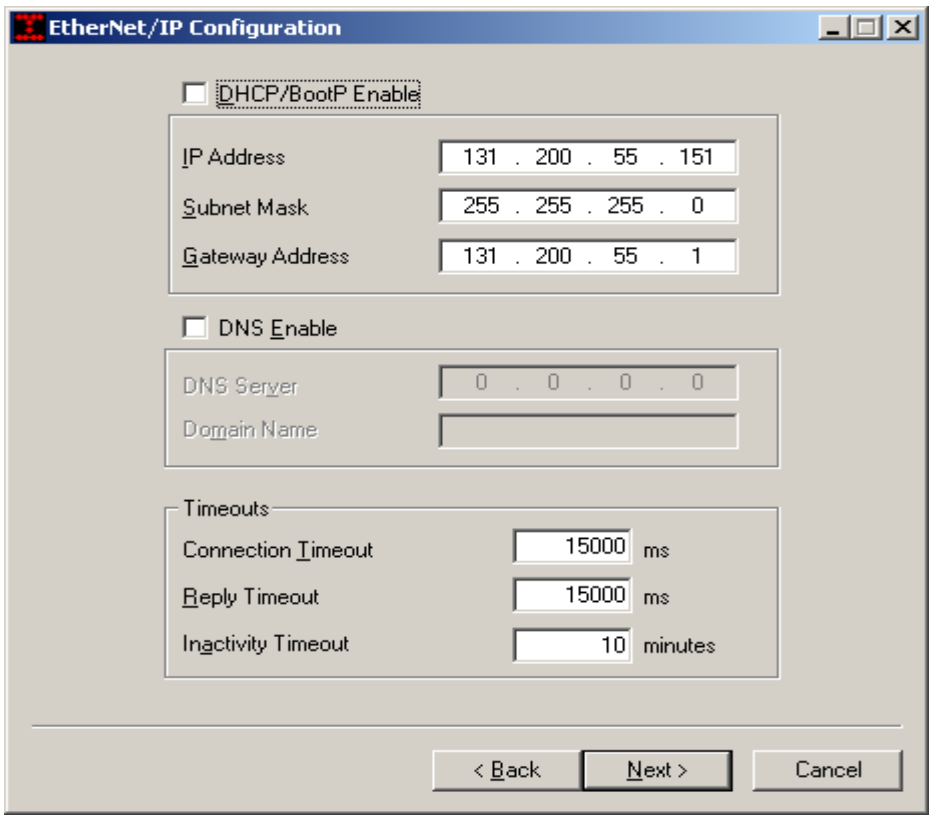
- InterScan Delay. Time interval (in milliseconds) between the InView display delays before re-reading data from the logic controller. The range is 100 to 1,000 ms. The default is 100 ms.

Network Node Parameters

- Node Type. The type of controller that the InView display communicates with.
- Node Address. The IP address or host name of the controller on the EtherNet/IP network that the InView display communicates. The IP address is formatted as four sets of decimal numbers with periods between them (10.0.0.1). The range of values for the first set of numbers is 1 to 255, unless all fields are 0.0.0.0. The range of values for the last three sets of decimal numbers is 0 to 255.

- Node Path. A 256-character string identifying the path to the end node.

EtherNet/IP Configuration



EtherNet Configuration

- DHCP/BootP Enable. If you select this check box, the InView display is automatically assigned an IP address, Subnet Mask, and Gateway Address. These fields become read-only if the check box is selected. Clear the check box to manually assign an IP Address, Subnet Mask and Gateway Address.
- IP Address. A unique IP address of the InView display node on the network. The default value is 0.0.0.0.
- Subnet Mask. A unique IP address of the InView display's subnet mask. This parameter interprets IP addresses when the network is divided into multiple networks. The value 0.0.0.0 is not a valid subnet mask.

- Gateway Address. A unique IP address of the Gateway connecting two individual IP networks into a system of networks. When a node needs to communicate with another network, the Gateway transfers the data between the two networks. This parameter interprets IP addresses when the network is divided into multiple networks. The first field cannot be 0 if any other fields contain a 0. This address can be left blank.

DNS Parameters

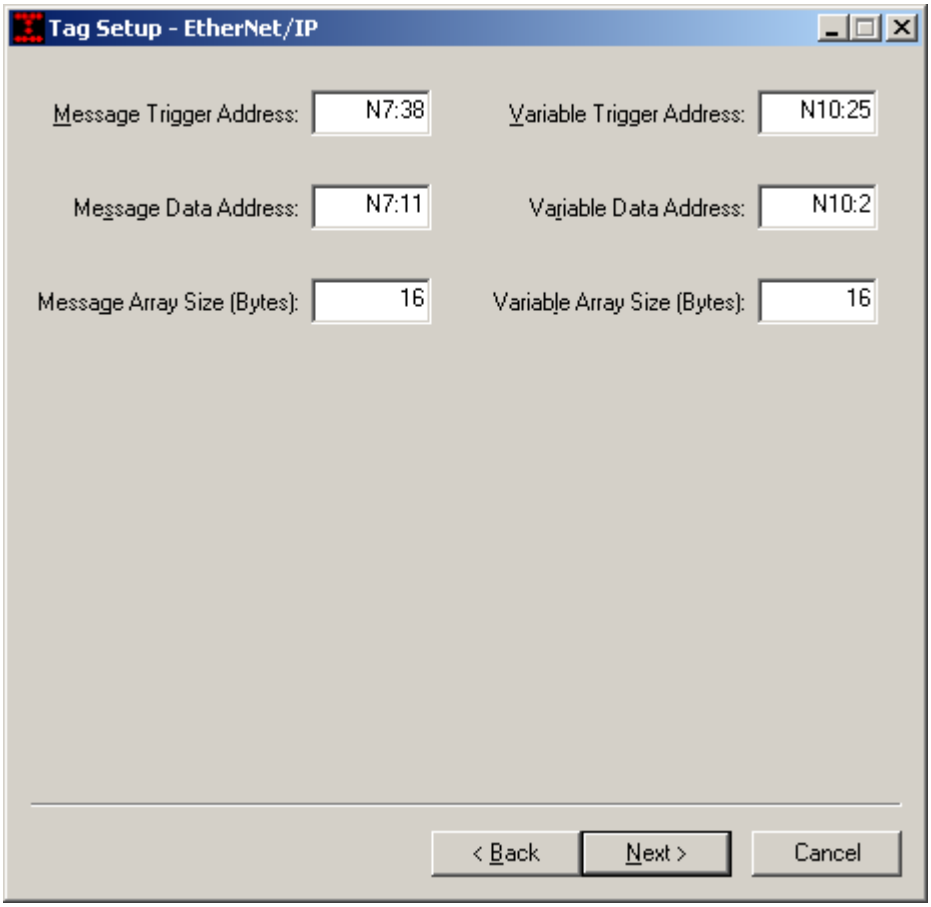
- DNS Enable. The DNS coverts more convenient host names into IP addresses. If you select this check box, you are allowed to assign a domain name to the domain server. Clear the check box to disable the Domain Server and Domain Name fields.
- DNS Server. 32-bit IP address of the DNS Server.
- Domain Name. Character string mapping the local domain name to the IP address of the DNS Server.

Timeout Parameters

- Connection Timeout. The number of milliseconds to establish a connection with another node on the network. Values range from 10,000 to 1,073,741,824 ms. The default is 15,000 ms.
- Reply Timeout. The number of milliseconds to wait for a reply from another node on the network. Values range from 10,000 to 1,073,741,824 ms. The default value is 15,000 ms.
- Inactivity Timeout. The number of minutes of inactivity allowed before a connection is closed. Values range from 10 to 140 minutes. The default is 10 minutes.

IMPORTANT All four tags for Message Trigger Address, Message Data Address, Variable Trigger Address, Variable Data Address, and the array sizes must be entered and established in the controller as valid tags even if they are not used.

