# Start Up Guide for UD77 DeviceNet Systems

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**SLC 500** 

# Unidrive UD77 DeviceNet Start-Up Guide

# **Overview**

This Start-Up Guide is intended to aid installation of one or more Unidrives, each fitted with the UD77 DeviceNet<sup>™</sup> option and an Allen Bradley Modular SLC 500 PLC<sup>™</sup>.

This guide presents an example start up of a SLC 5/04 PLC used with a **1747-SDN** DeviceNet Scanner and two or more Unidrives, each Unidrive fitted with the UD77 DeviceNet option. However, the same principles should apply when using the SLC 5/02, or SLC 5/03, or SLC 5/05 (other types of SLC) in conjunction with a **1747-SDN** DeviceNet Scanner. This guide could also provide some limited guidance for installing the MD25 DeviceNet interface for the Mentor 2 with a SLC 500 PLC.

## WARNING

This guide does not address power wiring and associated safety practices. Start-up of this nature can be <u>hazardous</u> and should <u>only</u> be performed by <u>qualified</u> technicians familiar with motors and drives of this sort. This guide is meant to supplement the Unidrive Installation Manual and the User's Guide which must be consulted (specifically section 2-1 in the User Guide) prior to this guide being used. Power wiring, keypad operation and related instructions are to be found in these manuals.

A experienced start-up engineer will be able to apply previous experience when a line is being commissioned that uses a DeviceNet fieldbus to link the PLC to the Unidrives. Prior to the application of power, the engineer will need to determine if that section of the system is both safe and ready for power to resume. The engineer will also need to check, correct and validate the entire "process pyramid" in manageable pieces and will need to proceed in a thorough and systematic manner until everything is functioning as designed and as required.

The experienced startup engineer will learn the techniques used to establish and validate useful communication and control links from the PLC(s) to the Unidrives via DeviceNet. The engineer will also learn how product configuration information from Control Techniques, with software-based configuration tools from other vendors, is integrated to establish the required communication and control links on a system that uses a DeviceNet fieldbus.

Every complex control scheme can be broken down and evaluated as a series of combinations of a simple control scheme. The simple control scheme presented in this guide consists of a single executive controller and two controlled Motor / Drive / Machine-process Sections, with some form of communication and control link between the controller and the controlled. On a Control Techniques supplied DeviceNet system, the executive controller is usually a separate PLC or Process computer with some form of Human Interface, and the controlled Drive is a

Unidrive (or Mentor 2 or Quantum 3) fitted with a DeviceNet Interface. The link is a DeviceNet fieldbus.

In the context of modern "smart" and "programmable" Motor Drives, such as the Unidrive, the default configuration provided serves as the standard product design. The use of the default DeviceNet configuration files is illustrated in this guide, as is the configuration and establishment of the default cyclic links between the **1747-SDN** Scanner and the Unidrives.

DeviceNet Manager (and RSLogix500 as well) is organized around the concept of a "project". In this sense, a "project" functions as a "container" for the various files and data structures created (or needed) by the program during the specification and configuration of one or more related DeviceNet networks.

This start up guide is organized as a series of blocks that take the reader through the required concepts and tasks for installation of the hardware and software and for creation of a DeviceNet project. References to other materials for guidance about tasks not covered here are provided at the end of the document.

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### **Required Materials**

#### **DeviceNet Network Software Configuration Tools Requirements**

DeviceNet Manager for Windows (P/N 1787-MGR available from Allen Bradley)

- Version 3.01 is the minimum usable
- Ver 3.04 is current product
- Ver 3.02 is used in this guide
- RSNetWorx for DeviceNet (is also usable, but not described in this guide)

Generic Electronic Data Sheets, bitmap and icon files for the Unidrive

• \*.EDS, \*.BMP and \*.ICO files for Unidrive and Mentor 2 are available for free from the Control Techniques SSPD support site and any Control Techniques Drive Center. These are usually distributed as a single compressed file, "DEVNET.ZIP".

#### SLC 500 PLC Programming Tools Requirements

SLC 500 PLC Program Development Software

- RSLogix500 (P/N 9324-RL0300ENx is English/Standard edition available from Allen Bradley)
- Version 3.01.09 is illustrated, Ver 3.0x.0x is current product

RSLinx Lite (is included on RSLogix installation CDROM)

• Version 2.0.18 minimum for use with DeviceNet

#### PC Hardware Requirements

Recommended PC minimums reflect the guide's use of a single serial port for both configuring the fieldbus and programming the SLC 500.

PC - Pentium Class PC @100 MHz or better with:

- 32 MB available RAM with Win95 or Win98 for OS
- 64 MB available RAM with NT4.0 for OS
- 120 MB Total Hard Disk Space free (20 MB for Applications, and 100 MB for OS swap file use)
- CDROM quad-speed or better (for loading of RSLogix500 and RSLinx Lite)
- 3 <sup>1</sup>/<sub>2</sub> " 1.44 MB floppy drive (needed for RSLogix500 and loading DeviceNet Manager)
- 1 available serial port, 16550 compatible UART
- Mouse and suitable port (PS-2 style requires PS-2 port, serial mouse requires a second serial port)

Note that NT4.0 requires "Local Administrator" or "Power User" privileges to install software on the machine. Use the latest applicable OS Service Release(s) available.

Also note that, while this guide has not been tested with Windows 2000, the requirements should be similar to the NT 4.0 requirements, and it is assumed that the tasks described in this guide can also be accomplished under Windows 2000 Professional.

#### Functional DeviceNet Network Hardware Requirements

Note: This guide describes a small DeviceNet network, or something larger that has been reduced to two Unidrives and two UD77s.

Modular SLC 500 PLC, SLC 5/02 processor or better.

- SLC 5/04 is recommended, unless additional Ethernet connectivity required.
- SLC 5/05 is recommended if additional Ethernet connectivity is needed.

#### SLC 500 modular chassis

Needed to house the power supply, processor, scanner and I/O module(s). A 1746-A4 4-slot-rack is described in this guide.

SLC 500 power supply

A 1746-P1 rated at 2.0A/0.46A (at 5 V/24V) is described in this guide.

At least one Discrete Input Module.

• A "**1746-IO12DC**" combination input/output module **is recommended** for a small DeviceNet network and **is described**, **but not used**, in this guide.

1747-SDN DeviceNet scanner module

PC-to-DeviceNet interface

This is required for configuring the scanner, and useful for commissioning the Unidrives.

- M/N 1770-KFD RS-232 interface is described in this guide. This interface can take its power directly from the DeviceNet 24.0 VDC supply, so an optional 9.0 VDC supply is not required unless isolating point-to-point taps are used with the interface. Note that the interface cable that comes with this scanner can also be used as a 1747-CP3 cable into channel 0 of the processor to permit communication between the processor and the PC.
- M/N 1784-PCD PCMCIA interface is usable, but not described further.
- M/N 1784-PCID PCI interface is also usable, but not described further.

Unidrive size 1 is recommended for evaluation, due to size. This includes Model Number(s) UNI1401, UNI1402, UNI1403, UNI1404 or UNI1405. The Unidrive comes configured for open loop operation as default, and this mode is assumed in this guide.

UD77 (UD70 with DeviceNet Interface) for each Unidrive.

The UD77TB (P/N 9290-56) is a small adapter PCB that provides a standard DeviceNet open-style terminal connector and one is supplied with each UD77. A UD77 that is "up to revision" contains the following subassemblies and firmware:

- UD70 System file DNET.SYS (V2.6.0 is earliest, V2.7.6 or later is recommended)
- UD70 Hardware UD70 issue 3
- UD77 Firmware (V2.00)
- UD77 Hardware UD77 Issue 2

DeviceNet Physical Media (the wire, power supply and terminating resistors)

DeviceNet cable with five (5) conductors

- 1 pair for 24V DC
- 1 pair for CAN data transmission
- 1 shield
- Conductors (color coded to Open DeviceNet Network Vendors Association standard)

Thin Cable and/or Thick Cable.

- Thin Cable P/N 1485C-P1-Cxxx (where xxx is length in meters) is rated at 3.0 amps DC. Thin Cable can be used for the physical media for both Trunk Line and any Drop Line on a small DeviceNet network.
- Thick Cable P/N 1485-A1-Axxx (where xxx is length in meters) is rated at 4.0 amps DC (NEC in North America) or 8.0 amps elsewhere in the world. Thick Cable is usually used for a DeviceNet Trunk Line, and details of its use are not described further in this guide.

Note: This guide describes an open-style daisy chain DeviceNet network with a single Trunk Line utilizing Thin Cable.

#### **Terminating Resistor**

DeviceNet cable uses two open-style terminating resistors. These are included with each 1747-SDN scanner. These have a value of 121 ohms (+/- 1%) and are rated at  $\frac{1}{4}$  watt.

24 Volt DC regulated power supply

Rated from 1.0 to 8.0 amps, depending on the media used. For verification of a small DeviceNet network such as described in this guide, the unregulated 24 Volt DC supply found on the SLC 500 is adequate, and the use of Thin Cable for the media is recommended. A regulated AC to DC +24 volt power supply rated at 1.0 amp (25 watts) minimum to a maximum of 3.0 amps (75 watts) is required for a practical DeviceNet network. Switching Regulators in a DIN-rail mounting format are among the latest designs for these applications and are recommended.



### Hardware Installation



#### Step 1. Assemble Modules and SLC Rack into a Complete PLC

Complete SLC 500 PLC 4 slot Modular Rack, Power Supply, 5/04 Processor, Scanner and Combination I/O. Note that discrete I/O module is not yet plugged in, and is not used in this guide.

Refer to the following Allen Bradley installation instructions for additional and more detailed information (these Allen Bradley publications are included with the respective module).

- SLC 500 Modular Chassis
- SLC 500 Power Supplies
- SLC 5/03, 5/04, and 5/05 Modular Processors
- DeviceNet Scanner Module
- DeviceNet RS-232 Interface Module
- Discrete I/O Modules
- 1. Be sure the incoming AC supply is turned off.
- 2. Mount and properly ground your SLC chassis. Use a dedicated ground strap.
- 3. Align and slide the SLC power supply until flush with the chassis, then fasten the supply to the chassis with the screws to the left side of the supply. Set the input voltage jumper to match the input voltage, then connect the chassis ground and incoming AC power. Finally remove the protective label.
- 4. Insure the back-up battery is properly connected to the processor, then insert the SLC 5/0x processor into the leftmost slot (slot 0) of the SLC Rack.

- 5. Insert the 1747-SDN scanner into the rack. This guide recommends using slot 1, which is right next to the SLC 5/0x processor slot.
- 6. Insert the Discrete I/O module into the next slot. Do not yet seat the module into the backplane connector. The initial RSLogix500 project file does not declare an I/O module, and downloading a project file with undeclared modules fitted to a rack produces a major fault.

#### Step 2. Assemble the DeviceNet Network

- 1. Assemble the UD77 DeviceNet Module(s) and fit the assembly into each respective Unidrive.
  - A. Fit one UD77TB DeviceNet open-style terminal connector to each UD77 Coprocessor.
  - B. Insert the assembled Co-processor into the large option bay in each Unidrive.
- 2. Continue to insure incoming power is turned off, and mount and properly earth ground each Unidrive as appropriate.
- 3. Continue to insure incoming power is turned off, and connect the input voltage and control connections to the Unidrive. Then connect the motor leads as described in the Unidrive Installation and User's Guide.
  - A. For a development and evaluation DeviceNet network that is not fitted with any AC Motors, or is only operating the AC Motors unloaded, the Unidrive(s) can be adequately powered via a fused, single phase 415 to 460 VAC supply. Operation without motors is normally done only in open loop mode on the Unidrive.
  - B. Practical networks on real control systems driving real motor loads have the Unidrive(s) powered via fused 460 VAC 3 phase supplies following guidelines set out by the NEC (or equivalent jurisdiction) regarding the details concerning wiring conductor size, insulation type, and over-current protection requirements. This guide does not provide further guidance on this subject.
  - C. A development and evaluation DeviceNet network requires a jumper or a single pole single throw switch controlling continuity from terminal 31 to terminal 30 (Drive enable) on each Unidrive as the minimum control connection required for useful operation. This means one jumper or switch for each Unidrive.
  - D. Practical networks on real control systems driving real motor loads have Emergency Stop / Reset logic in hardwired relay ladders that provide a contact to each Unidrive to control continuity from terminal 31 to terminal 30. This means one normally open contact for each Unidrive, closed in a no-fault (reset) condition.
- 4. Mount the 1770-KFD DeviceNet interface.
  - A. For most network configuration(s) the 1770-KFD Interface can take its power from the DeviceNet network 24 Volt supply.
  - B. A separate 9.0 Volt DC supply just for the Interface is only needed if the DeviceNet Interface is connected to the network via isolating taps and network +24 Volts DC is not available to the 1770-KFD interface. Continue to insure power is off, and connect the DeviceNet devices together using the appropriate DeviceNet cabling.

- 5. Connect the DeviceNet Nodes together using suitable DeviceNet Physical Media.
  - A. For a development and evaluation DeviceNet network, Thin Cable (P/N 1485-P1-C) is suitable for use on the open-style daisy-chain, the single main Trunk Line that makes up the DeviceNet network.
  - B. Larger, practical networks on "real" control systems with many DeviceNet "devices" use Thick Cable (P/N 1485-A1-A) for the Main Trunk and Thin Cable (P/N 1485-P1-C) on the Drop Lines. Such networks usually also include additional DeviceNet parts such as "Taps", "DeviceNet Connectors", and "Terminating Plugs" to facilitate connection of network devices.
  - C. The 1747-SDN Scanner and the 1770-KFD DeviceNet connectors are color coded to indicate conductor location.
  - D. The DeviceNet open-connector terminal strip on the UD77TB is not color-coded. See illustrations for guidance.
- 6. Mount and connect one or more suitable +24 VDC Power Supply or Supplies.
  - A. For a development and evaluation DeviceNet network, the 24 Volt DC available from the SLC 500 modular power supply can also be used to provide the DeviceNet +24 Volt DC supply. As this supply is not regulated, and the DeviceNet specification states that this voltage must not be above 25 Volts DC, it is prudent to measure and insure that the voltage is not above 25 Volts DC, once power is applied to the network. A one-to-three amp switching +24 Volt DC supply (in a DIN rail format) is otherwise recommended.
  - B. On larger, practical networks on "real" control systems with many DeviceNet "devices", the use of one or more regulated +24 Volt supplies and "Power Taps" are an important part of the design and specification of a DeviceNet network. Documentation and software tools to assist in this portion of specifying a "real" DeviceNet system can be found in manuals listed in the Appendix.

RS-232 to PC

7. Terminate each end or the Iviain Trunk Line with a 121-ohm 0.25 Watt resistor.



See the following illustrations for guidance.

