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PLX82-EIP-PNC

Communication Gateway EtherNet/IP™ Server to PROFINET Controller

December 18, 2023



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PLX82-EIP-PNC User Manual For Public Use.

December 18, 2023

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For professional users in the European Union

If you wish to discard electrical and electronic equipment (EEE), please contact your dealer or supplier for further information.



Warning - Cancer and Reproductive Harm - www.P65Warnings.ca.gov

Important Safety Information

Power, Input, and Output (I/O) wiring must be in accordance with Class I, Division 2 wiring methods, Article 501-4 (b) of the National Electrical Code, NFPA 70 for installation in the U.S., or as specified in Section 18-1J2 of the Canadian Electrical Code for installations in Canada, and in accordance with the authority having jurisdiction. The following warnings must be heeded:

WARNING - EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIV. 2;

WARNING - EXPLOSION HAZARD - WHEN IN HAZARDOUS LOCATIONS, TURN OFF POWER BEFORE REPLACING OR WIRING MODULES

WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS.

Class 2 Power

Agency Approvals and Certifications

Please visit our website: www.prosoft-technology.com

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1 Start Here

1.1 PLX82-EIP-PNC Overview

The EtherNet/IP[™] to PROFINET Controller gateway provides EtherNet/IP-based controllers the ability to control up to 36 PROFINET RT devices such as field I/O, drives, HMIs, controllers, etc.

The PLX82-EIP-PNC is a stand-alone DIN-rail mounted unit that provides two Ethernet ports for communications, remote configuration, and diagnostics. The onboard SD card slot (SD card optional) is used for storing configuration files that can be used for recovery, transferring the configuration to another gateway, or general configuration backup.

The gateway supports 248 words of input data and 248 words of output data per Class 1 connection. The module supports 8 EIP connections and 100 Class 3 EIP commands.

The gateway is configured using *ProSoft Configuration Builder (PCB)* and *ProSoft fdt Configuration Manager.*





- ODVA Approved
- PROFINET v2 certification with PROFINET Class A compliance
- EtherNet/IP and PROFINET certifications ensure that the device is compatible with their respective network
- Field-tested with multiple PROFINET devices from multiple vendors
- Remotely view and diagnose EtherNet/IP and PROFINET networks
- Embedded EDS AOP provided to allow for seamless integration to Studio 5000 and RSLogix 5000
- No ladder programming is required using EtherNet/IP I/O connections
- PLX82-EIP-PNC gateways with firmware version v1.006 and above support the Link Layer Discovery Protocol (LLDP)

1.2 System Requirements

The PLX82-EIP-PNC module requires the following minimum hardware and software components:

- Rockwell Automation ControlLogix or CompactLogix processor (firmware version 10 or higher).
- Rockwell Automation RSLogix 5000 programming software version 16 or higher
- Rockwell Automation RSLinx[®] communication software version 2.51 or higher.

The ProSoft Configuration Builder configuration software for the PLX82-EIP-PNC gateway requires the following minimum hardware and software components:

- Pentium[®] II 450 MHz minimum. Pentium III 733 MHz (or better) recommended
- 128 Mbytes of RAM minimum, 256 Mbytes of RAM recommended
- 100 Mbytes of free hard disk space (or more based on application requirements)

Supported operating systems:

- Microsoft Windows 10
- Microsoft Windows 7 Professional (32-or 64-bit)
- Microsoft Windows 2000 Professional with Service Pack 1, 2, or 3
- Microsoft Windows Server 2003

ProSoft fdt Configuration Manager software requirements:

- Microsoft .NET must be installed on the PC or laptop used to configure the gateway.
- 2 GHz minimum processor

Supported operating systems:

- Microsoft Windows 11
- Microsoft Windows 10
- Microsoft Windows 8

1.3 Shipping Contents

The following components are included with the PLX82-EIP-PNC.

Qty.	Part Name	Part Number	Part Description	
1	EtherNet/IP™ Server to PROFINET Controller	PLX82-EIP-PNC	ProSoft communication gateway	
1	Screwdriver	HRD250	Small, flat-bladed screwdriver	
1	Power Connector	J180	3-wire DC power connector	

If any of these components are missing, please contact ProSoft Technology Technical Support for replacement parts.

1.4 Setting Jumpers

The jumper settings are located on the back of the PLX82-EIP-PNC. For security reasons, the *Mode 1* and *Mode 2* jumpers are not readily accessible. Under normal conditions, these two jumpers will not be required.

Setup Jumper

Mode 3 is jumpered by default. It is only required for firmware updates.



1.5 Mounting the PLX82-EIP-PNC on a DIN-rail



- 1 Position the PLX82-EIP-PNC on the DIN-rail B at a slight angle.
- 2 Hook the lip on the rear of the adapter onto the top of the DIN-rail, and rotate the adapter onto the rail.
- **3** Press the adapter down onto the DIN-rail until flush. The locking tab snaps into position and locks the module to the DIN-rail.
- 4 If the adapter does not lock in place, use a screwdriver or similar device to move the locking tab down while pressing the adapter flush onto the DIN-rail and release the locking tab to lock the adapter in place. If necessary, push up on the locking tab to lock.

1.6 Connecting Power



Use the J180 Power Connector to connect to the proper signals.

WARNING: Be sure not to reverse polarity when applying power to the PLX82-EIP-PNC. This causes permanent damage to the internal power distribution circuits.

2 **ProSoft Configuration Builder Software**

ProSoft Configuration Builder (PCB) and ProSoft fdt Configuration Manager is used to configure the PLX82-EIP-PNC. The software files can be downloaded at: <u>www.prosoft-technology.com</u>.

Note: To use the ProSoft Configuration Builder under the Windows 7 OS, you must be sure to install it using the *Run as Administrator* option. To find this option, right-click the Setup.exe program icon, and then click **RUN AS ADMINISTRATOR** on the context menu. You must install using this option even if you are already logged in as an Administrator on your network or personal computer (PC). Using the Run as Administrator option allows the installation program to create folders and files on your PC with proper permissions and security. If you do not use the Run as Administrator option, the ProSoft Configuration Builder may appear to install correctly, but you will receive multiple file access errors whenever the ProSoft Configuration Builder is running, especially when changing configuration screens. If this happens, you must completely uninstall the ProSoft Configuration Builder and then re-install using the Run as Administrator option to eliminate the errors.

Note: The ProSoft fdt Configuration Manager software requires Microsoft.NET to be installed on the PC/laptop used to configure the module. The PC/laptop must have a 2 GHz minimum processor.



2.1 Creating a New Project

1 From your PC, click START > PROSOFT TECHNOLOGY > PROSOFT CONFIGURATION BUILDER.

2	Click FILE > NEW .	The application	prompts for a	Module Type.
---	------------------------------	-----------------	---------------	--------------

💕 Untitled - ProSoft Conf	Choose Module Type	
🗋 😰 🖬 🕂 — 🖄 🖄	Product Line Filter	
File View Project To Default Project	C All C PLX4000 C PLX6000 C MVI46 C MVI56 C MVI71 C PLX5000 C PLX30 C MVI69 C MVI56E C PTQ C MVI50F C MVI50 C MVI50	
	Search Module Type	
	STEP 1: Select Module Type Module Definition:	
	STEP 2: Define Ports	
	Section Status Action Required	
	OK Cancel	L L L L L L L L L L L L L L L L L L L
	# Last Download: Never	-
	<pre># Application Rev: # OS Rev:</pre>	=
	# Loader Rev:	
	<pre># MAC Address: # ConfigEdit Version: 4.4.4 Build 9</pre>	
	# Module Configuration	
	<	•
Ready		Default Module CAP NUM SCRL

3 Select the PLX80 radio button and then select PLX82-EIP-PNC.

Choose Module Type				×
	Produ	ct Line Filter—		
C All C PLX4000 C PLX5000 C MVI69E	C PLX30	MVI69	C MVI56 C MVI56E	
STEP 1: Select Module T		Module Type Module Definit	tion:	
		Ethernet/IP to Communicatio	o Profinet Proto ns Gateway	col
Section	▼ Status	Action Reg	uired	_
Comment VEIP Class 3 Server VEIP Class 3 Client 0 VEIP Class 3 Uclient VEIP Class 3 Uclient VEIP Processor Path VPNC CommonNET	Used Used Used	UnCheck if UnCheck if		•
			ОК	Cancel

4 Click **OK**. The PLX82-EIP-PNC is now added to ProSoft Configuration builder.

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File View Project Tools Help				
□-	Name	Status	Information	
🖻 📾 Default Location	✓ PLX82-EIP-PNC	Configured	PLX82-EIP-PNC	
H PLX82-EIP-PNC	PLX82	EPNC	1.00	
	Comment	Values OK		
	EIP Class 3 Server	Values OK		
	EIP Class 3 Client 0 EIP Class 3 Client 1	Values OK Values OK		
	EIP Class 3 Client 1 EIP Class 3 UClient 0	Values OK Values OK		
	EIP Class 5 Ochent 0	Values OK Values OK		
	PNC	Values OK Values OK		
	CommonNET	Values OK		
	WATTCP	Values OK		
	PROFINET	Values OK		
	Last Change:	Never		
	Last Download:	Never		
	# Module Information			
	# Last Change: Neve # Last Download: Neve	er		
	# Last Download: No	ever		
	<pre># Application Rev: # OS Rev:</pre>			
	<pre># Loader Rev: # MAC Address:</pre>			
	# ConfigEdit Versi	on: 4.4.4 Build 9		
	# EtherNet Configu			
	-	ration		
	my_ip		: 192.168.0.250	-
Ready				PLX82-EIP-PNC CAP NUM SCRL ,

2.2 Setting a Project Name

The project name is initially set to "Default Location".

1 Right click on the **DEFAULT LOCATION** icon and select **RENAME**.



2 Type in a name for your project and press ENTER.



2.3 Setting a Temporary IP Address

Important: ProSoft Discovery Service (PDS) is a built-in utility within PCB. It locates the PLX82-EIP-PNC through UDP broadcast messages. These messages may be blocked by routers or layer 3 switches. In that case, PDS is unable to locate the PLX82-EIP-PNC.

To use PDS, arrange the Ethernet connection so that there is no router or layer 3 switch between the computer and the PLX82-EIP-PNC, or reconfigure the router or layer 3 switch to allow the routing of the UDP broadcast messages.

1 Right-click the PLX82-EIP-PNC icon and select DIAGNOSTICS.



2 When the *Diagnostics* dialog opens, click on the **SETUP CONNECTION** icon.



3 When the *Connection Setup* dialog opens, click the **BROWSE DEVICES** button to locate your device.

Connection Setup
Select Connection Type: Ethernet
Ethernet
ProSoft Discovery Service (PDS) Browse Device(s)
CIPconnect 192.168.0.100,p:1,s:0\$56
CIP Path Edit
Test Connection Connect Cancel

4 This launches *Prosoft Discovery Service*, which displays the ProSoft modules that have been detected on the network

S test - ProSoft Configuration Builder			
□ 🤌 🖬 🕇 — 🖄 🐿 🔸 🗖 🕘 .			
File View Project Tools Help			
⊡- 🗀 Test 2	Name	Status	Information
Prosoft Discovery Service	2 R.M. (P. M.		PLX82-EIP-F 1.00
. Q		0	1.00
Sn: 00008DA25E95 PLX82-EIP-PNC 192 168.0.250			
			Connection Setu
			Select Conn
			Ethernet
			- ProSoft Disc
Click the search icon to begin the browse			
	Config	ormation	

5 Right-click the module, and then click **ASSIGN TEMPORARY IP**.



6 The module's default IP address is **192.168.0.250**.

💕 test - ProSoft Configuration Builder		
□ 🖻 🖬 🕇 🗕 🖄 🐿 🔶 🕇 📓 🕘 .		
File View Project Tools Help		
⊡ Test 2	Name	Status
Prosoft Discovery Service	V 8,80-09-9%	
0		
Assign Temporary IP Address	0	

7 Enter an unused IP within your subnet, and then click **OK**.

2.4 Ethernet Configuration

This is used to provide address information for the gateway; in this case, the EIP driver. This is unique address information for the PLX82-EIP-PNC's EIP driver and diagnostic interface. The default is initially set to 192.168.0.250.



Image: Status Information	Stest.ppf - ProSoft Configuration Builder				
B ■ PX82_EP_PXC B ■ Bakersfield B ■ PX82_EP_PXC B ■ PX82_EP_PXC B ■ RX82_EP_PXC B ■ RX82_EP_PXC B ■ RX82_EP_PXC B ■ A EP Class 3 Client 0 B ■ A EP	□ 🤌 🖬 🕇 — 🖄 🐿 🔸 🛉 📓 🥹 -				
 → Baladersfield ■ PX82-EP-PNC	File View Project Tools Help				
B: A EIP Class 3 Client 0 B: A EIP Class 3 Client 1 D: A EIP Class 3 Client 2 D: A EIP Class 3 Client 1 D: A EIP Class 3 Client 2 D: A EIP Class 3 Client 1 D: A EIP Class 3 Client 2	e an Bakersfield e→ i plx31-pnd e→ i plx82-EIP-NPC i → & Comment e→ & EIP Class 3 Server			-X-)	
Ready PLX82-EIP-PNC CAP NUM SCRL	는 출 EIP Class 3 Client 0 는 출 EIP Class 3 Client 1 는 출 EIP Class 3 UClient 0 는 출 EIP Processor Path 는 출 PNC 는 출 CommonNet - 鑑 Ethernet Configuration	Image: mail of the second s	255.255.255.0	Image: Second	
	Ready			PLX82-EIP-PNC CA	P NUM SCRL

- 1 Select **my_ip** and enter the IP address of the EIP device in the gateway.
- 2 Select **netmask** and enter the network mask.
- **3** If using a gateway/router, select **gateway** and enter the IP address of the network gateway (router). If you are not using a gateway/router, enter 0.0.0.0 in this field.
- 4 Click **OK** when done.

Parameter	Description
my_ip	This is the default address assigned to the EIP side of the gateway. Change this to the address that suites your network configuration.
netmask	This is the default network mask. Update this to the appropriate network mask.
gateway	This is the IP address for gateway that you want to use.

2.5 Saving the Project

The PCB project must be saved when you move from PCB to ProSoft fdt Configuration Manager if you have not previously saved the project while in PCB.

- 1 Navigate to **FILE** > **SAVE AS**.
- 2 Select the appropriate directory and filename name of your ProSoft Project File (PPF).
- 3 Click SAVE.

2.6 Downloading the Configuration File to the PLX82-EIP-PNC

After you have created the project in the ProSoft Configuration Builder and configured the PROFINET controller (Chapter 4, page 51) in ProSoft fdt Configuration Manager software, you are ready to download it to the PLX82-EIP-PNC.

Warning: Prior to downloading the project with PCB, you must first save the project, then open ProSoft fdt Configuration Manager by double-clicking on "PROFINET" in the project tree of PCB. This process builds the necessary files and folders for the PROFINET configuration. When creating a new project, failure to open ProSoft fdt Configuration Manager prior to downloading will result in an error since the required files and folders have not been created for this project.

Example: Project folder before ProSoft fdt Configuration Manager is opened.



Example: Project folder after ProSoft fdt Configuration Manager is opened.

Comput	er ▶ Local Disk (E:) ▶ MyWS ▶ Projects ▶ P	NCtest 🕨		
Organize 🔻 Include in	n library 🔻 Share with 💌 Burn New	w folder		
🔆 Favorites	Name	Date modified	Туре	Size
🧮 Desktop	PS_EIPtoPNC_PLX82-EIP-PNC_PNC	11/5/2018 7:08 AM	File folder	
🗼 Downloads	ProSoftBuilder.xml	11/5/2018 7:07 AM	XML Document	1 KB
🖳 Recent Places	S_EIPtoPNC.ppf	11/5/2018 7:04 AM	ProSoft Configura	79 KB

1 From PCB, right-click on the **PLX82-EIP-PNC** icon and select **DOWNLOAD FROM PC TO DEVICE**.



2 The *Download files from PC to module* dialog box opens:

Download files from PC to module	X
STEP 1: Select Communication Path:	
Select Connection Type: Ethernet 💌	Browse Device(s)
Ethernet: 192 . 168 . 0 . 250	Use Default IP
CIPconnect:	CIP Path Edit
	RSWho
STEP 2: Transfer File(s):	
DOWNLOAD Abort	Test Connection
OK	Cancel

3 Click **TEST CONNECTION**.

If the PLX82-EIP-PNC's IP address matches the address in the Configuration Manager, and the software displays the following message: "*Successfully connected*."

If the PLX82-EIP-PNC's IP address does not match what was entered in ProSoft Configuration Builder, then the software displays an error message: "*Error: Connecting to Module. Please check your IP Address.*"

4 Click **DOWNLOAD** to download the project to the PLX82-EIP-PNC.

2.7 Uploading a Configuration from the PLX82-EIP-PNC

Use this feature to retrieve the configuration from the PLX82-EIP-PNC. Not only does it retrieve the configuration, but is also retrieves all related files used in creating that configuration. There are several reasons that you might use this feature:

- You want to modify the configuration, but do not have access to the original configuration files.
- You want to copy a configuration from one PLX82-EIP-PNC to another PLX82-EIP-PNC.
- You want to back up the configuration for safety.

Warning: This function replaces the current configuration in the ProSoft Configuration Builder with the one from the PLX82-EIP-PNC. Make sure you save the current configuration before uploading the configuration from the PLX82-EIP-PNC.

- 1 **Optional:** Create a new project in the ProSoft Configuration Builder by choosing **FILE** > **NEW**.
- 2 Right-click the PLX82-EIP-PNC icon and choose UPLOAD FROM DEVICE TO PC.



3 The Upload files from Module to PC dialog box opens:

Upload files from module to PC	×
<u></u>	
ſ	
STEP 1: Select Communication Path:	
Select Connection Type: Ethernet 💌	Browse Device(s)
Ethernet: 192 . 168 . 0 . 250	Use Default IP
CIPconnect:	CIP Path Edit
	RSWho
STEP 2: Transfer File(s):	
UPLOAD Abort	Test Connection
ок	Cancel

- 4 Select the Connection Type. If you don't know the IP address of the module that contains the configuration that you want, you can browse devices using the BROWSE DEVICE(S) button. This launches the ProSoft Discovery Service application.
- 5 Enter the IP address of the PLX82-EIP-PNC. All PLX82-EIP-PNC's are shipped with a default IP address 192.168.0.250. Click the USE DEFAULT IP button to use the default address.
- 6 Use the **TEST CONNECTION** button to ensure that the connection is good.
- 7 Click the **UPLOAD** button to start the upload.
- 8 When the upload is complete, the configuration is displayed in PCB. You can edit or save it on the PC.

2.8 Exporting a Project

You can export a PCB file that was created on your PC. This allows someone on a different PC to import your configuration file and have all the files that are part of your project. If you need assistance from ProSoft Technology Technical Support, they will need your exported files.

- 1 In the ProSoft Configuration Builder choose **PROJECT** > **MODULE** > **EXPORT CONFIGURATION FILES**.
- 2 In the Save As dialog box, navigate to the correct directory and save the configuration file.

2.9 Writing the Project to Compact Flash

This procedure describes how to save a project from a PC to a Compact Flash drive.

1 From PCB, navigate to **PROJECT > MODULE > WRITE TO COMPACT FLASH**.



2 Choose the appropriate drive, then click **NEXT**.



3 Follow the on-screen instructions and click **FINISH** when complete.





3.1 RSLogix 5000

If you want to add the PLX82-EIP-PNC gateway to an existing project, skip to Adding an *Ethernet Bridge* (page 29).



To create a new project...

- 1 In RSLogix 5000, choose **FILE > NEW**.
- 2 Select your PLC.
- 3 Select **REVISION 16** or newer.
- 4 Enter a name for your controller, such as **MY_CONTROLLER**.
- 5 Select your chassis type and click **OK**.

New Controller		×
Vendor:	Allen-Bradley	
<u>T</u> ype:	1756-L63 ControlLogix5563 Controller	▼ 0K
Re <u>v</u> ision:	20 🗸	Cancel
	Eedundancy Enabled	Help
Na <u>m</u> e:	My_Controller	
Description:		*
		-
<u>C</u> hassis Type:	1756-A10 10-Slot ControlLogix Chassis	•
Sl <u>o</u> t:	0 Safety Partner Slot: <none></none>	
Cr <u>e</u> ate In:	C:\RSLogix 5000\Projects	Browse
Security Authority:	No Protection	•
	Use only the selected Security Authority for Authentication and Authorization	

3.2 Adding an Ethernet Bridge



1 Expand the **I/O CONFIGURATION** folder in the Project tree. Right-click the appropriate communications bus and choose **New Module**.

in	7		
🖮 🚍 1756 Backplane, 1756-A	1	New Module	
		Discover Modules.	
	ß	Paste	Ctrl+V
		Properties	Alt+Enter
		Print	•

2 This opens the *Select Module Type* dialog box.

3 For this example, click the **1756-ENBT ETHERNET BRIDGE** and then click **CREATE**.

Enter Search Text for	Module Type	Clear Filters		Hide Filters 🕱
M	todule Type Category Filters	<u> </u>	Module Type Vendor	Filters
 Analog Communication Controller Digital 			Bradley It Technology	=
•	m	• •	m	۱.
	er Description		Vendor	Category
1756-EN2TR 1756-EN2TSC		themet Bridge, 2-Port, Tv themet Bridge, Twisted-P		Communication Communication
1756-EN3TR 1756-ENBT		thernet Bridge, 2-Port, Tw thernet Bridge, Twisted-P		Communication
1756-ENET 1756-EWEB	1756 Ethernet Comm 1756 10/100 Mbps E	inication Interface themet Bridge w/Enhanc	Allen-Bradley ed Web Allen-Bradley	Communication
•		m		•

4 Enter the name, revision, and IP address for the 1756-ENBT and then click **OK**.

New Module	—
General* Connection RSNetWorx Module Info Internet Protocol	Port Configuration
General [®] Connection RSNetWox Module Info Internet Protocol Type: 1756-ENBT 1756 10/100 Mbps Ethernet Bridge, Twis Vendor: Allen-Bradley Parent: Local Nage: ETHERNET_BRIDGE Description: Change Module Definition Revision: 5.1 Electronic Keying: Compatible Module Rack Connection: None Time Sync Connection: None	
Status: Creating	OK Cancel Help

3.3 Adding the PLX82-EIP-PNC



1 In RSLogix 5000, under the *1756-ENBT* icon, right-click **ETHERNET** and then choose **New Module**.

🖃 🖞 [1] 1756	lane, 5-L63	1756-A10 My_Controller 8T/A ETHERNET_BRID	GE
	1	New Module	
		Discover Modules	
	ß	Paste	Ctrl+V
		Print	•

2 Select the GENERIC ETHERNET/IP CIP BRIDGE and then click CREATE.

gen	eric		<u>C</u> lear F	ilters		Hide Filters	*
	Module T	ype Category Filters	*		Module Type Vend	or Filters	*
	Analog Communication Communications Adapte Controller	ſ			Allen-Bradley Prosoft Technology		H
•			•	•			•
•	Catalog Number	Description			Vendor	Category	
	ETHERNET-BRIDGE	Generic EtherNet/IP (CIP Bridge		Allen-Bradley	Communicatio	m
	ETHERNET-MODULE	Generic Ethernet Mod	lule		Allen-Bradley	Communicatio	n
•							•

3 Enter the name and IP address for the gateway and then click **OK**.

General Connection Module Info Port Configuration Port Diagnos Type: ETHERNET-BRIDGE Generic EtherNet/IP CIP Bridg Parent: ETHERNET_BRIDGE Name: PLX82_EIP_PNC Address	
Parent ETHERNET_BRIDGE	
Name: PLX82_EIP_PNC Addre	s / Host Name
	Address: 105 . 122 . 0 . 124 ostName:

4 Under the gateway (PLX82_EIP_PNC in this example), right-click **CIP BUS** and then choose **New MODULE**.

🗄 😁 I/O Configuration

- 🗄 🛲 1756 Backplane, 1756-A10
 - 1756-L63 My_Controller
 - 🗄 🖞 [1] 1756-ENBT/A ETHERNET_BRIDGE
 - 🗄 📲 Ethernet
 - 1756-ENBT/A ETHERNET_BRIDGE
 - - 🗄 🛲 CIP Bus
- 5 Click the GENERIC CIP MODULE and then click CREATE.

alog Module Discovery	Favorites			
Enter Search Text for Mo	dule Type	<u>C</u> lear Filters		Hide Filters 🕱
Mod Mod	ule Type Category Filters		Module Type Vendor	Filters
	Description		Vendor	Category
Catalog Number				
CIP-MODULE	Generic CIP Module		Allen-Bradley	Other
CIP-MODULE	Generic CIP Module	m	Allen-Bradley	Other
CIP-MODULE	Generic CIP Module	m	Allen-Bradley	

6 Add a Class 1 connection (enter the name and configuration parameters). Enter the Name, select **DATA-INT** for *Comm Format*, and enter the *Connection Parameters* as shown below. Click **OK**.