EtherNet/IP Tag Setup



- Message Trigger Address. The controller address that triggers a message to display. This toggles between 0 and 1 in the controller.
- Message Data Address. The starting address of the message data displayed. The message data contains the trigger command that the InView display recognizes (^T[message number]^M).
- Message Array Size. The size of the array (16 to 80 characters for SLC 5/05 controller) containing the message data. The maximum array size is dependent on the controller and must be an even integer.
- Variable Trigger Address. The controller address that triggers a message variable to display. This toggles between 0 and 1 in the controller.
- Variable Data Address. The starting address of the variable data displayed. The variable data contains the update variable command that the InView display recognizes (^V[variable data]\[variable number]^M).

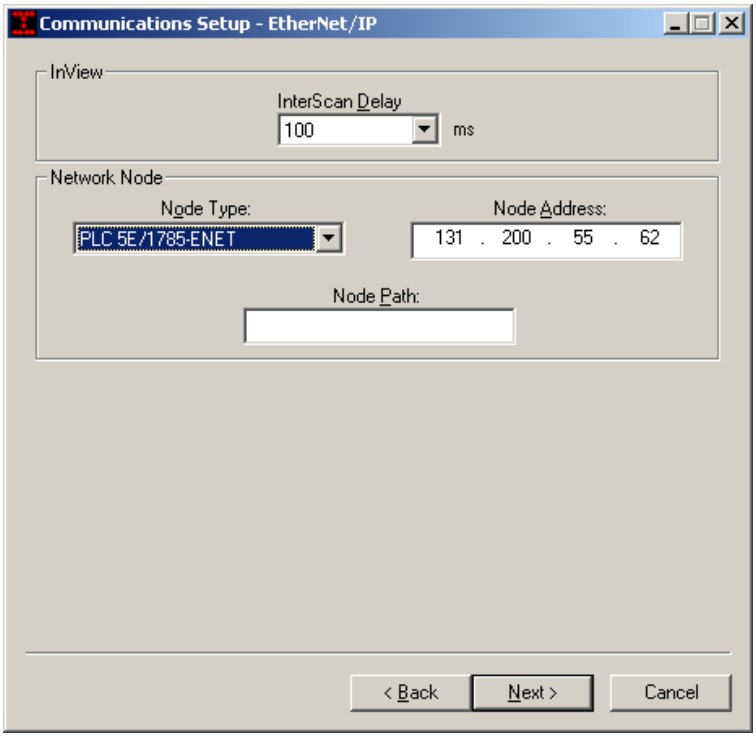
- Variable Array Size. The size of the array (16 to 80 characters for SLC 5/05 controller) containing the variable data. The maximum array size is dependent on the controller and must be an even integer.

The address tags are either an Integer (N) or ASCII (A) data file. Both the Message Trigger and Message Data addresses must fall entirely within a single 80 byte block, including the Message Data array size. You can choose to use either an Integer or ASCII data file, but you cannot use more than one data file. For example, a Message Trigger address of N7:0 and a Message Data address of N9:0 is not valid. At the same time, a Message Trigger address of N7:0 and a Message Data address of N7:35, with a Message Data array size of 16, is not valid because the array falls outside of the 40 word (80 byte) block.

IMPORTANT Variable Trigger and Variable Data addresses work the same as Variable Array Size.

PLC-5E Controller

EtherNet/IP Communication Setup



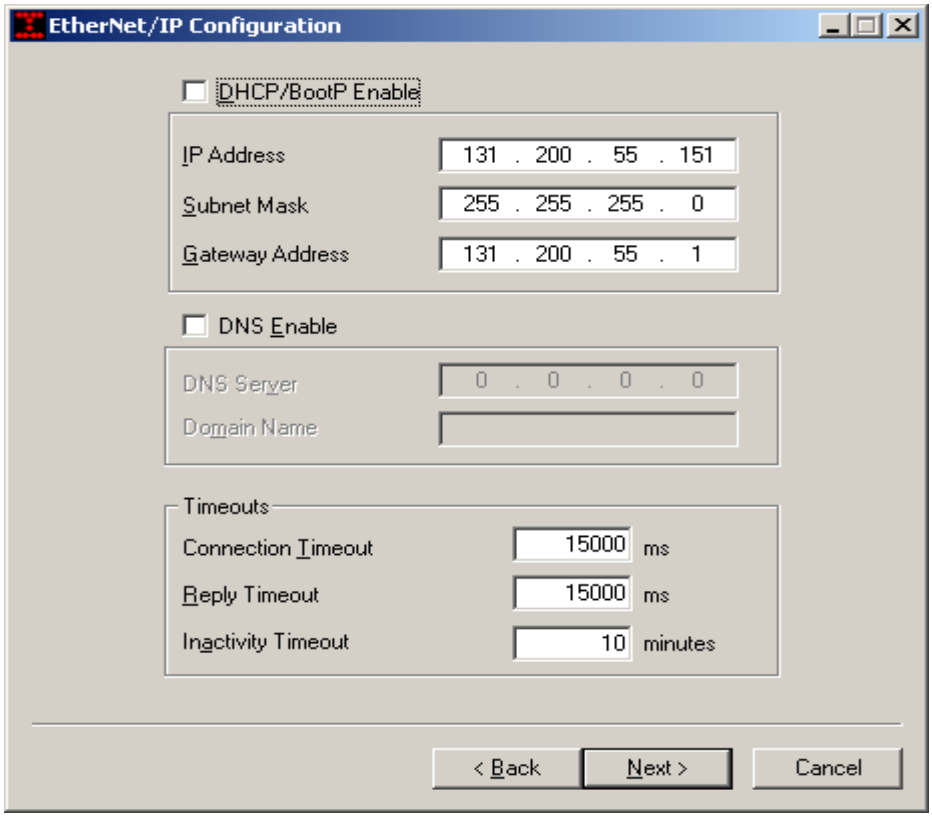
InView Parameters

- InterScan Delay. Time interval (in milliseconds) between the InView display delays before re-reading data from the logic controller. The range is 100 to 1,000 ms. The default is 100 ms.

Network Node Parameters

- Node Type. The type of controller that the InView display communicates with.
- Node Address. The IP address or host name of the controller on the EtherNet/IP network that the InView display communicates. The IP address is formatted as four sets of decimal numbers with periods between them (10.0.0.1). The range of values for the first set of numbers is 1 to 255, unless all fields are 0.0.0.0. The range of values for the last three sets of decimal numbers is 0 to 255.
- Node Path: A 256-character string identifying the path to the end node.

EtherNet/IP Configuration



EtherNet Configuration

- DHCP/BootP Enable. If you select this check box, the InView Display is automatically assigned an IP address, Subnet Mask, and Gateway Address. These fields become read-only if the check box is selected. Clear the check box to manually assign an IP Address, Subnet Mask and Gateway Address.
- IP Address. A unique IP address of the InView display node on the network. The default value is 0.0.0.0.
- Subnet Mask. A unique IP address of the InView display's subnet mask. This parameter interprets IP addresses when the network is divided into multiple networks. The value 0.0.0.0 is not a valid subnet mask.
- Gateway Address. A unique IP address of the Gateway connecting two individual IP networks into a system of networks. When a node needs to communicate with another network, the Gateway transfers the data between the two networks. This parameter interprets IP addresses when the network is divided into multiple networks. The first field cannot be 0 if any other fields contain a 0. This address can be left blank.