Photo of 1747-KFD serial RS-232 DeviceNet interface



Photo of UD77 including DeviceNet UD77TB open terminal adapter (P/N 9290-0056)



Photo of 121-ohm 0.25 Watt Termination Resistor fitted to 1747-SDN Scanner at the beginning of the Trunk Line



Photo of 121-ohm 0.25 Watt Termination Resistor fitted to UD77 at the end of the Trunk Line (furthest from the Scanner)



Connection Diagram for Evaluation DeviceNet Network Conductor color details shown

#### Step 3. Using a "EMPTY.RSS" project

When a SLC 500 Rack is first assembled, with a new processor that just had the Battery Backup connected, the processor powers up to a checksum fault.

One of the ways to clear this checksum fault condition is to configure communication from your PC with RSLinx and download an "empty" project into the Processor with RSLogix500. Project "EMPTY.RSS" is a RSLogix500 project that assumes only the Processor is plugged into the SLC 500 Rack (Discrete I/O and **1747-SDN** modules unplugged with power **OFF**).

For most Laptops and Desktop PC(s), a null-modem style cable, such as an serial "Interlink" cable or a serial "Laplink" cable is required for establishing communication from the PC to the processor. The cable that comes with the **1770-KFD** DeviceNet Serial interface can also be used. A simple 9-pin "D-shell" straight-through male-to-female RS-232 extension cable and a gender-changer will not work. See the Appendix for the connection(s) to make an adapter for use with this type of extension cable.

Configuring the RSLinx Driver "RS-232 DF1 Devices" to communicate from the configuration PC into the SLC "DF-1 CH0" port (the default), loading a project from disk into RSLogix500, and downloading that project into the SLC processor are covered in detail in the section "Using RSLogix500 and Linx Lite" of this Start Up Guide.

Note: If the processor does not require re-initialization, (for example, the processor had already had a previous program loaded into its memory) project "FIRST.RSS can be ignored.

### **DeviceNet Manager Installation**

In this guide, COMM1 will be used for both configuring the DeviceNet Scanner and network with DeviceNet Manager, then later to program the SLC 500 with RSLogix500. This will allow either a laptop or a desktop PC use. Only one of the programs can use the port at a time, however. If a PC is available with 2 ports, It is recommended that **COMM1** be dedicated for use by DeviceNet Manager (and the **1770-KFD** interface) and **COMM2** be dedicated for use by the "DF1 protocol" and RSLogix500.

This guide shows DeviceNet Manager installation and \*.EDS file downloads from a 3  $\frac{1}{2}$  inch floppy, drive "A". If installing from CD-ROM media, make changes to drive designations as necessary.

This guide recommends and illustrates that DeviceNet Manager installation to the Configuration PC be immediately followed by the installation of all Control Techniques "\*.EDS" files that are included with "dvnet.zip".

DeviceNet Manager will be installed and configured to properly recognize the capabilities of Control Techniques products.

#### Step 1. DeviceNet Manager Installation to Hard Drive

Insert DeviceNet Manager "Disk 1" into floppy drive "**A**:" and Run A:\Setup.exe. Follow the on-screen prompts. Default installation paths are recommended.



From the Start menu select Run and type "A:\Setup.exe", "click OK



Basic application installation is complete. Click "Run Application".



DeviceNet Manager launches and displays this "opening splash screen".

🚰 DeviceNet Manager	
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	Comm.
Product Vendor	
Type Revision	Catalog
For Help, press F1	Ready

Main frame window for the DeviceNet Manager Version 3.002 awaits user input, ready for installation of Control Techniques "\***.EDS**" files.

# Step 2. Installation of Control Techniques "EDS" files to DeviceNet Manager

The following steps demonstrate installation of Unidrive and Mentor 2 files.

Insert the floppy disk with the files "unzipped" from the Control Techniques supplied file "devnet.zip" into floppy drive "**A:**".

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14 object(s) 219KB (Disk free Exploring -	C:\Mu	Documents\DeviceNet Project Scr	eens		

Use Windows Explorer® to check and confirm that the necessary files are present.

From the DeviceNet Manager menu, click on <u>Utilities</u>, and click on "Install EDS Files".

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File View Who Utilities Help			
Install EDS Files			
File <u>N</u> ame: *.eds	Directories: c:\dnetmgr	OK	
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A "locate file style" window with a "\*.eds" filter appears. From the "Drives:" list box, select "a".

DeviceNet Manager Ele View Who Utilities Help		<u>aq</u> .	
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6 of 9 Selected		Select All	
List Files of <u>Type:</u> EDS Files (*.eds)	Drives:	Unselect All	
Filename: G3_SERV	D.EDS		
Vendor: Control Te Catalog Num:	chniques Drives Ltd		
Product Name: Generic U	nidrive Servo		
Major Revision: 3			
Product	Vendor		5
Туре	Revision	n Catalog ″	
For Help, press F1		Ready	

Select and install the generic Unidrive "EDS" and bitmap files first. Click on the g2\*.eds and g3\*.eds files. The screen should now look like the one above. Click OK. After the file copy, a confirmation box will appear, click OK.

PeviceNet Manager LOX File View Who Utilities Help Part All Control Co
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No Device Selected
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For Help, press F1 Ready

A "locate file" style dialog box appears with a "\*.bmp" filter. From the "Drives" list box, select "a".

Manager Ele Yiew Who Utilities Help ÈÈÈÈ XEER ₩ X X X X Z E E C C Y N?	
Open     X       File Name:     Directories:       unidrive.bmp     a:\       mentor2.bmp     a:\       unidrive.bmp     A:\       Metwork     Metwork	
List Files (*.bmp)	Com
Product         Vendor           Type         Revision         Catalog	, Comm.
For Help, press F1 Ready	

This view of the floppy files will appear; select "unidrive.bmp". Click OK.

The next steps download the Mentor2. From the DeviceNet Manager menu, select <u>U</u>tilities and click on "<u>I</u>nstall EDS Files".

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g3_servo.eds	_		Network		
g501_m4q.eds					
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Filename:	G502_M4Q.EDS				
Vendor:	Control Techniques Drives Ltd				
Catalog Num:					
Product Name:	Generic Mentor II 4Q				
Major Revision:	5				
		1			Comm.
Product		Vendor			2
Туре		Revision	Catalog		"
For Help, press F1			Ready		

Navigate to "a:" and select the g4\*.eds and g5\*.eds files as shown. Click OK. A confirmation box will appear, click OK.



Navigate to "a:". This view of the floppy files is shown; select "mentor2.bmp". Click OK. Installation of the Control Techniques "**EDS**" files into DeviceNet Manager is complete. The main frame window for DeviceNet Manager is ready for the next step.

#### Step 3. Creation of the "FIRST" DeviceNet Project with DeviceNet Manager

The project "FIRST" is a starting point, which defines "DEMO", a simple DeviceNet network consisting of a single **SLC5/04** processor, a **1747-SDN** scanner, a **1770-KFD** serial interface, and two Unidrive(s) each fitted with a **UD77** DeviceNet Interface with co-processor.

The setup and validation strategy is to create the project, get the DeviceNet Scanner and DeviceNet Interface communicating at the default data rate without any of the Unidrive(s) present on the network, and then power up, configure, and add the Unidrive(s) to a working network.

Note that this guide shows use of a Scanner MAD-ID of "63" (default), and a network data rate of 125Kbits/sec (default). This guide describes configuring the Unidrives for a MAC-ID of "1" and "2". Configuration at different MAC-ID(s) and different network data rats is covered in the Control Techniques application note "Allen Bradley SLC500 PLC with DeviceNet".

Before starting, close DeviceNet Manager and then re-start DeviceNet Manager. This forces DeviceNet Manager to read its \*.ini(s) and properly initialize details such as the program data paths that will be used.

From the DeviceNet Manager menu, select File and click on "New Project...".

PerviceNet Manager     Image: I
New Project     X       Project Name:     OK       FIRST     Help       Project Description:     Initial DeviceNet network configuration
C:\DNETMGR\FIRST.PC3 C:\DNETMGR\FIRST.PC3
No Device Selected     Comm.       Product     Vendor       Type     Revision

In the "New Project" dialog window, enter "FIRST" in the "Project <u>Name</u>" field and "Project <u>Description</u>" as shown. The default installation path is recommended. Click OK.

DeviceNet Manager
Add Network to Project
Project Name: FIRST OK
Network Name: Cancel
Network Description:
Demo/Evaluation Network SLC 5/04, 1747-SDN,
Network Data Rate:
125 kbps
Default Device Configuration Path For This Network
C:\DNETMGR\FIRST\DEMO
Edit Default Path
No Device Selected Comm.
Product Vendor
Type Revision Catalog
For Help, press F1

At the "Add Network to project" dialog box, complete the fields as shown. Click OK.

Image: - [FIRST.PC3]         Image: - [FIRST.PC3]	- D × - P ×
Project Name : FIRST	
Network Network Data Rate Network Description	
DEMD 125 k Demo/E valuation Network SLC 5/04, 1747-SDN, 1770-KFD, and two Unidrives w/U D77	
Device List	
Generic	
🔁 AC Drive	
Denotoelectric Sensor	
🔁 General Purpose Discrete II	
🔁 Software	
Communication Adapter	
E Barcode Scanner	
E SCANport Device	
PanelView 900 DeviceNet	
Dodge EZLINK	
No Device Selected	Comm.
	, P
Type         Revision         Catalog	
For Help, press F1 Ready	

This empty network graphic for network "DEMO" in project "FIRST" appears when the project and network are defined.

#### Step 4. Configuring Initial "Interface-to-Scanner" Communication

The next step is to get DeviceNet Manager communicating via the **1770-SDN** interface to the **1746-KFD** Scanner without any other DeviceNet "devices" on the fieldbus.

Apply control power only to the SLC 500 Rack, the DeviceNet 24-Volt Power Supply and the **1770-KFD** interface. Be sure that the Unidrives remain powered down for the next step.

From the DeviceNet Manager menu, click on <u>U</u>tilities and select "<u>S</u>etup Online Connection".

Project Manager - [FIRST.PC3]         File Edit Project Who Utilities View Window Help         Project Name :       FIRST         Network       Network Data Rate       Network Description         DEMO       125 k       Demo/E valuation Network SLC 5/04, 1747-SDN, 1770-KFD, and two Unidrives w/U D77	- D × - B ×
Device List     Generic     AC Drive     Ac Drive     Photoelectric Sensor     General Purpose Discr     General Purpose Discr     Software     Domunication Adapte     DeviceNet Drivers     Software     Dorive     ScANport Device     PanetView 900     Dodge EZLINK	
No Device Selected     Comm.       Product     Vendor       Type     Revision       Configuring Interface	

A driver selection splash screen appears, and then this selection dialog box appears. The default "1770-KFD RS-232 Interface Vx.xx" is recommended, Click  $\underline{O}$ K.

Project       View       Window       Help         Image: State St	
Net     Allen-Bradley 1770-KFD Driver for WinDNet16     770-KFD, and two Unidives w/U       Driver Revision: 1.60     Copyright © 1996       Allen-Bradley Company, Incorporated     Win-1       Allen-Bradley Company, Incorporated     Win-1	
Image: Constraint of the second se	
Help     OK     Cancel       Dodge EZLINK     .	
No Device Selected       Product       Type       Revision       Catalog	

This dialog box appears. The defaults are recommended, click OK.

Project Name         FIRST           Network         Network D           DEMO         125 k	RST.PC3) Utilities View Window Help IP I I I I I I I I I I I I I I I I I I	()     ()	עם - מאוד איז
Device List     Generic     Ac Drive     Ac Drive     Photoelectric Sensor     General Purpose Discrete l     Software     Communication Adapter     Barcode Scanner     Dc Drive     SCANport Device     PanelView 900     Dodge EZLINK	DeviceNet		
No Device Selected Product Type For Help, press F1	Ve	ndor Catalog Ready	Mac 62 - 125K

If all is ok, the Comm. will show communication data rate and Mac 62 present. Troubleshooting should begin if unable to get to this point successfully.

From the DeviceNet Manager menu, click on "Who..." and select "Mini Who...".

🚰 DeviceNet Manager - [F	[FIRST.PC3]	- 🗆 ×
😽 <u>F</u> ile <u>E</u> dit <u>P</u> roject Wh <u>o</u>	<u>o</u> <u>U</u> tilities ⊻iew <u>W</u> indow <u>H</u> elp	_ 8 ×
19 <b></b> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	. <i>11/2 x # ? #?</i> = = = = q q ? <b>?</b> ?	
Project Name : FIRST		
Network Network D	Data Rate Network Description	
DEMO 125 k	Demo/Evaluation Network SLC 5/04, 1747-SDN, 1770-KFD, and two Unidrives w/U	
	017	
Device List	Mini Who	
🗭 Generic	A stice Mades as Maturals	
🗭 AC Drive	Active Nodes on Network	
Department Photoelectric Sensor		
🗭 General Purpose Discrete I/		
🕂 Software		
Communication Adapter		
Barcode Scanner	☐ 5 ☐ 13 ☐ 21 ☐ 29 <b>☐</b> 37 ☐ 45 ☐ 53 ☐ 61	
DC Drive		
E SCANport Device		
PanelView 900     ■	Devices Found: 1	
Dodge EZLINK	Devices Found.	
	<u>E</u> escan <u>Close</u> <u>Stop</u>	
	L	
Roduct	Vendor	Lomm
		0/0
Туре	Revision Catalog	Mac 62 - 125K
	27 % complete Scanning the network	KFD16.DLL

The following dialog box"Mini Who" will display and a progress bar will run in the status bar as the MAC-ID addresses are checked for active DeviceNet devices.

DeviceNet Manager - [F     File Edit Project Who     EviceNet Who     File State     Project Name : FIRST     Network Network D     DEMD     125 k	IBST.PC3] Utilities View Window Help Utilities V	
Device List     Generic     Generic     AC Drive     Photoelectric Sensor     General Purpose Discrete U     Software     Communication Adapter     Barcode Scanner     D Drive     SCANport Device     PanelView 900     Dodge EZLINK	Mini Who       X         Active Nodes on Network       0       8       16       24       32       40       48       56         1       9       17       25       33       41       49       57         2       10       18       26       34       42       50       58         3       11       19       27       35       43       51       59         4       12       20       28       36       44       52       60         5       13       21       29       37       45       53       61         6       14       22       30       38       44       55       63         Devices Found:       2         Bescan       Diop	
No Device Selected Product Type For Help, press F1	Vendor Revision Catalog Mini Who completed	Comm.

Scanning for active MAC-ID(s) is complete. MAC-ID "63" should be the Scanner and MAC-ID "62" should be the 1770-KFD Interface. Click <u>C</u>lose.

The main window of DeviceNet Manager now has a graphical display of active network devices and is ready for the next step.

From the DeviceNet Manager menu, click on "Utilities..." and select "Start Online Build".