Type: CIP-MODULE Generic CIP Module Parent: PLX82_EIP_PNC Name: connection1 Description:	Output: 2 248 * (1	6-bit) 6-bit) -bit)
--	--------------------	---------------------------

7 Right-click the new connection and then choose **PROPERTIES**.



8 On the *Connection* tab, enter the *Requested Packet Interval (RPI)* time and then click **OK**.

Module Properties Report: PLX81_EIP_61850 (CIP-MODULE 1.1)			
General Connection* Module Info			
Requested Packet Interval (RPI): 100.0 ms (0.2 - 750.0 ms)			
Major Fault On Controller If Connection Fails While in Run Mode			
☑ Use Unicast <u>C</u> onnection over EtherNet/IP			
Module Fault			
Status: Offline OK Cancel Apply Help			

3.4 Importing the Ladder Rung

Note: The Add-On Instruction is only needed when Alarming and Acyclic Messaging are required. "Alarming" should not be confused with status information, as device and network status is available when the AOI is used or not.

- 1 Download the .L5X file from the PLX82-EIP-PNC product page at <u>www.prosoft-</u> <u>technology.com</u>.
- **2** Open the *Main Routine*.
- 3 Right-click on an existing rung and select **IMPORT RUNGS**.

🐞 RSLogix 5000 - Test_Lontoller [1756-L63 20.11]" - [MainProgra	m - Main	koutine"]			
📕 File Edit View Search Logic Communications Tools Window H	Help				
	-	A A 50 To V	<u> </u>	Select a Language	
Offline U RUN No Forces OK	TH-1\19	02.168.0.59\Backplane\0* 🗨	L R		
	a be d		1		
		++ ++ + + + + + ++ ++ ++ ++ ++ ++ ++ ++	-}-	<u>P</u>	
Redundancy 🗤	orites 🛴	Add-On 🖌 Alarms 🖌 Bit	Timer/Counter		
Controller Organizer	間	5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	ab 👻 <ab></ab>		
Controller Tags		е			
	0	e			
Power-Up Handler	V	C A Duran	Ctrl+X		
🖹 🚔 Tasks	1	Cu <u>t</u> Rung			
🖻 👼 MainTask		<u>C</u> opy Rung	Ctrl+C		
🖻 🕞 MainProgram		<u>P</u> aste	Ctrl+V		
Program Tags		Delete Rung	Del		
Unscheduled Programs / Phases					
		Add Rung	Ctrl+R		
Ungrouped Axes		Edit Rung	Enter		
Add-On Instructions		Edit <u>R</u> ung Comment	Ctrl+D		
🖶 🚔 Data Types		Import Rungs			
		Export Rungs 🐬			
🗄 📲 Strings					
Add-On-Defined		Start Pending Rung Edits	Ctrl+Shift+S		
		Accept Pending Rung Edits			
		Cancel Pending Rung Edits			
🖃 🔚 I/O Configuration					
🖻 📼 1756 Backplane, 1756-A7		Assemble Rung Edit			
1 [10] 1756-L63 Test_Contoller Cancel Rung Edit					
🖻 🖞 [1] 1756-ENBT/A ETHERNET_BRIDGE		Verify Rung			
		Torn's rearing			

4 At the Input Rungs dialog, locate the directory that contains the Add On rung.

🕌 Import Rung	s					×
Look in:	📃 Desktop		•	G 🗊 📂	•	
Recent Places	Librarie System	es n Folder	13	SysAdmin System Folder		
Desktop	Compu System	iter n Folder	¢	Network System Folder		
Libraries	PLX82 Logix 0 199 KB	_EIP_PNC_AddOn Designer XML File }				
. 🔍						_
Computer						
Network		-				
	File name:	PLX82_EIP_PNC_A	ddOn_Rung_	_v1_0 💌	Im	nport
	Files of type:	RSLogix 5000 XML I	Files (*.L5X)	T		Cancel
	Files containing:	ntaining: 🛏 Rungs 🗾 Help		Help		
	Into:	MainRoutine (Ma	ainProgram)	Ŧ		
Cverwrite Selected Rungs				1.		

- 5 Click IMPORT.
- 6 In the *Import Configuration* dialog box, make sure the *Operation* is set to **CREATE**, and then click **OK**.

Import Configuration		×
🎽 🌋 Find:	- <u>*</u> *	Find/Replace
Find Within: Final Name		
Import Content:		
- MainTask 	Configure Rung I	Properties
Main Togram	Imported Rungs:	1
References	Operation:	Create after Rung 0
- 📴 Add-On Instruction:		References will be imported as configured in the References folders
Components		
Errors/Warnings	Routine Proper	
	Name:	MainRoutine
	Description:	
	Type:	🗎 Ladder Diagram
	In Program:	🕞 MainProgram
4		
		OK Cancel Help
Ready		

7 When the import completes, the Add-On Instruction appears under *Add-On Instructions* in the window.


3.5 Downloading the RSLogix 5000 Project to the Processor

- 1 Save, and then download the project to the processor.
- 2 A yellow triangle in RSLogix 5000 means an error on connection. Check that the OUTPUT size and INPUT size for the Class 1 connection in the gateway configuration matches and the COMM FORMAT is INT. Try increasing the REQUESTED PACKET INTERVAL time of module if the error persists.
- 3 Check the PLX82-EIP-PNC's IP address. This is located in the bottom left of the *Diagnostics* page.
- 4 If errors persist, download the configuration again to make sure that the module configuration matches the configured RSLogix 5000 program.
- 5 For additional troubleshooting, use the ProSoft Configuration Builder. Click on **PROJECT > MODULE > DIAGNOSTICS**.

Class 1 displays the connection RPI time of processor and the IP address of the module. The open connection count starts at 1 and increments if the connection to the processor is interrupted or there is a connection timeout. State, open connection, and connection timeout are controlled by the code.



You can change the RPI and Ethernet IP in the ladder configuration in RSLogix 5000 (right-click **CONNECTION1** and choose **PROPERTIES**).

3.6 EIP Class 3 Server Connection

Use the EIP Class 3 Server connection in ProSoft Configuration Builder when the gateway is acting as a server (slave) device responding to message instructions initiated from a client (Controller) device such as an HMI, DCS, PLC, or PAC.

- 1 Within ProSoft Configuration Builder, click the [+] next to the gateway, then click the [+] next to EIP Class 3 Server.
- 2 Double-click the second **EIP CLASS 3 SERVER** to display the *Edit EIP Class 3 Server* dialog box.



- **3** Select the Server File Size (100 or 1000).
 - For a value of 100, the registers are from N10:0 to N10:99.
 - For a value of 1000, the valid registers are from N10:0 to N10:999.

3.7 EIP Class 1 Connection

The EIP Class 1 connection is used with the gateway and acts as an EtherNet/IP adapter transferring data to and from a PLC using a direct I/O connection. Direct I/O connections can be used to transfer large amounts of data quickly.

The EIP driver can handle up to eight I/O connections, each with 248 words of input data and 248 words of output data. Rockwell Automation customers running RSLogix 5000 v2.0 or higher can take advantage of premier integration with an Add-on profile.

After you create the PLX82-EIP-PNC in RSLogix 5000, you must configure gateway connections.

1 In ProSoft Configuration Builder, click the [+] next to the gateway, and then click the [+] next to *EIP Class 1 Connection* [x].



2 Double-click the EIP CLASS 1 CONNECTION [X] to display the Edit - EIP Class 1 Connection [x] dialog box.

Edit - EIP Class 1 Connection 1	-	X
Input Data Address Input Size Output Data Address Output Size	0 248 2000 248	Input Data Address Comment: Definition: Starting database word address (Input).
		Reset Tag Reset All
		OK Cancel

3 In the dialog box, enter a value for each parameter.

Parameter	Value	Description
Input Data Address	0 to 9999	This parameter specifies the starting address within the gateway's virtual database for data transferred from the PLC to the module.
Input size 0 to 248		This parameter specifies the number of integers being transferred to the PLC's input image (248 integers max).
Output data address 0 to 9999		This parameter specifies the starting address within the gateway's virtual database for data transferred from the gateway to the PLC.
Output size	0 to 248	This parameter specifies the number of integers being transferred to the PLC's output image (248 integers max).

Create entries for up to 8 connections by following the same steps.

3.8 EIP Class 3 Client/UClient [x] Connection

EIP Class 3 Client [x] connections are used when the gateway is acting as a client/controller initiating message instructions to the server/slave devices. The EIP driver supports three connected clients. Typical applications include SCADA systems, PLC and SLC communication.

The EIP driver supports one unconnected client connection. Unconnected messaging is a type of EtherNet/IP explicit messaging that uses TCP/IP implementation. Certain devices, such as the AB Power Monitor 3000 series B, support unconnected messaging. Check your device documentation for further information about its EtherNet/IP implementation.

3.8.1 EIP Class 3 Client/UClient [x]

- 1 In ProSoft Configuration Builder, click the [+] next to the gateway, then click the [+] next to *EIP Class 3 Client* [x] or *EIP Class 3 UClient* [x].
- 2 Double-click the second *EIP Class 3 Client* [x] to display the *Edit EIP Class 3 Client* [x] dialog box.
- 3 Click a parameter to change it's value.

The following table specifies the configuration for the EIP client (Controller) device on the network port:

Parameter	Value	Description
Minimum Command Delay	0 to 65535 milliseconds	Specifies the number of milliseconds to wait between the initial issuances of a command. This parameter can be used to delay all commands sent to servers to avoid "flooding" commands on the network. This parameter does not affect retries of a command as they will be issued when a failure is recognized.
Response Timeout 1 to 65535 milliseconds		Specifies the amount of time in milliseconds that a client will wait before re-transmitting a command if no response is received from the addressed server. The value depends on the type of communication network used, and the expected response time of the slowest device connected to the network.
Retry Count	0 to 10	Specifies the number of times a command will be retried if it fails.

3.8.2 EIP Class 3 Client/UClient [x] Commands

- There is a separate command list for each of the different message types supported by the protocol. Each list is processed from top to bottom, one after the other, until all specified commands are completed, and then the polling process begins all over again.
- This section defines the EtherNet/IP commands to be issued from the gateway to server devices on the network. These commands can be used for data collection and/or control of devices on the TCP/IP network.
- In order to interface the virtual database with Rockwell Automation Programmable Automation controllers (PACs), Programmable Logic Controllers (PLCs), or other EtherNet/IP server devices, you must construct a command list using the command list parameters for each message type.

To add Class 3 Client/UClient [x] commands...

- 1 In ProSoft Configuration Builder, click the [+] next to the gateway, the click the [+] next to *EIP Class 3 Client* [x] or *EIP Class 3 UClient* [x].
- 2 Double-click the desired command type to display the *Edit EIP Class 3 Client* [x] *Commands* or *Edit EIP Class 3 UClient Commands* dialog box.
- 3 Click ADD ROW to add a new command.
- 4 Click **EDIT ROW** or double-click the row to display the *Edit* dialog box where you configure the command.

Class 3 Client/UClient [x] Commands SLC500 2 Address Fields

Parameter	Value	Description Specifies if the command should be executed and under what conditions. Enable - The command is execute each scan of the command list. Disable - The command is disabled and will not be executed. Conditional Write - The command executes only if the internal data associated with the command changes.				
Enable	Enable Disable Conditional Write					
Internal Address	0 to 9999	Specifies the database address in the module's internal database to be associated with the command. If the command is a read function, the data received in the response message is placed at the specified location. If the command is a write function, data used in the command is sourced from a specified data area.				
Poll Interval	0 to 65535	Specifies the minimum interval to execute continuous commands. The parameter is entered in 1/10 of a second. If a value of 100 is entered for a command the command executes no more frequently that every 10 seconds.				
Reg Count	1 to 125	Specifies the number of data points to be read from or written to the target audience.				
Swap Code	None Word Swap Word and Byte Swap Byte Swap	Specifies if the data from the server is to be ordered differently than it was received. This parameter is typically used when dealing with floating-point or other multi-register values. None - No change is made (abcd)				
	byte Swap	Word Swap - The words are swapped (cdab) Word and Byte Swap - The words and bytes are swapped (dcba) Byte Swap - The bytes are swapped (badc).				
IP Address	XXX.XXX.XXX	Specifies the IP address of the target device to be addressed by this command.				
Slot	-1	Use a value of -1 when interfacing to an SLC 5/05. These devices do not a slot parameter. When addressing a processor in a ControlLogix or CompactLogix rack, the slot number corresponds to the slot in the rack containing the controller being addressed.				
Func Code	501 509	Specifies the function code to be used in the command. 501 - Protected Typed Read 509 - Protected Typed Write				
File Type	Binary Counter Timer Control Integer Float ASCII String Status	Specifies the file type to be associated with the command.				
File Number	-1	Specifies the PLC-5 file number to be associated with the command. If a value of -1 is entered for the parameter, the field will not be used in the command, and the default file will be used.				
Element Number		Specifies the element in the file where the command will start.				

Class 3 Client/UClient [x] Commands SLC500 3 Address Fields

Parameter	Value	Description
Enable	Enable Disable Conditional Write	Specifies if the command should be executed and under what conditions. Enable - The command is execute each scan of the command list. Disable - The command is disabled and will not be executed. Conditional Write - The command executes only if the internal data associated with the command changes.
Internal Address	0 to 9999	Specifies the database address in the module's internal database to be associated with the command. If the command is a read function, the data received in the response message is placed at the specified location. If the command is a write function, data used in the command is sourced from a specified data area.
Poll Interval	0 to 65535	Specifies the minimum interval to execute continuous commands. The parameter is entered in 1/10 of a second. If a value of 100 is entered for a command the command executes no more frequently that every 10 seconds.
Reg Count	1 to 125	Specifies the number of data points to be read from or written to the target device.
Swap Code	None Word Swap Word and Byte Swap Byte Swap	Specifies if the data from the server is to be ordered differently than it was received. This parameter is typically used when dealing with floating-point or other multi- register values. None - No change is made (abcd) Word Swap - The words are swapped (cdab) Word and Byte Swap - The words and bytes are swapped (dcba) Byte Swap - The bytes are swapped (badc).
IP Address	XXX.XXX.XXX.XXX	Specifies the IP address of the target device to be addressed by this command.
Slot	-1	Use a value of -1 when interfacing to an SLC 5/05. These devices do not have a slot parameter. When addressing a processor in a ControlLogix or CompactLogix rack, the slot number corresponds to the slot in the rack containing the controller being addressed.
Func Code	502 510 511	Specifies the function code to be used in the command. 502 - Protected Typed Read 510 - Protected Typed Write 511 - Protect Typed Write w/Mask
File Type	Binary Counter Timer Control Integer Float ASCII String Status	Specifies the file type to be associated with the command.
File Number	-1	Specifies the PLC-5 file number to be associated with the command. If a value of -1 is entered for the parameter, the field will not be used in the command, and the default file will be used.
Element Number		Specifies the element in the file where the command will start.
Sub-Element		Specifies the sub-element to be used with the command. Refer to the AB documentation for a list of valid sub-element codes.
Comment		This field can be used to give a 32-character comment to the command.

Class 3 Client/UClient [x] Commands PLC5 Binary

Parameter	Value	Description				
Enable	Enable Disable Conditional Write	Specifies if the command should be executed and under what conditions. Enable - The command is executed each scan of the command list. Disable - The command is disabled and will not be executed. Conditional Write - The command executes only if the internal data associated with the command changes.				
Internal Address	0 to 9999	Specifies the database address in the module's internal database to be associated with the command. If the command is a read function, the data received in the response message is placed at the specified location. If the command is a write function, data used in the command is sourced from a specified data area.				
Poll Interval	0 to 65535	Specifies the minimum interval to execute continuous commands. The parameter is entered in 1/10 of a second. If a value of 100 is entered for a command the command executes no more frequently that every 10 seconds.				
Reg Count	1 to 125	Specifies the number of data points to be read from or written to the target device.				
Swap Code	None Word Swap Word and Byte Swap Byte Swap	Specifies if the data from the server is to be ordered differently than it was received. This parameter is typically used when dealing with floating-point or other multi- register values. None - No change is made (abcd) Word Swap - The words are swapped (cdab) Word and Byte Swap - The words and bytes are swapped (dcba) Byte Swap - The bytes are swapped (badc).				
IP Address	XXX.XXX.XXX.XXX	Specifies the IP address of the target device to be addressed by this command.				
Slot	-1	Use a value of -1 when interfacing to an SLC 5/05. These devices do not have a slot parameter. When addressing a processor in a ControlLogix or CompactLogix rack, the slot number corresponds to the slot in the rack containing the controller being addressed.				
Func Code	100 101 102	Specifies the function code to be used in the command. 100 - Word Range Write 101 - Word Range Read 102 - Read-Modify-Write				
File Type	Binary Counter Timer Control Integer Float ASCII String Status	Specifies the file type to be associated with the command.				
File Number	-1	Specifies the PLC-5 file number to be associated with the command. If a value of -1 is entered for the parameter, the field will not be used in the command, and the default file will be used.				
Element Number		Specifies the element in the file where the command will start.				
Sub-Element		Specifies the sub-element to be used with the command. Refer to the AB documentation for a list of valid sub-element codes.				
Comment		This field can be used to give a 32-character comment to the command.				

Class 3 Client/UClient [x] Commands PLC5 ASCII

Parameter	Value	Description				
Enable	Enable Disable Conditional Write	Specifies if the command should be executed and under what conditions. ENABLE - The Command is executed each scan of the command list DISABLE - The command is disabled and will not be executed CONDITIONAL WRITE - The Command executes only if the internal data associated with the command changes				
Internal Address	0 to 9999	Specifies the database address in the modules internal database to be associated with the command. If the command is a read function, the data received in the response message is placed at the specified location. If the command is a write function data used in the command is sourced from specified location.				
Poll Interval	0 to 65535	Specifies the minimum interval to execute continuous commands. The parameter is entered in 1/10 of a second. If a value of 100 is entered for a command the command executes no more frequently than every 10 seconds.				
Reg Count	1 to 125	Specifies the number of data points to be read from or written to the target device.				
Swap Code	None Word swap Word and Byte swap Byte swap	Specifies if the data from the server is to be ordered differently than it was received. This parameter is typically used when dealing with floating-point or other multi- register values. NONE - No change is made (abcd) WORD SWAP - The words are swapped (cdab) WORD AND BYTE SWAP - The words and bytes are swapped (dcba) BYTE SWAP - The bytes are swapped (badc)				
IP Address	XXX.XXX.XXX.XXX	Specifies IP address of the target device to be addressed by this command				
Slot	-1	Specifies the slot number for the device. Use a value of -1 when interfacing to a PLC5 These devices do not have a slot parameter. When addressing a processor in a ControlLogix or CompactLogix, the slot number corresponds to the slot in the rack containing the controller being addressed.				
Func Code	150 151 152	Specifies the function code to be used in the command. 150 - Word Range Write 151 - Word Range Read 152 - Read-Modify-Write				
File String		Specifies the PLC-5 Address as a string. For example N10:300				
Comment		Optional 32 character comment for the command.				

Class 3 Client/UClient [x] Commands Controller Tag Access

Parameter	Value	Description				
Enable Enable Disable Conditional Write		Specifies if the command should be executed and under what conditions. ENABLE - The Command is executed each scan of the command list DISABLE - The command is disabled and will not be executed CONDITIONAL WRITE - The Command executes only if the internal data associated with the command changes				
Internal Address	0 to 9999	Specifies the database address in the modules internal database to be associated with the command. If the command is a read function, the data received in the response message is placed at the specified location. If the command is a write function data used in the command is sourced from the specified location.				
Poll Interval	0 to 65535	Specifies the minimum interval to execute continuous commands. The parameter is entered in 1/10 of a second. If a value of 100 is entered for a command the command executes no more frequently than every 10 seconds.				
Reg Count	1 to 125	Specifies the number of data points to be read from or written to the target device.				
Swap Code	None Word swap Word and Byte swap Byte swap	Specifies if the data from the server is to be ordered differently than it was received. This parameter is typically used when dealing with floating-point or other multi-register values. NONE - No change is made (abcd) WORD SWAP - The words are swapped (cdab) WORD AND BYTE SWAP - The words and bytes are swapped (dcba) BYTE SWAP - The bytes are swapped (badc)				
IP Address	XXX.XXX.XXX.XXX	Specifies the IP address of the target device to be addressed by this command				
Slot	-1	Specifies the slot number for the device. Use a value of -1 when interfacing to a PLC5 These devices do not have a slot parameter. Whe addressing a processor in a ControlLogix or CompactLogix, the slot number corresponds to the slot in the rack containing the controller bein addressed.				
Func Code	332 333	Specifies the function code to be used in the command. 332 - CIP Data Table Read 333 - CIP Data Table Write				
Data Type	Bool SINT INT DINT REAL DWORD	Specifies the data type of the target controller tag name.				
Tag Name		Specifies the controller tag in the target PLC.				
Offset	0 to 9999	Specifies the offset database where the value corresponds to the Tag Name parameter.				
Comment		Optional 32 character comment for the command.				

Parameter	Value	Description	
Enable	Enable Disable Conditional Write	Specifies if the command should be executed and under what conditions. ENABLE - The command is executed each scan of the command list DISABLE - The command is disabled and will not be executed CONDITIONAL WRITE - The command executes only if the internal data associated with the command changes	
Internal Address	0 to 9999	Specifies the database address in the module's internal database to be associated with the command. If the command is a read function, the data received in the response message is placed at the specified location. If the command is a write function data used in the command is taken from the specified location.	
Poll Interval	0 to 65535	Specifies the minimum interval to execute continuous commands. The parameter is entered in 1/10 of a second. If a value of 100 is entered fo command the command executes no more frequently than every 10 seconds.	
Reg Count	1 to 125	Specifies the number of data points to be read from or written to the target device.	
Swap Code	None Word swap Word and Byte swap Byte swap	Specifies if the data from the server is to be ordered differently than it was received. This parameter is typically used when dealing with floating-point or other multi-register values. NONE - No change is made (abcd) WORD SWAP - The words are swapped (cdab) WORD AND BYTE SWAP - The words and bytes are swapped (dcba) BYTE SWAP - The bytes are swapped (badc)	
IP Address	XXX.XXX.XXX.XXX	Specifies the IP address of the target device to be addressed by this command	
Slot	-1	The slot should always be -1.	
Func Code	1 2 3 4 5	Specifies the function code to be used in the command. 1 - Protected Write 2 - Unprotected Read 3 - Protected Bit Write 4 - Unprotected Bit Write 5 - Unprotected Write	
Word Address		Specifies the word address where to start the operation.	
Comment		Optional 32 character comment for the command.	

3.9 Configuring the EIP Processor Path

The EIP Processor Path parameter allows you to set or change the IP address of a device being addressed by a command. For example, a PLC. Settings here specify the information required to identify where alarms are to be sent.



1 To edit the EIP Processor path, expand the *EIP Processor Path* selection and click on **PLX82-EIP-PNC > EIP PROCESSOR PATH > EIP PROCESSOR PATH**.

PLX82-EIP-PNC-FINAL-TEST.ppf - ProSoft Configuration Build	er							x
□ ≥ 5 + - 12 12 ↓ ↑ ■ 0 .								
File View Project Tools Help								
		ne Processor Path Edit - EIP Processor Path Alarm Tagname Acyclic Bhaddress Acyclic Slat Acyclic Slat Acyclic Tagname	1.1.1.1 0 Alarm		Comment: Definition: XXX.XXX.XXX.XXX The IP address	Definition: XXX.XXXXXXXXXXX The IP address of the device being addressed by the		
	[EI] Ala Ala				Reset Tag OK	Reset All Cancel PLX82-EIP-PNC	CAP NUM S	► CRL 4

Parameter	Description This is the IP address of the device being addressed by the command.			
Alarm IP Address				
Alarm Slot	Use a value of -1 when interfacing to a SLC 5/05 or a PLC5. These devices do not have a slot parameter. When addressing a processor, the slot number corresponds to the slot in the rack containing the controller being addressed. In the platform, the controller can be placed in any slot and the rack may contain multiple processors. This parameter uniquely selects a controller in the rack.			
Alarm TagName	A name assigned to the alarm.			
Acyclic IP Address	The IP address of the device being addressed by the command.			
Acyclic Slot	Use a value of -1 when interfacing to a SLC 5/05 or a PLC5. These devices do not have a slot parameter. When addressing a processor, the slot number corresponds to the slot in the rack containing the controller being addressed. In the platform, the controller can be placed in any slot and the rack may contain multiple processors. This parameter uniquely selects a controller in the rack.			
Acyclic Tagname	A name assigned to the acyclic alarm.			