DNS Parameters

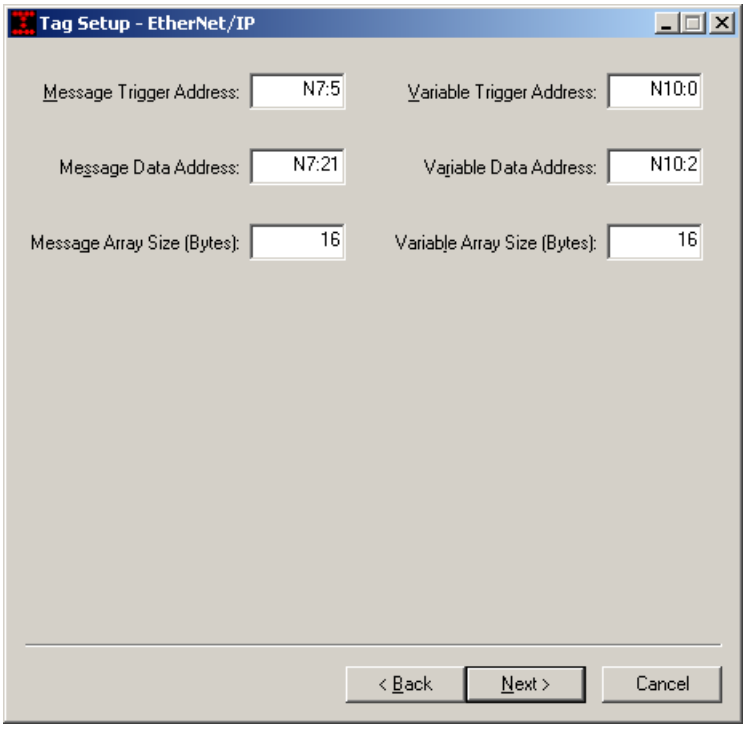
- DNS Enable. The DNS coverts more convenient host names into IP addresses. If you select this check box, you are allowed to assign a domain name to the domain server. Clear the check box to disable the Domain Server and Domain Name fields.
- DNS Server. 32-bit IP address of the DNS Server.
- Domain Name. Character string mapping the local domain name to the IP address of the DNS Server.

Timeout Parameters

- Connection Timeout. The number of milliseconds to establish a connection with another node on the network. Values range from 10,000 to 1,073,741,824 ms. The default is 15,000 ms.
- Reply Timeout. The number of milliseconds to wait for a reply from another node on the network. Values range from 10,000 to 1,073,741,824 ms. The default value is 15,000 ms.
- Inactivity Timeout. The number of minutes of inactivity allowed before a connection is closed. Values range from 10 to 140 minutes. The default is 10 minutes.

IMPORTANT All four tags for Message Trigger Address, Message Data Address, Variable Trigger Address, Variable Data Address, and the array sizes must be entered and established in the controller as valid tags even if they are not used.

EtherNet/IP Tag Setup



- Message Trigger Address. The controller address that triggers a message to display. This toggles between 0 and 1 in the controller.
- Message Data Address. The starting address of the message data displayed. The message data contains the trigger command that the InView display recognizes (^T[message number]^M).
- Message Array Size. The size of the array (16 to 230 characters for PLC-5E controller) containing the message data. The maximum array size is dependent on the controller and must be an even integer.
- Variable Trigger Address. The controller address that triggers a message variable to display. This toggles between 0 and 1 in the controller.
- Variable Data Address. The starting address of the variable data displayed. The variable data needs to contain the update variable command that the InView display recognizes (^V[variable data]\[variable number]^M).

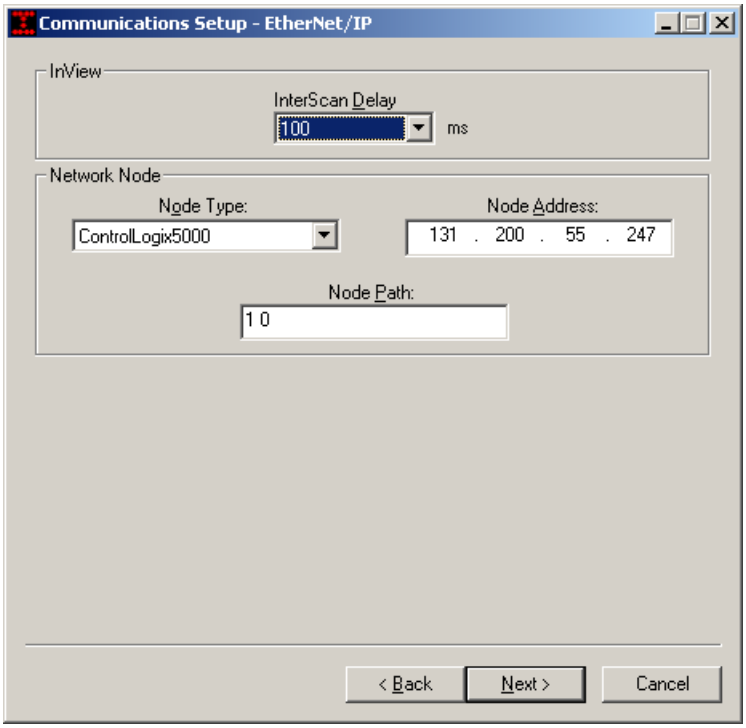
- Variable Array Size. The size of the array (16 to 230 characters for PLC-5E controller) containing the variable data. The maximum array size is dependent on the controller and must be an even integer.

The address tags are either an Integer (N) or ASCII (A) data file. Both the Message Trigger and Message Data addresses must fall entirely within a single 230 byte block, including the Message Data array size. You can choose to use either an Integer or Ascii data file, but you cannot use more than one data file. For example, a Message Trigger address of N7:0 and a Message Data address of N9:0 is not valid. At the same time, a Message Trigger address of N7:0 and a Message Data address of N7:110, with a Message Data array size of 16, is not valid because the array falls outside of the 115 word (230 byte) block.

IMPORTANT Variable Trigger and Variable Data addresses work the same as Variable Array Size.

ControlLogix Controller

EtherNet/IP Communication Setup



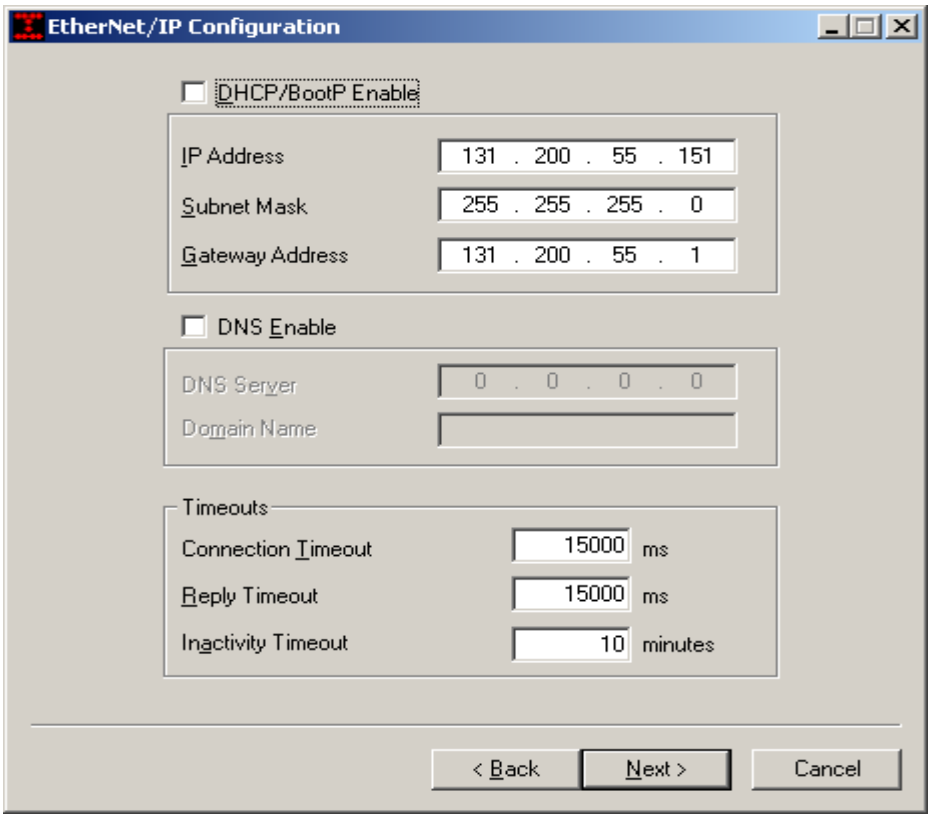
InView Parameters

- InterScan Delay. Time interval (in milliseconds) between the InView display delays before re-reading data from the logic controller. The range is 100 to 1,000 ms. The default is 100 ms.