🚰 DeviceNet Manager - [Fl	RST.PC3]	
🚰 <u>F</u> ile <u>E</u> dit <u>P</u> roject Who	<u>U</u> tilities <u>V</u> iew <u>W</u> indow <u>H</u> elp	_ 8 ×
	<u> 77 × 7 22 = = = 2 2 ? ? ? </u>	
Project Name : FIRST		
Network Network D	ata Rate Network Description	
DEMO 125 k	Demo/Evaluation Network SLC 5/04, 1747-SDN, 1770-KFD, and two Unidrives w/U	
	077	
- Device List II		
		1 -
C Drive		
Photoelectric Sensor	Question	
General Purpose Discrete II		
G	Would you like to upload the scapper's scaplist now?	
Communication Adapter		-
Barcode Scanner		
DC Drive		
SCANport Device		
PanelView 900		
Dodge EZLINK		
	* ***	
		<b>_</b>
No Device Selected		Comm.
Product	vendor	₽-₽
Туре	Revision Catalog	N 02 125K
· · ·		Mac 62 • 120K
For Help, press F1	2 devices found	KFD16.DLL

When scanning for active MAC-ID(s) is done, a dialog box is displayed. Click Yes.



When upload is complete, the window will display a current graphical representation of the network.

#### Step 5. Unidrive UD77 Network configuration

The next step is to power up each Unidrive, one at a time, and set the Menu 20 parameters to the values that will set the MAC-ID and data rates to the values expected for this project.

To start and stop the Unidrive(s), the SLC program must write to the proper control and mask bits in the Unidrive "control word". Details describing the use of the Unidrive's "control word" and "status word" is to be found in the "User Guide DeviceNet UD77/MD25 Option Cards for the Unidrive and Mentor II".

Power up the Unidrive with the terminator resistor and set the following Menu 20 parameters to the proper values:

Parameter	Value	DeviceNet comment	Unidrive comment
#20.01	1.21	Out Word 2	Speed Reference
#20.02	4.08	Out Word 3	Torque Reference
#20.03	2.01	In Word 2	Post ramp Speed Ref.
#20.04	4.02	In Word 3	Active Current
#20.05	1	MAC ID = $1$	Sets MAC ID
#20.06	90.11	Out Word 1	Control word
#20.07	90.11	In Word 1	Status word
#20.08	0	Data rate 125 Kbits/sec	0=125, 1=250, 2=500

#### Unidrive #1

Set Parameter 17.19 to "1" to save the Menu 20 values, and perform a "1070 style" reset to make any changes active.

Power up the other Unidrive (the one without the terminator resistor) and set the following Menu 20 parameters to the proper values:

Uniunve #2			
Parameter	Value	DeviceNet comment	Unidrive comment
#20.01	1.21	Out Word 2	Speed Reference
#20.02	4.08	Out Word 3	Torque Reference
#20.03	2.01	In Word 2	Post ramp Speed Ref.
#20.04	4.02	In Word 3	Active Current
#20.05	2	MAC ID = $1$	Sets MAC ID
#20.06	90.11	Out Word 1	Control word
#20.07	90.11	In Word 1	Status word
#20.08	0	Data rate 125 Kbits/sec	0=125, 1=250, 2=500

#### Unidrive #2

Set Parameter 17.19 to "1" to save the Menu 20 values, and perform a "1070 style" reset to make any changes active.

Return to DeviceNet Manager to complete the configuration of a non-trivial and functional DeviceNet network.

From the DeviceNet Manager menu, again click on "<u>U</u>tilities..." and select "Start Online Build".

Project Name:     FIRST       Network     Network Da       DEMO     125 k	IST.PC3] Julities View Window Help B D R R R R R R R R R R R R R R R R R R	2 2 ₩	×
Device List     Generic     AC Drive     AC Drive     Ac Drive     Photoelectric Sensor     General Purpose Discrete li     Software     Communication Adapter     Barcode Scanner     Dc Drive     SCANport Device     PanelView 900     Dodge EZLINK	Node_1 Question Would you like to upload to DeviceNet Yes	the scanner's scanlist now?	
No Device Selected Product Type EartHelm press E1	Vendor Revision	Catalog devices found	Comm. @@ Mac 62 - 125K

When MAC-ID scanning is done, a dialog box is displayed. Note that the network graphical representation displays the Unidrive bitmap for the nodes found. Click <u>Y</u>es.



Upload is done and the network is displayed. No UD77 / Unidrive is assigned to the Scanner yet.

#### Step 6. Defining and Mapping Cyclic Links

Now that all devices connected to the network are known, the next step is to assign each slave device to a master device. For this project, the UD77(s) are assigned as Slaves to the Scanner. Dragging the icon for the node to the scanner performs the assignment. The act of assigning a Slave to a Master declares an "empty" cyclic link that is later mapped from the 1747-SDN Scanner to the particular parameters in the Unidrive.

Three cyclic links into and three cyclic links out from the 1747-SDN Scanner to the two UD77 / Unidrive(s) have been created and mapped using the default mapping defined in the Control Techniques generic \*.EDS files for the Unidrive.

Cyclic links from each Unidrive / UD77 have been "mapped" into the SLC address space via the "I.slot.x" direct input and "O.slot.x" direct output files, not the scanner "M0" and "M1" files. The scanner's "M0" and "M1" files can handle larger blocks of I/O, but require multiple PLC scans to deliver all information.

The simple default cyclic links that are described in this guide can be extended from two Unidrive / UD77 3 word sections to a maximum of ten 3 word sections using the I/O data tables: SLC Input image table is limited to 31 words in plus 1 word status; and

SLC Output image table is limited to 31 words out plus 1 word command.

The simple default cyclic links that are described in this guide can be extended from two Unidrive / UD77 3 word sections to a maximum of fifty 3 word sections using the **M1** and **M0** files using moderately advanced PLC Programming Techniques.

**M1** file is limited to transferring 150 words of input DeviceNet Data **M0** file is limited to transferring 150 words of output DeviceNet Data

Every scan consists of both logic (packed control and status bits) and signal words (reference and feedback). Using the I/O data tables as described in this guide, one word of logic and two words of signal are transferred both into and out from the 1747-SDN Scanner and each Unidrive / UD77 every scan.

If the bit parameters defined in the Unidrive's "control word" and "status word" are a poor match to the PLC program requirements, the "control word" and "status word" used by the cyclic links can be redefined. The values transferred into and out from In WORD1 and OUT WORD1 are controlled by the Unidrive Parameters 20.06 and 20.07 and point to/from virtual parameter #90.11, by default. This can only be done with the Unidrive.

Note that this also requires a custom DPL program to pack and un-pack the needed bits into a "user control" or "user status" word, as well as manage the move to and from the "user control/status words" to and from the Unidrive's parameters.

The number of cyclic links exchanged between the Unidrive and the **1747-SDN** Scanner is limited to three 16 bit words into and three 16 bit words out from the UD77. It is fixed by the firmware in the device.

The "Advanced EDS Compiler" is used to generate custom "\*.eds" files that must be used when a generic "\*.eds" file does not "map" the required drive parameter. A good example, of when one would need a custom "\*eds" file, is to access a menu 16 parameter from a Unidrive.

To send needed drive parameters if a cyclic link can't be used for the data exchange, because the I/O data table is full, use DeviceNet Explicit Data transfers via the **1747**-SDN Scanner's M1 and M0 files to and from the Unidrives. Useful information regarding this technique is to be found in Rockwell publications "DeviceNet Scanner Configuration Manual", as well as the "DeviceNet Scanner Installation Instructions" that comes with the **1747-SDN** Scanner. The Control Techniques application note "DeviceNet Explicit Communication Function Block for Allen Bradley SLC500 PLC" can also be of help.

Project Name FIRST	IRST.PC3)
Network Network DEMO 125 k	Data Rate Network Description Demo/Evaluation Network SLC 5/04, 1747-SDN, 1770-KFD, and two Unidrives w/U D77
Device List     Generic     Ac Drive     Photoelectric Sensor     General Purpose Discrete l     Software     Communication Adapter     Barcode Scanner     Dc Drive     SCANport Device     PanelView 900     Dodge EZLINK	Node_1 [1] Node_62 [62] DeviceNet
No Device Selected Product Type	Vendor Comm.
For Help, press F1	Driver is offline.

Move the mouse cursor over the bitmap representing node 1 and press the left button on the mouse.

Project Wanager - [F	IRST.PC3]	]× ₹
Project Name : FIRST		
Network Network	ata Rate Network Description	
DEMO 125 k	Demo/Evaluation Network SLC 5/04, 1747-SDN, 1770-KFD, and two Unidrives w/U D77	
Device List		
Generic		
AC Drive	Martin 4	
Photoelectric Sensor		
🔁 General Purpose Discrete I/		
主 Software	Node 62	
Communication Adapter	[62]	
🔁 Barcode Scanner		
DC Drive		
SCANport Device	DeviceNet	
PanelView 900		
Dodge EZLINK	♥ 【 4 6 0 0	
	+	
	Node 2	-
Node_1	en Loop	
Type AC Drive	Revision 2.10 Catalog	
For Help, press F1	Drag & Drop 'Node_1 [1]' From 'DEMO (FIRST)'	

Drag the icon for node 1 to the scanner and release the left mouse button. A confirmation box will appear, click Yes to confirm.

Project Name : FIRST	IRST.PC3] Utilities ⊻iew Window Help	1 I I I I I I I I I I I I I I I I I I I	X
Network Network L	Jata Hate Network Description Demo/Evaluation Networ D77	k SLC 5/04, 1747-SDN, 1770-KFD, and two Unidrives w/U	
Device List     Generic     AC Drive     Photoelectric Sensor     General Purpose Discrete l     Software     Communication Adapter     Dotrive     SCANiport Device     PanetView 900     Dodge EZLINK	Node 1 (1) 63 DeviceNet	Node_62 [62]	
Node_1 Product Generic Unidrive Op Type AC Drive	en Loop	Vendor Control Techniques Drives Ltd Revision 2.10 Catalog	Comm.
For Help, press F1		Ready	

Node 1 is now assigned.



Next, move the mouse cursor over the bitmap representing node 2 and press the left button on the mouse.

Project Name:         FIRST.PC3]           Project Who         Utilities         View         W           Project Name:         FIRST         W         W           Network         Network Data Rate         Network         Demo           DEMO         125 k         Demo         D77	indow Help I IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	_□× _ 중 × FD, and two Unidrives w/U
Device List     Generic     AC Drive     Photoelectric Sensor     General Purpose Discrete li     Software     Communication Adapter     Device Scanner     SCANport Device     PanelView 900     Dodge EZLINK	Node_1 [1] 63 (3) (3) (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	Node_62 [62]
Node_2 Product Generic Unidrive Open Loop Type AC Drive	Vendor Control Techniques I Revision 3.1 Catalog	Drives Ltd

Drag the Node 2 icon to the scanner and release the left mouse button. A confirmation box will appear, click Yes to confirm.

Project Name : FIRST Network Network D DEMO	IRST.PC3) Utilities View Window Help Utilities View Window Help Utilities View Window Help	10. 영 10 10 10 10 10 10 10 10 10 10 10 10 10	_ D ×
Device List     Generic     Ac Drive     Photoelectric Sensor     General Purpose Discrete Ir     Software     Communication Adapter     Darcode Scanner     Dc Drive     SCANport Device     PanetView 900     Dodge EZLINK	Node_1 [1] Figure 63 DeviceNet	Node_62 [62]	
Node_2 Product Generic Unidrive Op Type AC Drive For Help, press F1	en Loop Vendor Revision	Control Techniques Drives Ltd  3.1 Catalog  Ready	

The assignments are complete. The next step is to configure the declared cyclic links. Note that the Slave assignments are not yet consistent at this stage.

Project Name : FIRST Network Network D DEMO	INST.PC3)	₩	wo Unidrives w/U	_ # ×
Device List     Generic     AC Drive     Photoelectric Sensor     General Purpose Discrete li     Software     Communication Adapter     Barcode Scanner     DC Drive     SCANport Device     Panel/view 900     Dodge EZLINK	Node_1 [1] DeviceNet	3	Node_62 [62]	ner Module
Node_63 Product 1747-SDN Scanner I Type Communication Adap For Help, press F1	Module Ner	Vendor Allen-Bradley Company, Inc. Revision 4.15 Catalog Ready		Comm. Mac 62 · 125K KFD16.DLL

Double click on the Scanner icon to begin mapping the links.

Project Name : FIRST Network Network D	HIST PC0] Utilities View Window Help 전경 중백유 왕이 미미 같은 같은	_ & ×
DEMO       125 k         Device List       E         Generic       AC Drive         Photoelectric Sensor       E         General Purpose Discrete Ir       Software         Communication Adapter       Barcode Scanner         DC Drive       Softwore         DC Drive       SCANport Device         PanelView 900       Dodge EZLINK	Demo/E valuation Network SLC 5/04, 1747-SDN, 1770-KFD, and two Unidives w/U D77	
Node_63 Product 1747-SDN Scanner Type Communication Ada	Module Vendor Allen-Bradley Company, Inc.	omm. PC 1ac 62 - 125K
Setup 1747-SDN Module Para	Ready Ready	KFD16.DLL

The "**1747-SDN** Module Configuration" dialog box will open.

Confirm "I/O Comms" is enabled, put in a check if it is not.

Verify the poll period set in the "Inter<u>s</u>can Delay" field; the default 10 ms is recommended for this project.

Entering an integer value other than "1" in "Foreground to Bkgd Poll <u>R</u>atio" field sets up a slower background poll rate. The default value of "1" is recommended for this project.

Project Name : FIRST Network Data Rate Network Description DEMO 125 k Demo/E valuation Network SLC 5/04, 1747-SDN, 1770-KFD, and two Unidives w/U D77 Device List Project List Project Name: FIRST Network Name: DEMO A C Drive Communication Adapter Communication Adapter D Comve Software Project Name: FIRST Network Name: DEMO Module Settings Project Name: FIRST Network Name: DEMO Module Settings Project Name: FIRST Network Name: DEMO Module Settings Project Name: FIRST Network Name: DEMO Module Name: Node_53 Node Address: 63 Access DeviceNet Slot 1 Load From SDN Ele Project Device Project Names from Project Edit Scan_List D Assign Names from Project Edit Scan_List
[2] Node 63
Node_63

Click on "SDN" within the "Save To" frame.
🚰 DeviceNet Manager - [Fl	IRST.PC3]	
	Utitites View Window Help 	<u>– 6 ×</u>
Project Name : FIRST Network Network D DEMO 125 k	ata Rate Network Description Demo/Evaluation Network SLC 5/04, 1747-SDN, 1770-KFD, and two Unidrives w/U D72	
Device List     Generic     AC Drive     Photoelectric Sensor     General Purpose Discrete li     Software     Communication Adapter     Barcode Scanner	1747-SDN Module Configuration : [PR0.JECT]         Module Settings         Project Name:       FIRST         Node Address:       63         Access       DeviceNet         DeviceNet Manager         Image: The Scanner will be unavailable for 5-10 seconds while updating Flash memory	
SCANport Device     PanelView 900	ОК	
Dodge EZLINK	Assign Names from Project Edit Scan List	-
Node_63 Product 1747-SDN Scanner I Type Communication Adap	Module Vendor Allen-Bradley Company, Inc.	Comm.
Setup 1747-SDN Module Param	neters Transaction completed	KFD16.DLL

This dialog box appears during update write to the Scanner. Click OK.