2 Click OK.

4 Configuring the PROFINET Controller

Note: ProSoft fdt Configuration Software incorrectly allows for up to 36 PROFINET devices to be configured with an "Update rate" as low as 1ms. Since that configuration can product over 70,000 frames per second, the PROFINET controller and devices will experience errors. ProSoft Technology is in the process of adding limitations to the configuration software, and until then, we have produced a guideline document to aid in the proper configuration of the PROFINET controller. This guideline is available from the ProSoft website, accessible from the PLX82-EIP-PNC product page. The file is named "ProSoft-PROFINET-Net-Load-Calculator+v4.xlsx.



1 From the PCB window, double-click on the **PROFINET** icon.



2 This opens the *ProSoft fdt Configuration Manager* network view.

Note: If you have not already saved the project file, you are prompted to do so before you can proceed.

🔏 l 🦯 🐘 » 📔 Net	twork	ProSoft Configuration Builder for PROFINET		
Home Network	Device He	p		0
Add Delete Last Start Proje Busline Busline Debug		eload Device Catalog		
Solution Explorer		work		₹×
 Untitled_PLX82-EIP-PNC_PNC Project1 Settings Driver netX Driver Device Assignmen Network 		PLX82-EIP-PNC[PLX82-EIP-PNC] <controller>(#1)</controller>	•	PROFINET IO
		Network View		Fieldbus / Vendor / Found /
Error List				~ ↓ ×

3 Double-click on the PLX82-EIP-PNC icon.



4 This opens the Controller Network Settings window.

PanetDevice - Configuration PLX82-EIP-PI	NC[PLX82-EIP-PNC] <con< th=""><th>roller>(#1)</th><th></th><th></th><th></th></con<>	roller>(#1)			
IO Device: PLX82-EIP-PN Vendor: ProSoft Techn			Device ID: Vendor ID:	0x8020 0x0175	*
Navigation Area 🗖		Controller Network Sett	ngs		
 Configuration Controller Network Settings Device Table 	Name of station:	controller			
IP Address Table	Description:	PLX82-EIP-PNC			
Process Data Address Table FSU-/Port- Settings Stations Timing	IP Settings				
Ethernet Devices	IP address:	192 . 168 . 0 . 240			
	Network mask:	255 . 255 . 255 . 0			
	Gateway address:	0.0.0.0			
			ОК	Cancel App	ly Help
Isconnected 0 Data Set					.4

- 5 Click on **CONTROLLER NETWORK SETTINGS** located in the *Navigation Area* pane of the *netDevice Configuration* window.
- 6 Set the name of the station for the controller, provide a description, and IP address.
- 7 When complete, click **OK**.

4.1 Importing GSD Files

PROFINET Device information files (typically GSD or GSDML) must be imported for all devices you intend to connect to through the PLX82-EIP-PNC. GSD and GSDML files are available from the PROFINET device manufacturer.

Important:

- For devices with GSDML XML Schema version 1.0, every module has one submodule assigned. No additional submodules can be added, and the assigned submodule cannot be removed.

- For devices with GSDML XML Schema version 2.0, you can configure the submodules, and these submodules can be added or removed from the corresponding module.

- The GSDML file differentiates between **fixed in slot**, **used in slot**, and **allowed in slot** modules. *Fixed in slot* and *Used in slot* modules are automatically configured. **Allowed in slot** modules can be configured.

1 Click on the **NETWORK** tab and then click on the **IMPORT DEVICE DESCRIPTION** icon.



2 Navigate to the location of your GSD or GSDML files and select the appropriate files for your devices.

3 Click **OPEN** and then click **YES**. The GSD file is displayed in the right pane.

🖌 🛛 🖊 📜 » 🗌	Network			ProSoft Configuration Builder for PROFI	NET	
 Home 	Network	Device	Help			
Connect Disconnect	Cownload	Cupload	Configura	tion Measured Value		
Network						
PLX82-EIP-PNC	[PLX82-EIP-PN	IC] <control< th=""><th>er>(#1)</th><th></th><th></th><th>PROFINET IO Master Slave</th></control<>	er>(#1)			PROFINET IO Master Slave

4 Open the device folder to display the device icon(s).

A 1	Network		ProSoft Configuration Builder for PROFINET
Home	Network	Device	нер
Connect Disconnect	Download	Contraction of the second seco	Configuration Measured Simulation Diagnostic
Network			
PLX82-EIP-PNC	[PLX82-EIP-PNC	C]≺contro⊪	er>(#1)

4.2 Adding a Slave Device to the Project

1 Locate the slave from the *Slave Catalog*.

ProSc	oft Configuration Builder for PROFINET
Home Help	
New Open Import Save	Close Cut Copy Paste
Solution	Clipboard
PLX82-EIP-PNC[PLX82-EIP-PNC]	🖾 Master

2 Drag and drop the slave onto the PROFINET bus line.

~ /		Netw	ork		ProSoft Configuration Builder for PROFINET
•	Home	Network	Device	Help	
Connect	Cisconnect	Download	Cupload	Configura	tion Measured Simulation Diagnostic Value
Netw	ork				
P	PLX82-EIP-PNC	[PLX82-EIP-PN	IC] <control< th=""><th></th><th>EIP-PND[PLX31-EIP-PND]<pk31-pnd></pk31-pnd></th></control<>		EIP-PND[PLX31-EIP-PND] <pk31-pnd></pk31-pnd>

3 If you are installing multiple slave devices, perform the same steps to add them to the network.

4.3 Configuring a Slave Device

This procedure configures all PROFINET slave devices for the PNC. As slaves are configured, configuration information is automatically placed in the PLX82-EIP-PNC. This information is visible by double-clicking on the **PLX82-EIP-PNC** icon.

Note: The diagram only shows one slave device. All slaves on the network must be defined and configured according to the following steps:



- 1 Double-click on the slave device.
- 2 Click the ADD MODULE button.
- 3 Select an Input or Output space allocation.
- 4 Repeat the steps 2 and 3 above for additional Inputs or Outputs.

5 When complete, click **APPLY** and then click **OK**.



Parameter	Description			
Slot	Displays the slot number assigned to the module. Clicking on the slot field displays a drop-down list of free slot numbers. Changing the slot number changes the sequence of the modules.			
Sub Slot	Displays the sub slot assigned to a sub module. Clicking on the sub slot field displays a drop-down list of free sub slot numbers.			
!	Slot icon tag. This indicates the usage of the submodule An icon in this field indicates that the Slot number, subslot number and module name are not changeable. No icon in this field indicates that the slot number, subslot number and module name are changeable.			
Module	Module name as defined in the GSDML file.			
Add Module button	Adds a module to the device configuration below the current line.			
Add Submodule button	Add a submodule to the selected module of the device configuration below the current line.			
Remove button	Removes the selected submodule from the configuration below the current line.			
-	The arrow icon shows the current line in the table. This line is the reference for Add Module, Add Submodule, and Remove.			

Note: Not all devices support sub-modules.

4.4 Verifying Slave Device Information

Slave devices are automatically configured. As configured, the new information is immediately visible in the module. To view device information, double-click on the **PLX82-EIP-PNC** module icon and then select the appropriate link.



4.4.1 Controller Network Settings

The Controller Network Settings display the following information:

- Name of Station
- Description of the station
- o IP Address, Network Mask, and Gateway Address

IO Device: PLX82-EIP-PN0		Device ID:	0x8020	4
Vendor: ProSoft Techn		Vendor ID		14 A
avigation Area 📃		Controller Network Settings		
Configuration → Controller Network Settings	Name of station:	roller		
Device Table IP Address Table	Description:	2-EIP-PNC		
Process Data Address Table FSU-/Port- Settings Stations Timing	IP Settings			
Ethernet Devices	IP address:	<u>192</u> . 168 . 0 . 240		
	Network mask:	255 . 255 . 255 . 0		
	Gateway address:	0.0.0.0		
		ОК	Cancel	Apply Help

Parameter	Description Network name of the PROFINET controller. This must be a DNS compatible name. 1 to 240 characters.		
Name of Station			
Description	Symbolic name of the PROFINET controller DTM.		
IP Settings			
IP Address	IP address of the PROFINET controller.		
Network Mask Network mask of the PROFINET controller.			
Gateway Address Gateway address of the PROFINET controller.			

4.4.2 Device Table

The *Device Table* lists all devices connected and configured in the PROFINET Controller.

IO Device: PLX82-EIP-PNC Vendor: ProSoft Techno				Device ID: Vendor ID:	0x8020 0x0175
Navigation Area			Device Tal	ble	
Configuration	Activate	ndex 🛆 Name of station	Device	Description	Vendor
Controller Network Settings	1	plx31-pnd	PLX31-EIP-PND	PLX31-EIP-PND	ProSoft Technology, Inc.
🖶 Device Table	2	im153-4pn	M153-4 PN V1.0	IM153-4 PN V1.0	SIEMENS
IP Address Table	✓ 2 ✓ 3 ✓ 4	im153-4pn-001	IM153-4 PN HF V3.0	IM153-4 PN HF V3.0	SIEMENS
Process Data	I I 4	plx31-pnd-001	PLX31-EIP-PND	PLX31-EIP-PND	ProSoft Technology, Inc.
FSU-/Port-Settings Stations Timing Ethernet Devices	۲		III		
				OK Can	cel Apply Help

Description Use this checkbox to activate or deactivate a station			
Name of the device.			
Actual device name of the slave as specified in the GSD or GSDML file.			
Description of the device.			
Name of the vendor of the device.			

You can activate and deactivate configured devices from this table. Simply click the checkbox to to clear the checkmark or click to place a checkmark which enables the device.

To change the Index number...

1 Click on the **INDEX** number to be changed.

Navigation Area 📃				Device 1	Table
Configuration				Device	Caloric
Controller Network Settings	Activa	ate Index	 Name of stati 	on Device	
Device Table		1	plx31-pnd	PLX31-EIP-PND	
		2	im153-4pn	IM153-4 PN V1.0	
IP Address Table		3	im153-4pn-001	IM153-4 PN HF V3.0	
Process Data		4	plx31-pnd-001	PLX31-EIP-PND	
Address Table					
FSU-/Port- Settings					
Stations Timing					
Ethernet Devices					

- 2 Edit the Index number.
- 3 Click **OK** when done.

To change the name of the station...

- 1 Click on the *Name of Station* to be changed.
- 2 Edit the Name of Station.
- 3 When complete, click **OK**.

4.4.3 IP Address Table

The *IP Address Table* shows the IP address of each connected slave device. The IP address is assigned automatically based on incrementing the last octet based on the IP address of the PLX82-EIP-PNC. For example, if the controller IP address is 192.168.0.240, the first device added will have an IP address of 192.168.0.241.

Use this pane to view or change IP addresses. Changes to the *Network Mask* or *Gateway* address are not possible with the **INHERIT** checkbox checked. 'Checked' indicates that the *Network Mask* and *Gateway* address are taken from the controller.

Vendor: ProSoft Techr	C iology,Inc			Device ID: Vendor ID:	0x8020 0x0175
lavigation Area 🗖		IP	Address Tab	e	
Configuration	Name of station	IP address	Inherit	Network mask	Gateway address
Controller Network Settings	im153-4pn	192.168.1.241		255.255.255.0	0.0.0.0
Device Table		192,168,1,241		255.255.255.0	0.0.0.0
➡ IP Address Table	im153-4pn-001			255.255.255.0	0.0.0.0
Process Data	plx31-pnd-001	192.168.1.243	> > >	255.255.255.0	0.0.0.0
Address Table	_plx31-pnd	192.168.1.251	•	200.205.255.0	0.0.0.0
FSU-/Port- Settings					
Stations Timing					
Ethernet Devices					
	٩		m		
	٢		111		
	٩ [III	ОК	Cancel Apply Help

Parameter	Description
Name of Station	This is the name of the slave device.
IP Address	This is the IP address of the slave device. The PNC transmits the IP address of the slaves during startup.
Inherit	Indicates whether the Network Mask and the Gateway Address are taken from the controller.
Network Mask	This is the network mask of the slave device. The PNC transmits the network mask of the slave during startup to the slave, thereby configuring the device.
Gateway Address	The is the gateway address of the slave device. The PNC transmits the gateway address to the slave over the network, thereby configuring the device.

To change the IP address...

- 1 Click on the IP address in the *IP address* column and enter the new address. The *Network Mask* and *Gateway* address columns are only editable with the **INHERIT** checkbox unchecked.
- 2 Click **APPLY**, then **OK**.

4.4.4 Process Data

The *Process Data* table serves as an external process data interface (for data transfer to a PLC unit). It lists the devices connected to the controller, and well as configured modules or input or output signals of the devices. This makes the fieldbus structure visible.

Navigation Area 📃			Process Data	
Configuration				
Controller Network Settings Device Table	Image	Туре	Tag	SCA
IP Address Table	⊿ 🗰	CIFX_RE_PNS_V3.1.x <addr cifxrepns=""></addr>	CIFX_RE_PNS_V3.1.x	
Process Data	⊿ 🂵	CIFX RE/PNS V3.1.x <slot 0=""></slot>	CIFX RE/PNS V3.1.x	
Address Table		CIFX RE/PNS V3.1.x <subslot 1=""></subslot>	CIFX RE/PNS V3.1.x <subslot 1=""></subslot>	
FSU-/Port- Settings		PN-IO <subslot 32768=""></subslot>	PN-IO <subslot 32768=""></subslot>	
Stations Timing	1	Port 1 <subslot 32769=""></subslot>	Port 1 <subslot 32769=""></subslot>	
Controller Settings Ethernet Devices	1	Port 2 <subslot 32770=""></subslot>	Port 2 <subslot 32770=""></subslot>	
Enternet bevices	Þ 🂵	1 Byte Input <slot 1=""></slot>	1 Byte Input <slot 1=""></slot>	
	Þ 🂵	1 Byte Output <slot 2=""></slot>	1 Byte Output <slot 2=""></slot>	
	⊿ ∰	PLX31-EIP-PND <addr plx31-pnd=""></addr>	PLX31-EIP-PND	1
	⊿ 🏢	PLX31-EIP-PND <slot 0=""></slot>	PLX31-EIP-PND	1
		PLX31-EIP-PND <subslot 1=""></subslot>	PLX31-EIP-PND <subslot 1=""></subslot>	
	1	Interface1 <subslot 32768=""></subslot>	Interface1 <subslot 32768=""></subslot>	
	1	Port1 <subslot 32769=""></subslot>	Port1 <subslot 32769=""></subslot>	
	⊳ III	INPUT 4 Byte <slot 1=""></slot>	INPUT 4 Byte <slot 1=""></slot>	
	⊳ ∰∎	OUTPUT 4 Byte <slot 2=""></slot>	OUTPUT 4 Byte <slot 2=""></slot>	

Parameter	Description
Туре	Device label provided by the hardware. Provides a description of the modules or input or output signals configured to the device.
Tag	Device name provided by the hardware (not changeable) or the symbolic name for the modules configured to the device or input/output signals (changeable).
SCADA	Indicates which module or single data is provided for the OPC server.

4.4.5 Address Table

The *Address Table* displays a list of all addresses used in the process data image. The displayed addresses refer to the PROFINET Controller (PNC). This page allows you to view current input and output data sizes per slave device.

Navigation Area Configuration Controller Network Settings Device Table IP Address Table Process Data Address Table FSU-/Port-Settings	Auto addressing Inputs: Name of station btx31-pnd im152-4pr-001		r ess Table Display mode:	Decimal	•		
Controller Network Settings Device Table IP Address Table Process Data	Inputs: Name of station ptx31:pnd im153-4pn-001		Display mode:	Decimal	•		
IP Address Table Process Data Address Table	Name of station plx31-pnd im153-4pn-001	Module					SV Export
🖶 Address Table	im153-4pn-001		Submo	dule	Туре	Length	Address
🖶 Address Table		INPUT 8 Byte <slot 1=""></slot>	INPUT 8 Byte <sub< td=""><td>slot 1></td><td>IB</td><td></td><td>8</td></sub<>	slot 1>	IB		8
		SM 321 DI16xDC24V, Interrupt <slot< td=""><td>SM 321 DI16xDC24</td><td>V. Interrupt <sul< td=""><td>t IB</td><td></td><td>2</td></sul<></td></slot<>	SM 321 DI16xDC24	V. Interrupt <sul< td=""><td>t IB</td><td></td><td>2</td></sul<>	t IB		2
	plx31-pnd-001	INPUT 16 Byte <slot 1=""></slot>	INPUT 16 Byte <su< td=""><td>bslot1></td><td>IB</td><td>1</td><td>6 1</td></su<>	bslot1>	IB	1	6 1
Stations Timing Ethernet Devices							
	•						
	Outputs:						
	Name of station	Module	Submo	dule	Type	Length	Address
	▶plx31-pnd	OUTPUT 8 Byte <slot 2=""></slot>	OUTPUT 8 Byte <s< td=""><td>ubslot 1></td><td>QB</td><td></td><td>8</td></s<>	ubslot 1>	QB		8
	im153-4pn-001	SM 322 DO8xRel. AC230V <slot 2=""></slot>	SM 322 DO8xRel. A	C230V <subslo< td=""><td>QB</td><td></td><td>1</td></subslo<>	QB		1
	plx31-pnd-001	OUTPUT 16 Byte <slot 2=""></slot>	OUTPUT 16 Byte <	Subslot 1>	QB	1	6
	•		111				
				ОК	Cancel	Apply	Help

Parameter	Description
Auto addressing	Selected by default. If you want to set addresses manually, this checkbox must be unchecked (see Manual address updates).
Display mode	Allows you to display the address data in decimal or hexadecimal format.

CSV Export

This option allows you to export input and output addresses as a .CSV file (comma separated values).

Device Table Inputs:	IO Device: PLX82-MBTCI Vendor: ProSoft Tech			Device ID: Vendor ID:	0x8241 0x0175	*
Controller Network Settings Display mode: Decimal CSV Expl Device Table Inputs: Inputs: Inputs: Inputs: IP Address Table Name of station Module Submodule Type Length Au Process Data INPUT 4 Byte <slot 1=""> INPUT 4 Byte <subslot 1=""> IB 4</subslot></slot>	Navigation Area		Add	ress Table		
Process Data INPUT 4 Byte <slot 1=""> INPUT 4 Byte <slot 1=""> IB 4</slot></slot>	Controller Network Settings		Display mode:	Decimal	- (CSV Export
	IP Address Table		Module	Submodule	Туре	Length Addr
Address Table	Process Data	▶plx31-pnd	INPUT 4 Byte <slot 1=""></slot>	INPUT 4 Byte <subs< td=""><td>lot 1> IB</td><td>4</td></subs<>	lot 1> IB	4
	Address Table					
FSU-/Port- Settings	FSU-/Port- Settings					

- 1 Click the **CSV Export** button. The *File Save* dialog opens.
- 2 Navigate to a folder location, enter a filename, and then click SAVE.

The data file can be opened using a spreadsheet application or input into another application.

Manual Address Update

If manual addressing is allowed, input and output addresses of the PLX82-EIP-PNC may be assigned manually.

- 1 Uncheck the **AUTO ADDRESSING** checkbox.
- 2 Click on the address of a module.
- **3** Edit the field and type in a new address.
- 4 Click OK.

IO Device: PLX82-EIP-PN Vendor: ProSoft Techn			Device ID: Vendor ID:	0x802 0x017			Ś
Navigation Area 🗖		Addr	ress Table				
Configuration Controller Network Settings Device Table	Auto addressing		Display mode: Decimal	•	C	SV Export	
IP Address Table	Name of station	Module	Submodule	Туре	Length	Address	-
Process Data	plx31-pnd	INPUT 8 Byte <slot 1=""></slot>	INPUT 8 Byte <subslot 1=""></subslot>	IB		3	_
	im153-4pn-001	SM 321 DI16xDC24V, Interrupt <slo< td=""><td></td><td>t IB</td><td>2</td><td>2</td><td></td></slo<>		t IB	2	2	
Address Table FSU-/Port- Settings	▶ plx31-pnd-001	INPUT 16 Byte <slot 1=""></slot>	INPUT 16 Byte <subslot 1=""></subslot>	IB	16	6 10	
Stations Timing Ethernet Devices							
	4 Juitaute:		111				,
	Outputs:	Module	III Submodule	Туре	Length	Address	1
		Module OUTPUT 8 Byte <stot2></stot2>		Type QB	Length	Address	2
	Outputs:		Submodule OUTPUT 8 Byte <subslot 1=""></subslot>	QB		3	
	Outputs: Name of station	OUTPUT 8 Byte <slot 2=""></slot>	Submodule OUTPUT 8 Byte <subslot 1=""></subslot>	QB	8	3 1	
	Outputs: Name of station hptx31-pnd im153-4pn-001	OUTPUT 8 Byte <slot 2=""> SM 322 D08xRel. AC230V <slot 2=""></slot></slot>	Submodule OUTPUT 8 Byte <subslot 1=""> SM 322 D08xRel. AC230V <subslo< td=""><td>QB o QB</td><td>1</td><td>3 1</td><td></td></subslo<></subslot>	QB o QB	1	3 1	

Parameter	Description
Name of Station	Symbolic name of the assigned slave device.
Module	Name of the module according to the GSD or GSDML file.
Submodule	Displays submodule information.
Туре	Specifies the input data type or output data type (IB, QB, IW, or QW)
Length	Data length in bytes
Address	Output or input data offset addresses.

The configuration software reports an error if an address overlapping in the process data image was detected. If this occurs, correct the address for one of the two modules and enter an unused address.

4.4.6 FSU-/Port-Settings

The *Fast Start Up (FSU) Port Settings* pane is used to specify devices that must use a fast start up connection to establish the cyclic data exchange. Check with your device manufacturer to determine if your device must use FSU. All existing connections from the controller to the devices are displayed, including all ports at each device.

The MAU Type indicates whether the device should establish the connection automatically or whether fixed parameters are to be used.

Note: If you enable FSU to establish a fast connection for a port, use only the MAU type "100BASETXFD". If using the AUTO setting, the Auto negotiation and Auto crossover effects will prevent establishing a fast Ethernet connection.

IO Device: PLX82-EIP-PN0 Vendor: ProSoft Techn		Device ID: Vendor ID:	0x8020 0x0175	1
Navigation Area		FSU-/Port- Settings		
a Configuration	Name	Name of station	MAU Type	FS
Controller Network Settings Device Table	PLX31-EIP-PND	plx31-pnd	AUTO	
IP Address Table	0 IM153-4_PN_V1.0	im153-4pn		E
Process Data Address Table			AUTO	
FSU-/Port- Settings	⊕ ∰ IM153-4_PN_HF_V3.0	im153-4pn-001	AUTO	1
Stations Timing	E PLX31-EIP-PND	plx31-pnd-001		
Ethernet Devices				
	4	Ш		
	1 * 0			
		ок	Cancel Apply	Help

1 Select **CONFIGURATION > FSU-/PORT-SETTINGS** in the navigation area.

2 Check the **FSU** box for PROFINET devices that must use a fast startup (FSU) connection to establish cyclic data exchange.

Parameter	Description
Name	The symbolic name of the PROFINET slave device.
Name of Station	This is the network name of the slave device. The name of the device is set in the Device Table. The PNC uses the name of the station to identify the slave device and to establish communication.
	This name of the station here must match the name of the station set in the PROFINET I/O device.
MAU Type	The MAU type defines the physical settings (PHY) on the slave device. The MAU must be set separately for each port on the device.
	AUTO - Connections between devices are negotiated automatically. It may take 2-3 seconds for the physical connection to be established.
	100BASETXFD - Connections between devices is fixed with 100 MBit/Full duplex. IMPORTANT FOR HARDWARE WIRING:
	 Wire only between ports with the same port setting (MAU-type configuration). Otherwise, a connection cannot be established between the devices.
	 Connect to ports that have different cross-over settings.
FSU	Checking this box indicates that the device is configured for fast start up connections to establish cyclic data exchange.