Network Node Parameters

- Node Type. The type of controller that the InView display communicates with.
- Node Address. The IP address or host name of the controller on the EtherNet/IP network that the InView display communicates. The IP address is formatted as four sets of decimal numbers with periods between them (10.0.0.1). The range of values for the first set of numbers is 1 to 255, unless all fields are 0.0.0.0. The range of values for the last three sets of decimal numbers is 0 to 255.
- Node Path. A 256-character string identifying the path to the end node. At a minimum for a Logix controller, a valid node path is needed to show where the processor is. Typically it is a Logix backplane number (usually 1) followed by a space, and a Logix slot number. Example: 1 0

EtherNet/IP Configuration



EtherNet Configuration

- DHCP/BootP Enable. If you select this check box, the InView display is automatically assigned an IP address, Subnet Mask, and Gateway Address. These fields become read-only if the check box is selected. Clear the check box to manually assign an IP Address, Subnet Mask and Gateway Address.
- IP Address. A unique IP address of the InView display node on the network. The default value is 0.0.0.0.
- Subnet Mask. A unique IP address of the InView display's subnet mask. This parameter interprets IP addresses when the network is divided into multiple networks. The value 0.0.0.0 is not a valid subnet mask.
- Gateway Address: A unique IP address of the Gateway connecting two individual IP networks into a system of networks. When a node needs to communicate with another network, the Gateway transfers the data between the two networks. This parameter interprets IP addresses when the network is divided into multiple networks. The first field cannot be 0 if any other fields contain a 0. This address can be left blank.

DNS Parameters

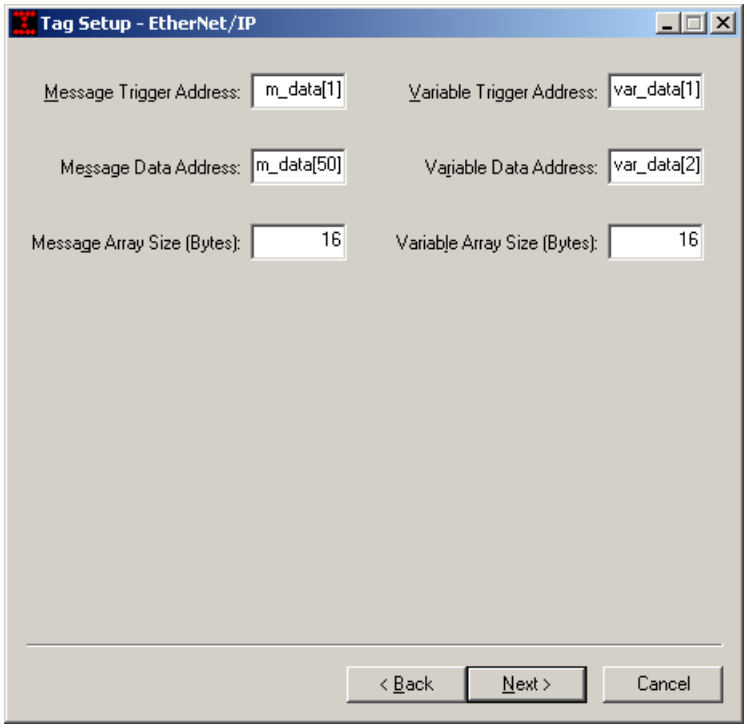
- DNS Enable. The DNS coverts more convenient host names into IP addresses. If you select this check box, you are allowed to assign a domain name to the domain server. Clear the check box to disable the Domain Server and Domain Name fields.
- DNS Server. 32-bit IP address of the DNS Server.
- Domain Name. Character string mapping the local domain name to the IP address of the DNS Server.

Timeout Parameters

- Connection Timeout. The number of milliseconds to establish a connection with another node on the network. Values range from 10,000 to 1,073,741,824 ms. The default is 15,000 ms.
- Reply Timeout. The number of milliseconds to wait for a reply from another node on the network. Values range from 10,000 to 1,073,741,824 ms. The default value is 15,000 ms.
- Inactivity Timeout. The number of minutes of inactivity allowed before a connection is closed. Values range from 10 to 140 minutes. The default is 10 minutes.

IMPORTANT All four tags for Message Trigger Address, Message Data Address, Variable Trigger Address, Variable Data Address, and the array sizes must be entered and established in the controller as valid tags even if they are not used.

EtherNet I/P Tag Setup



- Message Trigger Address. The controller address that triggers a message to display. This toggles between 0 and 1 in the controller.
- Message Data Address. The starting address of the message data displayed. The message data contains the trigger command that the InView display recognizes (^T[message number]^M).
- Message Array Size. The size of the array (16 to 254 characters for a ControlLogix controller) containing the message data. The maximum array size is dependent on the controller and must be an even integer.
- Variable Trigger Address. The controller address that triggers a message variable to display. This toggles between 0 and 1 in the controller.
- Variable Data Address. The starting address of the variable data displayed. The variable data contains the update variable command that the InView display recognizes (^V[variable data]\[variable number]^M).

- Variable Array Size. The size of the array (16 to 254 characters for a ControlLogix controller) containing the variable data. The maximum array size is dependent on the controller and must be an even integer.

The address tags are a SINT data type, however they can be named anything provided it follows this syntax: Name[element number]. Both the Message Trigger and Message Data addresses must fall entirely within a single 254 byte block, including the Message Data array size. You can choose to use any name, but you cannot use more than one data file. For example, a Message Trigger address of Message_data[0] and a Message Data address of Message[1] is not valid. At the same time, a Message Trigger address of Message_data[0] and a Message Data address of Message_data[250], with a Message Data array size of 16, is not valid because the array falls outside of the 254 byte block.

IMPORTANT Variable Trigger and Variable Data addresses work the same as Variable Array Size.

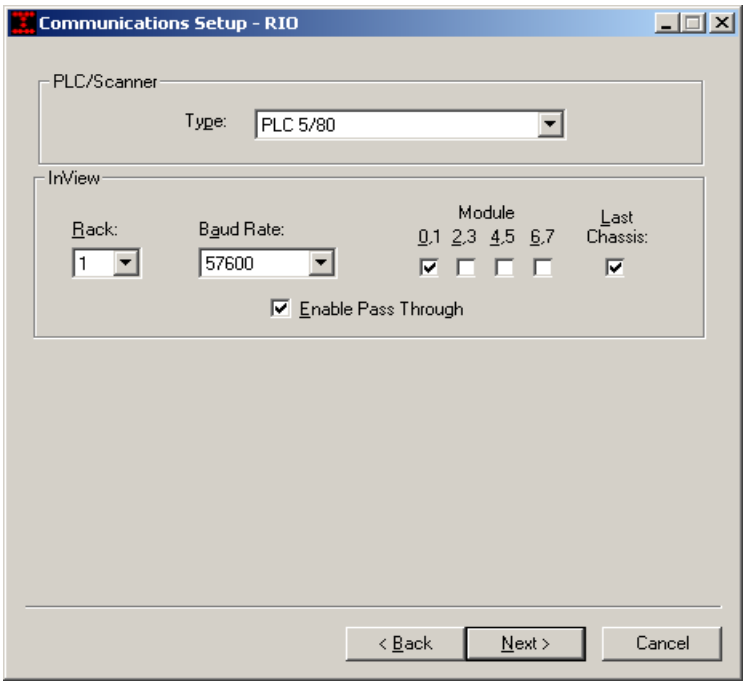
RIO Communication and Tag Setup Screens

The InView Message Display communicates with the following controllers on a Remote I/O network.