DeviceNet Manager - [f File Edit Project Who Content of the second secon	FIRST.PC3) o Utilities View Window Help 0.00 A Window Help	_ & ×
Project Name : FIRST Network Network D DEMD 125 k	Data Rate Network Description Demo/Evaluation Network SLC 5/04, 1747-SDN, 1770-KFD, and two Unidrives w/U D77 <b>1747-SDN Module Configuration : [PR0JECT]</b> Module Settings Project Name: FIRST Network Name: DEMD Module Name: Node_63 Node Address: 63 Access DeviceNet Stot 1 //O Comms Finabled Stot 1 //O Comms Finabled Stot 1 //O Comms Finabled Stot 1 SDN File Foreground to 1 Bkgd Poll Batio Scan List Close Help [2] Node 63	-
Node_63 Product 1747-SDN Scanner Type Communication Ada (Setup 1747-SDN Module Parat		Mac 62 - 125K

Download is now done. Master-Slave definitions are now consistent.

Link mappings are not yet defined. Do not close this dialog box. Proceed to the next step.

PeviceNet Manager - [F File Edit Project Who	FIRST.PC3) 2 Lüülies View Window Help ] [7] [7] [8] [4] [5] [6] [2] [2] [7] [7]	_ 8 × _ 8 ×
Project Name : FIRST Network Network D DEMO 125 k DEMO 125 k Comparing Strength Generic AC Drive Communication Compared Strength Communication Adapter Communication Adapter Communication Adapter Communication Adapter D DC Drive SCANport Device Panel View 900 Dodge EZLINK	Data Rate Network Description Demo/Evaluation Network SLC 5/04, 1747-SDN, 1770-KFD, and two Unidrives w/U D77 IT47-SDN Module Configuration : [PROJECT]  Module Settings Project Name: FIRST Network Name: DEMO Module Name: Node_63 Node Address: 63 Access DeviceNet  DeviceNet  Enabled Intersgan Delay 10 ms. Bkgd Poll Bato  Edit Scan List  Close Help  12  Edit Scan List  13  Edit Scan List  14  Edit Scan List  15  Edit Scan	
Node_63 Product [747:SDN Scanner Type Communication Ada Setup 1747:SDN Module Parar	r Module Vendor Allen-Bradley Company, Inc.	Comm. @@@ Mac 62 · 125K KFD16.DLL

Click on "Edit Scan <u>L</u>ist" to begin.

DeviceNet Manage	er - (FIRST.PC3) Who_Utilities ⊻i	ew Window He		<b>=</b> Q(	ରା 🍘	N?			-	ð× ð×
Project Name : FIRST										
Network Netw	work Data Rate	Network Descript	ion							
DEMO 125		Demo/Evaluation	Network S	LC 5/04, 1	1747-SDN	, 1770-KFD,	, and two Unidrives w/U			
	: [PROJ] Node_	63 [63] : [PROJ	Node_6	3 [63]				×		
Device List	<u>N</u> ode Name	Mapped	Active	Rx Size	Tx Size	Туре	Load From			
Generic	01 Node 1	No/No	Yes	6	6	P	<u>S</u> DN <u>F</u> ile	1		
AC Drive	UZ NODE_Z	NO/NO	res	ь	ь	٢	Save To			
Photoelectric Sensor							SDN File	1		
🔁 General Purpose Disc										
🗈 Software							-Add Devices From-			
🔁 Communication Adapt							Proj <u>₩</u> ho			
🔁 Barcode Scanner	Edit Selection						Scan List Tools			
主 DC Drive	Prod Type:				<u>A</u> ctive Ir	Scanlist	Auto Mae			
SCANport Device	Vendor:				Electronic	Key	Datatable Man			
🔁 PanelView 900	Cat No:					е <u>Т</u> уре		4		
🔁 Dodge EZLINK	Hevision:				Produ	r st No.	Display Filters			
	Edit I/O Para	a <u>m</u> eters	Remg	Ve			Print to File			
	Close	Help	S <u>e</u> lect	AII			Slave Mode			
		(-					Node_63			▼
Node_63				_					Comm.	
Product 1747-SDN Sc	anner Module		Vei	ndor A	llen-Bradle	y Company,	, Inc.		a.C	5
Type Communicatio	n Adapter		Be	vision 4	.15 Ca	italog		-	- Cre	2
1,1,1,0,0	·								Mac 62 -	125K
Setup 1747-SDN Module	Parameters				Ready				KFD1	6.DLL

The Scan List Tools box will appear. Use the defaults.

DeviceNet Manage	er - (Filf Wh <u>o</u>	RST.PC3] Utilities ⊻i	ew <u>W</u> indow <u>H</u> e	p		0 7			_ & ×
Project Name : FIRST									
Network Net	, work Da	ta Bate	Network Descript	on					
DEMO 125	i k	ia male	Demo/Evaluation D77	Network	SLC 5/04	, 1747-SDN	I, 1770-KFD	, and two Unidrives w/U	
	: [PR(	DJ] Node_	63 [63] : [PROJ	Node_6	63 [63]			×	
Device List	Node	Name	Mapped	Active	Rx Siz	e Tx Size	Туре	Load From	
Generic	01	Node_1 Node_2	No/No No/No	Yes Yes	6 6	6	P	<u>S</u> DN <u>F</u> ile	
🔁 AC Drive					, i			Save To	
🔁 Photoelectric Sensor								SDN File	
主 General Purpose Disc									
E Software								Add Devices From	
Communication Adapt								Proj	
Barcode Scanner	E dit 9	Selection				L Aotivo I		Scan List Tools	]
DC Drive	Prod	Туре:				- Electronic	n ordaniist n Keu	A <u>u</u> to Map	
SCANport Device	Vend Cat N	lor: lo:				Devic	e Tune	Datata <u>b</u> le Map	
Panerview 900     Dodge E7LINK	Revis	sion:					01 01	Display Filters	
LE Douge Ezclivit		Edit I/O Para	meters	Rem	gve	🗖 Produ	i <u>e</u> t No.	Print to File	
		Close	Help	Selec	t Alls			Slave <u>M</u> ode	
				1				NUUE_63	
								[63]	-
Node_63		La de La				Allen Des di			Comm.
Product 1747-SDN Sc	anner M	rouule		V	endor	Hien-Bradk	sy company	, mc.	₽ <b>/</b> ₽
Type Communicatio	on Adapt	er		R	evision	4.15 C	atalog		Mac 62 · 125K
Setup 1747-SDN Module	e Parame	eters				Ready			KFD16.DLL

Click on "Select All".

DeviceNet Manage	er - [FIRST.PC3 Who <u>U</u> tilities <u>)</u>	l (iew <u>W</u> indow <u>H</u> e	Þ		<u>a</u> ?	<b>N</b> ?		_	₽× ₽×
Project Name : FIRST									
Network Netw	work Data Rate	Network Descrip	ion						
DEMO 125	k	Demo/Evaluation	Network S	GLC 5/04, 1	1747-SDN	, 1770-KFD, (	and two Unidrives w/U		
	: [PROJ] Node	63 (631 : (PROJ	Node 6	3 (63)			X		
	Node Name	Mapped	Active	Rx Size	Tx Size	Type	Load From		
		No/No	Yes	6	6	Р	SDN File		
Generic	02 Node_2	No/No	Yes	6	6	Р			
AC Drive							Save Io		
Photoelectric Sensor							S <u>D</u> N File		
General Purpose Disc							Add Devices From		
Communication Adopt							Proi W/Bo		
Communication Adapt     Bereade Seepper									
+ DC Drive	Edit Selection			F.	Active In	Scanlist	Scan List Tools	-	
SCANnort Device	Prod Type:				Electronic	Key	Auto Map		
ScAnport Device	Cat No:				⊡ Devic	e Tvpe	Datata <u>b</u> le Map		
Parlerview 300     Dodgo E7LINK	Revision:				Uenda	n	Displau Filters		
CC Douge EZCINK	Edit I/O Pa	rameters	Bemo	we	🗖 Produ	gt Nio.			
		Id <u>mictors</u>					Print to File		
	Close	Help	Select	LAII			Slave <u>M</u> ode		
_		[-	- <u>1</u>				: NUGE 63;		
							[63]		
_ Node_63				_				Comm	
Product 1747-SDN Sc.	anner Module		Ve	endor 🗛	llen-Bradle	y Company, I	nc.	a.C	5
Tupe Communication	n Adapter			avision 4	.15 Cz	atalog			μ.
	·			1				Mac 62 -	125K
Setup 1747-SDN Module	Parameters				Ready			KFD1	6.DLL

Both Node\_1 and Node\_2 are now highlighted.

🚰 DeviceNet Manage	er - [FIRST.PC3]								B×
File Edit Project	Wh <u>o U</u> tilities <u>V</u> i	ew <u>W</u> indow <u>H</u> e	lp					-	B×
	e 17,7 .	* # ^ !!			9	N?			
Project Name : FIRST	•								
Network Network	work Data Rate	Network Descript	ion						
DEMO 125	k	Demo/Evaluation D77	Network S	SLC 5/04,	1747-SDN	, 1770-KFD,	and two Unidrives w/U		
	: [PROJ] Node_	63 [63] : [PROJ	Node_6	3 [63]			X		
Device List	<u>N</u> ode Name	Mapped	Active	Rx Size	Tx Size	Туре	Load From		
Generic	01 Node_1 02 Node 2	No/No No/No	Yes Yes	6 6	6 6	P P	<u>S</u> DN <u>F</u> ile		
🔁 AC Drive							Save To		
🔁 Photoelectric Sensor							SDN File		
🕒 General Purpose Disc									
🔁 Software							Add Devices From		
🕒 Communication Adapt							Proj Who		
🔁 Barcode Scanner	I ⊢Edit Selection —						Scan List Tools		
DC Drive	Prod Tupe:			F	Active Ir	n Scanlist	Auto Man A		
GANport Device	Vendor:				Electronic	Key			
PanelView 900	Cat No:				🕅 Devid	e <u>T</u> ype	Datata <u>b</u> le Map		
Dodge EZLINK	Revision:						Display Filters		
	Edit I/O Para	ameters	Remo	ove	🗖 Produ	<u>e</u> t No.	Print to File		
	Close	Help	S <u>e</u> lec	t All			Slave <u>M</u> ode		
		l-	-1				1000e_63 [63]		<b>_</b>
Node_63								L Comm. —	
Product 1747-SDN Sc	anner Module		Ve	endor 🛛	Allen-Bradle	y Company, I	Inc.	a.e	
Turce Communicatio	n Adapter		p,	nuision A	15 r	atalog		w.	1
Type Permit noodo			n.	SAISION				Mac 62 - 1	125K
Setup 1747-SDN Module	Parameters				Ready			KFD16	5.DLL

Click on "Auto Map..." within in the Scan List Tools box. Note: The default "Assembly Objects" specified in the "**\*.EDS**" file are now selected for configuration.

PeviceNet Manager - [FIRST.PC3] File Edit Project Who Utilities View Window Help State III IIII IIIIIIIIIIIIIIIIIIIIIIIIII	_ & ×
Project Name : FIRST	
Network Network Data Rate Network Description	
DEMO 125 k Demo/Evaluation Network SLC 5/04, 1747-SDN, 1770-KFD, and two Unidrives w/U	
: [PROJ] Node_63 [63] : [PROJ] Node_63 [63]	
Device List Node Name Mapped Active Rx Size Tx Size Type	
Generic 01 1747-SDN Auto Map Options	
Ac Drive     Photoelectric Sensor     Communication Adapt     Photoelectric Sensor     Communication Adapt     Communication Adapt     Discrete Input     Discrete Input     Discrete Output     O     Discrete Output     Sclent All     Sclent All     Slave Mode	-• _
	Comm
Product         1747-SDN Scanner Module         Vendor         Allen-Bradley Company, Inc.           Type         Communication Adapter         Revision         4.15         Catalog	Mac 62 - 125K
Setup 1747-SDN Module Parameters Ready	KFD16.DLL

"**1747-SDN** Auto Map Options" dialog box opens. In this box, a cyclic link is mapped to a Discrete Input / Output or to a M0 / M1 file.

2 <sup>112</sup> DeviceNet Manager - [FIRST.PC3] 夢 Eile Edit Project Wh <u>o U</u> tilities View <u>W</u> indow <u>H</u> elp	_ & ×
Project Name : FIRST	
Network Network Data Rate Network Description	
DEMO 125 k Demo/E valuation Network SLC 5/04, 1747-SDN, 1770-KFD, and two Unidrives w/U D77	
: [PR0J] Node_63 [63] : [PR0J] Node_63 [63]	
Device List Node Name Mapped Active Rx Size Tx Size Type	
Generic 01 1747-SDN Auto Map Options Elle	
AC Drive     Regions to Map/Unmap     Mapping Method	
Conserve Directory Conserve Directory     Conserve Directory	
Software	
Communication Adapt     Discrete Input     O	
Barcode Scanner Fr M1 File K	
DC Drive     Pn     P     Dutput File:     Start Word:     Man     Man     Man	•   -
E SCANport Device Ve Discrete Output  0	
PanelView 900 Ca	
Dodge EZLINK Re ay Filters	
Cancel Help to File	
Close Help Sglect All Slave Mode	
Product 1747-SDN Scanner Module Vendor Allen-Bradley Company, Inc.	aß
Tune Communication Adapter Bavision 4.15 Catalog	s.a
	c 62 · 125K
Setup 1747-SDN Module Parameters Ready	KFD16.DLL

"Discrete Input" or "M0" is selected in the Input File list box. "Discrete Input" is simpler to use and is selected.

P <sup>™</sup> DeviceNetManager-[FIRST.PC3]	_ 8 ×
$\textcircled{\textbf{A}} \textbf{A} \textbf{A} \textbf{A} \textbf{A} \textbf{A} \textbf{A} A$	
Project Name : FIRST	
Network Network Data Rate Network Description	
DEMO 125 k Demo/E valuation Network SLC 5/04, 1747-SDN, 1770-KFD, and two Unidrives w/U D77	
: [PROJ] Node_63 (63) : [PROJ] Node_63 (63)	
☑ Device List Node Name Mapped Active RxSize TxSize Type Load From	
Generic U 1747-SDN Auto Map Options	
A C Drive       Regions to Map/Unmap       Mapping Method         Photoelectric Sensor       Image: Communication Adapt       Image: Communication Adapt         Communication Adapt       Image: Communication Adapt       Image: Communication Adapt         Barcode Scanner       Ec       Image: Communication Adapt         Dorrve       Pn       Image: Communication Adapt         ScANport Device       Pn         Image: Communication Adapt       Image: Communication Adapt         ScANport Device       Pn         Image: Communication Adapt       Image: Communication Adapt         Image: Communication Adapt       Im	
[63]	
Product 1747-SDN Scanner Module Vendor Allen-Bradley Company, Inc.	0 <b>-</b> 0
Type Transform Transform	Mac 62 - 125K
Setup 1747-SDN Module Parameters Ready	KFD16.DLL

"Discrete Output" or "M1" is selected in the Output File list box. "Discrete Output" is simpler to use and is selected.