4.4.7 Stations Timing

The Stations Timing pane allows you to edit station timings.

- 1 Navigate to **CONFIGURATION > STATIONS TIMING**.
- 2 Name of Station This list contains all devices associated with the PNC. Select the station from the list.

AnetDevice - Configuration PLX82-EIF	P-PNC[PLX82-EIP-PNC]	<controller>(#1)</controller>			
IO Device: PLX82-EIP-PN0 Vendor: ProSoft Techn			Device ID: Vendor ID:	0x8240 0x0175	*
Navigation Area		Si	tations Timing		
Configuration Controller Network Settings Device Table	Name of station:	plx31-pnd plx31-pnd			-
IP Address Table Process Data Address Table FSU-/Port- Settings ➡ Stations Timing Controller Settings Ethernet Devices	Updating time:	16 v ms	Watchdog time:	48	ms
			ОКСС	ancel Ap	ply Help
⊲De Disconnected 🚺 Data Set					.4

- 3 Set the *Update time* in milliseconds.4 Set the *Watchdog time* in milliseconds.
- 5 Click **APPLY** to save your settings.
- 6 When complete, click **OK**.

4.4.8 Controller Settings

The Controller Settings pane allows you to control the behavior of the PNC controller.

netDevice - Configuration PLX82-EI	P-PNC[PLX82-EIP-PNC] <controller>(#1)</controller>				
IO Device: PLX82-EIP-PNC Vendor: ProSoft Techno			Device ID: Vendor ID:	0x8240 0x0175	*
Navigation Area		Controller Settings			
 Configuration Controller Network Settings Device Table IP Address Table Process Data Address Table FSU-/Port-Settings Stations Timing Controller Settings Ethernet Devices 	Start of bus communication Automatically by device Controlled by application Application monitoring Watchdog time: 1000 ms Process image storage format Big Endian (MSB first) Little Endian (LSB first) Port Settings Port 1: AUTO • IO State Information Input Provider: Disabled • Output Provider: Disabled •	Module Alignment			
			ОК	Cancel	pply Help
∜ Disconnecte 0 Data Set					

Parameter	Description			
Start of bus	Automatically by device or Co	ntrolled by application.		
communication	If Automatically by device, the PNC controller device starts with the data exchange on the bus after initialization has ended.			
	If Controlled by application, the application program must activate data exchange on the bus.			
	The default is typically set to Controlled by application .			
Application monitoring	Watchdog time is set per station in the Stations Timing window. This field displays the watchdog time in milliseconds. The Watchdog time determines the time in which the device watchdog must be re-triggered from the application program while the application program monitoring is activated. When the watchdog time value is equal to 0, the watchdog is deactivated and the application program monitoring is also deactivated.			
	Watchdog time	Range of Value/Default Value		
	Permissible range of values	20 to 65535 ms		
	Default	1000 ms		
	Deactivated	0 ms		
Process image	Big Endian (Most Significant Byte first)			
storage format	Little Endian (Least Significant Byte first)			

Parameter	Description		
Port Settings	Displays or selects Port 1 settings. This is used if Fast Start Up (FSU) is selected for PROFINET devices that use FSU connection to establish a cyclic data exchange.		
	If FSU is check on a port, you must select 100BASETXFD . Otherwise, select AUTO .		
IO State Information	Input Provider - Disabled, Bit, Byte		
	Output Provider - Disabled, Bit, Byte		
	Allows you to configure the PROFINET Input/Output Object Provider State (IOPS). This allows the PNC application program to detect whether data received from a slave is valid or not and vice versa.		
	Disabled - The PROFINET controller application cannot detect whether the data received from the PROFINET slaves are valid or declare its output data sent to the slaves are valid or invalid.		
	Bit - IOPS is handled as a bit list. Each sub-module description is represented by a single bit. If set to 1, the data is valid. If set to 0, the data is invalid. Sub-modules with input and output data simultaneously have IOPS in input and output directions.		
	Byte - In the dual-port memory (DPM) of the PNC, IOPS is handled as a byte array. Each sub-module description is represented as a byte. If the byte is set to 0x80, the data is valid. Otherwise, the data is considered invalid.		
	In this mode, the entire IOPS byte is directly copied from/to the cyclic frame, providing the PNC's application program the possibility of accessing all bits of IOPS. Typically, only the first bit of the IOPS byte states whether the data is valid or invalid.		
Module Alignment	Byte boundaries		
	2 Byte boundaries		
	Module Alignment defines the addressing mode of the process data image. The addresses (offsets) of the process data are always interpreted as byte addresses. The Module Alignment then defines the addressing mode.		
4.4.9 Ethernet Devices

The *Ethernet Devices* pane provides a view of all slave devices on the network after performing a search. It also allows you to edit each device. The device name must match the *Name of Station* field.

1 Select the **ETHERNET DEVICES** icon.

IO Device: III ProSoft Techno	logy,Inc						Devic Vend	or ID:	0x8240 0x0175	
Vavigation Area 📃				E	thernet [)evices				
Configuration Controller Network Settings	Use Network Connect	ions for Scar								
Device Table	Device			Port						
IP Address Table Process Data	VMware Virtual E Intel(R) 82577LM				PF_{8F4D73 PF_{8BF02A					
Address Table FSU-/Port- Settings	Devices Online	Find:				next	previo	ous		
Stations Timing	MAC Address	Device T	Device Name	IP Address	Protocol	Device	Vendo	Device role		
Controller Settings	00-02-A2-38-47-94	IO Contr	plx82-pnc	192.168.0.240	DCP	0x8240	0x0175	Controller		
	Use Configuration	of:	pbx31-p	nd, Index 1		•				Search Devic
	Set		t IP Address	Other Functions			. U .			•
	Current Gateway	y: 13	2.100.0	. I Gatew	ay:	0.0		0		
	🔘 Get IP Address vi	a DHCP								
	Authentication n	nethod:		-		_		_		
	Client ID:					S	et Address			
	Store settings ter	nnoran/								
		nporary								

2 Click the **SEARCH DEVICES** button to start the search.

IO Device: II							Devic Vend		0x8240 0x0175	•
avigation Area 🗧				1	Ethernet [)evices				
Configuration Controller Network Settings	Use Network Connec	tions for Scan	:							
Device Table	Device			Port						
IP Address Table Process Data	VMware Virtual			\Device\ \Device\	NPF_{8F4D73 NPF_{8BF02A	96-38E1-46				
Address Table FSU-/Port- Settings	Devices Online	Find:				next	previo	us		
Stations Timing Controller Settings	MAC Address	Device T	Device Name	IP Address	Protocol	Device	Vendo	Device role		
	Use Configuration			nd, Index 1		•	•	Click he	re	Search Device
	Device name: New device name				Set Na	me				
							ОК	6	ncel Ap	ply Help

3 The current online devices appear in the grid.

netDevice - Configuration F 🛃	and the second second	<control< th=""><th>ler>(#1)</th><th></th><th>_</th><th></th><th></th><th></th><th></th><th></th><th>X</th></control<>	ler>(#1)		_						X
IO Device: ••••••••••••••••••••••••••••••••••••	ology,Inc							e ID: or ID:	0x8240 0x0175		4
lavigation Area 📃				E	thernet	Devices					
Configuration Controller Network Settings	Use Network Connection	ons for Scar	:								
Device Table	Device			Port							
IP Address Table	VMware Virtual Et	hernet Adap	ter	\Device\N	PF_{8F4D7	349-1214-4	699-A6AB-	897283			1
Process Data	Intel(R) 82577LM	Gigabit Netv	ork Connection	\Device\N	PF_{8BF02	A96-38E1-4	6C7-A9BE-	31AF10			
Address Table FSU-/Port- Settings	Devices Online	Find:				next	previ	ous			
Stations Timing	MAC Address	Device T	Device Name	IP Address	Protoco	Device	Vendo	Device role			-
Controller Settings	00-02-A2-38-47-94			192.168.1.250	DCP	0x8240	0x0175	Controller			
Ethernet Devices	00-0D-8D-A2-0B-4C			192.168.1.251	DCP	0x8201	0x0175	Device			
	Use Configuration o			nd, Index 1		•				Search Devic	ce
	♦ Set Name	X Set IP Ac	ldress y Other	Functions \			∢ Ⅲ			+	•
	Device name:	contro	ller								
	New device name	e:			Set N	lame					
	temporary										
											_
							OK	Ca	ncel	Apply Help	p
											-

Parameter	Description
MAC Address	Unique address of the device set by the device manufacturer.
Device Type	Name given to the device that provides a description of the device.
Device Name	Name of the device as a character string defined by the manufacturer.
IP Address	IP address of the device that can be set in the IP Address Table pane. The IP address must be unique and must fit into the current network. The IP address of 0.0.0.0 indicates that no IP address has been set.
Protocol	Supported protocol of the device.
Device ID	Identification number of the device. This is fixed by the manufacturer.
Vendor ID	Identification number of the device vendor assigned by PROFIBUS.
Device Role	Description of the function that the device has on the network. For example, device, controller, multi-device, etc.

Creating New, or Using Existing Configuration Information

The lower area of the *Ethernet Devices* pane allows you to change information returned by the search.

IO Device: Vendor: ProSoft Techn	ology,Inc				rice ID: Idor ID:	0x824 0x017	-	4
Navigation Area				Ethernet Dev	vices			
Configuration Controller Network Settings	Use Network Conne	ctions for Scan						
Device Table	Device			Port				
IP Address Table Process Data	VMware Virtual				NPF_{6A7602 NPF_{9E646D			
Address Table FSU-/Port- Settings	Devices Online	Find:				next	previo	ous
Stations Timing Controller Settings	MAC Address	Device	Device Name	IP Address	Protocol	Devic	Vend	Device role
							[Search Devices
	Use Configuratio	n of:	plx31-p	nd, Index 1		-		
	Device name:	t Name ∖Set	IP Address Y Oth	ner Functions \	•			Þ
	New device na	ame:			Set Na	me		
	temporary							
				0	к с	Cancel	Apply	Help

Note: If you are going to use a configuration from a different device, use the "Use Configuration of" section.

The current system allows you to change/set the device name and IP address. Highlight the device that you want to modify and click on the *Set Name*, *Set IP Address*, or *Other Functions* tabs to enter new information.

*Set Name (new configurations)

Enter the new device name and click the **SET NAME** button. If you are changing the name of the PROFINET controller, the name must match the name specified in the *Controller Network Settings* page.

For example, if the Device name in the Controller Network Settings pane is 'controller'...



Enter a name in the New Device Name parameter and click the SET NAME button:

IO Device: Vendor: ProSoft Tech	nology,Inc				ice ID: dor ID:	0x824 0x017		•
Navigation Area				Ethernet Dev	vices			
Configuration Controller Network Settings	Use Network Conne	ections for Scan						
Device Table	Device			Port				
IP Address Table Process Data	VMware Virtua VMware Virtua				NPF_{6A7602 NPF_{9E646D			
Address Table FSU-/Port- Settings	Devices Online	Find:				next	previo	ous
Stations Timing Controller Settings	MAC Address	Device	Device Name	IP Address	Protocol	Devic	Vend	Device role
							[Search Device
	Use Configuration	on of:	plx31-p	nd, Index 1		-		
		tName ∖ Set	IP Address Y Oth	her Functions \	•]		4
	Device name:							
	New device n	ame:			Set Na	me		
	temporary	,						
					r C	Cancel	Apply	
								Help

*Set IP Address (new configurations)

Enter the IP address, Subnet mask, and Gateway address of this device and then click the **SET ADDRESS** button.

You can also obtain an IP address via DHCP by checking the *Get IP Address via DHCP* radio button.

*Other Functions - Signal or Reset the module to factory defaults.

- The **Signal** button causes the LED on the selected device to blink. This allows you to easily identify a specific device among other devices.
- The **Reset** to factory defaults button sets the device to back to factory defaults.

When complete, click **APPLY**, then **OK** to save changes.

Use Configuration of ...

You can define whether the configuration for a device is created from scratch or use an existing configuration.

Creating a new configuration:

- 1 Uncheck the **USE CONFIGURATION OF** checkbox to create a new configuration, or check **USE CONFIGURATION OF** box if an existing configuration will be used.
- 2 Select the device whose configuration will be used for the selected device.



Setting a New Device Name

- 1 Uncheck the **USE CONFIGURATION OF** box.
- 2 Click the **SET NAME** tab.

For PROFINET I/O devices (controller or device)...

- 1 The current name is displayed in the *Device name* field.
- 2 Enter a new device name in the *New device name* field.

- If you are setting this device name as a temporary device name, check the temporary checkbox.

- If you are setting this device name as a permanent change, make sure that the temporary checkbox is unchecked.

3 Click the **SET NAME** button. The new device name is now used as the current device name.

4.4.10 Viewing Configured Device Information

Device Info

The *Device Info* pane displays manufacturer information about the device, which is defined in the GSDML file.

netDevice - Configurati	ion PLX31-EIP-PND[PLX31-EIP-PND] <plx31-p< th=""><th>nd201></th><th></th><th></th></plx31-p<>	nd201>		
	PLX31-EIP-PND ProSoft Technology, Inc.			201
Navigation Area		Device Info		
Configuration General	Name	Value		
Modules	Main family	Gateway		
Description	Product family	PLX30		
	DAP vendor name	ProSoft Technology, Inc.		
Device Info	DAP hardware release	1		
Module Info	DAP software release	1.02.003		
GSDML Viewer	DAP ID	DIM 1		
	Extendet address assignment	false		
	Physical slots	09		
	Max. IO data length	2880		
	Max. input data length	1440		
	Max. output data length	1440		
	Info text	EthernetIP To PROFINET IO-Device		
			OK Cancel	Apply Help
Isconnecte 0 Data Set	t			

Name	Value						
Main family	Attribute of the GSDML family element. It contains the assignment of the device to a function class. One of the following values are allowed:						
	 One of the following values are allowed: General Drives Switching Devices I/O Valves Controllers HMI Encoders NC/RC Gateway Programmable Logic Controllers 						
	 Ident systems PROFIBUS PA Profile Network Components Sensor 						
Product family	Attribute of the GSDML family element. It contains the vendor-specific assignment of the device to a product family. In addition to the main family, a device can be assigned to a vendor-specific product family.						
DAP vendor name	Attribute of the GSDML ModuleInfo/VendorName element. The VendorName element contains the name of the device vendor. The device access point (DAP) is a module of the GSDML to describe the device parameters specific device. The device access point object contains most of the device-related keywords.						
DAP hardware release	Attribute of the GSDML ModuleInfo/HardwareRelease element. The HardwareRelease element contains the hardware release of the DAP.						

Name	Value
DAP software release	Attribute of the GSDML ModuleInfo/SoftwareRelease element. The SoftwareRelease element contains the software release of the DAP.
Extended Address Assignment	Attribute of the GSDML DeviceAccessPointItem element. It depends on the protocol for the assignment of the IP addresses supported by the DAP.
	Default: "false" for Discovery and Configuration (DCP), "true" for Dynamic Host Configuration Protocol (DHCP).
Physical slots	Attribute of the GSDML DeviceAccessPointItem element. This list describes which slots are supported by the DAP. The slot number of the DAP itself shall be part of the list.
Max. I/O data length	Attribute of the GSDML DeviceAccessPointItem IOConfigData element. It contains the maximum length of the output and input data in octets. MaxDataLength shall not be less than the highest value of MaxInputLength or MaxOutputLength. It shall not be greater that the sum of MaxInputLength and MaxOutputLength. If the keyword is not provided, the maximum length is the sum of MaxInputLength and MaxOutputLength.
Max input data length	Attribute of the GSDML DeviceAccessPointItem IOConfigData element. It contains the maximum length of the data in octets which can be transferred from the I/O device to the I/O controller. This length is defined by the sum of the output data of all used submodules, the corresponding I/O producer status, and the I/O consumer status of the used input submodules.
Max output data length	Attribute of the GSDML DeviceAccessPointItem IOConfigData element. It contains the maximum length of the data in octets which can be transferred from the I/O controller to the I/O device. This length is defined by the sum of the output data of all used submodules, the corresponding I/O producer status, and the I/O consumer status of the used input submodules.
Info text	GSDML ModuleInfo/InfoText element. This element contains human readable additional text information about the device.

<u>Module Info</u>

The **SELECT MODULE** drop-down list of the *Module Info* pane displays all available modules described in the GSDML file.

	ior III I I I	I.I PPIS <plx31-pnd></plx31-pnd>			Device ID:	0x8201
	ProSoft Technology, Inc	2				0x8201 0x0175
Navigation Area ■ Configuration General Modules ■ Description Device Info ■ Module Info GSDML Viewer	Select module: Name Vendor Id Main family Product family Modules identifier Order number Hardware release Software release Info text:	BFUT 4 Byte JINUT 4 Byte JINUT 4 Byte JINUT 5 Byte JINUT 5 Byte JINUT 6 Byte JUTT 7 2 Byte JINUT 6 Byte JUTT 7 2 Byte JINUT 7 4 Byte JINUT 7 5 Byte	N	todule Info		
Disconnecte Data Se	t				OK Cance	el Apply Help

Name	Value
Vendor ID	Vendor Identification Number
Main family	Attribute of the GSDML family element. It contains the assignment of the device to a function class.
	One of the following values are allowed:
	General Drives
	Switching Devices
	 I/O
	 Valves
	Controllers
	 HMI
	 Encoders
	 NC/RC
	 Gateway
	 Programmable Logic Controllers
	 Ident Systems,
	 PROFIBUS PA Profile
	 Network Components
	 Sensors
Product family	Attribute of the GSDML family element. It contains the vendor-specific assignment to a product family. In addition to the main family, a device can be assigned to a vendor-specific product family.
Modules identifier	Identification number of the module.
Order number	GSDML ModuleInfo/OrderNumber element. Contains the order number of the module.
Hardware release	GSDML ModuleInfo/HardwareRelease element. Contains the hardware release of the module.
Software release	GSDML ModuleInfo/SoftwareRelease element. Contains the software release of the module.
Info text	GSDML ModuleInfo/InfoText element. This element contains human-readable information about the module.

5 PROFINET Start Input and Output Byte Offsets

The *PNC* option in PCB allows you to set the PROFINET *Start Input Byte Offset* and *Start Output Byte Offset* values within PLX82-EIP-PNC internal memory. You can also use this area to configure floating point or other multi-register values.

To edit these values, double-click on the **PNC** > **PNC** icon to display the *Edit* - *PNC* dialog as shown:



Parameter	Description						
Start Input Byte Offset	Byte offset for in	Byte offset for input data					
Start Output Byte Offset	Byte offset for output data						
Swap Read Input Data Bytes	register values, types in devices	eter when dealing with floating-point or other multi- as there is no standard method of storage of these data s. This parameter can be set to order the register data order useful by other applications.					
	The following ta	able defines the values and their associated operations:					
	0	None . No change is made in the byte ordering.					
	1	Words. The words are swapped.					
	2	Words and Bytes. The words are swapped, then the bytes in each word are swapped.					
	3 Bytes . The bytes in each word are swapped. The words should be swapped only when using an even number of words.						
Swap Read Output Data Bytes	register values, types in devices received in an c	eter when dealing with floating-point or other multi- as there is no standard method of storage of these data s. This parameter can be set to order the register data order useful by other applications. The following table use and their associated operations:					
	0	None . No change is made in the byte ordering.					
	1	Words. The words are swapped.					
	2	Words and Bytes. The words are swapped, then the bytes in each word are swapped.					
	3	Bytes . The bytes in each word are swapped. The words should be swapped only when using an even number of words.					

6 Acyclic Data

If you have a module that supports acyclic messaging and wish to use it, you must configure RSLogix 5000 to handle this. EIP requires a Class 3 function from the PLC.

Configure Message for Read

- 1 Click on **MAIN ROUTINE** from the Controller Organizer.
- 2 Expand the PLX82.ACYCLIC.READ.REQUEST controller tag.

Name III A	Value 🗧	Force Mask 🛛 🗧	Style	Data Type	Т
⊞-AOI_PLX82_EIP_PNC	{}	{}		AOI_PLX82_EIP_PNC	7
E-PLX82	{}	{}		PLX82_ModuleDef	1
+PLX82.CONTROL	{}	{}		PLX82_CONTROL	1
-PLX82.ACYCLIC	{}	{}		PLX82_ACYCLIC	
-PLX82.ACYCLIC.Read	{}	{}		PLX82_Acyclic_Read	
-PLX82.ACYCLIC.Read.Request	{}	{}		PLX82_Acyclic_Read_Request	
PLX82.ACYCLIC.Read.Request.DeviceID	0		Decimal	INT	
PLX82.ACYCLIC.Read.Request.SlotNumber	0		Decimal	INT	
PLX82.ACYCLIC.Read.Request.SubSlotNumber	0		Decimal	INT	
PLX82.ACYCLIC.Read.Request.Index	0		Decimal	INT	
	0		Decimal	INT	
PLX82.ACYCLIC.Read.Response	()	()		PLX82_Acyclic_Read_Response	
PLX82.ACYCLIC.Write	()	()		PLX82_Acyclic_Write	
PLX82.ACYCLIC.Message	()	()	Decimal	SINT[100]	
	()	()		PLX82_ALARM	
PLX82_EIP_PNC:0:C	()	()		AB:1756_MODULE:C:0	
PLX82_EIP_PNC:0:1	()	()		AB:1756_MODULE_INT_496Bytes:I:	С
PLX82_EIP_PNC:0:0	{}	{}		AB:1756_MODULE_INT_496Bytes:	
PLX82_EIP_PNC:1:C	{}	{}		AB:1756_MODULE:C:0	
PLX82_EIP_PNC:1:I	{}	{}		AB:1756_MODULE_INT_496Bytes:I:	С
PLX82_EIP_PNC:1:0	{}	{}		AB:1756_MODULE_INT_496Bytes:	
PLX82_EIP_PNC:2:C	{}	{}		AB:1756_MODULE:C:0	
PLX82_EIP_PNC:2:1	{}	{}		AB:1756_MODULE_INT_496Bytes:I:	С
H-PLX82_EIP_PNC:2:0	{}	{}		AB:1756_MODULE_INT_496Bytes:	
PLX82_EIP_PNC:3:C	{}	{}		AB:1756_MODULE:C:0	
PLX82_EIP_PNC:3:1	{}	{}		AB:1756_MODULE_INT_496Bytes:I:	С

Controller Tag	Description
PLX82.ACYCLIC.Read. Request.DeviceID	You can get the device ID from the Device table described under "Viewing the Device Table" in this manual. The Device ID is list in the Index column of the table. Remember that devices in the table start with the first device as 0, regardless of what number is displayed with the device. The second device in the table represents 1, the next device 2, and so on.
PLX82.ACYCLIC.Read. Request.SlotNumber	Specify the slot number of the device. You can find this information in the Address table described in the section entitled "Viewing and Modifying the Address Table" in this manual.
PLX82.ACYCLIC.Read. Request.SubSlotNumber	Specify the sub-slot number of the device. You can find this information in the Address table described in the section entitled "Viewing and Modifying the Address Table" in this manual.
PLX82.ACYCLIC.Read. Request.Index	Enter the device index number. This should be available from the device manufacturer documentation.
PLX82.ACYCLIC.Read. Request.Length	Enter the number of bytes to read.