- PLC-5 controller
- SLC 5/03, 5/04 or 5/05 controller with a 1747-SN/B scanner
- ControlLogix controller

PLC-5 Controller

Remote I/O Communication Setup



PLC/Scanner Parameters

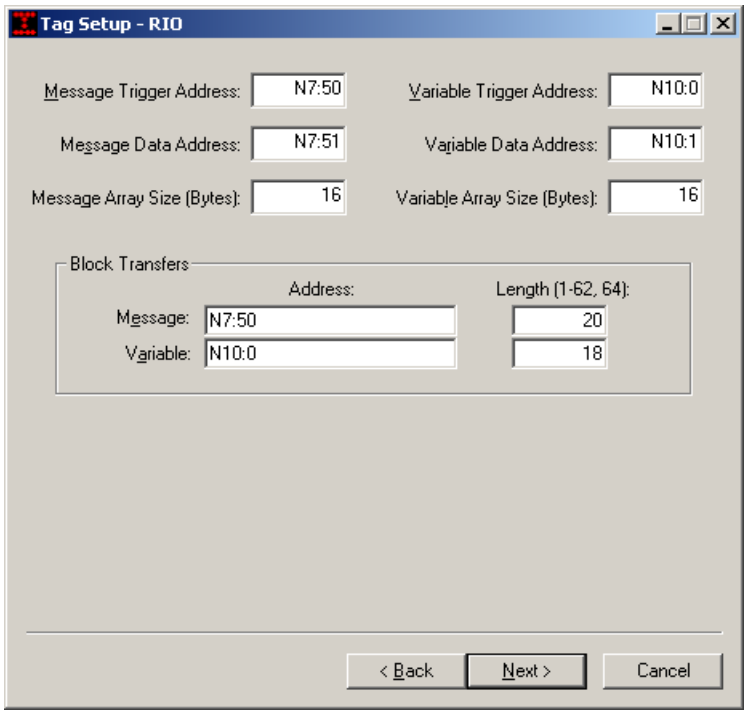
- Node Type. The type of controller that the InView display communicates with.

InView Parameters

- Rack. The unique address (0 to 76 octal) of the InView display on the Remote I/O link. The options are limited to the rack addresses supported by the type of controller selected under PLC/Scanner.
- Baud Rate. The communication rate used on the Remote I/O link. The options are 57.6 Kbps (3,048 m (10,000 ft) max. cable length), 115.2 Kbps (1,524 m (5,000 ft) max. cable length), 230.4 Kbps (762 m (2,500 ft) max. cable length).
- Module. The module groups used by the InView Display in the rack. Each check box represents 2 module groups. The module groups must be contiguous.
- Chassis. Specifies whether the terminal occupies the last module group (no higher module groups assigned) in the rack.
- Enable Pass-through. Enables or disables Pass-through for application transfers between a computer on the DH+ network and a InView communication module on the Remote I/O network.

IMPORTANT All four tags for Message Trigger Address, Message Data Address, Variable Trigger Address, Variable Data Address, and the array sizes must be entered and established in the controller as valid tags even if they are not used.

Remote I/O Tag Setup



- Message Trigger Address. The controller address that triggers a message to display. This toggles between 0 and 1 in the controller.
- Message Data Address. The starting address of the message data displayed. The message data needs to contain the trigger command that the InView display recognizes (^T[message number]^M).
- Message Array Size. The size of the array (16 to 128 characters for RIO) containing the message data. The maximum array size is dependent on the controller and must be an even integer.
- Variable Trigger Address. The controller address that triggers a message variable to display. This toggles between 0 and 1 in the controller.
- Variable Data Address. The starting address of the variable data displayed. The variable data needs to contain the update variable command that the InView Display recognizes (^V[variable data]\[variable number]^M).

- Variable Array Size. The size of the array (16 to 128 characters for RIO) containing the variable data. The maximum array size is dependent on the controller and must be an even integer.

The address tags are either an Integer (N) or ASCII (A) data file. Both the Message Trigger and Message Data addresses must fall entirely within its designated block transfer, including the Message Data array size.

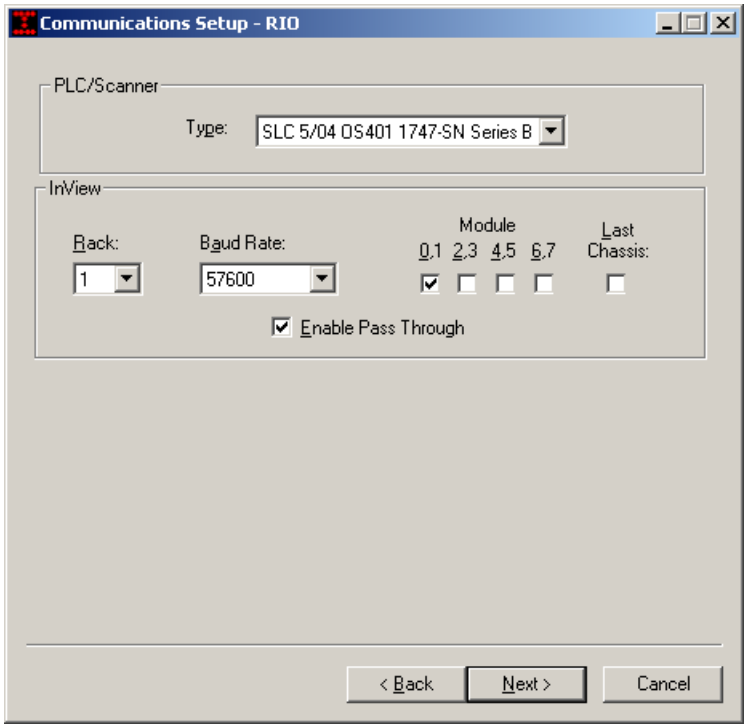
IMPORTANT Variable Trigger and Variable Data addresses work the same as Variable Array Size.

Block Transfer Parameters

- Address. The starting address (in the correct controller format) of the message data for the Block Transfer Read or Block Transfer Write.
- Length. The number of words to transfer (1 to 62, or 64). The InView display uses Length to identify the message blocks. You must configure 2 block transfers (only 2). The first block, labeled Message, contains both the Message Trigger and Data addresses. The second block, labeled Variable, contains the Variable Trigger and Variable Data addresses. Word 63 is reserved for the RIO Pass-through.

SLC Controller with 1747-SN/B Scanner

Remote I/O Communication Setup



PLC Processor/Scanner Parameters

- Node Type. The type of controller that the InView display communicates with.

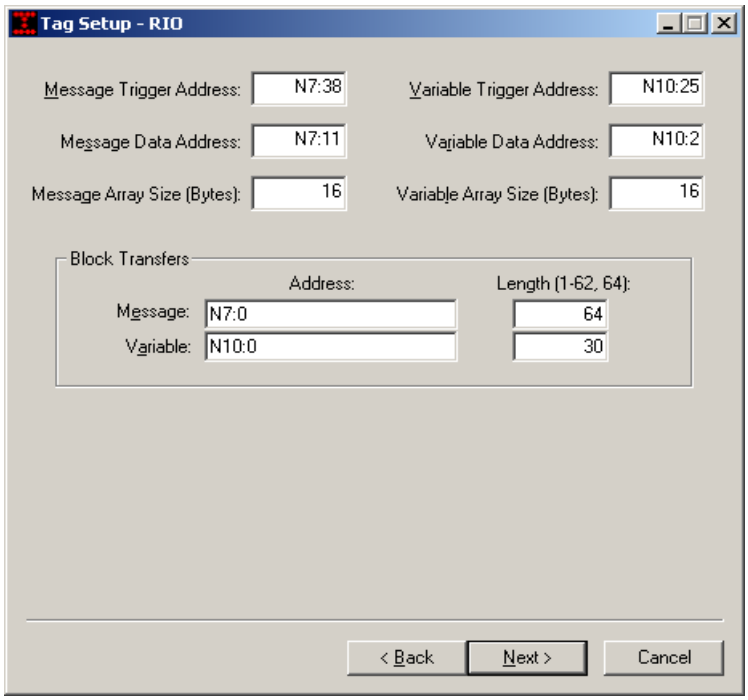
InView Parameters

- Rack. The unique address (0 to 76 octal) of the InView display on the remote I/O link. The options are limited to the rack addresses supported by the type of controller selected under PLC/Scanner.
- Baud Rate. The communication rate used on the remote I/O link. The options are 57.6 Kbps (3,048 m (10,000 ft) max. cable length), 115.2 Kbps (1,524 m (5,000 ft) max. cable length), 230.4 Kbps (762 m (2,500 ft) max. cable length).
- Module. The module groups used by the InView display in the rack. Each check box represents 2 module groups. The module groups must be contiguous.
- Chassis. Specifies whether the terminal occupies the last module group (no higher module groups assigned) in the rack.