PeviceNet Manager - (FIRST.PC3) File Edit Project Who Utilities View Window Help Def State To Part	_ & ×
Project Name : FIRST Network Deta Rate Network Description DEMO 125 k Demo/Evaluation Network SLC 5/04, 1747-SDN, 1770-KFD, and two Unidives w/U D77 Project List Node_63 [63] : [PR0J] Node_63 [63] V Device List Node Name Mapped Active Rx Size Tx Size Type Load From Project List Node Name Mapped Active Rx Size Tx Size Type Load From Project List Node Name Mapped Active Rx Size Tx Size Type Load From Project List Node Name Mapped Active Rx Size Tx Size Type Load From Project List Node Name Mapped Active Rx Size Tx Size Type Load From Project List Node Sign All Size Order Project List Node Sign All Node	
DC Drive     Pn     Ve     Cancel Help     Close Help     Select All     NUUE_D3     [63]	
Node_63           Product         1747-SDN Scanner Module         Vendor         Allen-Bradley Company, Inc.           Type         Communication Adapter         Revision         4.15         Catalog	Comm.
Setup 1747-SDN Module Parameters Ready	KFD16.DLL

Region Map / Unmap selection is done. Click on Map.

Terrer Devicenet Manager - [FINST.PL3]	
Project Name : FIRST	
Network Network Data Flate Network Description DEMD 125 k Demo/Evaluation Network SLC 5/04 1747-SDN 1770-KED, and two Uniditives w/U	
: [PROJ] Node_63 [63] : [PROJ] Node_63 [63]	
Device List Node Name Mapped Active Rx Size Tx Size Type	
Generic 01 Node 1 Yes Yes 6 6 P SDN File	
AC Drive Save To	
Photoelectric Sensor SDN File	
General Purpose Disc	
Contract Add Devices Floin	
Communication Adapt	
Barcode Scanner     Edit Selection     Scan List Tools     Scan List Tools	📄
Prod Type:     P	
CaNport Device Vendor: Datatable Map	
Panetview guu Carko.	
Evit I/O Prometers Bemove Product No.	
Print to File	
Close Help Sglect All Slave Mode	
[63]	
Node_53	Jomm.
	9-G
Type Communication Adapter Revision 4.15 Catalog	Mac 62 - 125K

The mapping is done. Note: the "Mapped" field now shows Yes/Yes. Mapping is defined, but not yet "persistent".

Next, inspect / confirm the links are defined.

DeviceNet Manage File Edit Project	er - (FIRST.PC3 Who Utilities <u>)</u>	/iew <u>W</u> indow <u>H</u> el <b>於 ₩ № #?</b>	P		Q ?	N?		-	ð× ð×
Project Name : FIRS1	[								
Network Net	work Data Rate	Network Descripti	on						
DEMO 125		Demo/Evaluation	Network S	LC 5/04,	1747-SDN	, 1770-KFD, a	and two Unidrives w/U		
	: [PROJ] Node	_63 [63] : [PROJ]	Node_6	3 [63]			×		
Device List	<u>N</u> ode Name	Mapped	Active	Rx Size	Tx Size	Туре	- Load From		•
	01 Node_1 02 Node_2	Yes/Yes Yes/Yes	Yes Yes	6	6	P	<u>S</u> DN <u>F</u> ile		
🔁 AC Drive	1000_2	1007100	100				Save To		
🔁 Photoelectric Sensor							SDN File		
🔁 General Purpose Disc									
🔁 Software	I						Add Devices From		
Communication Adapt	I						Proj Who		
Barcode Scanner	Edit Selection				-		- Scan List Tools		
DC Drive	Prod Type:			l	- Electronic	n Sicanlist	Auto Map		
SCANport Device	Vendor:					л Типа	Datatable Map N		
PanelView 900	Revision:						Direley Elbert		
Dodge EZLINK	E-B-UR B-				Produ	et No.	Display Filters		
		iameters	Intering				Print to File		
	Close	Help	Select	AI			Slave <u>M</u> ode		
1							Nuce_63		
							[63]		•
Node_63	anner Module			ndar 🛛	llen-Bradk	u Companu Ji	nc	Comm.	
						,y company, n		- Q-Q	
Type Communicatio	n Adapter		Re	vision	1.15 C	atalog		Mac 62 - 1	25K
Setup 1747-SDN Module	Parameters				Ready			KFD16	DLL

Click on "Datatable Map..." within the Scan List Tools box.

(* DeviceNet Manager - (FIRST.PC3) File Edit Project Who Utilities View Window Help File Edit Project Who Dittiles View Window Help	_ 8 × _ 8 ×
Project Name : FIRST Network Data Rate Network Description DEMO	
1747-SDN Datatable Map 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 00	×
Device         I.10         R	
Node_os         Product         [747:SDN Scanner Module         Vendor         Allen-Bradley Company, Inc.           Type         Communication Adapter         Revision         4.15         Catalog	Mac 62 · 125K
Setup 1747-SDN Module Parameters Ready	KFD16.DLL

The "**1747-SDN** Datatable Map" dialog box opens. Note that "Data Map" has Input selected. When done inspecting mappings, click on "Close".

DeviceNet Manage	er - (FIF Wh <u>o</u>	RST.PC3] Utilities ⊻i Us 🍠 [	ew <u>W</u> indow <u>H</u> elp			Q ?	<b>N</b> ?		_ & ×
Project Name : FIRS	r								
Network Net	work Da	ita Rate	Network Description	n					
DEMO 125	k		Demo/Evaluation D77	Vetwork !	SLC 5/0	4, 1747-SDN	N, 1770-KFE	), and two Unidrives w/U	
	: [PR(	DJ] Node_	63 [63] : [PROJ]	Node_6	63 [63]			×	
Device List	<u>N</u> ode	Name	Mapped	Active	Rx Siz	e TxSize	Туре	Load From	
Generic	01	Node_1 Node_2	Yes/Yes Yes/Yes	Yes Yes	6	6	P	<u>S</u> DN <u>F</u> ile	
🗭 AC Drive	1°-	11000_2	100/100	100		0		Save To	
Delectric Sensor								SDN.N File	
🔁 General Purpose Disc						-			
🔁 Software								Add Devices From	
🗈 Communication Adapt								Proj Who	
🔁 Barcode Scanner	Edit 9	Selection						Scan List Tools	
DC Drive	Prod	Туре:				Active I	n Scanlist	A <u>u</u> to Map	-   -
SCANport Device	Vend	lor:					c Key	Datatable Map	
PanelView 900	Bevis Bevis	io: sion:					se <u>T</u> ype or		
L+ Dodge EZLINK			. 1			Pred	ugt Nio.	Display Filters	
		an I/U Par	ameters	nemj	<u>a</u> ve			Print to File	
		Close	Help	S <u>e</u> lec	t All			Slave <u>M</u> ode	
-							-	1000e_63	I
Node 63			-						Comm.
Product 1747-SDN Sc	anner M	lodule		Ve	endor	Allen-Bradl	ey Company	y, Inc.	aß
Tupe Communicatio	n Adant	er			avision	, 4.15 c	atalog 🗸		w I
Type Committee					evision		atalog		Mac 62 - 125K
Setup 1747-SDN Module	e Parame	eters				Ready			KFD16.DLL

Click on "SDN..." within the ""Save To" group.

DeviceNet Manage	r (FIRST.PC3) Who Utilities Yiew Window Help C 05 X X X 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_ & ×
Project Name : FIRST Network Netw DEMO 125		×
Generic     AC Drive     AC Drive     Photoelectric Sensor     General Purpose Disc     Software     Communication Adapt     Barcode Scanner     Dc Drive     SCANport Device     PanelView 900     Dodge EZLINK	Image: Select and Select All       Image: Select All       Image: Select All       Image: Select All         Image: Select All       Image: Select All       Image: Select All       Image: Select All       Image: Select All         Image: Select All       Image: Select All       Image: Select All       Image: Select All       Image: Select All         Image: Select All       Image: Select All       Image: Select All       Image: Select All       Image: Select All	
Node_63 Product 1747-SDN Sca Type Communication	[63] anner Module Vendor Allen-Bradley Company, Inc. in Adapter Revision 4.15 Catalog	Comm.

"**1747-SDN** Scan List – Download" dialog box appears. Make sure the RUN/REM/PROG switch on the SLC processor is in PROG position.

DeviceNet Manage	r - (FIRST.PC3) Who Utilities V	iew <u>W</u> indow <u>H</u> e Ă ₩ <mark>A</mark> #?		10. ? M?		- 8 × - 8 ×
Project Name : FIRST Network Netw DEMO 1251	vork Data Rate < : <b>(PROJ) Node</b> <u>N</u> ode Name	Network Descript Demo/Evaluatior D77 63 [63] : [PROJ Mapped	ion Network SLC 5/ Node_63 (63) Active Rx S	04, 1747-SDN, 1770-KF ize Tx Size Type	D, and two Unidrives w/U	
Obvice EIST     Generic     Ac Drive     Photoelectric Sensor     General Purpose Disc     Software     Communication Adapt     Barcode Scanner     Dc Drive     SCANport Device     PanelView 900     Dodge EZLINK	01 02 1747-SDN Downlo C Sele C Sele C Sele Pri Ve C C Re C Onl	Scan List Editor ad lecords bet Range ge Select orm: 0 Dogmload Active Help	Download  ords  (o: 63  Records  Select All	OK Cancel Help	Son Eie Save To SDN File Add Devices From Proj Who Scan List Tools Agto Mop Datatable Map Display Filters Print to File Slave Mode	
Node_63 Product 1747-SDN Sca Type Communication Setup 1747-SDN Module	inner Module Adapter Parameters		Vendor Revision	Allen-Bradley Compar 4.15 Catalog Ready	163_03	Comm. Mac 62 · 125K

Click on "All Records" within the "Download" frame. Then click on OK to begin the download to the **1747-SDN** Scanner.

PeviceNet Manage	er-[FIF Wh <u>o</u> ]	IST.PC3] _Itilities _⊻i	iew <u>W</u> indow <u>H</u> el	p			_		_ & ×
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Project Name : FIRS1	ſ								
Network Net	work Dat	a Rate	Network Descripti	on					
DEMO 125	k		Demo/Evaluation	Network !	SLC 5/04,	1747-SDN	, 1770-KFI	D, and two Unidrives w/U	
	: [PRO	J] Node_	63 [63] : [PROJ]	Node_6	63 [63]			×	
Device List	<u>N</u> ode	Name	Mapped	Active	Rx Size	Tx Size	Туре	Load From	
	01	Node_1	Yes/Yes	Yes	6	6	P	SDN <u>F</u> ile	
AC Drive	02	NODe_2	Tes/Tes	res	ь	ь	٢	- Save To	
Photoelectric Sensor									
E General Purpose Disc					8				
E Software								Add Devices From	
E Communication Adapt								Proj <u>W</u> ho	
🔁 Barcode Scanner	⊢Edit S	election —						Scan List Tools	
🔁 DC Drive	Prod	Tvpe:			J	Active In	Scanlist	Auto Man	-   -
SCANport Device	Vende	or:				- Electronic	Key	Datable Mar	
🔁 PanelView 900	Cat N	o:					е <u>Т</u> уре	Datata <u>p</u> ie Map	
Dodge EZLINK	Hevis	ion:				E Venda	t st No	Display Filters	
	E	dit I/O Para	a <u>m</u> eters	Rem	<u>ove</u>			Print to File	
		Close	Help	S <u>e</u> lec	t All			Slave <u>M</u> ode	
1	T		(-	,			_	NUCR 63	-
Node_63									Comm.
Product 1747-SDN Sc	anner M	odule		Ve	endor	Allen-Bradle	y Compan	iy, Inc.	R.A
Type Communicatio	n Adapte	er			evision	4.15 Ca	italog 🗌		
					1				Mac 62 · 125K
Saving data to scanner: I	Node 3					Saving da	ta to scan	ner	KFD16.DLL

Download to the **1747-SDN** Scanner will initiate.

DeviceNet Manage	er - [FIRST.PC3]		- 1 110			_ 8 ×
File Edit Project	Who <u>U</u> tilities <u>V</u>	(iew <u>W</u> indow <u>H</u> elj	p			_ B ×
	r vø	***		Q ? N?		
Project Name : FIRS	Г					
Network Net	work Data Rate	Network Description	on			
DEMO 125	ik	Demo/Evaluation D77	Network SLC 5/04,	1747-SDN, 1770-K	FD, and two Unidrives w/U	,
	: [PROJ] Node	_63 [63] : [PROJ]	Node_63 [63]		X	
Device List	Node Name	Mapped	Active Rx Size	Tx Size Type	Load From	
🔁 Generic	01 Node_1 02 Node_2	Yes/Yes Yes/Yes	Yes 6 Yes 6	6 P 6 P	<u>S</u> DN <u>File</u>	
AC Drive					Save To	
🔁 Photoelectric Sensor					S <u>D</u> N File	
🔁 General Purpose Disc						
🔁 Software	Devic	ceNet Manager			× rom	
Communication Adapt		<u></u>			(ho	
🔁 Barcode Scanner	Edit Sele 🥄	The scanner w	ill be unavailable for	5-10 seconds while	e updating Flash memory	
DC Drive	Prod Typ					-   -
SCANport Device	Vendor:					
PanelView 900	Cat No:			Vendor		
Dodge EZLINK	Hevision.			Product No.	Display Filters	
	Edit I/O Par	ameters	Remove		Print to File	
	Close	Help	S <u>e</u> lect All		Slave <u>M</u> ode	
-		ι <del>-</del>	1		1000e_63 [63]	'   <sub>=1</sub>
Node_63					5	Comm.
Product 1747-SDN Sc	anner Module		Vendor	Allen-Bradley Compa	any, Inc.	aß
Tupe Communicatio	n Adapter		Bevision	4.15 Catalon		
			Trevision	Curaiog		Mac 62 - 125K
For Help, press F1				Transaction compl	eted	KFD16.DLL

A warning message box will appear. Click on OK.

DeviceNet Manage	er - (Fil Wh <u>o</u>	RST.PC3) Utilities Vi	ew <u>W</u> indow <u>H</u> el <b>K <del>M</del> A #?</b>		<b>•</b>	<u>q</u> ?	<u>k?</u>		_ & ×
Project Name : FIRS		ha Data	Notes I Description						
DEMO 125	work Da k	ia Hate	Demo/Evaluation	on Network	SI C 5704	1747-SDN	1770-KED	and two Unidrives w/U	
DEMO 120	×		D77	incomonic	320 3/04	, 1141 3010	, 11101010,		
	: [PR	DJ] Node_	63 [63] : [PROJ]	Node_(	63 [63]			×	
Device List	Node	Name	Mapped	Active	Rx Size	e TxSize	Туре	Load From	
Generic	02	Node_1 Node_2	Yes/Yes Yes/Yes	Yes Yes	6	6	P	<u>S</u> DN <u>F</u> ile	
🗭 AC Drive	· ·				-	-		Save To	
🔁 Photoelectric Sensor								SDN File	
💼 General Purpose Disc									
🔁 Software								Add Devices From	
🗈 Communication Adapt								Proj <u>W</u> ho	
🔁 Barcode Scanner	_ Edit \$	Selection						- Scan List Tools	
🔁 DC Drive	Prod	Tune:				Active In	Scanlist	Auto Man	·   -
E SCANport Device	Vend	for:				- Electronic	Key	- <u>-</u>	
PanelView 900	Cat N	lo:				Devic 🗌	е <u>Т</u> уре	Datata <u>b</u> le Map	
Dodge EZLINK	Revi	sion:				U Venda	lf of Min	Display Filters	
			meters	Rem	ove	L Produ	gennio.	Print to File	
	(	Close	Help	S <u>e</u> lec	st All			Slave <u>M</u> ode	
								10002_63 [63]	
Node_63							_		Comm.
Product 1747-SDN Sc	anner M	lodule		V	endor	Allen-Bradle	y Company,	, Inc.	ē,A
Type Communicatio	n Adapi	er		В	evision	4.15 Ca	atalog		
									Mac 62 - 125K
For Help, press F1						Transactio	n complete	d	KFD16.DLL

Download is done. Click on "Close".