Read Response

1 Scroll up to PLX82.CONTROL and expand it.

lame	<u>=</u> ∎ ∆ Value	+	Force Mask 💦 🔦 🗲	Style	Data Type
E-A0I_PLX82_EIP_PNC		{}	{}		A0I_PLX82_EIP_PNC
-PLX82		{}	{}		PLX82_ModuleDef
-PLX82.CONTROL		{}	{}		PLX82_CONTROL
-PLX82.CONTROL.AcyclicRead		0		Decimal	BOOL
PLX82.CONTROL.AcyclicWrite		0		Decimal	BOOL
E-PLX82.ACYCLIC		{}	{}		PLX82_ACYCLIC
		{}	{}		PLX82_ALARM
-PLX82_EIP_PNC:0:C		{}	{}		AB:1756_MODULE:C:0
-PLX82_EIP_PNC:0:1		{}	{}		AB:1756_MODULE_INT_496By
-PLX82_EIP_PNC:0:0		{}	{}		AB:1756_MODULE_INT_496By
-PLX82_EIP_PNC:1:C		{}	{}		AB:1756_MODULE:C:0
-PLX82_EIP_PNC:1:1		{}	{}		AB:1756_MODULE_INT_496By
-PLX82_EIP_PNC:1:0		{}	{}		AB:1756_MODULE_INT_496By
-PLX82_EIP_PNC:2:C		{}	{}		AB:1756_MODULE:C:0
-PLX82_EIP_PNC:2:1		{}	{}		AB:1756_MODULE_INT_496By
-PLX82_EIP_PNC:2:0		{}	{}		AB:1756_MODULE_INT_496By
-PLX82_EIP_PNC:3:C		{}	{}		AB:1756_MODULE:C:0
-PLX82_EIP_PNC:3:1		{}	{}		AB:1756_MODULE_INT_496By
-PLX82_EIP_PNC:3:0		{}	{}		AB:1756_MODULE_INT_496By
-PLX82_EIP_PNC:4:C		{}	{}		AB:1756_MODULE:C:0
-PLX82_EIP_PNC:4:I		{}	{}		AB:1756_MODULE_INT_496By
-PLX82_EIP_PNC:4:0		{}	{}		AB:1756_MODULE_INT_496By
-PLX82_EIP_PNC:5:C		{}	{}		AB:1756_MODULE:C:0
-PLX82_EIP_PNC:5:I		{}	{}		AB:1756_MODULE_INT_496By
-PLX82_EIP_PNC:5:0		{}	{}		AB:1756_MODULE_INT_496B
PLX82_EIP_PNC:6:C		{}	{}		AB:1756 MODULE:C:0

- 2 Enter the control bit in the PLX82.CONTROL.Acyclic.Read field and click ENTER.
- 3 The response is returned in the **PLX82.ACYCLIC.Read.Response** tags.

Configure Message for Write and Response

- 1 Expand the **PLX82.ACYCLIC.WRITE.REQUEST** controller tag.
- 2 Write also contains the **PLX82.ACYCLIC.Write.Request.Length**. Specify the length of the data to be returned. The recommended limit is 495 bytes.

Name	e =A	Value 🗧	Force Mask 🛛 🔦	Style	Data Type	Descript
	-PLX82.ACYCLIC.Read.Response.DeviceID	0		Decimal	INT	Main UE
	PLX82.ACYCLIC.Read.Response.SlotNumber	0		Decimal	INT	Main U
	-PLX82.ACYCLIC.Read.Response.SubSlotNumber	0		Decimal	INT	Main UI
	-PLX82.ACYCLIC.Read.Response.Index	0		Decimal	INT	Main UI
	:PLX82.ACYCLIC.Read.Response.DataLength	0		Decimal	INT	Main U
	PLX82.ACYCLIC.Read.Response.StartingLocation	0		Decimal	INT	Main U
	Image: PLX82.ACYCLIC.Read.Response.Data	{}	{}	Decimal	SINT[1024]	Main U
	PLX82.ACYCLIC.Write	{}	{}		PLX82_Acyclic_Wite	Main U
	PLX82.ACYCLIC.Write.Request	()	{}		PLX82_Acyclic_Write_Request	Main U
	E-PLX82.ACYCLIC.Write.Request.DeviceID	0		Decimal	INT	Main U
		0		Decimal	INT	Main U
	E PLX82.ACYCLIC.Write.Request.SubSlotNumber	0		Decimal	INT	Main U
	E-PLX82.ACYCLIC.Write.Request.Index	0		Decimal	INT	Main U
-PLX82.ACYCLIC.Write.Request.Length		0)	Decimal	INT	Main U
		{}	{}	Decimal	SINT[512]	Main U
	PLX82.ACYCLIC.Write.Response	{}	{}		PLX82_Acylic_Write_Response	Main U
	PLX82.ACYCLIC.Message	{}	{}	Decimal	SINT[100]	Main U
÷	-PLX82.ALARM	{}	{}		PLX82_ALARM	Main U
+-PL	X82_EIP_PNC:0:C	{}	{}		AB:1756_MODULE:C:0	
+-PL	X82_EIP_PNC:0:I	{}	{}		AB:1756_MODULE_INT_496Bytes:I:0	-
E-PLX82_EIP_PNC:0:0		{}	{}		AB:1756_MODULE_INT_496Bytes:	
H-PLX82_EIP_PNC:1:C		{}	{}		AB:1756_MODULE:C:0	
H-PLX82_EIP_PNC:1:I		{}	{}		AB:1756_MODULE_INT_496Bytes:I:0	
+-PL	X82_EIP_PNC:1:0	{}	{}		AB:1756_MODULE_INT_496Bytes:	
+-PL	X82_EIP_PNC:2:C	{}	{}		AB:1756_MODULE:C:0	
+ PL	X82_EIP_PNC:2:I	{}	{}		AB:1756_MODULE_INT_496Bytes:I:0	-

Controller Tag	Description
PLX82.ACYCLIC.Write. Request.DeviceID	You can get the device ID from the Device table described under "Viewing the Device Table" in this manual. The Device ID is list in the Index column of the table. Remember that devices in the table start with the first device as 0, regardless of what number is displayed with the device. The second device in the table represents 1, the next device 2, and so on.
PLX82.ACYCLIC.Write. Request.SlotNumber	Specify the slot number of the device. You can find this information in the Address table described in the section entitled "Viewing and Modifying the Address Table" in this manual.
PLX82.ACYCLIC.Write. Request.SubSlotNumber	Specify the sub-slot number of the device. You can find this information in the Address table described in the section entitled "Viewing and Modifying the Address Table" in this manual.
PLX82.ACYCLIC.Write. Request.Index	Enter the device index number. This should be available fro the device manufacturer documentation.
PLX82.ACYCLIC.Write. Request.Length	495 bytes

3 The Write Results are displayed in the **PLX82.ACYCLIC.WRITE.RESPONSE** controller tag.

Important Note: The PLX82.ACYCLIC.Read.Request.DeviceID, and

PLX82.ACYCLIC.Write.Request.DeviceID, and can be found in the PNC Device Table through ProSoft fdt Configuration Manager. However it is important to note that regardless of the index number listed in the Device Table, the first device in the list (for purposes of identification) is always 0. The Device Table indexes devices sequentially beginning at 1. However, since the Device table Index is also editable, the first number listed could be anything. Regardless, for setting the DeviceID, the first device will be 0, followed by 1, 2, 3, etc.

7 CommonNet Data Map

This is an optional section that allows you to move already in the PLX82-EIP-PNC's internal database to another location in its database and is not required for normal operation. This feature is primarily used to transfer status data from our normally inaccessible upper memory (address 10000 and higher) down into the accessible lower memory (0 to 9999) so that it may be transferred to one or more connected devices.

1 From PCB, navigate to **COMMONNET > DATA MAP**.

VLX82-EIP-PNC-FINAL-TEST.ppf - ProSoft Configuration Builder		_ 🗆 X
□ 🤌 🖬 🕇 — 🖄 🔁 🔶 🕇 🔲 🥥 .		
File View Project Tools Help		
■ PLX82-EIP-PNC-FINAL-TEST ■ Bakersfield ● ■ PLX82-EIP-PND ● ■ PLX82-EIP-PND ● ▲ Comment ● ▲ Comment ● ▲ EIP Class 3 Server ● ▲ EIP Class 1 Connectid	Name Status Information ✓ PNC All Tags Go Address Register Count Swap Code Delay Preset Comment	
Set to Defaults	Row Insert Row Delete Row Move Up Move Down yRow Paste Row OK Cancel par # EtherNet Configuration my_ip : 192.168.1.248 netmask : 255.255.05 gateway : 192.168.1.1 # Module Configuration	Ĩ
	• • • • • • • • • • • • • • • • • • •	
Ready		PLX82-EIP-PNC CAP NUM SCRL

- 2 To set data mapping to default levels, click the **SET TO DEFAULTS** button.
- **3** To configure the data map, click on the **ADD Row** button.

Parameter	Description				
From Address	0	tus Data address.			
	Specifies the beginning internal database register address for the copy operation. The address can be any valid address in the user data area or the status data area in the gateway.				
To Address	0 to 9999	0 to 9999			
	be within the us	ginning destination register address for the copy operation. This address must always er data area. Make sure you specify a destination address that does not overwrite data memory by one of the communication protocols running on the gateway.			
Register Count	1 to 100				
	Specifies the nu	mber of registers to copy.			
Swap Code	No Change, Wo	rd Swap, Word & Byte Swap, Byte Swap			
	the alignment of	o swap the order of bytes in the registers during the copy process in order to change bytes between different protocols. Use this parameter when dealing with floating-point gister values since there is no standard of storage of this data type in slave devices.			
	Swap Code	Description			
	No Swap	No change is made in the byte ordering (1234 = 1234)			
	Word Swap	The words are swapped (1234 = 3412)			
	Word and Byte Swap	The words are swapped, then the bytes in each word are swapped (1234 = 4321)			
	Bytes	The bytes in each word are swapped (1234 = 2143)			
Delay Preset	not a fixed amou operations. The firmware sc protocol drivers Each firmware s operations cann	sets an interval for each <i>Data Map</i> copy operation. The value for the <i>Delay Preset</i> is unt of time. It is the number of firmware scans that must transpire between copy can cycle can take a variable amount of time, depending on the level of activity of the running on the gateway and the level of activity on the gateway's communication ports acan can take from one to several milliseconds to complete. Therefore, <i>Data Map</i> copy ot be expected to happen at regular intervals.			
	in the same upd result in slow da set the <i>Delay Pr</i> rather than lowe For example, <i>D</i> e	elay Preset values below 1000 could cause a noticeable delay in data updates through			
	for each row in t	ion ports. Do not set all <i>Delay Presets</i> to the same value. Instead, use different values the Data Map such as 1000, 1001, and 1002 or any other different <i>Delay Preset</i> values events the copies from happening concurrently and prevents possible process scan			

The following parameters are located in the PLX82-EIP-PNC upper memory, starting at address 10000.

Parameter	Starting Address	Length (16 bit registers)	
Module Status	10000	20	
EIP Class 3 Servers	11000	80	
EIP Class 3 Client1 Status	12000	110	
EIP Class 3 Client2 Status	12400	110	
EIP Class 3 UClient Status	12600	110	
PNC Status	13000	594	

8 Webpage

The PLX82-EIP-PNC webpage is accessible via web browser or through PCB via the built-in ProSoft Discovery Service.

To access the PLX82-EIP-PNC webpage, enter the PLX82-EIP-PNC's IP address into your browser.

FUNCTIONS	ProLinx		
 Firmware Upgrade Set Date & Time 	PLX82-EIP-PNC		
Reboot Module			RESOURCES
	Module Name	PLX82-EIP-PNC	ProSoft
	Ethernet Address (MAC)	00:0D:8D:A2:5E:95	Technology
Technical Support	IP Address	192.168.1.77	
Homepage	Product Revision	1.02.025 2.6.30.10 #1	PROFINET
	Firmware Version Date	03/01/2017	Technology
	Serial Number	000D8DA25E95	
	Status	Running	
	Uptime	18:38:56	Prosoft

Status

Parameter	Description
Module Name	Name of the device as character string defined by the manufacturer
Ethernet Address (MAC)	The MAC address (MAC ID) is the unique (physical) Ethernet address of the device fixed by the manufacturer
IP Address	IP address of the of the PLX82-EIP-PNC that can be set via the <i>ProSoft fdt Configuration Manager</i>
Product Revision	Product revision of the PLX82-EIP-PNC firmware
Firmware Version Date	Firmware Version Date
Serial Number	Serial number of the PLX82-EIP-PNC
Status	Current status of the module; Running, Communicating, Ready, or Error
Uptime	Counts up to the time from the last Reset/Power On

Functions

Parameter	Description
Firmware Upgrade	Click to upgrade the firmware in the PLX82-EIP-PNC. Only do this if instructed to do so by ProSoft Technology Technical Support.
Set Date & Time	Click to set the date and time in the PLX82-EIP-PNC.
Reboot Module	Click to reboot the PLX82-EIP-PNC.
Technical Support	Click to be directed to ProSoft Technology Technical Support.
Homepage	Click to go to the PLX82-EIP-PNC's homepage.

Resources

Parameter	Description
ProSoft Technology	Click to be directed to the ProSoft Technology website.
PROFINET Technology	Click to be directed to the PROFINET website.

9 Diagnostics and Troubleshooting

There are three ways to troubleshoot the PLX82-EIP-PNC:

- Using the LEDs located on the front of the PLX82-EIP-PNC.
- Using the Diagnostics option within ProSoft Configuration Builder (PCB).

9.1 LEDs

All LEDs are found on the front of the module.

PLX82-EIP-PNC	
ProSoft [®]	
100 Mbit MS () () NS RESERVED	
RESET	
+ - -	
FLT 💮 🌔 PWR CFG 🌔 🌔 ERR	

LED	State	Description
Pwr	OFF	Power is not connected to the power terminals or source is insufficient to properly power the gateway (200mA at 24 VDC is required)
	Solid GREEN	Power is connected to the power terminals. Verify that the other LEDs for operational and functional status come on briefly after power-up (check for burned-out LEDs).

LED	State	Description
Flt	OFF	Normal operation
	Solid RED	A critical error has occurred. Program executable has failed or has been user- terminated and is no longer running. Press Reset p/b or cycle power to clear error.
Cfg	OFF	Normal operation
	Solid AMBER	The unit is in configuration mode. Either a configuration error exists, or the configuration file is currently being downloaded or read. After power up, the configuration is read, and the unit implements the configuration values and initiates the hardware. This occurs during power cycle or after the Reset button is pressed.
Err	OFF	PROFINET is scanning configured slaves without error.
	Flashing Amber	PROFINET controller is in error (misconfiguration or missing slaves)
	Solid AMBER	PROFINET controller is not configured, or is incorrectly configured.
NS	Off	No power or no IP address
	Solid Red	Duplicate IP address
	Solid Green	Connected
	Flashing Red	Connection timeout
	Flashing Green	IP address obtained; no established connections
	Alternating Red and Green	Self-test
MS	Off	No power
	Solid Red	Major fault
	Solid Green	Device operational
	Flashing Red	Minor fault
	Flashing Green	Standby
	Alternating Red and Green	Self-test
Link/Act	OFF	No physical network connection is detected.
	Solid Green	Physical network connection detected. This LED must be ON solid for Ethernet communication to be possible.
100 Mbit (Port Speed)	Off	No activity on the port.
	Flashing Amber	The Ethernet port is actively transmitting or receiving data.
_ink	Green	A connection exists
Rx/Tx	Yellow (Flashing)	The device sends/receives Ethernet frames.
SYS	Green	Operating system running
	Green/Yellow	Second stage boot loader is waiting for firmware.
	Yellow	Second stage boot loader missing. Contact Technical Support
	Off	Power supply for the device is missing or hardware is defective
SF	Red (with BF Red)	No valid Controller License
	Red (flashing cyclic at 2 Hz)	System Error: Invalid configuration, watchdog error, or internal error
	Off	No error
	Oli	

LED	State	Description
		No Controller License
	Red (Flashing cyclic at 2 Hz	Configuration fault: not all configured I/O devices are connected.
	Off	No error

9.2 PCB Diagnostics

1 From PCB, right-click on the PLX82-EIP-PNC icon and select DIAGNOSTICS.



2 When the *Diagnostics* window opens, click the **SET UP CONNECTION** icon to browse for PLX82-EIP-PNC's IP address.

	🝯 Diagnosti	cs	
)	Connection	Log	Module
		þ	F

3 Enter the IP address of the PLX82-EIP-PNC. If you don't remember the IP address, click on the **BROWSE DEVICE(S)** button to display all devices on the network.

Connection Setup
Select Connection Type:
Ethernet
ProSoft Discovery Service (PDS) Browse Device(s)
CIPconnect
t:192.168.0.100,p:1,s:0\$56
CIP Path Edit
Test Connection Connect Cancel

- 4 Click **TEST CONNECTION** to ensure that a connection can be established.
- 5 Click **CONNECT** to obtain diagnostic results. Click on the parameters within the navigation tree on the left pane of the window.

S Diagnostics	Information			×
Connection Log Module				
	PLX82-EIP-PNC > EIP Processor Alarm Count Retries TNS State Timeout Current Error Last Error Number of Command Requests Number of Command Errors Number of Errors Received Number of Errors Sent	<pre>Path > Status : :0 :0 :0 :0 :0 :0 :0 :0 :0 :0 :0</pre>	Time : 10.7 [Refresh Counter: 2534	23.09 -
Cond Errors(Flex) Cond Errors(Flex) A EIP Processor Path Group Group Group Group Group	*			*
Path "Ethernet - 192.168.1.248"				_

9.2.1 PCB Diagnostics Menu Options

This view provides diagnostic and status information.

PLX82-EIP-PNC > Module > Version

Displays the module's current version information as well as additional information such as IP address, free memory, etc.

PLX82-EIP-PNC > MODULE > Version :

Time : 09.36.24 [Refresh Counter: 1]

PRODUCT NAME PRODUCT NAME CODE SOFTWARE REVISION LEVEL OPERATING SYSTEM REVISION RUN NUMBER MY IP ADDRESS MY ETHERNET ADDRESS (HEX) PROGRAM SCAN COUNTER SYSTEM FREE MEMORY MODULE NAME

:PLX82-EIP-PNC :EPNC :1.02.003 :2.6.30.10 :#1 :192.168.1.248 :00:0D:8D:A2:5E:95 :592096094 :44666880 :PLX82-EIP-PNC

PLX82-EIP-PNC > Module > Data Map

Displays the PLX82-EIP-PNC data map.

PLX82-EIP-PNC > MODULE > Data	М	ap :	[Ref	resh	Counte		.39.01
DATA MAP LIST	:	FROM ADDR	TO ADDR	REG	COUNT	SWAP	CODE
****	¥	Scroll Up/Down	* * * * *				

Time : 09.43.21

[Refresh Counter: 1]

PLX82-EIP-PNC > PROFINET > Config

Displays the current PCB configuration settings.

PLX82-EIP-PNC > PROFINET > Config :

Start Input Byte Offset Start Output Byte Offset Swap Read Input Data Bytes Swap Read Output Data Bytes Configuration Error	4000 0 No Swap No Swap 0
Configuration Error	 0

PLX82-EIP-PNC > PROFINET > Module Information

Displays specific module information.

PLX82-EIP-PNC > PROFINET > Module Information : [Refresh Counter: 1] Module Information : Module : PROFINET IO Controller Version : 2.7.11 build 0 Device Number : 20002 Serial Number : 9043110

PLX82-EIP-PNC > PROFINET > Module Input Map

Displays the starting input data address and the size of the data (bytes) being passed.

PLX82-EIP-PNC > PROFINET	> Module Input Map :	Time : 09.47.35 [Refresh Counter: 1]
Input Module 0 TO 0	: INPUT_START	INPUT_COUNT (32)
Module 0	: 0	32
	***** Scroll Up/Down	* * * *

PLX82-EIP-PNC > PROFINET > Module Output Map

Displays the starting output data address and the size of the data (bytes) being passed.

PLX82-EIP-PNC > PROFINET >	Module	Output Map :	[Refresh	Time : 09.50.08 Counter: 1]
Output Module O TO O	:	OUTPUT_START	OUTPUT_COUNT	(32)
Module 0		0	32	

***** Scroll Up/Down *****

PLX82-EIP-PNC > PROFINET > Status

Displays the current PROFINET status.

PLX82-EIP-PNC > PROFINET > State	us :		Time : 09.52.58 [Refresh Counter: 1]
Number of Input Messages	:	63089	
Input Errors Count	:	0	
Previous Input Errors Status	:	0	
Input Errors Status	:	0	
Number of Output Messages	:	63088	
Output Errors Count	:	0	
Previous Output Errors Status	:	0	
Output Errors Status	:	0	
Connection Count	:	1	
Communication Status	:	Connected	

PLX82-EIP-PNC > EIP Class 1 Connection > Config

Displays EIP Class 1 connections.

PLX82-EIP-PNC > EIP Class 1	Conne	ction > C	onfig :	[Refresh Cou	Time : 09.56.35 nter: 1]
EIP Class 1 Connections Connection 1 Connection 2 Connection 3 Connection 4 Connection 5 Connection 6 Connection 7	:In	Dut Addr 2000 2250 2500 2750 3000 3250 3500	Input Size 248 248 248 248 248 248 248 248 248	Output Addr 0 250 500 750 1000 1250 1500	Output Size 248 248 248 248 248 248 248 248 248 248
Connection 8	÷	3750	248	1750	248

Time : 10.13.35

PLX82-EIP-PNC > EIP Class 1 Connection > Status

Displays Class 1 connection status.

Time : 09.59.21 PLX82-EIP-PNC > EIP Class 1 Connection > Status : [Refresh Counter: 1] Configuration Error :0x0000 Number of EIP Class 1 (Implicit) Connections :0

PLX82-EIP-PNC > EIP Class 3 Server > Config

Displays Class 3 server parameters.

PLX82-EIP-PNC > EIP C	lass 3 Server > Config :	[Refresh Counter: 1]
First File File Size	:10 :1000	

PLX82-EIP-PNC > EIP Class 3 Server > Comm Status

Displays comm status information of the EIP Class 3 server.

PLX82-EIP-PNC > EIP Class	3 Server > Comm Status :	Time : 10.18.17 [Refresh Counter: 1]
Server 0: Port : 0 State Estab Read Write	IP : 0.0.0.0 : :-1 :0 :0	
Server 1: Port : 0 State Estab Read Write	IP : 0.0.0.0 : :-1 :0 :0	
Server 2: Port : 0 State Estab Read Write	IP : 0.0.0.0 : :-1 :0 :0	
Server 3: Port : O State Estab Read Write	IP : 0.0.0.0 : :-1 :0 :0	
Server 4: Port : O State Estab Read Write	IP : 0.0.0.0 : :-1 :0 :0	

PLX82-EIP-PNC > EIP Class 3 Client 0 > Config

Displays Class 3 Client 0 configuration.

Time : 10.42.00PLX82-EIP-PNC > EIP Class 3 Client 0 > Config :[Refresh Counter: 1]Commands:0Min Dly:50Resp TMO:1000Retries:3

PLX82-EIP-PNC > EIP Class 3 Client 0 > Comm Status

Displays the communication status of the selected EIP Class 3 client.

PLX82-EIP-PNC > EIP Class 3	Client 0 > Comm Status :	Time : 10.45.2 [Refresh Counter: 1]
Retries	:0	
Cur Cmd	:0	
TNS	:0	
State	:0	
Timeout	:0	
Cfg Err	:0x0000	
Cur Err	:0	
Last Err	:0	
Number of Command Requests	:0	
Number of Cmd Responses	:0	
Number of Command Errors	:0	
Number of Requests	:0	
Number of Responses	:0	
Number of Errors Received	:0	
Number of Errors Sent	:0	

PLX82-EIP-PNC > EIP Class 3 Client 0 > Commands

Displays the command list for the selected EIP Class 3 client.

						Time : 10	.48.48
PLX82-EIP-PNC > EIP Class	3 Clie	nt () > Cor	nmands :	[Refresh Co	unter: 1]	
COMMANDS 0 TO 9	:	EN	DBREG	POLLINT COUNT	SWAP NODE		SLOT
C0	:	0	0	0 ILLEGA	L FUNCTION	0	
C1	:	0	0	0 ILLEGA	L FUNCTION	0	
C2	:	0	0	0 ILLEGA	L FUNCTION	0	
C3		0	0	0 ILLEGA	L FUNCTION	0	
C4		0	0	0 ILLEGA	L FUNCTION	0	
C5		0	0	0 ILLEGA	L FUNCTION	0	
C6		0	0	0 ILLEGA	L FUNCTION	0	
C7		0	0	0 ILLEGA	L FUNCTION	0	
C8		0	0	0 ILLEGA	L FUNCTION	0	
C9		0	0	0 ILLEGA	L FUNCTION	0	

***** Scroll Up/Down *****

PLX82-EIP-PNC > EIP Class 3 Client 0 > Cmd Errors (Decimal)

Lists command errors in decimal format.

PLX82-EIP-PNC > EIP Class	3 Client	0 > Cm	d Error	s(Decim	al) : [e : 10. Counte	
D0 D10	:	0 0	0 0	0 0	0 0	0 0	0 0	0 0
×r 1	**** Scr	oll Up,	/Down	****				

PLX82-EIP-PNC > EIP Class 3 Client 0 > Cmd Errors (Hex)

Lists command errors in hexadecimal format.