- Enable Pass-through. Enables or disables Pass-through for application transfers between a computer on the DH+ network and a PanelView terminal on the remote I/O network.

IMPORTANT All four tags for Message Trigger Address, Message Data Address, Variable Trigger Address, Variable Data Address, and the array sizes must be entered and established in the controller as valid tags even if they are not used.

Remote I/O Tag Setup



- Message Trigger Address. The controller address that triggers a message to display. This toggles between 0 and 1 in the controller.
- Message Data Address. The starting address of the message data displayed. The message data contains the trigger command that the InView display recognizes (^T[message number]^M).
- Message Array Size. The size of the array (16 to 128 characters for RIO) containing the message data. The maximum array size is dependent on the controller and must be an even integer.
- Variable Trigger Address. The controller address that triggers a message variable to display. This toggles between 0 and 1 in the controller.

- Variable Data Address. The starting address of the variable data displayed. The variable data contains the update variable command that the InView display recognizes (^V[variable data]\[variable number]^M).
- Variable Array Size. The size of the array (16 to 128 characters for RIO) containing the variable data. The maximum array size is dependent on the controller and must be an even integer.

The address tags are either an Integer (N) or ASCII (A) data file. Both the Message Trigger and Message Data addresses must fall entirely within its designated block transfer, including the Message Data array size.

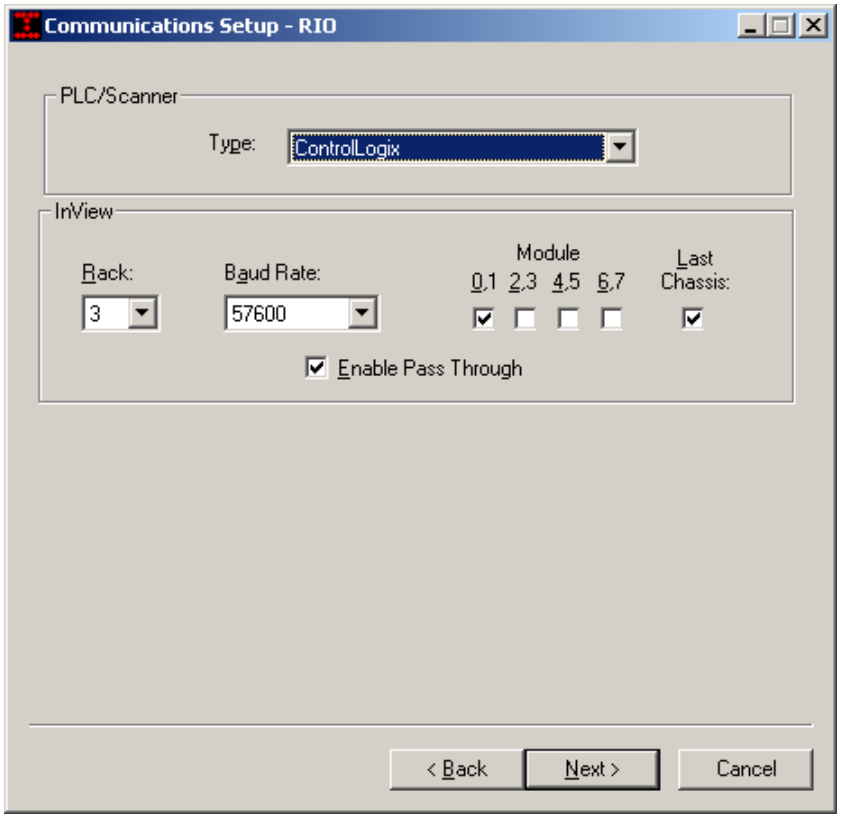
IMPORTANT Variable Trigger and Variable Data addresses work the same as Variable Array Size.

Block Transfer Parameters

- Address. The starting address (in the correct controller format) of the message data for the Block Transfer Read or Block Transfer Write.
- Length. The number of words to transfer (1 to 62, or 64). The InView display uses Length to identify the message blocks. You must configure 2 block transfers (only 2). The first block, labeled Message, contains both the Message Trigger and Data addresses. The second block, labeled Variable, contains the Variable Trigger and Variable Data addresses. Word 63 is reserved for the RIO Pass-through.

ControlLogix 5000 Controller

Remote I/O Communication Setup



PLC/Scanner Parameters

- Node Type. The type of controller that the InView display communicates with.

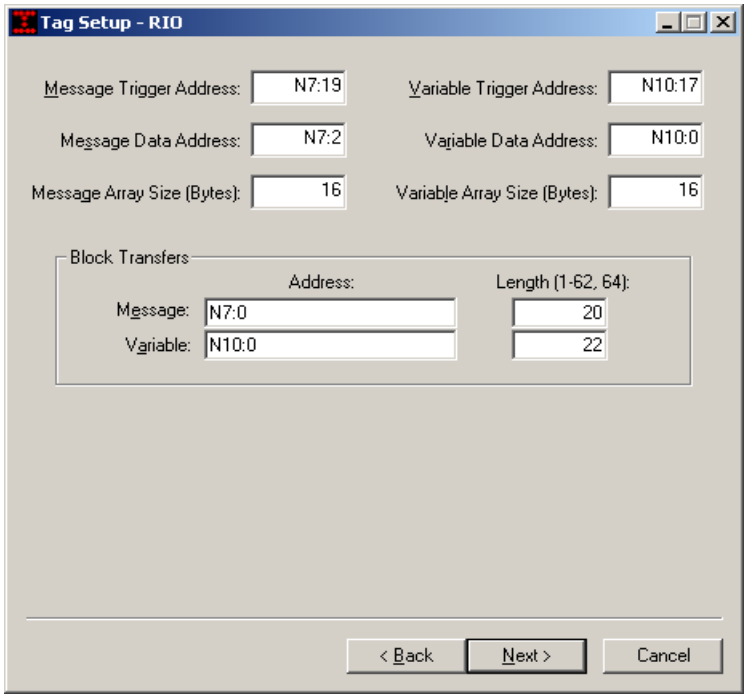
InView Parameters

- Rack. The unique address (0 to 76 octal) of the InView display on the remote I/O link. The options are limited to the rack addresses supported by the type of controller selected under PLC/Scanner.
- Baud Rate. The communication rate used on the remote I/O link. The options are 57.6 Kbps (3,048 m (10,000 ft) max. cable length), 115.2 Kbps (1,524 m (5,000 ft) max. cable length), 230.4 Kbps (762 m (2,500 ft) max. cable length).
- Module. The module groups used by the InView display in the rack. Each check box represents 2 module groups. The module groups must be contiguous.
- Chassis. Specifies whether the terminal occupies the last module group (no higher module groups assigned) in the rack.

- Enable Pass-through. Enables or disables Pass-through for application transfers between a computer on the DH+ network and a PanelView terminal on the remote I/O network.

IMPORTANT All four tags for Message Trigger Address, Message Data Address, Variable Trigger Address, Variable Data Address, and the array sizes must be entered and established in the controller as valid tags even if they are not used.

Remote I/O Tag Setup



- Message Trigger Address. The controller address that triggers a message to display. This toggles between 0 and 1 in the controller.
- Message Data Address. The starting address of the message data displayed. The message data contains the trigger command that the InView display recognizes (^T[message number]^M).
- Message Array Size. The size of the array (16 to 128 characters for RIO) containing the message data. The maximum array size is dependent on the controller and must be an even integer.
- Variable Trigger Address. The controller address that triggers a message variable to display. This toggles between 0 and 1 in the controller.
- Variable Data Address. The starting address of the variable data displayed. The variable data contains the update variable command that the InView Display recognizes (^V[variable data]\[variable number]^M).