DeviceNet Manag	er - IFIBS	ST PC31									
File Edit Project	Who Ut	tilities Vie	w Window Heli	,	_		_			-	
		- 	× # .? #?			2 ?	₩?			_	
Project Name : FIRS	T										
Network Net	twork Data	Rate	Network Descripti	on							
DEMO 125	ō k		Demo/Evaluation D77	Network :	SLC 5/04, 1	747-SDN	, 1770-KFD, and	two Unidrives w/U	_		
	: [PROJ	] Node_6	3 [63] : [PROJ]	Node_6	63 [63]			>	۵		
Device List	Node	Name	Mapped	Active	Rx Size	Tx Size	Туре	- Load From			
Generic	01	Node_1 Node_2	Yes/Yes Yes/Yes	Yes Yes	6 6	6 6	- P P	<u>S</u> DN <u>F</u> ile			
🔁 AC Drive		-						Save To			
🔁 Photoelectric Sensor								SDN File			
🔁 General Purpose Disc											
🔁 Software			Device	Net Mai	nager		×	Add Devices From			
Communication Adapt								Proj <u>W</u> ho			
🔁 Barcode Scanner	_ ⊢Edit Sel	lection		Save	Configuratio	on File Bel	ore Exiting?	Scan List Tools		_	
DC Drive	Prod Ty	/pe:	1					Auto Map		- I	
E SCANport Device	Vendor	:		<u>(es</u>	<u>N</u> o		Cancel	Detetekie kilos			
PanelView 900	Cat No:	:		ЧĞ				Datatagle Map			
Dodge EZLINK	Hevisio	in:				E Venac	or chNo	Display Filters			
	Edi	it I/O Parag	jeters	Rem	ove			Print to File			
	Clo	ose	Help	S <u>e</u> lec	x All			☐ Slave <u>M</u> ode			
	T							NUUE_63			
Node_63										Comm -	<u> </u>
Product 1747-SDN Sc	canner Moo	dule			endor 🗛	len-Bradle	y Company, Inc.		-11		
				_		15			_	연생	
Type Communication	on Adapter			B	evision <sup>4</sup>	19 C.	atalog			Mac 62 - 1	125K
For Help, press F1					[	Fransactio	on completed			KFD16	6.DLL

The option is presented to Save Configuration file. Click " $\underline{Y}$ es".

PoviceNet Manager - [FIBST.PC3] File Edit Project Whg Utilities View Window Help Def N Bar, 19 7 N H 20 11 Constant of N	_ & ×
Project Name :         FIRST           Network         Network Description           DEM0         125 k           DFM0         125 k           DFM0         125 k	
Image: PROJ Node_63 [63] : [PROJ] Node_63 [63]         Image: Provide List         Image: Provide List	
Node_ 63     Froduct     [747:SDN Scanner Module     Vendor     Fillen-Bradley Company, Inc.       Type     Communication Adapter     Revision     4.15     Catalog	Comm. Mac 62 · 125K

The "Save As" dialog box appears. Defaults are recommended; click on OK.

🚈 DeviceNet Manager - [FII	IRST.PC3]	_ 8 ×
🐺 <u>F</u> ile <u>E</u> dit <u>P</u> roject Who	<u>U</u> tilities <u>V</u> iew <u>W</u> indow <u>H</u> elp	_ B ×
	1) Z X H X H B B B B B B B B B B B B B B B B	
Project Name : FIRST		
Network Network Da	Data Rate Network Description	
DEMO 125 k	Demo/Evaluation Network SLC 5/04, 1747-SDN, 1770-KFD, and two Unidrives w/U D77	
Device List	1747-SDN Module Configuration : [PROJECT]	
Ceperic	Module Settings	
AC Drive	Project Name: FIRST Network Name: DEMO	
Photoelectric Sepsor	Module Name: Node_63 Node Address: 63	
Ceneral Purnose Discrete I	Access DeviceNet Slot 1 62	
General Purpose Discrete M	Load From	
Communication Adapter	Indexes Data 10 ms SDN File	
Barcode Scapper	D Excercision for 1 Module Defaults	
TDC Drive	Bkgd Poll Batio	🔳
G SCANnort Device	Save To-	
PapelView 900	S <u>D</u> N File	
Dodge EZLINK		
	Assign Names from Project Edit Scan List	
	Close Help	
	[2] Node_63 [63]	-
Node_63		Comm.
Product 1747-SDN Scanner M	Module Vendor Allen-Bradley Company, Inc.	9.6
Turne Communication Adapt	nter Pavision 415 Catalog	se a la constante de la consta
Type		Mac 62 • 125K
Setup 1747-SDN Module Parame	neters Ready	KFD16.DLL

The "Save Configuration" is done. Link Mappings are now consistent and can be reloaded from the scanner. Click on Close.

Under certain conditions, DeviceNet Manager will offer to save the Scanner Module Configuration as a "**\*.SM4**" file at this point. In this example, an opportunity to save Module info as "**NODE\_63.SM4**" would be provided. Click on "OK" to move on.



The DeviceNet Manager main frame window will appear. Network configuration is complete. The next step is to save the project files.

From the DeviceNet Manager menu, click on "<u>File...</u>" and select "<u>Save Project</u>". The Project files are now saved to disk.



From the DeviceNet Manager menu, click on "<u>File</u>" and select "E<u>x</u>it". This task is complete. A project "FIRST" and a DeviceNet network "DEMO" has been has created, configured and saved both to the DeviceNet Scanner and to the Configuration PC Disk.

# **RSLogix500 and RSLinx Lite Use**

### Step 1. Configuring Initial Communication to the SLC 500

This task involves noting that no drivers have been configured for the SLC 500, and then starting RSLinx Lite and configuring RSLogix500 to use the "**DF1-CH0**" protocol. Note that the SLC 5/x processor RS-232 port powers up to this protocol as its default.

This guide describes using COMM1 to communicate to the SLC 500 processor in "**DF1-CH0**" protocol

Advanced users, already acquainted with the appropriate procedure for applying a SLC 5/04 and possessing a Data Highway Plus interface, might configure for **DH+** protocol at this point.

**Make sure** that the SLC 500 rack is powered up, only the SLC 5/0x Processor and the 1747-SDN Scanner are plugged into the SLC rack's bus, and that the "RUN / REM / PROG" switch on the SLC 5/0x Processor is in the "PROG" position **before proceeding**.



From the toolbar menu, select "Comms" and then select "System Comms...".

<u>File View Comms Iools Window Help</u>
OFFLINE     No Forces       No Edits     Forces Disabled       Driver: (unknown)     Note: 0n
Communications     ×       ✓ Autobrowse     Befresh       ●     ●
Current Selection Current Selection Reply Timeout: Server: RSLinx API Driver:
Node: 0 Decimal (=0 Octal) Type: Not a PLC, SLC, or CL

The "Communications" dialog box opens. This figure shows "no driver configured". Click on "Cancel" to dismiss.



From the Windows Start menu, select Programs and launch the RSLinx main executable.

📳 RSLogix 500	_ <del>8</del> ×
<u>File View Comms Iools Window Help</u>	
OFFLINE     No Forces       No Edits     Forces Disabled	
Driver: (unknown) Node: 00 Node: 0 Node: 0	
Rockwell Software RSLinx Lite	
<u>File view Lommunications Station Window H</u> elp	
<u>ă ã 0</u>	
For Help, press F1 NUM 06/13/00 11:20 AM //	
For Help, press F1 XREF [0:0000 [A	APP READ

The RSLinx main frame window will open. Click on the "Configure drivers" icon.

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OFFLINE	No Forces III - La	to to to t		
No Edits	Rockwell Software RSLinx Lite			
Driver: (unknown	File View Communications Station Window Help			
	Available Driver Types:	Add New	<u>C</u> lose Help	
	Configured Drivers:			
	Name and Description	Status		
			Configure	
			Startup	
			Start	
			Stop	
			Delete	
	For Help, press F1	NUM 06/1	3/00 04·21 PM	
	rorrop, proserv		or of the triangle of the tria	
For Help, press F1			XREF 0:0000	APP READ

The "Configure Drivers" dialog box opens. Nothing is yet configured.

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<u>File View Comms Iools Window Help</u>	
	9
No Edits	
Driver: junknown Eile View Communications Station Window Help	
Configure Drivers	
Available Driver Types:	
Ethernet to PLC-5/SLC-5/5820-EI SoftLogis5	
Allemate Devices via Linx of 1/3b-ENE   Gateway AllemBradley 1744-KTC(X) devices PLC-5 (DH+) Emulator Status	
SLC 500 (DH485) Emulator	Configure
RS-232 DF1 Devices	Charling
1747-PIL / AIL + Driver 内 1784-PCC (PCMCIA for ControlNet)	otalfah
S-S SD/SD2 Driver	<u>S</u> tart
DF1 Foiling Master Driver	
DeviceNet Drivers	Stop
	Delete
For Hole prove E1	/00 04:21 PM
	700 04.211 M //
J For Help, press F1	XREF 0:0000 APP READ

Use the "Available Driver Types" list box to select "RS-232 DF-1 Devices".

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Configure Drivers	
Available Driver Types:	
RS-232 DF1 Devices	w
Configured Drivers:	
Name and Description Status	
	Configure
	Starjup
	Cheet
	<u></u> tan
	Stop
	Delete
For Help, press F1	06/13/00   04:21 PM
For Help, press F1	XREF 0:0000 APP READ

Click on "Add New..."

RSLogix 500	- 8 ×
<u>File View Comms Iools Window H</u> elp	
No Edits Hockwell Software HSLinx Lite Elle View Communications Station Window Help	
Configure Drivers	
Available Driver Types:	
RS-232 DF1 Devices	
Configured Drivers:	
Name and Description Add New RSLinx Driver	
Choose a name for the new driver.	
[15 characters maximum] Startup	
AB_DF1-1 Start	
200	
Delete	
For Help, press F1	
For Help, press F1 XREF [0:0000 ]AF	PIREAD

The "Add New RSLinx Driver" dialog box opens, and presents an opportunity to name the driver. If the default name is acceptable, click on "OK" to accept.

RSLogix 500		_ 8 ×
<u>File V</u> iew <u>C</u> omms <u>T</u> o	ols <u>W</u> indow <u>H</u> elp	
No Edits	ckwell Software RSLinx Lite	
Driver: (unknown Elle S	view <u>Communications</u> Station <u>Window H</u> elp	
- Au		
AV.	Configure Allen-Bradley DF1 Communications Device	
I. I.		
	Device Name: AB_DF1-1	
	Comm Port: COM1   Device: PLC-CH0  Configure	
	Baud Rate: 19200 V Station Number:	
	(Uctal) Start	
	Parity: None   Error Checking: BCC	
	Stop	
	Stop Bits: 1 T Protocol: Full Duplex T Delete	
	Auto-Configure	
For H	/13/00 04:21 PM //	
	Ok Cancel Delete Help	
For Help, press F1	XREF   0:00	JUU   APP  RÉAD

The "Configure Allen-Bradley DF1 Communication Device" dialog box opens.

RSLogix 500	
File View Comms Tools Window Help	
No Edits Rockwell Software RSLinx Lite	
Driver: (unknown <u>File View Communications Station Window H</u> elp	
Av. Configure Allen-Bradley DF1 Communications Device	Close
	Help
Device Name: AB_DF1-1	
Comm Port: COM1 Device: PLC-CH0	Configure
1770-KF2/1785-KE	
Baud Rate: 19200 Stati 17/04RF3/1747-RE	Startup
104 <u>KFC 1.0 45 </u>	Start
Parity: None 💌 Error Checking: BCC 💌	Stor
	300
Stop Bits: 1 Protocol: Full Duplex	Delete
Auto-Configure	
For He	/13/00 04:21 PM
Use Modem Dialer Configure Dialer	
0k Cancel <u>D</u> elete <u>H</u> elp	
For Help, press F1	XREF 0:0000 APP READ

In the "Device" list box, select "SLC-CH0/Micro/PanelView".

Be sure that the SLC 500 processor is powered up, Processor key switch is in the "PROG" position, and that the interface cable is connected at one end to the PC COMM1 port and the other end to the 9-pin D-Shell RS-232 port on the SLC 5.04 processor.

RSLogix 500
je vew Lonnos Loois Window Hep Dinzel sa v Baleria al Santa V
No Edits
Driver: (unknown Elle View Communications Station Window Help
Configure Allen-Bradley DF1 Communications Device
Device Name: AB_DF1-1
Comm Port: COM1  COM1  Configure Configure
Station Number Too
(Decimal)
Parity: None  Error Checking: BCC
Stop Bits: 1  Protocot: Full Duplex  Delete
Auto-Corrigue
For H
Use Modem Dialer Contigure Dialer
Ok Cancel Delete Help
or Help, press F1

Click on Auto-Configure to set up a communication link.

😫 RSLogix 500
<u>File View Comms Tools Window Help</u>
No Edits Rockwell Software RSLinx Lite
Driver: (unknowr Elle View Communications Station Window Help
Configure Drivers
Av. Configure Allen-Bradley DF1 Communications Device Close
Device Name: AB_DF1-1
Comm Port: COM1   Device: SLC-CH0/Micro/Panel/view
2 Configure
Station Number Terrent Station
Baud Rate: 19200 V Gottomal UU
Start
Parity: None 💌 Error Checking: CRC 💌 Stop
Stop Bits: 1  Protocol: Full Duplex  Delete
Auto-Configure Auto Configuration Successful
For Hi Use Modem Dialer Configure Dialer
0 Cancel Delete Help

The link is now functional. Note that Error Checking field now shows "CRC", and success message is in the Text Box next to the "Auto-Configure" button. Click on "OK" to continue.

RSLogix 500		- 1 - 10	_ 8 ×
<u>File View Comms Tools Window H</u> elp			
		122	
OFFLINE I No Forces II Attack I - I - I - I - I - I - I - I - I - I	5. I.S. I		
No Edits Rockwell Software RSLinx Lite			
Driver: (unknown Eile View Communications Station Window Help			
Configure Drivers			
Available Driver Types:		Close	
RS-232 DF1 Devices	▼ Add New		
Configured Drivers:			
Name and Description	Status	_	
AB_DF1-1 DH485 Sta: 0 COM1: RUNNING	Running	Configure	
		Startup	
		Start	
		Stop	
		Delete	
	1		
For Help, press F1	NUM	06/13/00 04:21 PM	
For Help, press F1		XREF 0:0000	APP READ

The "Configured Drivers" box now shows the "AB\_DF1-1 DH485 Sta: 0 Com1" driver running. Click on "<u>C</u>lose".