PLX82-EIP-PNC > EIP Class	3 Clie	nt 0 >	Cmd E	rrors (Hex) :	[Refr			LO.57.5 1]	50
H0 H10	:	0000 0000								
*	* * * *	Scroll	Up/Do	wn **	* * *					

PLX82-EIP-PNC > EIP Processor Path > Config

Displays the EIP Processor Path configuration.

PLX82-EIP-PNC > EIP Processor	Path > Config :	Time : 11.00.06 [Refresh Counter: 1]
Alarm IP Address Alarm Slot Alarm Tagname	: 192.168.0.59 : -1 : Alarm	
Acyclic IP Address Acyclic Slot Acyclic Tagname	: 192.168.0.59 : -1 : Acyclic	

PLX82-EIP-PNC > EIP Processor Path > Status

Displays the EIP Processor Path status.

PLX82-EIP-PNC > EIP Processor Path > Status :

PNC Respond Count PNC Alarm Respond Count PNC Acyclic Command Count Retries TNS State Timeout Current Error Last Error Number of Command Requests Number of Command Errors	:0 :0 :0 :0 :0 :0 :0 :0 :0 :0
Number of Cmd Responses	
Number of Errors Received	:0
Number of Errors Sent	:0

Parameter	Description
PNC Respond Count	Represents the total number of PROFINET responses saved in the queue.
PNC Alarm Respond Count	Represents the total number of PROFINET Alarm Responses saved in the queue.
PNC Acyclic Command Count	Represents the total number of PROFINET acyclic commands saved in the queue.
Retries	Number of messages sent but exceeded the 100ms timeout and had to be retried
TNS	Transaction Number. Increments each time a transaction such as an alarm or acyclic response occurs.
State	Displays the current command state:
	0: Client Initialization
	1: Session Creation
	2: Wait for Session
	3 Open for Session
	4: Command Ready
	5: Command Delay
	6: Send Command
	7: Wait for Command Response
	8: Prepare Next Command
	9: Verify Command
	10: Close Connection
	11: Close Session
Timeout	100ms. Amount of time before trying to reconnect to the socket to retry the send.
Current Error	Current error code number detected by the module.
Last Error	Previous error code detected by the module.

Time : 11.02.09 [Refresh Counter: 1]

Parameter	Description
Number of Command Requests	This value is incremented each time a Command Request is issued by the client.
Number of Cmd Responses	This value is incremented each time a Command Response is received by the client.
Number of Command Errors	This value is incremented each time an error message is received from a remote unit or a local error is generated for a command.
Number of Errors Received	Represents the number of errors received from the PNC.
Number of Errors Sent	Represents the number of errors sent from the PNC.

Status Code	Description
0x00000000L	Operation successful
0xC000001L	Common error, detailed error information optionally present in the data area of the packet
0xC0000002L	Unexpected failure
0xC0000003L	Out of memory
0xC0000004L	Unknown command in packet received
0xC0000005L	Unknown destination in packet received
0xC0000006L	Unknown destination ID in packet received
0xC0000007L	Packet length is invalid
0xC0000008L	Invalid extension in packet received
0xC0000009L	Invalid parameter in packet found
0xC000000CL	Watchdog error occurred
0xC000000DL	List type is invalid
0xC000000EL	Handle is unknown
0xC000000FL	A packet index is not in the expected sequence
0xC0000010L	The amount of fragmented data contained in the packet sequence is too large
0xC0000011L	The packet done function has failed
0xC0000012L	A packet failed to send
0xC0000013L	Packet request from packet pool has failed
0xC0000014L	Release of a packet from the packet pool has failed
0xC0000015L	The get packet pool load function has failed.
0xC0000016L	The get queue load function failed
0xC0000017L	The waiting for a packet from queue failed
0xC0000018L	The posting of a packet has failed
0xC0000019L	The peek of a packet from queue has failed
0xC000001AL	Request already running
0xC000001BL	Creating a timer failed
0xC0000100L	General initialization fault
0xC0000101L	Database access failure
0xC0000102L	Controller parameter cannot activate at state operate
0xC0000103L	Slave parameter cannot activate at state operate
0xC0000200L	Watchdog time is out of range
0xC0000201L	Application is already registered
0xC0000202L	No application registered
0x0000F005L	Fragment accepted
0xC000F006L	Reset required

9.2.2 PROFINET General Status Codes

9.2.3 PROFINET Device Errors

Error Code	Description	
D13 to D31	Unused, set to zero	
D12	Inactive module present	
D11	Module DiffBlock present	
D10	Packet too small	
D9	Diagnosis buffer overwritten	
D8	Diagnosis buffer overflow	
D7	Diagnosis - disappeared	
D6	Diagnosis data present for I/O device	
D5	IO - Device deactivated	
D4	IO - Device parameter fault	
D3	IO - Device invalid response	
D2	IO - Device configuration fault	
D1	IO - Device not ready	
D0	IO - Device does not exist	

9.2.4 Acyclic Read/Write Communication Status

Status Code	Description	
0x0000000	Status OK	
0xC00A0012	Insufficient memory for this request	
0xC00A0014	This request cannot be served in current CMCTL state	
0xC00A0018	Error while sending a packet to another task	
0xC00A0040	The CMCTL protocol-machine restored from index invalid	
0xC00A0041	The index of CMCTL protocol machine is invalid	
0xC00C0030	Too many outstanding RPC-requests for this I/O device	
0xC00C0031	Error while sending internal message to another task	
0xC00C0032	The handle used for I/O device is wrong	
0xC00C0051	The current bus state is OFF and no frames can be sent	
0xC02E0100	Generic RPC error code. See Acyclic Read/Write PNIO Remote Procedure Call Status code for details.	
0xC02E0200	Error while sending internal message to another task	
0xC02E0201	Creating a TLR-Timer-packet in RPC task failed due to insufficient memory	
0xC02E0605	The handle to RPC-client instance is invalid	
0xC02E0606	The maximum amount of outstanding RPC-Requests for this RPC-Clients instance is reached	
0xC02E0607	RPC-client instances can only to connect to an IO-Device if there are no outstanding RPC Requests. There is currently at least one RPC-Request outstanding	
0xC02B0024	The message ID of the request is incorrect; out of sequence	

9.2.5 Acyclic Read/Write PNIO Remote Procedure Call Status

Status Code	Description	
0x00000000	Status OK	
0xC02E0010	Initiating CLRPC - Client failed	
0xC02E0011	Initiating CLRPC - Server failed	
0xC02E0012	Initiating CLRPC - Endpoint Mapper failed	
0xC02E0013	Creating message queue failed	
0xC02E0014	Identifying Irv_EDD failed	
0xC02E0015	Getting the MAC address failed	
0xC02E0100	Generic RPC-error code. See Acyclic Read/Write Communication Status for details	
0xC02E0101	There was not enough memory allocated to receive the entire I/O device's Connect Response PDU. Most likely, it contains a very large ModuleDiff-Block	
0xC02E0102	The fatal error callback function is already registered	
0xC02E0200	Error while sending an internal message to another task	
0xC02E0201	Creating a TLR-Timer-packet in RPC task failed due to insufficient memory	
0xC02E0202	The reference counter value is invalid	
0xC02E0203	The port handle is invalid	
0xC02E0204	The soft timer is already active (expected inactive)	
0xC02E0300	The parameter "uiMaxReg" (maximum amount of RPC mapper registrations) is invalid	
0xC02E0301	The requested endpoint mapper index is invalid	
0xC02E0303	The state of endpoint mapper is invalid for this request	
0xC02E0304	The endpoint mapper is waiting for close confirmation and therefore it's status is invalid for this request	
0xC02E0305	The status of endpoint mapper is unknown	
0xC02E0306	The status of endpoint mapper is not "Ready"	
0xC02E0307	Invalid parameter	
0xC02E0308	CLRPC_EPMap_Deregister_req() is not allowed because at least one RPC server is registered to this endpoint mapper	
0xC02E0400	An error occurred during server initialization	
0xC02E0401	The maximum number of registered RPC-Servers is exceeded or the maximum number of outstanding requests is exceeded	
0xC02E0402	Creating TLR timer for RPC server failed	
0xC02E0403	There is no RPC server registered that could be de-registered	
0xC02E0405	The handle to endpoint mapper is invalid	
0xC02E0406	The status of endpoint mapper is invalid	
0xC02E0407	The handle to RPC server instance is invalid	
0xC02E0408	There is at least one object register to the RPC server instance; CLRPC_ServerDeregister_req() cannot proceed	
0xC02E0409	Invalid parameter "ulMaxRecv" in request packet	
0xC02E040A	Invalid parameter "ulMaxSend" is request packet	

Status Code	Description	
0xC02E040B	-	
	Invalid RPC server element "ptElem". Internal RPC error	
0xC02E040C	The RPC request was canceled	
0xC02E040D	The state of RPC server is invalid for this request	
0xC02E040E	The activity has already been initialized	
0xC02E040F	The RPC server received in invalid (unexpected) response packet	
0xC02E0501	The handle to the RPC server instance is invalid	
0xC02E0502	The status of the RPC server is invalid	
0xC02E0503	The handle of the RPC Object instance is invalid	
0xC02E0600	One of the parameters "uiMaxReg" or "uiMaxReq" is invalid	
0xC02E0601	The maximum number of parallel RPC client instances has been reached	
0xC02E0602	Creating TLR timer for RPC client instance failed	
0xC02E0604	The state of endpoint mapper is invalid for this request	
0xC02E0605	The handle to the RPC client instance is invalid	
0xC02E0606	The maximum amount of outstanding RPC requests for this RPC client instance has been reached	
0xC02e0607	RPC client instances can only connect to an I/O device if there are no outstanding RPC requests. Currently, at lease one RPC request is outstanding	
0xC02E0608	The RPC client instance you tried to use is going to deregister right now. Aborting your request!	
0xC02E0609	Invalid RPC client instance element "ptElem". Internal RPC error	
0xC02E060A	The LONG timeout TLR timer for an outstanding RPC request hit. Used internally by RPC only	
0xC02E060B	Invalid sequence number in RPC message receive by RPC client instance	
0xC02E060C	Canceling a running request timeout out. This RPC client is no longer usable	
0xC02E060D	The RPC client did not have a packet to return	
0xC02E060E	The RPC client received a request with an unexpected flag value.	
0xC02E060F	The request was aborted because the RPC client was unbound	
0xC02E0610	The maximum resend number was reached by the activity.	

9.3 Network Diagnostics

There may be instances where you want to look at diagnostic information on a particular network device.

1 From PCB, click on the **PROFINET** icon.



2 This launches the ProSoft fdt Configuration Manager application.



3 In the Solution Explorer pane, double-click on **NETX DRIVER**.



4 A *netX Driver* tab appears to the right of the *Network* tab. Click the **NETX DRIVER** tab to open the *TCP Connection* page.

ProSoft Configuration Builder for PRC	OFINET
Home Help	
New Open Import Save Close Cut Copy Paster	e
Solution	
Network netX Driver	
TCP Connection	
Enable TCP Connector (Restart of ODM required)	
Select IP Range: IP_RANGE0 Scan Timeout: 10	00 🍝 ms
IP Configuration	
Disable IP Configuration	
IP Address Use IP Range TCP Port	Address Count
192.168.0.250 - 0.0.0.0: 50111	1
Send Timeout: 1000 ms Keep Alive Timeout: 20	000 🔶 ms
Reset Timeout: 20000 🚔 ms	

- **5** The netX Driver is used to connect *ProSoft fdt Configuration Manager* configuration software to the device via a TCP/IP connection.
- 6 Ensure that the *Enable TCP Connector* parameter is selected. With the *Enable TCP Connector* box checked, the netX Driver can communicate with other devices via the TCP/IP interface. If *Enable TCP Connector* is not set (checked), the ODM server must be started in order for the new settings to be valid.
- 7 Enter the IP address of the EIP port of the PLX82-EIP-PNC.
- 8 Click SAVE.

OR...

- 1 Check the **Use IP RANGE** checkbox.
- 2 Enter a starting IP address and an ending IP address range.3 Click the SAVE icon.

Parameter	Description	
Enable TCP Connector (Restart of ODM required)	Checked: Communication between the software and the device via TCP/IP can occur.	
	Unchecked: Communication between the software and the device via TCP/IP cannot occur.	
	Note: If the checkmark for this setting is set or removed, the ODM server must be restarted.	
Select IP Range	This allows existing IP ranges to be selected. Use the "+" symbol to add an additional IP range or the "x" symbol to remove an IP range.	
Scan Timeout	Specifies how long to wait for a response that indicates session establishment.	
	10 to 10,000 ms. The default is 100 ms.	
Disable IP Range	Checked: No connection Unchecked: the netX Driver tries to establish a connection using the configured TCP/IP interface.	
IP Address (Left)	Enter the IP address of the device (when "Use IP Range" is not checked) Enter the start address of the IP scanning range if "Use IP Range" is checked.	
Use IP Range	Checked: An IP address range is used.	
IP Address (Right)	(if "Use IP Range" is checked)	
Address Count Displays the scanning range address count, depending on the select start or IP-end address.		
TCP Port	Identifies the endpoint of a logical connection or addresses a specific endpoint on the device or PC.	
Send Timeout	Maximum time before the transfer of the transmission data is canceled when the send process fails. For example, the transfer buffer is full. 100 to 60,000 ms Default (TCP/IP) is 2000 ms.	
Reset Timeout	Maximum time for a device reset, including the re-initialization of the physical interface used for the communication. 100 to 60,000 ms Default (TCP/IP) is 2000 ms	
Keep Alive Timeout The Keep-Alive mechanism is used to monitor whether the connecti the device is active. Connection errors are detected using a periodic heartbeat mechanism. This mechanism is initiated after the set time elapsed if the communication has failed.		
Restore	Resets all settings in the configuration dialog to the default values.	
Save Save all settings made in the configuration dialog for the selected connection type.		
1 From the Solution Explorer dialog box, double-click **Device Assignment**.



2 Click on the **DEVICE ASSIGNMENT** tab and then click **SCAN**. The system scans for all devices that can be connected to the ProSoft fdt Configuration Manager software.

° / I	ProSoft C	Configuration Builder for PROFINET				
•	Home Help					
New O	ppen Import Save Close					
	Solution	Clipboard				
Network	k netX Driver Device A	ssignment				
		: -)				
]	Scan	Carial sumber	Driver	Channel Protocol
	ction: suitable only - Device COMX		Scan Slot number n/a	Serial number 20002	Driver netX Driver	Channel Protocol PROFINET 10 Controllier
	Device	Hardware Port 0/1/2/3	Slot number			
	Device	Hardware Port 0/1/2/3	Slot number			
	Device	Hardware Port 0/1/2/3	Slot number			
	Device	Hardware Port 0/1/2/3	Slot number			

Parameter	Description				
Device Selection	Select "suitable only" or "all" devices				
Device	Device class of the PROFINET devices				
Hardware Port 0/1/2/3	Indicates what hardware is assigned to a communication interface				
Slot Number	Not applicable				
Serial Number	Serial number of the device				
Driver	Name of the driver				
Channel Protocol	Displays the firmware loaded to a channel.				
Access Path	Access path to different data to devices. Displays the IP address and port of the device. Also displays the channel number 0 to 3.				

3 Select the appropriate device by clicking the checkbox.

🥜 📔 💀 🕴 ProSoft	t Configuration Builder for PROFINET			
Home Help				
New Open Import Save Clo	se Cut Copy Paste			
Solution	Clipboard			
Network netX Driver Device	Assignment			
Scan progress: 3/3 Devices (Current devic	ve: -) ▼	Scan		
Device	Hardware Port 0/1/2/3	Slot number	Serial number	Driver
COMX	Ethernet/Ethernet/-/-	n/a	20002	
			20002	netX Driver

4 Click the **SAVE** icon.

9.3.1 Establishing a Diagnostic Connection

Once you have configured the *netx Driver* and *Device Assignments*, you can create a TCP connection between your PC and the PLX82-EIP-PNC.

1 From the ProSoft fdt Configuration Manager page, click the **NETWORK** tab.

~ /		Netwo	ork	195	ProSoft Co	onfiguration Build	er for PROFINET
•	Home	Network	Device	Help			
Add Busline	Delete Last Busline	Start Project Debug	Stop Proje Debug		ad Device atalog	Import Device Description	Print Project Data
Netw	ork netX	Driver Dev	ice Assignn	nent			
-							
р	 LX82-EIP-PNC[F	PLX82-EIP-PNC]<	controller>(#	1)			
	9		ſ	PLX32-EIP-	PND[PLX32-E]	IP-PND] <pk32-pnd></pk32-pnd>	

2 Right-click on the **PLX82-EIP-PNC** icon, and select **CONNECT**. You can also click on the **CONNECT** icon at the top of the page.



3 The module information located above the icon is highlighted in green once the connection is established.

al 🖊 📃 💀 🖡	Netwo	ork	110	ProSoft Configuration Builder for PROFINET
Home	Network	Device	Help	
Connect Disconnect	Cownload	المعنى المعن المعنى المعنى	Configu	To Measured Simulation Diagnostic
Network netX	Driver Dev	vice Assign	ment	
PLX82-EIP-PNC[P	LX82-EIP-PNC]<	controller>(#1) =	
			PLX32-EIP-I	PND[PLX32-EIP-PND] <plx32-pnd></plx32-pnd>

4 Right-click on the **PLX82-EIP-PNC** icon and select **DIAGNOSIS**.



5 The *Diagnostic* pane opens with *General Diagnosis* information displayed.

Device state	Network state
Communication	Operate
🕒 Run	idle
😔 Ready	i Stop
i Error	Offline
Configuration state	
Configuration locked	
New configuration pending	
i Reset required	
Bus ON	
Communication error:	•
Watchdog time:	1000 ms
Error count:	0

9.3.2 General Diagnosis

The *General Diagnosis* pane provides information on the device state as well as other general diagnostic parameters.

LED	Description	Color
Device State		
Communication	Indicates whether the PROFINET device executes during network communication.	Green - In communication state
		Gray - Not in communication state
Run	Indicates whether the PROFINET device has been configured correctly	Green - Configuration OK Gray - Incorrect configuration
Ready	Indicates whether the PROFINET device has been started correctly. The PROFINET device waits for a configuration.	Yellow - Device is Ready Gray - Device is not ready
Error	Indicates whether the PROFINET device recorded a device status error (see <i>Extended Diagnosis</i>)	Red - Error Gray - No Error
Network State		
Operate	Indicates whether the PROFINET device is in data exchange. In a cyclic data exchange, the input or output data is transmitted to the PROFINET device.	Green - In Operation state Gray - Not in Operation state
Idle	Indicates whether the PROFINET is in Idle state	Yellow - In Idle state Gray - Not in Idle state
Stop	Indicates whether the PROFINET device is in Stop state. There is no cyclic data exchange on the PROFINET network. The PROFINET device was stopped by the application program, or it changed the Stop state because of a bus error.	Red - In Stop State Gray - Not in Stopped state
Offline	The PROFINET device configuration is offline as long as it does not have a valid configuration.	Yellow - In Offline state Gray - Not in Offline state
Configuration State		
Configuration locked	Indicates whether the PROFINET device configuration is locked to avoid configuration data writeover.	Yellow - Configuration locked Gray - Configuration not locked
New Configuration pending	Indicates whether a new PROFINET device configuration is available.	Yellow - New configuration pending Gray - No new configuration pending
Reset Required	Indicates whether a firmware reset is required as a new PROFINET device has been loaded into the device	Yellow - Reset required Gray - No reset required
Bus On	Indicates whether the bus communication was started or stopped (i.e., whether the device is active on the bus or not bus communication to the device is possible and no response messages are sent	Green - Bus On Gray - Bus Off

Communication Error - Displays the name of the communication error. If the cause of the error is resolved, the value is set to zero again.

Watchdog Time - Displays the watchdog time in ms.

Error Count - This field holds the total number of errors detected since power-up. The protocol stack contains all sorts of errors in this field, regardless of whether they were network related or caused internally.

9.3.3 Master Diagnosis

The *Master Diagnosis* dialog provides the slave state, slave errors, and slaves configured active or in diagnostic mode.

	Master Diagnosis
Slave state	failed
Slave error log indicator	available
Configured slaves	2
Active slaves	0
Slaves with diagnostic	2

Parameter	Description
Slave state	Indicates whether the current slave state is OK.
	The slave state field indicates whether the Master is in cyclic data exchange to all configured slaves. In the event that there is at least one slave missing, or if the slave has a diagnostic request pending, the status is set to Failed. For protocols that support non-cyclic communication only, the slave state is set to OK as soon as a valid configuration is found. Values: Undefined, OK, Failed
Slave error log indicator	Indicates whether the Slave Error Log indicator is available.
	The Error Log Indicator field holds the number of entries in the internal error log. If all entries are read from the log, the field is set to zero. Values: Empty, Available
Configured slaves	Displays the number of configured slaves.
-	Number of configured slaves on the network according to the slave list derived from the configuration database created by the configuration software. This list includes the slaves to which the master has to open a connection.
Active Slaves	Displays the number of active slaves.
	Number of slaves in data exchange mode. The list includes the slaves to which the master has successfully opened a connection.
Slaves with diagnostic	Displays the number of slaves with diagnostic.
	The number of slaves with diagnostic or errors.

9.3.4 Station Diagnosis

The Station Diagnosis dialog displays the current status of all slaves.

IO Device: To Device: Vendor: ProSoft T	echnology,Inc		Device ID: Vendor ID:	0x8240 0x0175	*
avigation Area 📃		Station Dia	agnosis		
Diagnosis General Diagnosis Master Diagnosis Station Diagnosis Firmware Diagnosis RX_SYSTEM DPM_SYS_SMBX DPM_SYS_RMBX DPM_COM0_SMBX DPM_COM0_SMBX DPM_COM0_SMBX Tools Packet Monitor ID Monitor Process Image Monitor	Status Name of station		IP Address		
	Running Diagnosis	Not found	Error		
			ОК	Cancel Ap	ply Help

Parameter	Description				
Status	Green - Running Yellow - Diagnosis state Blue - Not found Red - Error				
Name of Station	Name of slave device				
IP Address	IP Address of slave device				

9.3.5 Firmware Diagnosis

The Firmware Diagnosis dialog displays task diagnosis information of the firmware.

IO Device: Vendor: ProSoft Technology,Inc						Device : Vendor		1241 1175	4
Navigation Area					I	Firmware Diagnosi	s		
Diagnosis	*	Firmware		PROFINET IO C					
General Diagnosis		Firmware							
Master Diagnosis		Version:	ļ.	2.7.11 (Build 0)					
Station Diagnosis		Date:	:	13.3.2017					
🖶 Firmware Diagnosis									
Extended Diagnosis		Task info	irmation:						
RX_SYSTEM	-	_							-
DPM_COM0_SMBX	-	Task	Name of task	Version	Priority	Description	State		
DPM_COM0_RMBX		0	RX_IDLE	1.0	63	RX IDLE Task.	Task Status ok.		
TIrTimer		1	RX_TIMER	1.0	1	rcX Timer.	Task Status ok.	· · · · ·	
MARSHALLER		2	RX_SYSTEM	1.16	32	Middleware System	Task Status ok.		
T PNIO EDD		3	DPM_COM0_S		50	TLR-Router DPM.	Task Status ok.		
		4	DPM_COM0_F		51	TLR-Router DPM.	Task Status ok.		
		5	TIrTimer	1.0	17	TLR Timer Task.	Task Status ok.		
		6	MARSHALLER		59		Task Status ok.		
T_PNIO_MGT		8	T_PNIO_EDD	1.0		PROFINET IO EDD Ta			
TCP_UDP		8	T_PNIO_ACP T_PNIO_DCP	1.0	18	PROFINET IO ACP Ta PROFINET IO DCP Ta			
Task Information		10	T_PNIO_DCP	1.0	20		Task Status ok.		
IP Information		10	TCP_UDP	2.23	20	PROFINET IO Manag TCPUDP task (TCP/IP			
IP Packet Count		12	T RPC	4.0	22	RPC Task.	Task Status ok.		
TCP_UDP Information		12	T_PNIO_CMC		22	PROFINET IO-Control			
T_RPC		13	T_PNIO_CMC		23	PROFINET IO-Control			
Task Information		15	T_PNIO_APCF		24	PROFINET IO-Control			
General Diagnosis Information		16	SNMP-Server	4.1	29	SNMP Server Task.	Task Status ok.		
Extended Diagnosis Information		17	Mib-Database		30	MIB Database for SN			
T_PNIO_CMCTL		4				111		,,	E.
Task Information	-								
						ОК	Cancel	Apply	Help

Firmware: Name of the most current firmware.