- Variable Array Size. The size of the array (16 to 128 characters for RIO) containing the variable data. The maximum array size is dependent on the controller and must be an even integer.

The address tags are an Integer (N) data file. Both the Message Trigger and Message Data addresses must fall entirely within its designated block transfer, including the Message Data array size.

IMPORTANT Variable Trigger and Variable Data addresses work the same as Variable Array Size.

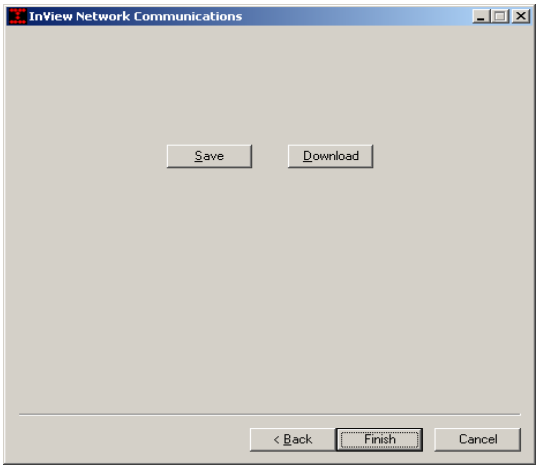
Block Transfer Parameters

- Address. The starting address (in the correct controller format) of the message data for the Block Transfer Read or Block Transfer Write.
- Length. The number of words to transfer (1 to 62, or 64). The InView display uses Length to identify the message blocks. You must configure 2 block transfers (only 2). The first block, labeled Message, contains both the Message Trigger and Data addresses. The second block, labeled Variable, contains the Variable Trigger and Variable Data addresses. Word 63 is reserved for the RIO Pass-through.

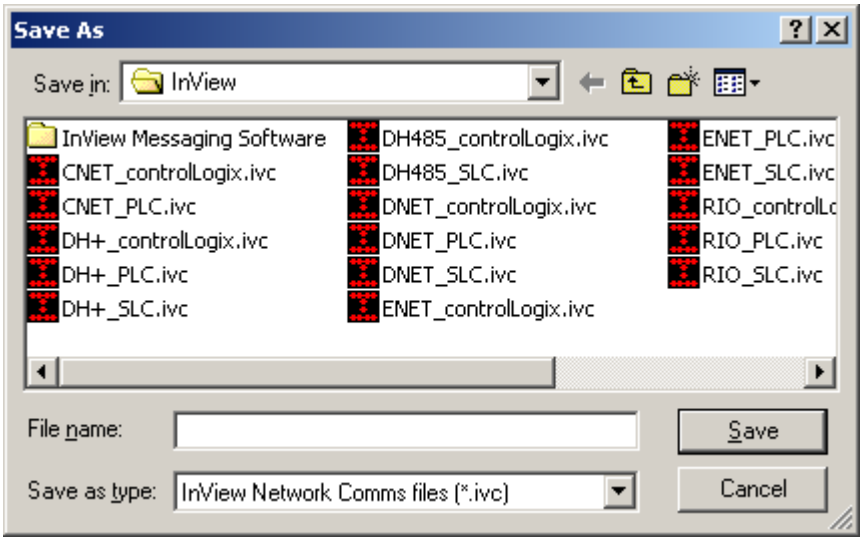
Save or Download an Application File

After you select a communication protocol and configure the communication and tag parameters, or if you opened a previously saved .ivc configuration file, download or save the application file. The last screen that displays lets you download or save the configuration.

Configuration Download or Save

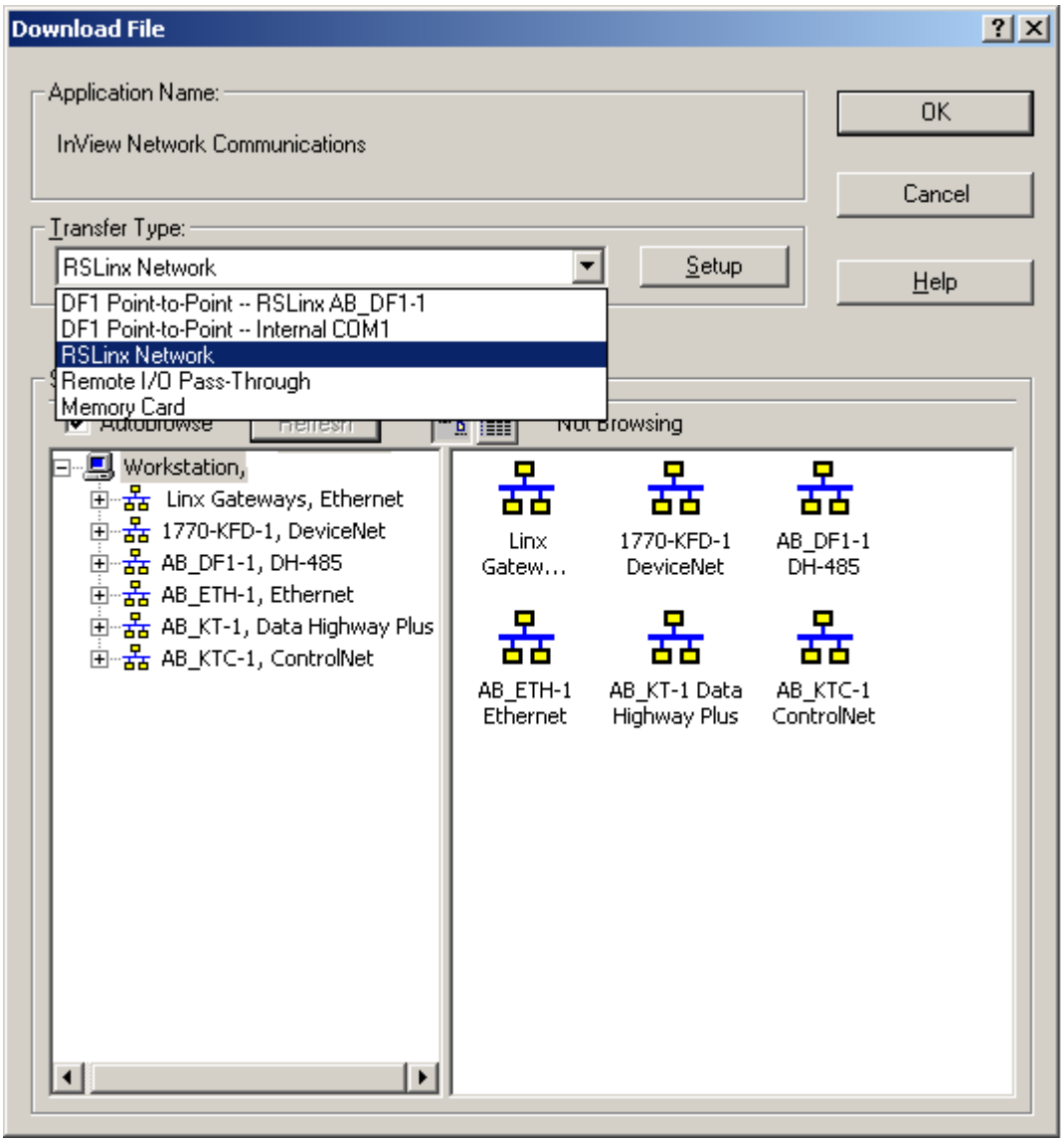


1. Click the Save button to save your configuration as an InView Network Communications file (.ivc) for later loading or copying to another machine.



2. Click the Download button to download the configuration to the InView display that is connected to your computer using serial or network communications.

3. Select a Transfer Type and then OK to proceed with the download.



If the computer in which the software is loaded on does not have RSLinx software, then the only Transfer Type available is the Internal COM ports. The communication rate for DF1 download must be 19200 bps.