RSLogix 500
Elle View Comms Iools Window Help
No Edits Rockwell Software RSLinx Lite
Drive: (unknowr Eile View Communications Station Window Help *3
For Help, press F1 NUM 06/13/00 04:29 PM //
INTERP. PRESET

Minimize the "Rockwell Software RSLinx Lite" main frame window to send the application to the background.

From the toolbar menu, again select "Comms" and then select "System Comms...".

RSLogix 500 File View Comms Tools Window Help		_ B ×
OFFLINE     Image: No Forces       No Edits     Forces Disabled		
Driver: (unknown) Node • No Communications	аст дыс д типолованог д прахоаро	x
Autobrowse Petresh     Autobrowse     Workstation, SPARE PC #1     ⊕	Not Browsing	OK Cancel Online Upload Download
Current Selection Server: RSLinx API	Driver:	Reply Timeout:
Node: 0 Decimal (=0 Octal)	Type: Not a PLC, SLC, or CL	Apply to Project
For Help, press F1		XREF 0:0000 APP READ

The "Communications" dialog box re-opens now showing more options than before.

RSLogix 500	•			
<u>File View Comms I</u>	ools <u>W</u> indow <u>H</u> elp			
OFFLINE  No Edits Driver: (unknown)	rces Disabled  Node : On	- □ 3 E 3 E ↔ ↔ ↔ User { Bit } Timer/Counter } Input/Outpu	t 🖌 Compare	
	Communications		×	
	✓ Autobrowse Prefresh     Workstation, SPARE PC #1     ⊕-#a Linx Gateways, Ethernet     ⊕-#a AB_DF1-1, DH-485	Browsing - node 0 found Browsing - node 0 found	OK Cancel Qnine Upload Download	
	Current Selection		Reply Timeout:	
	Server: HSLinx API	Driver: AB_DF1-1	10 (Sec.)	
	Node: 0 Decimal (=0 Octal)	Type: Not a PLC, SLC, or CL	Apply to Project	
For Help, press F1			XREF 0:000	) APP READ

Click on the "AB\_DF1-1 DH-485" icon in the pane on the right.

A RSLogix 500	_ 문 ×
<u>Eile V</u> iew <u>C</u> omms <u>T</u> ools <u>W</u> indow <u>H</u> elp	
	<u> </u>
OFFLINE         INo Forces           No Edits         Forces Disabled           Driver: AB_DF1-1         Image: Additional and	ut <u>Compare</u>
Communications	×
✓ Autobrowse       Pefresh       Image: Constraint of the second	Cancel Online Upload Devriload
Server: RSLinx API Driver: AB_DF1-1	Reply Timeout:
Node: 1 Decimal (=1 Octal) Type: SLC500	Apply to Project
For Help, press F1	XREF 0:0000 APP READ

Click on the SLC icon in the pane on the right, here named "01 DN\_TEST". Note that the "Current Selection" frame is now updated with valid "Node: 1" and "Type: SLC 500" values. Click on "OK".

### Step 2. Using an "EMPTY.RSS" Project to Initialize a SLC 5/0x Processor

Step 3 can be used to initialize a SLC 5/0x Processor with a checksum fault. A checksum fault is normally encountered only when a brand new SLC 500 processor is first fitted with the backup battery and powered up for the first time. If clearing a checksum fault, load the "null" project "EMPTY.RSS".

Note that "EMPTY.RSS" expects to find only a SLC 5/0x processor in the rack. Making sure that the power is removed first, unplug the **1747-SDN** Scanner and any modular I/O present before restoring power. Then follow the next steps substituting the project name "EMPTY.RSS" for the project name "FIRST.RSS".

#### Step 3. Using a "FIRST.RSS" Project to Confirm DeviceNet Network

The next task is to go online and determine what is in the SLC 500 processor and a few details regarding the SLC 500 configuration. The RSLogix 500 project "First.rss" will then be opened, edited (if necessary) and then be downloaded to the SLC 500 Processor and run to verify the SLC Processor to 1747-SDN to drive DeviceNet communication.

RSLogix 500		_ 🗗 ×
<u>File V</u> iew <u>C</u> omms <u>T</u> ools <u>W</u> indow <u>H</u> elp		
OFFLINE         No Forces         Image: The set of the se		
Upload V Node : 1d Node : 1d		
For Help, press F1	XREF 0:0000	APP READ

At the end of Step 4, configuration of communication between the Configuration PC and the SLC 500 was completed. The next step is to go "online" to what should be an "empty" SLC processor.

RSLogix 500	_ # ×
<u>Elle View Comms Iools Window Help</u>	
OFFLINE         Image: No Forces         Image: No Forces	
Driver: AB_DF1.1 Going to Online Programming State	
Searching for Offline Image Filename : No Matching File Found	
SELECT FILE to merge for documentation (names, symbols, descriptions, etc) Online Processor Information Processor Iname : DN_TEST Processor Iname : 17471541 . 5/04 CPU 15K Merg. 05401 Create New File	
Station # : (1 Dec) Program Checksum : 51/9 Upload Use File	
Files Found With Matching Online Processor Name / Password Browse	
 For Help, press F1 XREF (0:0000   A	PP READ

The "Going to Online Programming State" dialog box opens. This illustrates "no match" to any existing project or processor name, as expected. Note that the "Processor Type" or the "Processor Name" might be different than in this guide.

RSLogix 500	_ 8 ×
<u>E</u> ile <u>V</u> iew <u>C</u> omms <u>I</u> ools <u>W</u> indow <u>H</u> elp	
Driver: AB_DF1-1 Going to Online Programming State	
Searching for Offline Image Filename : No Matching File Found	
SELECT FILE to merge for documentation (names, symbols, descriptions, etc) Online Processor Information Cancel	
Processor Name : DN_TEST Processor Type : 1747-1541 5/04 CPU - 16K Mem. 05401 Station # : (1 Dec) Processor Deckey un: 519 Clobal Lise File	
Files Found With Matching Online Processor Name / Password Browse	
For Help, press F1 XREF (0.0000	APP READ

Click on "Create New File" to proceed. Contents of the SLC will upload at this point.

PE Del país 500. De test	
File Fdit View Search Comms Tools Window Help	
PROGRAM 🛃 No Forces 🔮 🌉 🔄 🕂 🖬 🗄 E 🕫 🕫 🐼 🐠	
No Edits 🔄 Forces Disabled 🔄 🎦	
Driver: AB_DF1-1 Node : 1d Ver A Bit A Timer/Counter A Input/Output A Compare	
🙀 Dn_test 📃 🗵 🥂 🔣 LAD 2	- 🗆 🗡
Controller Properties	
Multipoint Monitor	
SYS0-	
// LAD 2 -	
Data Files	
Cross Reference	
C5 - COUNTER	
R6 - CONTROL	
N7 - INTEGER VI	-
✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	
For Help, press F1 XREF 2:0000	APP READ

The workspace opens, showing an empty project. Note that the name of the project defaults to the processor name.

Make sure the floppy disk containing the "FIRST.RSS" (or "EMPTY.RSS") project file is inserted into floppy drive "A:"



Windows Explorer should display this view of project files.

From the RSLogix 500 menu, click on "File" and select "Open".

RSLogix 500 - Dn_test		
<u>File E</u> dit <u>V</u> iew <u>S</u> earch <u>C</u> omms	<u>I</u> ools <u>W</u> indow <u>H</u> elp	
	● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●	
PROGRAM     No Forces       No Edits     Forces Disat       Driver: AB_DF1-1       Project       Image: Project       Image: Project	Dpen/Import SLC500 Program Path: C: \Program Files\Rockwell Software\RSLogix 500 English\Pro Look jn: Project	
Controller Controller Propertik Processor Status U Configuration HC Channel Configuration HC Channel Configuration HC Channel Configuration Strain Multipoint Monitor Strain Strain Configuration Strain Configuration Configuration Strain Configuration Strain Configuration Configuration Strain Configuration Configuration Strain Configuration Configuration Configuration Strain Configuration Configur	File name: [ Files of type: RSLogix (*.RSS,*.ACH, *.SLC) [	Qpen Cancel Help
Data Files   Cross Reference   Cross Reference    OO - OUTPUT    I - INPUT   S2 - STATUS  B3 - BINARY   T4 - TIMER   C5 - COUNTER   R6 - CONTROL   N7 - INTEGER	File PLC Information Processor Name : Static Processor Type : Static Revision Note Versio	
For Help, press F1		XREF 2:0000 APP READ

The "Open/Import SLC 500 Program" dialog box will appear.

🔒 RSLogix 500 - Dn_test		×
<u>File Edit View Search Comm</u>	s <u>T</u> ools <u>W</u> indow <u>H</u> elp	
PBOGBAM   No Forces	Open/Import SLC500 Program	
No Edite	Path: C:\Program Files\Rockwell Software\RSLogix 500 English\Project	
Driver: AB_DE1-1	Look in: 🕞 Project 🚽 🖬 👘 👘	
Project     Project     Controller     Controller     Controller     Orrogents     Configuration     Change Configuration     Change Configuration	Look in Project	
Multipoint Monitor	File game:            Open           Files of type:         RSLogix (".RSS," ACH, ".SLC)         Cancel           Help	
Costantes     Costantes	File PLC Information       Processor Name : Static       Processor Type : Static       Revision Note	
B3 - BINARY T4 - TIMER C5 - COUNTER R6 - CONTROL N7 - INTEGER		
For Help, press F1	XREF 2:0000 APP R	EAD

Navigate to the project files located on floppy drive "A".

RSLogix 500 - Dn_test		
<u>File E</u> dit <u>V</u> iew <u>S</u> earch <u>C</u> omms	<u>I</u> ools <u>W</u> indow <u>H</u> elp	
		1
PRDGRAM  No Forces No Edits Driver: AB_DF1-1  Driver: AB_DF1-1  Project	Open/Import SLC500 Program ? X Path: A:\ Look jn: 3½ Floppy (A:) T E E III	
Project     Project     Project     Project     Project     Project     Project     Controller     Processor Status     Project     Oconfiguration     Processor Status     Oconfiguration     Project		(END)
Multipoint Monitor	File name:     First.rss       Files of type:     RSLogix (".RSS,".ACH, ".SLC)       Cancel       Help	
Data Files	Schema: RSLogix 113 : File 113 File PLC Information Processor Name : DN_TEST Processor Type : 1747-L541 5/04 CPU - 16K Mem. DS401	
	Revision Note Version: 000  First Program. Verifies PLC to Uni control, No discrete 1/0 present	
	File 2	
For Help, press F1		XREF   2:0000   APP   READ

Select "FIrst.rss". Click on "<u>Open</u>" as to load the project from the floppy disk to the project workspace.

Program       No Forces         No Edits       Forces Disabled         Driver: AB_DF1:1       Node: 1d         Project       Image: AB_DF1:1	RSLogix 500 - Dn_test File Edit View Search Comms Tools Window	×
PROGRAM       No Forces         No Edits       Forces Disabled         Driver. AB_DF1-1       Node : 1d         Image: AB_DF1-1       Node : 1d         Image: AB_DF1-1       Node : 1d         Image: AB_DF1-1       Image: AB_DF1-1         Image: Controller       Image: AB_DF1-1         Image: AB_DF1-1		✓ 第8票 UP QQ□
	PROGRAM  No Forces Forces Disabled Driver: AB_DF1-1 Node : 1d	Image: Height of the state of the stat
Project Controller Properties Processor Status Controller Properties Processor Status No Configuration Multipoint Monitor Program Files SYS 0 - SYS 1 - Cross Reference O 0 - OUTPUT H - INPUT S2 - STATUS B3 - BINARY C 5 - COUNTER R6 - CONTROL N7 - INTEGER File 2 File 3 File	🙀 Dn_test	
Controller Properties Controller Properties Processor Status Configuration Configuration Configuration Multipoint Montor Program Files SYS 0 - SYS 1 - Cas SyS 1 - Cas Reference Outa Files Cas Reference Outa Files Status Data Files Example Construction Construction Cas Reference Controller Program Files Cas Reference Controller Program Files File 2 File 2 Cas Reference Controller Program Files Cas Reference Controller Program Files Controller Program Files Controller Program Files Cas Reference Controller Program Files Cas Reference Controller Program Files Controller Program Files Controller Program Files Cas Reference Controller Program Files Controller Program Files Controller Program Files File 2 Controller Program Files Controller Program Files Controller Program Files File 2 Controller Program Files Controller Program Files Control Program Files Control Program Files Control Program Fil	Project	
Cross Reterence     O0 - OUTPUT     OU - OUTPUT     D H - INPUT     S2 - STATUS     B3 - BINARY     D T4 - TIMER     C 5 - COUNTER     R 6 - CONTROL     N7 - INTEGER     File 2	Controller Controller Properties Configuration Channel Configuration Multipoint Monitor Program Files SYS 0 - SYS 1 - LAD 2 - Data Files	jix 500
	Ocos Reference     Oo - OUTPUT     Out - OUTPUT     S2 - STATUS     D B3 - BINARY     D T4 - TIMER     C S - COUNTER     R 6 - CONTROL     N 7 - INTEGER	File 2

Click on " $\underline{Y}$ es" to close the present project uploaded from the SLC processor.

RSLogix 500 - Dn_test	١×
<u>File Edit View Search Comms Iools Window Help</u>	
PROGRAM     No Forces       No Edits     Forces Disabled       Driver: AB_DF1-1     Node : 1d	
Non_test	
Controller Properties	
Channel Configuration Channel Configuration Channel Configuration Save changes to Dn_test?	
SYS0- SYS1- (LAD 2 -	
Data Files     Sector Setterence     One output	
B3_BINARY	
R6 - CONTROL	
N7 - INTEGER	-
Image: state	
For Help, press F1 XREF (2:0000 APP (F	EAD

Click on "No" to continue without saving the empty project.



Project "FIRST.RSS" will open in offline mode.

From the RSLogix 500 menu, click on "Comms" and select "Download...".

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File Edit View Search Comms Tools Window H	Help
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OFFLINE         ●         No Forces         ●           No Edits         ●         Forces Disabled         ●         Node: 1d	Image: Image
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Controller Controller Controller Controller Controller Controller Controller Processor Name : DN Processor Type : 174	ision notes again Version: 000 o Uni control, No discrete I/O present L_TEST Station # : 1 Dec 1 Cancel
	Collective settings of T.4.0 and T4:1 give 50-50 duty cycle and 1 second duration for the "HeartBeat" tic T4:0 T4:1 B3:0 TT TT TT 0 Reset logic for "HeartBeat" tic
For Help, press F1	XREF 2:0000 APP READ

The "Revision Note" dialog box will open to allow editing prior to Download.