Version: This number represents the stack version, not the firmware version of the module. The firmware version of the module is shown on the module web service.

Date: Displays the date of the PROFINET stack version.

Parameter	Description
Task	Displays the task number.
Name of task	Displays the name of the actual task.
Version	Version of the task.
Priority	Displays the priority of the task.
Description	Displays the description of the task.
Status	Status of the task.

9.3.6 Extended Diagnosis

The *Extended Diagnosis* dialog contains a list of diagnosis structures such as online counter, states, and parameters. Access requires an online connection between the ProSoft fdt Configuration Manager and the PROFINET Controller.

Folder	Contains
RX_SYSTEM	Task Information
DPM_COM0_SMBX	Task Information
DPM_COM0_RMBX	Task Information
TirTimer	Task Information
MARSHALLER	Task Information
T_PNIO_EDD	Task Information
	General Diagnosis Info
	Extended Diagnosis Info
	XMAC Diagnosis Structure
T_PNIO_ACP	Task Information
	General Diagnosis Info
	Extended Diagnosis Info
T_PNIO_DCP	Task Information
	General Diagnosis Info
	Extended Diagnosis Info
T_PNIO_MGT	Task Information
	General Diagnosis Info
	Extended Diagnosis Info
TCP_UDP	Task Information
	IP Information
	IP Packet Count
	TCP_UDP Information
T_RPC	Task Information
	General Diagnosis Info
	Extended Diagnosis Info
T_PNIO_CMCTL	Task Information
	General Diagnostics
	Extended Diagnostics
	NRPM (Device NameResolution) results
	Connection Establishment results
T_PNIO_APCTL	Task Information
	General Diagnosis Info
	Extended Diagnosis Info
T_PNIO_APCFG	Task Information
	General Diagnosis Info
	Extended Diagnosis Info
SNMP Server	Task Information
Mib Database	Task Information
LLDP-Task	Task Information
Packet Router	Task Information

RX_SYSTEM > Task Information

IO Device: III III Vendor: ProSoft 1	Fechnology, Inc		Device ID: Vendor ID:	0x8240 0x0175	4
Navigation Area 📑 Diagnosis Extended Diagnosis	Task states	Task Information	n		
 RX_SYSTEM Task Information DPM_SYS_SMBX DPM_SYS_KMBX DPM_SYS_RMBX DPM_COM0_SMBX DPM_COM0_RMBX Tools Packet Monitor IO Monitor Process Image Monitor 	Name Jidentifier Mojor version Minor version Minor version Moximum Packet size Default Que Unique Identifier Init result	Value 0x00010001 1 16 2060 0x800AF320 000001-0001-0003-0000-000000 0	000000}		
			ОК	Cancel App	Help

Parameter	Description
Identifier	Identification number of the task.
Major version	Task version, contains all incompatible changes.
Minor version	Task version, contains compatible changes.
Maximum packet size	Maximum packet size that the task sends.
Default queue	Queue handle accessible via DPM by mailbox
Unique Identifier	16 byte indicator used for task identification and its affiliation (e.g., to a stack)
Init result	Error Code, 0 = no error
	The description of error codes are available in the following sections.

General Diagnosis Information

	General Diagnosis Information
ask states	
Name	Value
ast TLR error code	Operation succeeded.
ast PNIO error code	0x0000000
FLR Error Counter (may count single error seve	0
PNIO Error Counter (may count singe error sev	0
Active PM Counter	0
Send Packet Error Counter	0
Malloc Error Counter	0
ErrExternal (Received unsupported Requests)	0
ErrInternal (Received unsupported Confirmations)	0
Maximum Pool usage	0
Current Pool usage	0

Parameter	Description
Last TLR error code	Error code of the last internally occurred error.
Last PNIO error code	Error code of the last externally occurred error which has been reported by an I/O device.
TLR Error Counter	Counts the number of occurred TLR error codes.
PNIO Error Counter	Counts the number of occurred PNIO error codes.
Active PM Counter	Counter of the active protocol machines in the task.
Send Packet Error Counter	Counts how often a task sends a packet to another task and this fails.
Malloc Error Counter	Counts how often storage capacity is requested in the operating system and the operating cannot follow this demand.
ErrExternal	Counts how often an unknown request packet was received.
ErrInternal	Counts how often an unknown confirmation packet was received.
Maximum Pool Usage	Counts how many pool elements were used simultaneously (maximum).
Current pool usage	Counts the number of pool elements currently in use.

T_PNIO_EDD Extended Diagnosis Information

	Extended Diagnosis Information
Fask states	
Name	Value
Cyclic Frames sent	0
Missing cyclic Frames counter (CPM)	0

Parameter	Description
Cyclic Frames sent	Counts cyclical frames that were sent.
Missing Cyclic Frames counter (CPM)	Counts the missing cyclical frames agreed on.

XMAC Diagnosis Structure

XMAC diagnosis structure	
ask states	
Name	Value
FramesTransmittedOk	0
SingleCollisionFrames	0
MultipleCollisionFrames	0
LateCollisions	0
LinkDownDuringTransmission	0
UtxUnderflowDuringTransmission	0
FramesReceivedOk	0
FrameCheckSequenceErrors	0
AlignmentErrors	0
FrameTooLongErrors	0
RuntFramesReceived	0
CollisionFragmentsReceived	0
FramesDroppedDueLowResource	0
FramesDroppedDueUrxOverflow	0

The values of the XMAC diagnosis structure are read every 2 seconds from the XMACs (hardware).

Parameter	Description	Value/Range of Values
FramesTransmittedOK	Number of the correctly received Ethernet frames.	0 to 4,294,967,295
SingleCollisionFrames	Number of the frames involved in a collision.	0 to 4,294,967,295
MultipleCollisionFrames	Number of frames involved in several collisions.	0 to 4,294,967,295
LateCollisions	Number of clashed frames after at least 512 bits of the frame have been transmitted.	0 to 4,294,967,295
LinkDownDuringTransmisstion	Number of frames sent during a broken connection.	0 to 4,294,967,295
UtxUnderflowDuringTransmission	Number of frames sent erroneously because of buffer underflow.	0 to 4,294,967,295
FramesReceivedOK	Number of correctly received frames.	0 to 4,294,967,295
FrameCheckSequenceErrors	Number of corruptly received frames. (FCS check failed)	0 to 4,294,967,295

Parameter	Description	Value/Range of Values
AlignmentErrors	Number of frames received in which its length is not an even number of bytes.	0 to 4,294,967,295
FrameTooLongErrors	Number of frames received in which its length exceeds the maximum permitted frame length.	0 to 4,294,967,295
RuntFramesReceived	Number of frames received undamaged with a length of 42 to 63 bytes. (Under run of the minimum permitted frame length)	0 to 4,294,967,295
CollisionFragmentsReceived	Number of frames received corruptly with a length of 42 to 63 bytes. (FCS check failed)	0 to 4,294,967,295
FramesDroppedDueLowResource	Number of frames lost because of a memory deficiency.	0 to 4,294,967,295
FramesDroppedDueUrxOverflow	Number of frames lost because of buffer underflow.	0 to 4,294,967,295

T_PNIO_ACP Extended Diagnosis Information

Name	Value
Received unsupported Frames	0
Active Consumer Protocol Machines	0
Active Provider State Machines	0
Received high priority alarms	0
Received low priority alarms	0

Parameter	Description
Received unsupported frames	Frames which cannot be used by the consumer.
Active Consumer Protocol Machines	Number of state machines supervised by the cyclical communication consumer = receiver (supervises frames of the I/O devices received)
Active Provider State Machines	Number of state machines, the frames transmit to the devices
Received high priority alarms	Number of high priority alarms for PROFINET IO
Received low priority alarms	Number of low priority alarms for PROFINET IO

PNIO_DCP Extending Diagnosis Information

lame	Value
ctive Application Timers Counter	0
rroneous Frames received	0
dent Request sent Counter	0
dent Response received Counter	0
ICP Set Requests sentcounter	0
ositiv DCP Set Responses	0
legativ DCP Set Responses	0
ICP Hello Requests Received	0
ello reported to NRPM	0

The PNIO_DCP Extended Diagnosis information displays the counter reading of the four state machines from the PROFINET I/O DCP protocol.

- MCR Multicast Receiver
- UCR Unicast Receiver
- MCS Multicast Sender
- UCS Unicast Sender

Parameter	Description
Active Application Timers Counter	Software timer actually running in the task.
Erroneous Frames received	Counter for erroneous frames received.
Ident Request sent Counter	Counter for Ident Request send Counter.
Ident Response received Counter	Counter for Ident Responses received.
DCP Set Requests sentcounter	Counter for DCP Set Request sent.
Positive DCP Set Responses	Counter for Positive DCP Set Responses.
Negative DCP Set Responses	Counter for Negative DCP Set Responses.
DCP Hello Requests Received	Counter for DCP Hello Requests received.
Hello reported to NRPM	Counter for Hello reported to the NRPM state machine.

T_PNIO_MGT Extended Diagnosis Information

Extended Diagnosis Information		
Fask states		
Name	Value	
Ident Requests Sent	0	
Ident Responses received (Conflict)	0	
Ident Responses received (Forbid)	0	
Ident Responses received (Permit)	0	
Identify Q Indications received (Multiple)	0	
Identify Q Indications received (Forbid)	0	
Identify Q Indications received (Permit)	0	
NRPM Init Request Counter	0	
NRPM Init Confirm Counter	0	
NRPM Init Error Counter	0	
Identify Q Indications received (Ident ALL)	0	

Parameter	Description
Ident Requests Sent	PROFINET I/O specific service
Ident Responses received (Conflict	Status of the internal status machines in the controller.
Ident Responses received (Forbid)	
Ident Responses received (Permit)	
Identify Q Indications received (Multiple)	Status of the internal status machines in the controller.
Identify Q Indications received (Forbid)	
Identify Q Indications received (Permit)	
NRPM Init Request Counter	Counter for special PROFINET I/O services.
NRPM Init Confirmation Counter	Counter for special PROFINET I/O services.
NRPM Init Error Counter	Counter for special PROFINET I/O services.
Identify Q Indications received (Ident ALL)	Counter for special PROFINET I/O services.

TCP_UDP

IP Information

Name	Value	
Task State	1	
Error Count	2	
Last Error	0xC0000119	
IP Address	0.0.0.0	
Net Mask	0.0.0.0	
Gateway	0.0.0.0	

Parameter	Description
Task State	Actual state of the protocol process:
	0 = Task not initialized
	1 = Task is running
	2 = Task initialized
	3 = Initialization
Error Counter	Counter for errors.
Last Error	Last error that occurred.
IP Address	IP address of the slave device.
Netmask	Network mask of the slave device.
Gateway	Gateway address of the Slave device.

IP Packet Counter

	IP Packet Count
Task states	
Name	Value
Packet Recv TCP	0
Packet Recv UDP	28631
Packet Recv ICMP	0
Packet Recv IP Header Err	0
Packet Recv ARP	8
Packet Recv Unknown	0

Parameter	Description
Packet Recv TCP	Counter for received TCP packets.
Packet Recv UDP	Counter received for UDP packets.
Packet Recv ICMP	Counter for received ICMP packets.
Packet Recv IP Header Err	Counter for received IP packets with errors.
Packet Recv ARP	Counter for received ARP packets.
Packet Recv Unknown	Counter for received packets of an unknown type.

TCP_UDP Information

	TCP_UDP Information
Fask states	
Name	Value
Task State	1
Error Count	2
Last Error	0xC0080032

Description	
Actual state of the protocol process:	
0 = Task not initialized	
1 = Task is running	
2 = Task initialized	
3 = Initialization error	
Counter for errors.	
Last error that occurred.	
	Actual state of the protocol process: 0 = Task not initialized 1 = Task is running 2 = Task initialized 3 = Initialization error Counter for errors.

<u>T_RPC</u>

	Extended Diagnosis Information	
ask states		
Name	Value	
PINGs sent	0	
PINGs received	0	
WORKINGs sent	0	
WORKINGs received	0	
NOCALLs sent	0	
NOCALLs received	0	
CANCELs sent	0	
CANCELs received	0	
REJECTs sent	0	
REJECTs received	0	
Requests sent	0	
Requests received	0	
Responses sent	0	
Responses received	0	
Fragments sent	0	
Fragments received	0	
Active Application Timers	0	

The T_RPC Extended Diagnosis Information displays PROFINET I/O specific counters.

T_PNIO_CMCTL

	Extended Diagnosis Information
sk states	
ame	Value
elease Request Counter	0
eceived RPC RequestsCounter	0
ent RPC Requests Counter	0
Iodule Diff Block Counter	0
onnect Request Counter	0
RPM Init Request Counter	0
ositive NRPM Init Response Counter	0
egativ NRPM Init Response Counter	0
et Device Information counter	0
ead Request counter	0
ositive Read Response Counter	0
legativ Read Response Counter	0
Vrite Request counter	0
ositive Write Response Counter	0
legativ Write Response Counter	0

The T_PNIO_CMCTL Extended Diagnostics Information displays PROFINET I/O specific counters.

T_PNIO_APCTL

Name	Value
Active Application Timers	0
Received Alarms	0
Received Diagnosis Alarms	0
Diagnosisentries read by Application	0
Alarms indicated to Application	0
Counter for packets that could not be	0
Flags	0x0000001

Parameter	Description
Active Application Timers	Number of active software timer.
Received Alarms	Alarms read by the application.
Received Diagnosis Alarms	
Diagnosis entries read by application	
Alarms indicated by application	
Counter for packets that could not be sent to the application	Counts how often packets are sent from the firmware to the application and then fails.
Flags	Cached status data.

T_PNIO_APCFG

	Extended Diagnosis Information
ask states	
Name	Value
Overhead for database	0 Byte
Amount of configured IO-Devices	0
Amount of configured IOCRs	0
Amount of configured APIs	0
Amount of configured Modules	0
Amount of configured Submodules	0
Amount of configured SubmoduleDesc.	0
Amount of configured Data Records	0
Amount of active IO-Devices	0
Amount of configured InterfaceSubmo.	1
Amount of configured PortSubmoduleI.	1

The T_PNIO_APCFG Extended Diagnostics Information displays PROFINET I/O specific parameters.

9.3.7 Tools

The *Packet Monitor*, *I/O Monitor*, and *Process Image Monitor* tools are provided for testing and diagnostic functions. Access to the tools requires a connection between ProSoft fdt Configuration Manager and the PNC driver.

Packet Monitor

The *Packet Monitor* is used for testing and diagnostics. Data packets are self-contained blocks of a defined data length. The packets are used to communicate with the firmware and are exchanged between the application (configuration software) and the firmware in the device. Packets can be sent once or cyclically to the connected device controlled by the user and received packets can be displayed.

Data packets include a packet header and the sent data or may be comprised of a packet header and received data. The packet data can be evaluated by the receiver of the packet and contain the sender and receiver address, data length, ID number, status and error messages, and the command or response code.

netDevice - Diagnosis Ino Device: Ino Device: Vendor: ProSoft T			ller>(#1)						Device I Vendor		0x82 0x01			. 🗆	×
Navigation Area 📃					Pa	cket I	Monito	r							
 Diagnosis Extended Diagnosis RX SYSTEM 									Display	mode:	Decimal		•	Reset cor	unter
Task Information	Send – Packet hea	der		Se	nd data:								Con	unter: 0	
DPM_SYS_SMBX		0		- C	0	1	2	3	4	5	6	7	8	9	*
Task Information	Dest:			- 0	*	1	~				0			5	
DPM_SYS_RMBX	Src:	0 State		10											
Task Information		0 Cmd		20											
DPM_COM0_SMBX	Src ID:	0 Ext:	0	40											
DPM_COM0_RMBX	Len:	0 Rout	0	50											
Packet Monitor	ID:	0 Auto	Increment ID	60											-
IO Monitor Process Image Monitor	Receive										Put	t cyclic		Put pac	:ket
	Packethea	ader		Re	eive data:								Col	unter: 0	
	Dest:				0	1	2	3	4	5	6	7	8	9	
	Src:	State	:	0											Ξ
	Dest ID:	Cmd		20											
	Src ID:	Ext:		30											
	Len:	Rout		40											
	ID:			60											-
				30					ОК		Cancel	A	oply	Не	
Connected & Device	8														

DISPLAY MODE switches the representation of data between decimal and hexadecimal. Use the **RESET** button to reset the packet counter.

Send Packet

IO Device: I III ProSoft	Fechnology,Ind								Device I Vendor		0x8 0x0				Ś
Navigation Area 🔄 Diagnosis Extended Diagnosis						Packet	Monita	or	Display	mode:	Decima	1	-	Reset co	unter
RX_SYSTEM	Send														
Task Information DPM_SYS_SMBX	Packethea	der			Send data								Cou	nter: 0	
Task Information DPM_SYS_RMBX Task Information DPM_COM0_SMBX DPM_COM0_RMBX Tools Tools Packet Monitor	Dest: Src: Dest ID: Src ID: Len: ID:	0 0 0 0 0	State: Cmd: Ext: Rout: Auto Inc	0 0 0 0 0 0 0	0 ► 10 ► 20 30 40 50 60 60 60 60 60 60 60 60 60 60 60 60 60	1	2	3	4	5	6	7	8	9	
IO Monitor Process Image Monitor	Receive – Packet hea	ader			Receive da	ta:					P	ut cyclic	Cou	Put pac	:ket
	Dest:				0	1	2	3	4	5	6	7	8	9	
	Src: Dest ID: Src ID: Len:		State: Cmd: Ext: Rout:		0 F 10 20 30 40 50										
	ID:				60				ОК		Cancel	A	pply	Не	-

Packet Header

Packet elements of the send packet header are displayed. This information is transmitted from the application (configuration software) to the device.

Parameter	Value	Description
Dest	Destination Queue Handle	Contains the identifier of the receiver for the packet (destination tasks queue of the firmware).
Src	Source Queue Handle	Contains the identifier of the sender of the packet (sending task).
Dest ID	Destination Queue Reference	Contains an identifier for the receiver of unsolicited sent packets from the firmware to the application (configuration software).
Src ID	Source Queue Reference	Contains an identifier of the sender.
Len	Packet Data Length (in bytes)	Length of the send data.
State	Status/Error Code	Transmits status or error codes to the packet sender.
Cmd	Command/Response Code	Command or respond code.
Ext	Extension	Field for extensions.
Rout	Routing Information	Internal value of the firmware.
ID	Packet identification as unique number	Identifies identical data packets among each other.

1 Select the the receiver (destination task queue) from the **DEST** drop-down list box.



2 Enter the command in the *Cmd* field (request).



3 The **AUTO INCREMENT ID** checkbox specifies that the identifier should be incremented by one for each newly sent packet.

Send Data pane

IO Device: •••••• Vendor: ProSoft T	echnology, Ind	c								Device Vendor		0x82 0x01				×.
Navigation Area 📃						Pa	acket	Monita	r							
Diagnosis																
Extended Diagnosis										Display	mode:	Decima		•	Reset cou	unte
RX_SYSTEM	Send															
Task Information	Packethea	ader			Send	data:								Cou	inter: 0	
DPM_SYS_SMBX	Dest:			•		0	1	2	3	4	5	6	7	8	9	
Task Information		0			0	×	1									
DPM_SYS_RMBX	Src:		State:	0	10											
Task Information	Dest ID:	0	Cmd:	þ	20 30											
DPM_COM0_SMBX	Src ID:	0	Ext:	0	40											
DPM_COM0_RMBX	Len:	0	Rout:	0	50											
Tools	ID:	0	Auto Inc	rement ID	60											
Packet Monitor																
IO Monitor					L							Pu	it cyclic		Put pac	:ket
Process Image Monitor	Receive -				5											_
	Packethea	ader			Rece	ive data								Cou	inter: 0	
	Dest:					0	1	2	3	4	5	6	7	8	9	
	Src:		State:		0	Þ										
	Dest ID:		Cmd:		10											

This area allows you to enter the send data of the packet that is transmitted from the application (configuration software) to the mailbox of the device. The description of the transmitted data depends on the command or response code.

- The **PUT CYCLIC** button specifies that the packet should be sent cyclic.
- The **PUT PACKET** button specifies that the packet should be sent once.

Receive Packet

IO Monitor									P	ut cyclic		Put pac	ket
Process Image Monitor	Receive												
	Packet header		 Rece 	ive data:							Cou	inter: 0	
	Dest:			0 1	2	3	4	5	6	7	8	9	•
	Src:	State:	0	×									_
	Dest ID:	Cmd:	20										
	Src ID:	Ext:	30 40	_									
	Len:	Rout:	50										
	ID:		60										
			170										
													_
							ОК		Cancel		pply	He	-

Packet Header

Packet elements of the receive packet header are displayed. This information is transmitted from the device to the application (configuration software).

Parameter	Value	Description
Dest	Destination Queue Handle	Contains the identifier of the receiver of the packet (destination task queue of the firmware.
Src	Source Queue Handle	Contains the identifier of the sender of the packet (sending tasking)
Dest ID	Destination Queue Reference	Contains an identifier for the receiver on unsolicited sent packets from the firmware to the application (configuration software).
Src ID	Source Queue Reference	Contains an identifier of the sender
Len	Packet Data Length (in bytes)	Length of the send respectively receive data.
ID	Packet Identification as Unique Number	Identifies identical data packets among each other.
State	Status/Error Code	Transmits status or error codes to the packet sender.
Cmd	Command/Response Code	Command or response code.
Ext	Extension	Field for extensions.
Rout	Routing information	Internal values of the firmware.

Receive Data pane

Displays the receiving data of the packet transmitted back from the device to the application (configuration software).

<u>IO Monitor</u>

The *I/O Monitor* is used for testing and diagnostic purposes. It provides a view of the process data image (in bytes) and allows the change of data easily.

					IO M	onitor				
Columns: Intput data		10	T						Display mode:	Decimal 👻
Offset:	0		Go							
0		1	2	3	4	5	6	7	8	9
Output data Offset:	0		Go							
0		1	2	3	4	5	6	7	8	9
				5			•			0
										Update

Warning: Only change and write output data if you know that it will not cause plant disturbances. All output data written by the I/O Monitor are transmitted at the bus and have an effect on subordinate drives, IO, etc.

- The **COLUMNS** drop-down list changes the number of columns.
- The **DISPLAY MODE** drop-down list allows you to switch the representation of the input and output data between decimal and hexadecimal.
- The **OFFSET / Go** parameters move the indication of the data to the entered offset value.

Enter the output value and click the **UPDATE** button.

Process Image Monitor

This monitor lists devices connected to the PNC controller, as well as configured modules or input or output signals of the devices. This allows you to view the fieldbus structure and the data structure of the device's input and output data transmitted on the bus. Signal data provided to the OPC server is also displayed here.

		Process Image Monitor		
			Display mode:	Decimal 👻
	Туре	Tag	Value	
b	PLX31-EIP-PND <plx31-pnd21></plx31-pnd21>	PLX31-EIP-PND	-	
÷	PLX31-EIP-PND	PLX31-EIP-PND	-	
	PLX31-EIP-PND <subslot 1=""></subslot>	PLX31-EIP-PND <subslot 1=""></subslot>	-	
	Interface1 <subslot 32768=""></subslot>	Interface1 <subslot 32768=""></subslot>	-	
	Port1 <subslot 32769=""></subslot>	Port1 <subslot 32769=""></subslot>	-	
	INPUT 512 Byte <slot 1=""></slot>	INPUT 512 Byte <slot 1=""></slot>	-	
	OUTPUT 512 Byte <slot 2=""></slot>	OUTPUT 512 Byte <slot 2=""></slot>	-	
				Ξ
Last error:				
			OK Cancel A	pply Help

Parameter	Description
Display Mode	Allows you to display values in the Value column in decimal or hexadecimal mode.
	A tree structure is used to display the structure of the devices:
i≑~ 1	Devices(1)
⊡ 2	Modules (2)
. 1 3	Input Data (3)
• • •	Output Data (4)
?	Shown when the input and output data are not completely read and analyzed.
1	Displayed when input and output data are not valid.
\checkmark	Displayed when input and output data are valid.
Туре	Device labeling in the hardware. Describes the module or input or output signals configured for the device.
Tag	Device name provided by the hardware (not changeable within PCB for PROFINET configuration software) or symbolic name for the modules configured for the device for input and output signals (changeable on the Configuration > Process Data page)
Value	Displays the valid input and output data values
Last Error	Last error to occur.