The DH485 communication module requires you to download the application over the DH485 network. You cannot download over the RS232 port on a DH485 communication module.

InView Communication Module Troubleshooting

Chapter Objectives

This chapter tells you how to isolate and correct common operating problems.

- Equipment required
- Use troubleshooting chart
- LED indicators

Equipment Required

Other than verifying that the correct power source is connected to the terminal (use a voltmeter), no electronic diagnostic equipment is required for troubleshooting.

Use the Troubleshooting Table

The following pages provide a troubleshooting table for the communication module board. This table lists the most common operating problems, causes, and steps to correct them

WARNING

EXPLOSION HAZARD

Do not connect or disconnect equipment unless power has been switched off and area is known to be non-hazardous.

Troubleshooting Table

Problem	Probable Cause(s)	Corrective Action(s)
Board does not power up.	1. Improper connection to power source. 2. Incorrect input voltage level. 3. DC power wires reversed.	1. Verify wiring and connections to power source. 2. Verify correct voltage is present at power terminals. 3. Make sure DC power positive and negative are connected to the proper terminals.
Application file will not download (first download).	1. Communication cable disconnected. 2. Incorrect communication rate or communication settings. 3. Incorrect computer COM port selection.	1. Check communication cable type and connections. 2. Verify computer and InView messaging software via RSLinx software are set to same communication settings. Communication rate for Application file download is 19200. 3. Verify correct COM port number in InView messaging software via RSLinx.
Application file will not download (subsequent downloads).	Incorrect communication or communication rate settings.	1. Verify computer and InView messaging software via RSLinx have same communication settings. Change settings in communication setup screen of the terminal.

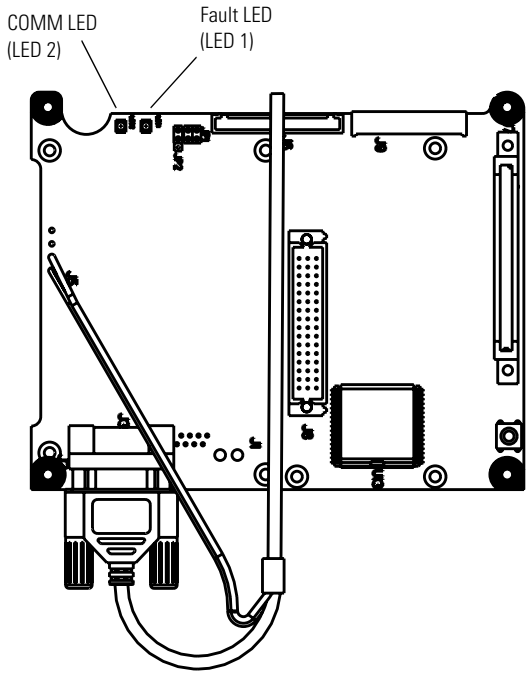
Troubleshooting Table

Problem	Probable Cause(s)	Corrective Action(s)
No communications with MicroLogix, ControlLogix, SLC or PLC controller.	1. Communications (COMM) fault. 2. Communication rates not set properly. 3. Controller is not in run mode. 4. InView communication module board node and maximum node numbers are not set correctly.	1. Check status of COMM LED. Verify cable connections using cable diagrams in Chapter 3. 2. Verify that InView communication module board and controller are set at the same communication rate. 3. Place controller in run mode. 4. Verify node address settings.
No communications with PLC processor but COMM LED indicator is active.	1. InView communication module board is trying to communicate with a controller at a different address. 2. The inhibit bit is set as the default on the Channel Status Screen in the PLC processor.	1. Verify address of the controller. 2. Change setting of the inhibit bit.
No communications with computer.	1. Communications (COMM) fault. 2. No SLC, network, or power supply connection at terminal's DH-485 port. 3. Communication rates not set correctly. 4. InView communication module board node and maximum node numbers are not set correctly. 5. Computer fault. 6. Communication driver not properly loaded.	1. Check status of COMM LED. Verify cable connections using cable diagrams in Chapter 3. 2. PIC receives power from DH-485 connection. Verify that the InView communication module board is connected to an SLC controller, network, or wallmount power supply as shown in Chapter 3. 3. Verify that InView messaging software via RSLinx and computer are set at the correct communication rate. 4. Verify node number settings. 5. Refer to user manual for computer. 6. Refer to RSLinx online help or manual.

Indicators

On InView communication modules, use the COMM and Fault LED indicators to isolate operating problems. The illustration below shows the location of these indicators.

Communication Module Indicators



DF1, DH-485, DH+ LED Indications

LED	This Pattern:	Indicates:
Comm[1]	Solid Fill	Normal operating state (no communication faults).
	No Fill	Fault detected. • Make sure controller is run mode • Verify communication rate settings of terminal and controller • Verify proper InView communication module board to controller connections
	Flashing	When power is first applied (momentarily).
	Blinking	No communications established. For DF1 terminals, the Comm indicator flashes until an application is loaded.
Fault	No Fill	Normal operating state
	Solid	Fault detected. Cycle power to the InView communication module board. If the fault still exists, the terminal requires servicing.
	Blinking	Hardware is functioning but no application is loaded or the current application is corrupt. Reload the application into the InView communication module board.

(1) Comm LED stays on until powerup self-tests are complete.

Remote I/O LED Indications

LED	This pattern:	Indicates:
Comm[1]	Solid Fill	Normal operating state (no communication faults)
	No Fill	Communications not functioning • Verify that communication rate and rack settings match the PLC processor settings • Verify proper InView communication module board to controller connections • Verify that the PLC processor enables Remote I/O communications
	Blinking	No communications established. PLC processor is in program mode.
	Flashing	When power is first applied (momentarily)
Fault	No Fill	Normal operating state
	Solid Fill	Fault detected. Cycle power to the terminal. If the fault still exists, the InView communication module board requires servicing.
	Blinking	Hardware is functioning but no application is loaded or the current application is corrupt.

(1) Comm LED stays on until powerup self-test are complete

DeviceNet, ControlNet, EtherNet/IP

LED	This Pattern:	Indicates:
Comm	Solid Fill	Normal operating state (no communication faults)
	No Fill	Hardware failed
	Flashing	When power is first applied (momentarily)
	Blinking	No communications established
Fault	Solid Fill	Hardware failed
	No Fill	Normal operating state (no communication faults)
	Blinking	Hardware is functioning but no application is loaded or the current application is corrupt

InView Communication Module Specifications

Communication Specifications

Attribute	Value
Operating Temperature (Inside Panel)	0…55 °C (32…131 °F)
Storage Temperature	-25…70 °C (-13…158 °F)
Humidity (Operating and Non-Condensing)	5 … 95%
Shock	15 g Maximum Pulse Operating 30 g Maximum Pulse Non-Operating
Vibration - Channel Mount	10 Hz < f < 57 Hz 0.012 in. p-p displacement 57 Hz < f 500 Hz 1.0g
Vibration - DIN Rail Mount	10 Hz < f < 57 Hz 0.012 in. p-p displacement 57 Hz < f 500 Hz 2.0g

Power Supply Requirements

The 2706-P_M and 2706-P_K modules are powered by the InView 2706-P4*x*, 2706-P7*x* and 2706-P9*x* displays.

The 2706-P_P module requires an external 24V ±25 percent, 1 A DC power supply for use with the InView 2706-P22R panel mount display.

Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At http://support.rockwellautomation.com, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnect Support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit http://support.rockwellautomation.com.

Installation Assistance

If you experience a problem with a hardware module within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your module up and running.

United States	1.440.646.3223 Monday – Friday, 8am – 5pm EST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

New Product Satisfaction Return

Rockwell tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning, it may need to be returned.

United States	Contact your distributor. You must provide a Customer Support case number (see phone number above to obtain one) to your distributor in order to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for return procedure.

Rockwell Automation produces these controllers: PLC, SLC, MicroLogix, and ControlLogix

www.rockwellautomation.com

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