If the name is not "DN\_TEST", the "Processor Name" field allows editing to match the present Processor) Name. Once the name is "DN\_TEST", click on "OK" to proceed.



A confirmation box presents the last opportunity to change one's mind (and not download). Click on "Yes" to proceed.

The program will download at this point.



Click on "Yes" after the download to go online.

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	0001	This time rets the time duration for the "Heartbeat" tic. TON Time: On Delay Time: T4:1 Time Base 0.01 Preset 100c Accum 88<
B3 - BINARY     B3 - BINARY     T4 - TMMER     C5 - COUNTER     R6 - CONTROL     N7 - INTEGER	0002	Collective settings of T4:0 and T4:1 give 50-50 duty cycle and 1 second duration for the "HeartBeat" tic T4:0 T4:1 B3:0 TT TT O File 2
For Help, press F1		XREF 2:0000 APP READ

The SLC Processor is now online, and project "First.rss" is displayed in the RSLogix 500 workspace. Note that the status list box now displays "PROGRAM" and that the traffic light icon is rotating.

Move the "*RUN / REM / PROG*" switch on the SLC 5/0x processor to the "*REM*" (remote) position.

📲 RSLogix 500 - First.rss			
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REMOTE PROG ●         No Forces         ●           No Edits         ●         Forces Disabled         ●           Driver: AB: DE1:1         No         No         No		User ∠ Bit ∠ Timer/Counter ∠ Input/Output ∠ Cor	npare
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	E <sub>I-1</sub> E	<u> </u>	
Controller		This timer controls the duty cycle for the "HeartBeat" tic by direc Logic needs the value for "Preset" T4:0 to be less than the value oung	tly controlling the on time. for "Preset" T4:1found in next
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Multipoint Monitor		Time I Preset Accun	Base 0.01 ■(DN) ■ SO< 1. SO<
SYS0-			
🥼 LAD 2 -		This timer sets the time duration for the "Heartbeat" tic.	ом —
	0001	Time: Time: Time: Prest Accur	On Delay
T4 - TIMER		Collective settings of T:4:0 and T4:1 give 50-50 duty cycle and 1 "HeartBeat" tic	second duration for the
	0002		HeartBeat tic B3:0
		ile 2 /	
For Help, press F1			XREF 000:0000 APP READ

The Processor State List Box displays "REMOTE PROG". This list box allows the user to go from Program to Run and back to Program from the RSLogix 500 application.



Pull down the Processor State List Box and select "RUN".

A dialog box will appear requesting confirmation. Click on "Yes".

## Step 4. SLC Fault-at-Run Troubleshooting

A common problem at this point in a project is that the SLC rack configuration does not match the project that was just downloaded into the processor. The following series demonstrates how to navigate to status dialog windows to isolate what went wrong.



The SLC 500 Processor just faulted going from "**PROG**ram" mode to "**RUN**" in "**REM**ote" mode. Note the red Faulted box.

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FAULTED         No Forces           No Edits         Forces Disabled           Driver: AB_DF1-1         No	Image:	
🗽 FIRST.RSS	KLAD 2	- U ×
Project		
Controller	This timer controls the duty cycle for the "HeartBeat" tic by directly controlling the on the Logic needs the value for "Preset" T4:0 to be less than the value for "Preset" T4:1found is num.	ne. 🔺
→ Processor Squus     → U Processor Squus     → U Processor Squus     → Channel Configuration     → Multipoint Monitor     → Program Files     → Sys 0	0000 Tonelay Timer On Delay Timer T4:0 Time Base 0.01 Prest S0< Accum 0<	сиз(из
-SYS1-	This timer sets the time duration for the "Heartheat" tip	
LAD 2 -     Data Files     Cross Reference     O 0 - OUTPUT     11 - INPUT     S2 - STATUS	0001 Timer Or Delay Timer Or Delay Timer Delay Timer Ease 0.01 Preset 100c Accum 0<	и
- B3 - BINARY - T4 - TIMER C5 - COLINITER	Collective settings of T:4.0 and T4:1 give 50-50 duty cycle and 1 second duration for the "HeartBeat" tic $\hfill T$	
- COUNTER - R6 - CONTROL - N7 - INTEGER	0002 T4:0 T4:1 B3:0002	at the
		ڪر
For Help, press F1	XREF 000:0	1000 APP READ

Double-click on "Processor Status" on the "project tree".

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File Edit View Search Comms Iools Window Help
FAULTED     No Forces       No Edits     Forces Disabled       Driver: AB_DF1-1     Node: 1d
RFIRST.RSS DIX KLAD 2
Project
- Controller This timer controls the duty cycle for the "HeartBeat" tic by directly controlling the on time.
Logic needs the value for "Preset" T4:0 to be less than the value for "Preset" T4:1 found in next
Man Proc Scan Times Math 10 Chan 0 Ch 0 Nodes Chan 1 Debug Errors 001 - 0N-
- S SYS1 Index Register S:24 = 0 Date S:39:37 = 8 / 5 / 1900
Pierro Pata Files CIE Addressing Made C/2/2 = No Ime S:40-42 = 16 : 25 : 23
Cross Online Edits 5:33/11 - 5:33/12 = No online edits evist     Set Date & Time     T4:1
ion for the
C5-C Radix: Structured
R6-( S2 Properties Usage Help B3.0
For Help, press F1 XREF (0:0000 [APP] READ

The "Data File S2 – Status" tabbed dialog box will open. Click on the "Errors" tab.

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Eile Edit View Search Comms Iools Window Help	
FAULTED     No Forces       No Edits     Forces Disabled       Driver: AB_DF1-1     Node : 1d	
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Project	
Controller	
- 🛄 10 Co 🔁 Data File S2 STATUS	-
He Chan Main Proc Scan Times Math ID Chan D Ch Nodes Chan 1 Debug Errors ()	
Program f Paulo Overnue A Powerup 3,170 = 0 ASUI Sung wamputation 3,0713 = 0     Startup Protection Eaulo S129 = 0     Faulo S129 = 0	
Major Error Halt S:1/13 = 1 Major Error S:6 = 253	
LAD Math Overflow Trap S:5/0 = 0 Error Description	
Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a user program     Control Register Error S:5/2 = 0 When going-to-run, a userorun, a user program     Control Register     Control Register Err	
Cross Major Error Executing User Fault Rtn. S:5/3 = 0 declared slov2 as unused, but sources T4-1 declared slov2 as unused, but sources and the source of the	
M0/M1 Referenced On Disabled Slot 5:5/4 = 0     Inserted. This can also mean that the      IO0 - (     M0/M1 Referenced On Disabled Slot 5:5/4 = 0     Inserted. This can also mean that the      IO0 - (     M0/M1 Referenced On Disabled Slot 5:5/4 = 0     Inserted. This can also mean that the      IO0 - (     M0/M1 Referenced On Disabled Slot 5:5/4 = 0     Inserted. This can also mean that the      IO0 - (     M0/M1 Referenced On Disabled Slot 5:5/4 = 0     Inserted. This can also mean that the      Inserted. This can also mean that the      IO0 - (     M0/M1 Referenced On Disabled Slot 5:5/4 = 0     Inserted. This can also mean that the      Inserted. This can also mean the      Inserted. This can also mean that the      Inserted. This can also mean that the      Inserted. This can also mean the      Inserted. This can also mean the      Inserted. This can also mean th	
I - IN Battery Low 5:5/11 = 0   To enter RUN or TEST was made with I ▼   0<	
- S2 - S Fault/Powerdown (Fung #) S: 20 =	
ion for the	
Cs. ( Radix Structured V	
Real Barbeat to Barbaat to B	
	-
✓ File 2	
For Help, press F1 XREF 0.0000 APF	READ

"The "Errors" tab displays useful fault evaluation information. In this example, the user went online with the Discrete Combo I/O module plugged in and active, and no rack I/O declared in project "FIRST.RSS".

Before clearing the fault in this example, make sure that the "RUN/REM/PROG" switch on the SLC processor is in the "REM" position.



Click on "Clear Major Fault" button to restart the processor.



The fault is cleared. The processor reverts back to the REMOTE PROGRAM mode. Note that the processor is still online. Click on the close button to dismiss the "Data File S2 – Status" dialog box.



Pull down the Processor State List Box and select "RUN". A dialog box will appear requesting confirmation. Click on "Yes".

Whether a "Fault on Run", other errors, or no errors occurred, the SLC 500 processor in now "running".

RSLogix 500 - First.rss				
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Project	E <sub>IH</sub> E <sub>N</sub>			
Controller		This timer controls the duty cycle for the "HeartBeat" tic by directly controlling the on time. Logic needs the value for "Preset" T4:0 to be less than the value for "Preset" T4:1found in next		
Configuration     Mit Configuration     Mit Channel Configuration     Mit Channel Configuration     Program Files     Program Files     Sign 2: 0 - 0     Program 14	0000	Timer On Delay Timer T4.0 Times Base 0.01 Preset 50< Accum 29<		
- S SYS1- - Ø LAD 2- Data Files - S Cross Reference - O 00- 0UTPUT - O 11 - INPUT - S 2- STATUS	0001	This timer sets the time duration for the "Heartbeat" tic. Tomer On Delay Timer On Delay Timer See 0.01 Preset 100< Accum 29<		
B3 - BINARY	0002	Collective settings of T.4.0 and T4.1 give 50-50 duty cycle and 1 second duration for the "HeartBeat" tic HeartBeat tic B30 T4.0 T4.1 B30 T1 TT TT TT I I I I I I I I I I I I I I		
For Help, press F1		XREF 000:0000 APP READ		
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	1			
REMOTE RUN         No Forces           No Edits         Forces Disabled           Driver: AB_DF1-1         No	de:1d	Image: Second secon		
🙀 FIRST.RSS 💶 🗙	LAD	2		
Project	E <sub>IM</sub> E			
Controller     Controller Properties     Ortrocessor Status     Other Discussion	0003	Reset logic for 'HeatBeat" tic T4:1 → [		
→ M Channel Configuration → Multipoint Monitor ⇒ → Program Files → SYS 0 -	0004	Reset logic for "HeatBeat" tic T4:1 [		
SYS1 -	0005	Direct Output O:1:17 is mapped to Node 1 OUT Word 1, bit 7 (node 1 #18:31) in 1747.SDN mapped to node 1 #18:31 B3:0 0 0 23 1747-SDN		
	0006	Dissect Output O:1:477 is mapped to Node 2 OUT Word 1, bit 7 (node 2 #18.31) in 1747-SDN mapped to node 2 #18.31 B30 O:1 0 71 1747-SDN W ile 2		
For Help, press F1		XREF 2:0000 APP REAL		

Scroll down until Rung 5 and Rung 6 are both visible. Rung 5 is setting and resetting the bit that is mapped to node 1, bit 18.31 by way of node 1 "OUT WORD 1" (configured as #90.11), bit 7.

RSLogix 500 - First.rss		
<u>File E</u> dit <u>V</u> iew <u>S</u> earch <u>C</u> omms <u>T</u> ools	<u>W</u> indow <u>I</u>	1elp
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🙀 FIRST.RSS 💶 🗵 🗶	LAD	2
Project	E <sub>I-1</sub> E	
		Prove to size Contract Description
Controller     Controller Properties	0003	Rest logic for flearfbeat tic T4.1 DN CRES - CRES -
Channel Configuration     Multipoint Monitor     Program Files     Sys 0.	0004	Reset logic for "HeartBeat" tic T4:1 T4:1 C DN DN
- S SYS 1 - - Ø SYS 1 - - Ø Data Files - Ø Cross Reference - ○ 00 - OUTPUT - □ 1 - INPUT	0005	Direct Output 0:1:1/7 is mapped to Node 1 OUT Word 1, bit 7 (node 1 #18.31) in 1747-SDN mapped to node 1 #18.31 B3.0 0:1 0 23 1747-SDN
- 1 S2-STATUS - 1 S2-STATUS - 2 B3-BINARY - 1 T4-TIMER - 2 C5-COUNTER - 6 F6-CONTROL - 1 N7-INTEGER	0006	Disect Output O:1.4/7 is mapped to Node 2 OUT Word 1, bit 7 (node 2 #18.31) in 1747-SDN mapped to node 2 #18.31 0:1 0 71 1747-SDN
		ile 2
For Help, press F1		XREF 2:0000 APP READ

Rung 6 is setting and resetting the bit that is mapped to node 2, bit 18.31 by way of node 2 "OUT WORD 1" (configured as #90.11), bit 7.

Bit #18.31 on Unidrive node 1 and Unidrive node 2 will toggle "on-off-on" in an alternating fashion to confirm proper DeviceNet communication from the PLC address space to the Unidrive's address space.

## Step 5. Closing RSLogix500 and RSLinx Lite

RSLogix 500				_ 8 ×
<u>File ⊻iew Comms Iools Window H</u> elp				
DFFLINE  No Edits Forces Disabled Node : 1d	User (Bit (	Timer/Counter & Input/Output & Compare		
For Help, press F1			XREF 0:0000	APP READ

From the RSLogix 500 menu, click on "<u>File</u>" and select "<u>C</u>lose". RSLogix500 reverts to an OFFLINE state and displays its main frame window.

From the same RSLogix 500 menu, click on "File" and select "Exit".

Depending how you got to this point, RSLinx Lite may or may not be running in the background after RSLogix500 closes. If RSLinx Lite is still running, press Alt-Tab to bring RSLinx Lite to the foreground.

🗞 Rockwell Software RSLinx Lite - [RSWho - 1]		_ 🗆 🗵
🚓 <u>File</u> View Communications Station Window Help		_ 8 ×
Autobrowse Refresh		
Workstation, SPARE PC #1 → Satura Gateways, Ethernet → AB_DF1-1, DH-485 → 00, Workstation, DF1-COM1 → 1, SLC-5/04, DN_TEST 00 01 DF1-COM1 DN_TEST		
Quit the application	NUM 06/29/00	03:00 PM //

From the RSLinx Lite menu, click on "<u>F</u>ile" menu item and select "E<u>x</u>it".



"First.rss" ladder logic as displayed from RSLogix500 workspace

# Appendix

## **Useful Publications and Application Notes**

- Control Techniques Application Notes
  - Allen Bradley SLC500 PLC with DeviceNet
  - DeviceNet Explicit Communication Function Block for Allen Bradley SLC500 PLC

#### • Control Techniques Product Manuals

- User Guide Unidrive model sizes 1 to 5 Unidrive LV model sizes 1 to 3 P/N 0460-0021
- Installation Guide Unidrive model size 5 P/N 0447-0089
- Quick Instructions for initial start-up-of Unidrive V3 P/N UQSV30898
- User Guide DeviceNet UD77/MD25 Option Cards for Unidrive and Mentor II P/N 0447-0034

#### Rockwell Publications

- DeviceNet Manager Software User Manual Cat. No.1787-MGR
- DeviceNet Scanner Configuration Manual Cat. No.1784-PCIDS-CPCIDS
- SLC 500<sup>TM</sup> and MicroLogix<sup>TM</sup> 1000 Instruction Set Reference Manual
- RSLogix 500 Programming for the SLC 500<sup>™</sup> and MicroLogix <sup>™</sup> Family Getting Results Guide