9.3.8 Viewing Alarm Information PLX82.ALARMS

PLX82.ALARM.DeviceAlarms

-PLX82.ALARM	{}	{}		PLX82_ALARM	Main UD*
-PLX82.ALARM.DeviceAlarms	{}	{}		PLX82_Device_Alarm[36]	Main UD*
-PLX82.ALARM.DeviceAlarms[0]	{}	{}		PLX82_Device_Alarm	Main UD*
E-PLX82.ALARM.DeviceAlarms[0].Count	0		Decimal	INT	Main UD*
PLX82.ALARM.DeviceAlarms[0].DeviceNumber	0		Decimal	INT	Main UD*
PLX82.ALARM.DeviceAlarms[0].Slot	0		Decimal	INT	Main UD*
E-PLX82.ALARM.DeviceAlarms[0].Subslot	0		Decimal	INT	Main UD*
E-PLX82.ALARM.DeviceAlarms[0].Type	0		Decimal	INT	Main UD*
E-PLX82.ALARM.DeviceAlarms[0].Priority	0		Decimal	INT	Main UD*
-PLX82.ALARM.DeviceAlarms[0].Specifier	0		Decimal	INT	Main UD*
E-PLX82.ALARM.DeviceAlarms[0].DataSize	0		Decimal	INT	Main UD*
E-PLX82.ALARM.DeviceAlarms[0].Data	{}	{}	Decimal	SINT[20]	Main UD*
-PLX82.ALARM.DeviceAlarms[1]	{}	{}		PLX82_Device_Alarm	Main UD*
	{}	{}		PLX82_Device_Alarm	Main UD*
-PLX82.ALARM.DeviceAlarms[3]	{}	{}		PLX82_Device_Alarm	Main UD*
PLX82.ALARM.DeviceAlarms[4]	{}	{}		PLX82_Device_Alarm	Main UD*

The Order of devices begins with 0 to 35. The information returned totals 1095 bytes (18 overhead + data.

PLX82.ALARM.LastAlarm

-PLX82.ALARM	{}	{}		PLX82_ALARM	
PLX82.ALARM.DeviceAlarms	{}	{}		PLX82_Device_Alarm[36]	
PLX82.ALARM.LastAlarm	{}	{}		PLX82_Device_Alarm	
-PLX82.ALARM.LastAlarm.Count	0		Decimal	INT	
-PLX82.ALARM.LastAlarm.DeviceNumber	0		Decimal	INT	
-PLX82.ALARM.LastAlarm.Slot	0		Decimal	INT	
PLX82.ALARM.LastAlarm.Subslot	0		Decimal	INT	
PLX82.ALARM.LastAlarm.Type	0		Decimal	INT	
-PLX82.ALARM.LastAlarm.Priority	0		Decimal	INT	
PLX82.ALARM.LastAlarm.Specifier	0		Decimal	INT	
	0		Decimal	INT	
+-PLX82.ALARM.LastAlarm.Data	()	()	Decimal	SINT[20]	
+ PLX82.ALARM.Message	{}	{}	Decimal	SINT[1400]	
E-PLX82_EIP_PNC:0:C	{}	{}		AB:1756_MODULE:C:0	
E-PLX82_EIP_PNC:0:1	{}	{}		AB:1756_MODULE_INT_49	

PLX82.ALARM.Message

- PLX82.ALARM.Message	{}	{}	Decimal	SINT[1400]	Main UD
PLX82.ALARM.Message[0]	0		Decimal	SINT	Main UD
PLX82.ALARM.Message[1]	0		Decimal	SINT	Main UD
PLX82.ALARM.Message[2]	0		Decimal	SINT	Main UD
PLX82.ALARM.Message[3]	0		Decimal	SINT	Main UD
PLX82.ALARM.Message[4]	0		Decimal	SINT	Main UD
PLX82.ALARM.Message[5]	0		Decimal	SINT	Main UD
PLX82.ALARM.Message[6]	0		Decimal	SINT	Main UD
PLX82.ALARM.Message[7]	0		Decimal	SINT	Main UD
PLX82.ALARM.Message[8]	0		Decimal	SINT	Main UD
PLX82.ALARM.Message[9]	0		Decimal	SINT	Main UD
PLX82.ALARM.Message[10]	0		Decimal	SINT	Main UD
+-PLX82.ALARM.Message[11]	0		Decimal	SINT	Main UD
+-PLX82.ALARM.Message[12]	0		Decimal	SINT	Main UD
PLX82.ALARM.Message[13]	0		Decimal	SINT	Main UD
PLX82.ALARM.Message[14]	0		Decimal	SINT	Main UD
PLX82.ALARM.Message[15]	0		Decimal	SINT	Main UD
+-PLX82.ALARM.Message[16]	0		Decimal	SINT	Main UD
PLX82.ALARM.Message[17]	0		Decimal	SINT	Main UD
			N 1 1	CULT	G 1 115

9.3.9 EIP Status Data in Upper Memory

The EIP driver has an associated status data area located in the PLX82-EIP-PNC's upper memory. The *Data Map* functionality of the PLX82-EIP-PNC can be used to map this data into the normal user data range of the PLX82-EIP-PNC's database.

Note that all the status values are initialized to zero (0) at power-up, cold boot and during warm boot.

EIP Server Status Data

The following table lists the addresses in upper memory where the PLX82-EIP-PNC stores status data for each EIP server.

-

The content of each server's status data area is structured the same. The following table describes the content of each register in the status data area.

Offset	Description
0 through 1	Connection State
2 through 3	Open Connection Count
4 through 5	Socket Read Count
6 through 7	Socket Write Count
8 through 15	Peer IP

EIP Client Status Data

The following table lists the addresses in upper memory the PLX82-EIP-PNC stores general error and status data for each EIP connected and unconnected client.

EIP Client	Address Range
Connected Client 0	12000 through 12109
Connected Client 1	12400 through 12509
Unconnected Client 0	12600 through 12709

The content of each client's status data area is structured in the same way. The following table describes the content of each register in the status data area.

Offset	Description
0	Number of Command Requests
1	Number of Command Responses
2	Number of Command Errors
3	Number of Requests
4	Number of Responses
5	Number of Errors Sent
6	Number of Errors Received
7	Reserved
8	Current Error Code
9	Last Error Code

EIP Client Command List Error Data

The PLX82-EIP-PNC stores a status/error code in upper memory for each command in each EIP client's command list. The following table lists the addresses in upper memory where the gateway stores the command list error data for each EIP client.

EIP Client	Address Range
Connected client 0	7910 through 8009
Connected client 1	8110 through 8209
Unconnected client 0	12810 through 12909

The first word in each client's command list error data area contains the status/error code for the first command in the client's command list. Each successive word in the command error list is associated with the next command in the list. Therefore, the size of the command list error data area depends on the number of commands defined.

The structure of the command list error data area (which is the same for all clients) is displayed in the following table.

Offset	Description
0	Command #1 Error Code
1	Command #2 Error Code
2	Command #3 Error Code
3	Command #4 Error Code
4	Command #5 Error Code
97	Command #98 Error Code
98	Command #99 Error Code
99	Command #100 Error Code

9.3.10 EIP Error Codes

The gateway stores error codes returned from the command list process in the command list error memory region. A word is allocated for each command in the memory area. The error codes are formatted in the word as follows: The least-significant byte of the word contains the extended status code and the most-significant byte contains the status code.

Use the error codes returned for each command in the list to determine the success or failure of the command. If the command fails, use the error code to determine the cause of failure.

Warning: The gateway specific error codes (not EtherNet/IP/PCCC compliant) are returned from within the gateway and never returned from an attached EtherNet/IP/PCCC slave device. These are error codes that are part of the EtherNet/IP/PCCC protocol or are extended codes unique to the PLX82-EIP-PNC. The most common errors for the EtherNet/IP/PCCC protocol are shown in this section.

Code (Int)	Code (Hex)	Description
0	0x0000	Success, no error
256	0x0100	DST node is out of buffer space
512	0x0200	Cannot guarantee delivery (Link Layer)
768	0x0300	Duplicate token holder detected
1024	0x0400	Local port is disconnected
1280	0x0500	Application layer timed out waiting for response
1536	0x0600	Duplicate node detected
1792	0x0700	Station is offline
2048	0x0800	Hardware fault

Local STS Error Codes

Remote STS Error Codes

Code (Int)	Code (Hex)	Description
0	0x0000	Success, no error
4096	0x1000	Illegal command or format
8192	0x2000	Host has a problem and will not communicate
12288	0x3000	Remote node host is missing, disconnected or shut down
16384	0x4000	Host could not complete function due to hardware fault
20480	0x5000	Addressing problem or memory protect rungs
24576	0x6000	Function not allowed due to command protection selection
26872	0x7000	Processor is in Program mode
-32768	0x8000	Compatibility mode file missing or communication zone problem
-28672	0x9000	Remote node cannot buffer command
-24576	0xA000	Wait ACK (1775-KA buffer full)
-20480	0xB000	Remote node problem due to download
-16384	0xC000	Wait ACK (1775-KA buffer full)
-12288	0xD000	Not used
-8192	0xE000	Not used
	0xF0nn	Error code in the EXT STS byte (nn contains EXT error code)

EXT STS Error Codes

Code (Int)	Code (Hex)	Description	
-4096	0xF000	Not used	
-4095	0xF001	A field has an illegal value	
-4094	0xF002	Fewer levels specified in address than minimum for any address	
-4093	0xF003	More levels specified in address than system supports	
-4092	0xF004	Symbol not found	
-4091	0xF005	Symbol is of improper format	
-4090	0xF006	Address does not point to something usable	
-4089	0xF007	File is wrong size	
-4088	0xF008	Cannot complete request	
-4087	0xF009	Data or file is too large	
-4086	0xF00A	Transaction size plus word address is too large	
-4085	0xF00B	Access denied, improper privilege	
-4084	0xF00C	Condition cannot be generated - resource is not available	
-4083	0xF00D	Condition already exists - resource is already available	
-4082	0xF00E	Command cannot be executed	
-4081	0xF00F	Histogram overflow	
-4080	0xF010	No access	
-4079	0xF011	Illegal data type	
-4078	0xF012	Invalid parameter or invalid data	
-4077	0xF013	Address reference exists to deleted area	
-4076	0xF014	Command execution failure for unknown reason	
-4075	0xF015	Data conversion error	
-4074	0xF016	Scanner not able to communicate with 1771 rack adapter	
-4073	0xF017	Type mismatch	
-4072	0xF018	1171 Gateway response was not valid	
-4071	0xF019	Duplicate label	
-4070	0xF01A	File is open; another node owns it	
-4069	0xF01B	Another node is the program owner	
-4068	0xF01C	Reserved	
-4067	0xF01D	Reserved	
-4066	0xF01E	Data table element protection violation	
-4065	0xF01F	Temporary internal problem	
	-		

EIP Error Codes

Code (Int)	Code (Hex)	Description
-1	0xFFFF	CTS modem control line not set before transmit
-2	0xFFFE	Timeout while transmitting message
-10	0xFFF6	Timeout waiting for DLE-ACK after request
-11	0xFFF5	Timeout waiting for response after request
-12	0xFFF4	Reply data does not match requested byte count
-20	0xFFEC	DLE-NAK received after request
-21	0xFFEB	DLE-NAK sent after response
-200	0xFF38	DLE-NAK received after request

TCP/IP Interface Error Codes

Error (Int)	Error (Hex)	Description
-33	0xFFDF	Failed to connect to target
-34	0xFFDE	Failed to register session with target (timeout)
-35	0xFFDD	Failed forward open response timeout
-36	0xFFDC	PCCC/Tag command response timeout
-37	0xFFDB	No TCP/IP connection error

Common Response Error Codes

Error (Int)	Error (Hex)	Description
-40	0xFFD8	Invalid response length
-41	0xFFD7	CPF item count not correct
-42	0xFFD6	CPF address field error
-43	0xFFD5	CPF packet tag invalid
-44	0xFFD4	CPF bad command code
-45	0xFFD3	CPF status error reported
-46	0xFFD2	CPF incorrect connection ID value returned
-47	0xFFD1	Context field not matched
-48	0xFFD0	Incorrect session handle returned
-49	0xFFCF	CPF not correct message number

Register Session Response Error Codes

Error (Int)	Error (Hex)	Description	
-50	0xFFCE	Message length received not valid	
-51	0xFFCD	Status error reported	
-52	0xFFCC	Invalid version	

Forward Open Response Error Codes

Error (Int)	Error (Hex)	Description
-55	0xFFC9	Message length received not valid
-56	0xFFC8	Status error reported

PCCC Response Error Codes

Error (Int)	Error (Hex)	Description
-61	0xFFC3	Message length received not valid
-62	0xFFC2	Status error reported
-63	0xFFC1	CPF bad command code
-64	0xFFC0	TNS in PCCC message not matched
-65	0xFFBF	Vendor ID in PCCC message not matched
-66	0xFFBE	Serial number in PCCC message not matched

9.3.11 PNC Status Data in Upper Memory

The PNC driver has an associated status data area located in the PLX82-EIP-PNC's upper memory. The *Data Map* functionality can be used to map this data into the normal user data range of the PLX82-EIP-PNC's database. All the status values are initialized to zero (0) at power-up, cold boot and during warm boot.

PNC Status	Address Range	Description
Number of Input Messages	13000	Total number of write messages to PLC
Internal DPM Input Status Count	13001	Total number of write error messages
Internal DPM Input Status	13002	Error write message status (See tables below)
Number of Output Messages	13004	Total number of read messages from PLC
Internal DPM Output Status Count	13005	Total number of read error messages
Internal DPM Output Status	13006	Error read message status (See tables below)
Connection Count	13008	Total number of Connections
Communication Status	13009	Connection Status: 0 (Disconnected) or 1 (Connected)
Device Status (36)	13010	36 PN Device Status: 0 or an error number (See tables below)
Input IOPS Information	13082	Input State information (See tables below)
Output IOPS Information	13348 (Not In Use)	Output State information

Internal DPM	I Input and	Output Statu	s Codes
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Status Code	Description
0x00000000	No error
0x800B0001	Driver was not correctly initialized during startup or driver is already closed
0x800B0002	Initialization state error. Hardware does not show correct or expected states and information after a reset or bootupt
0x800B0003	Driver read state error
0x800B0004	The function is in use by another program instance or application
0x800B0005	General error during download (e.g. bootloader could not be downloaded or started)
0x800B0006	Wrong driver version
0x800B0030	The driver is not loaded/running. Failed to open or start the driver.
0x800B0031	Failed to initialize the driver
0x800B0032	Channel not initialized
0x800B0033	Function call into the driver failed
0x800B0034	Driver was not opened by calling Driver Open function
0x800C0010	Dual port memory not accessible (e.g. board not found, wrong dual port memory content)
0x800C0011	The device is not ready. The system device or communication channel is not working
0x800C0012	The device is not running. The communication channel is not configured
0x800C0013	Watchdog test failed
0x800C0015	Error in handshake flags
0x800C0016	Send mailbox is full
0x800C0017	Send packet timeout
0x800C0018	Receive packet timeout
0x800C0019	No packet available
0x800C001A	Mailbox is too short for the given packet.
0x800C0020	Reset command timeout. The device was not reaching READY state, in the given reset timeout, after the application has initiated a reset.
0x800C0021	Communication flag not set. The Fieldbus protocol stack has no communication with the Fieldbus devices. Either the cable is disconnected or no other device is connected to the wire.
0x800C0022	I/O data exchange failed
0x800C0023	I/O data exchange timeout
0x800C0024	Unknown I/O data exchange mode
0x800C0025	Device function failed
0x800C0026	Memory size differs from the configuration
0x800C0027	Unknown state mode
0x800C0028	The device is accessed either by another application or another instance. - Driver/device can't be unloaded, open connection to the system device or communication channels still active - Open channel can't be executed because it is currently used by another application
0x800C0029	Failed to lock the communication channels configuration within the given time.

Status Code	Description
0x800C002A	Failed to unlock the communication channel configuration within the given time.
0x800C002B	Wait time expires. The device has not acknowledged the new status in time.
0x800C002C	Wait time expires. The function was not able to clear flag
0x800C002D	Timeout during device / channel initialization
0x800C002E	Wait time expires
0x800C002F	Wait time expires. The device has not acknowledged the new status in time.
0x800C0040	Firmware module download and start failed because a module is already running
0x800C0041	Firmware module download was skipped because the module already exists
0x800C0050	A number of configured DMA buffers insufficient (at least 8 buffers are expected)
0x800C0051	DMA buffers size too small
0x800C0052	DMA buffers size too big
0x800C0053	DMA buffer alignment failed
0x800C0054	I/O process data exchange not allowed
0x800C0055	I/O process data area index not supported
0x800C0056	Failed to set DMA transfer to "ON" within the given wait time
0x800C0057	Failed to set DMA transfer to "OFF" within the given wait time
0x800C0058	The device is in the invalid mode
0x800C0059	Wait time expired during. Device does not signal the expected synchronization handshake flag state

Device Status bit map

Bit Position	Description
13 to 31	Unused, set to zero
12	Inactive Module present
11	ModuleDiffBlock present
10	Packet too small
9	Diagnosis buffer overwritten
8	Diagnosis buffer overflow
7	Diagnosis disappeared
6	Diagnosis data present for I/O Device
5	I/O Device deactivated
4	I/O Device parameter fault
3	I/O Device invalid response
2	I/O Device configuration fault
1	I/O Device not ready
0	I/O Device does not exist

Input IOPS Information

Bit Position	Description
0x00	Bad Subslot
0x20	Bad Slot
0x40	Bad Device Submodule / module

10 Reference

10.1 EtherNet/IP Explicit Messaging Server Command Support

The following commands are supported:

Command	Function	Definition	Supported in Server
0x00	N/A	Protected Write	Х
0x01	N/A	Unprotected Read	Х
0x02	N/A	Protected Bit Write	Х
0x05	N/A	Unprotected Bit Write	Х
0x08	N/A	Unprotected Write	Х

Basic Command Set Functions

PLC-5 Command Set Functions

Function	Definition	Supported in Server
0x00	Word Range Write (Binary Address)	Х
0x01	Word Range Read (Binary Address)	Х
	Typed Range Read (Binary Address)	Х
	Typed Range Write (Binary Address)	Х
0x26	Read-Modify-Write (Binary Address)	
0x00	Word Range Write (ASCII Address)	Х
0x01	Word Range Read (ASCII Address)	Х
0x26	Read-Modify-Write (ASCII Address)	
	0x00 0x01 0x26 0x00 0x01	0x00Word Range Write (Binary Address)0x01Word Range Read (Binary Address)Typed Range Read (Binary Address)Typed Range Write (Binary Address)0x26Read-Modify-Write (Binary Address)0x00Word Range Write (ASCII Address)0x01Word Range Read (ASCII Address)

SLC 500 Command Set Functions

Command	Function	Definition	Supported in Server
0x0F	0xA1	Protected Typed Logical Read with Two Address Fields	Х
0x0F	0xA2	Protected Typed Logical Read With Three Address Fields	Х
0x0F	0xA9	Protected Typed Logical Write With Two Address Fields	Х
0x0F	0xAA	Protected Typed Logical Write with Three Address Fields	Х
0x0F	0xAB	Protected Typed Logical Write With Mask (Three Address Fields)

10.2 Accessing the PLX82-EIP-PNC Internal Memory

The following tables define the relationships of the gateway's internal database to the addresses required in the MSG instructions:

Data Type	Controller Tag Name	Length of Each Element in CIP Message	Array Range for 10000 Element Database
BOOL	BOOLData[]	1	0 to 159999
Bit Array	BITAData[]	4	0 to 4999
SINT	SINTData[]	1	0 to 19999
INT	INT_Data[]	2	0 to 9999
DINT	DINTData[]	4	0 to 4999
REAL	REALData[]	4	0 to 4999

10.2.1 MSG Instruction Type - CIP

Database Address	CIP Integer	CIP Boolean	CIP Bit Array	CIP Byte	CIP DINT	CIP Real
0	Int_data[0]	BoolData[0]	BitAData[0]	SIntData[0]	DIntData[0]	RealData[0]
999	Int_data[999]	BoolData[15984]		SIntData[1998		
1000	Int_data[1000]	BoolData[16000]	BitAData[500]	SIntData[2000]	DIntData[500]	RealData[500]
1999	Int_data[1999]	BoolData[31984]		SIntData[3998		
2000	Int_data[2000]	BoolData[32000]	BitAData[1000]	SIntData[4000]	DIntData[1000]	RealData[1000]
2999	Int_data[2999]	BoolData[47984]		SIntData[5998]		
3000	Int_data[3000]	BoolData[48000]	BitAData[1500]	SIntData[6000]	DIntData[1500]	RealData[1500]
9999	Int_data[9999]	BoolData[159999]		SIntData[9998]		

10.2.2 MSG Instruction Type - PCCC

Database Address	File size 100	Database Address	File size 100
0	N10:0	0	N10:0
999	N19:99	999	N19:99
1000	N20:0	1000	N20:0
1999	N29:99	1999	N29:99
2000	N30:0	2000	N30:0

10.3 Specifications

Specification	Description
Power supply	24 Vdc nominal
	10 Vdc to 36 Vdc allowed
	Positive, Negative, GND terminals
Current load	24 Vdc nominal @ 400 mA
	10 to 36 Vdc @ 610 mA maximum
Operating temperature	0°C to 50°C (32°F to 122°F)
Storage temperature	-10°C to 70°C (-14°F to 158°F)
Relative humidity	5% to 95% RH with no condensation
Shock	IEC60068-2-27; 15G @ 11ms, 3-axis (Operational)
	IEC60068-2-27; 30G @ 18ms, 3-axis (Non-operational)
Vibration	IEC 60068-2-27; 5G @ 10 Hz to 150 Hz
Dimensions	5.52 x 2.06 x 4.37 in
(H x W x D)	14.01 x 5.24 x 11.09 cm
LED indicators	Configuration (CFG) and Error (ERR) status
	Power (PWR) and Hardware Fault (FLT)
	Network Status (NS) EtherNet/IP™ Class I or Class III Connection Status (EtherNet/IP only)
	Module Status (MS) Module Configuration Status (EtherNet/IP only)
	Ethernet communication port Link/Activity and 100mbit PROFINET - SYS, SF, BF
Ethernet Port	10/100Mbit RJ45 connector Electrical isolation 1500 Drams at 50 Hz to 60 Hz for 60 seconds, applied as specified in section 5.3.2 of IEEE 60950: 1991
	Ethernet Broadcast Storm Resiliency = less than or equal to 5000 [ARM] frames-per-second and less than or equal to 5 minutes duration
Shipped with unit	2.5 mm screwdriver, J180 power connector
	•

10.3.1 Hardware Specifications

10.3.2 EtherNet/IP (EIP) Specifications

The EIP server is an ODVA-certified EtherNet/IP implementation.

Specification	Description
Number of Class 3 server connections	5
Supported PLC types	PLC2, PLC5, SLC, CLX, CMPLX
Class 3 Client connections	Connected: 2 Unconnected: 1
Number of Class 1 I/O connections	20
I/O connection sizes	248 words of input / 248 words of output
Max RPI time	2 ms (1 connection) 8 ms (8 connections)
CIP services supported	0x4C: CIP Data Table Read 0x4D: CIP Data Table Write
Command List	Support for 100 commands per client, each configurable for command type, IP address, register to/from addressing, and word/bit count.
Command Sets	PLC-2/PLC-3/PLC5 Basic Command Set PLC-5 Binary Command Set SLC 500 Command Set

10.3.3 PROFINET (PNC) Specifications

Specification	Description
Driver Type	Class 1 RTC, Class 1 RTA
PROFINET I/O Data	3840 bytes IN, 3840 bytes OUT
Exchange Types	Cyclic Real Time (RT) and Acyclic Data
PROFINET Devices	Max: 36 Max data per device: 2440 bytes IN/OUT

11 Support, Service & Warranty

11.1 Contacting Technical Support

ProSoft Technology, Inc. is committed to providing the most efficient and effective support possible. Before calling, please gather the following information to assist in expediting this process:

- 1 Product Version Number
- 2 System architecture
- 3 Network details

If the issue is hardware related, we will also need information regarding:

- 1 Module configuration and associated ladder files, if any
- 2 Module operation and any unusual behavior
- 3 Configuration/Debug status information
- 4 LED patterns
- 5 Details about the interfaced serial, Ethernet or Fieldbus devices

Note: For technical support calls within the United States, ProSoft Technology's 24/7 after-hours phone support is available for urgent plant-down issues.

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11.2 Warranty Information

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