

**AN-X3-PBS-HMI**  
**Profibus DP**  
**Ethernet HMI**  
**Gateway**

# ***User Manual***



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[www.prosoft-technology.com](http://www.prosoft-technology.com)



## Cautions

Because of the variety of uses for the products described in this publication, those responsible for the application and use of these products must satisfy themselves that all necessary steps have been taken to assure that each application and use meets all performance and safety requirements, including any applicable laws, regulations, codes and standards. In no event will Quest Technical Solutions be responsible or liable for indirect or consequential damage resulting from the use or application of these products.

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

Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss.

These warnings help to:

### **WARNING!**

- Identify a hazard
- Avoid the hazard
- Recognize the consequences

### **IMPORTANT!**

Identifies information that is especially important for successful application and understanding of the product.

### **TIP**

Identifies information that explains the best way to use the AN-X3-PBS.

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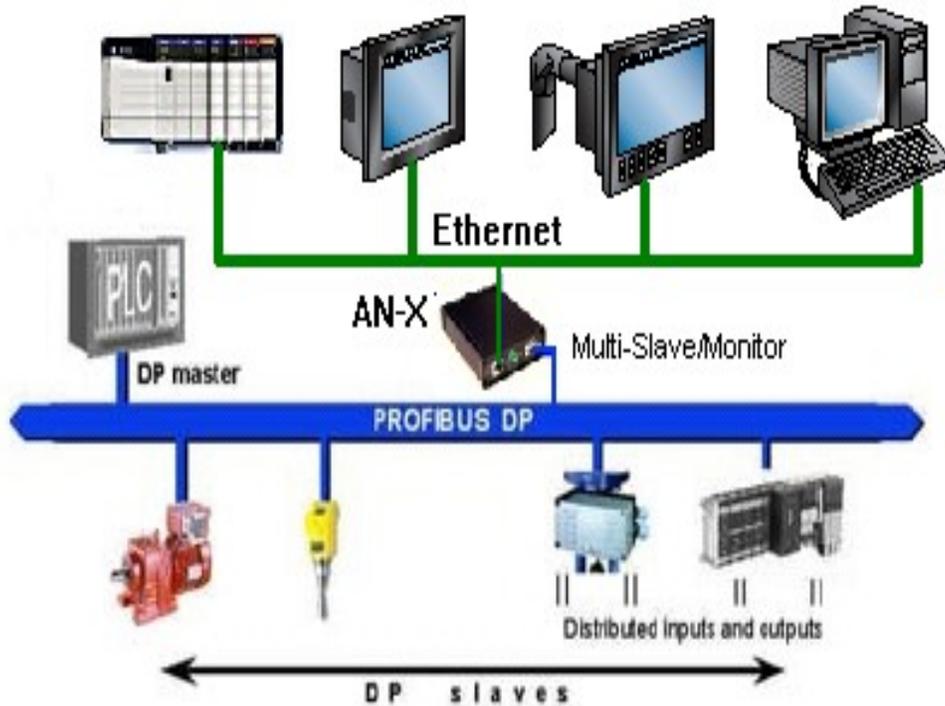
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## AN-X-PBS Module Overview



The AN-X3-PB module running AN-X3-PBS-HMI firmware (referred to hereafter as AN-X) acts as a gateway between a Profibus DP network and an Ethernet network supporting Ethernet/IP Scheduled Connections, Ethernet/IP PLC-5 File emulation and Modbus TCP.

The AN-X module has a web interface for configuration of Profibus and Ethernet properties.

### Profibus DP

The AN-X-PBS communications module connects a computer or other device to a Profibus network using Ethernet.

The module:

- Acts as one or more Active DP Slave Nodes, up to a total of 125
- Monitors the I/O data from all other DP Slave Nodes on the network
- Maintains Profibus DP Slave Node list
- Maintains Profibus Diagnostic Counters
- Supports baud rates from 9600 bps to 12 Mbps (12m 6m 3m 1m5 500k 187k5 93k75 19k2 9k6)

While monitoring other DP Slaves, the AN-X3-PBS is configured with maximum I/O lengths. The AN-X will accept any frame length less than or equal to the maximum length. If a Profibus DP I/O frame is received that is too long, the frame is ignored and the 'Long Frames' diagnostic counter is incremented and the 'Long Node' value is set to the Node address of Profibus DP Master that sent the frame.

## Ethernet/IP Scheduled Connections

INT, DINT and REAL connections are supported.

Each scheduled connection with a ControlLogix contains up to 250 INTs or 125 DINTs or REALs of input data and up to 248 INTs or 124 DINTs or REALs of output data. In order to be able to exchange all Profibus DP I/O data, the AN-X3-PBS-HMI module supports multiple scheduled connections with a ControlLogix processor over Ethernet.

The AN-X3-PBS-HMI module behaves like a 17-slot ControlLogix rack with an ENBT/A module in slot 16 and generic modules in slots 0 to 15.

A ControlLogix processor can open scheduled connections to each of these 16 generic modules.

Each connection can have its own RPI, from 1 to 750 ms.

In general, you should try to use as few connections as possible. There is significant overhead in opening and maintaining each connection.

You can map some or all Profibus DP I/O data to these scheduled connections.

In addition, the AN-X module has diagnostic data that is mapped to ControlLogix slot 15 scheduled input data.

The mapping file can also contain options that apply to the entire configuration.

## Ethernet/IP Unscheduled PLC-5 File Emulation

The AN-X3-PB-HMI maps all Profibus DP I/O data to PLC-5 N and F files.

This allows HMI, SCADA and other upstream software to access Profibus DP data on Ethernet as if it is communicating with a PLC-5/20E.

## Modbus TCP Server

The AN-X3-PB-HMI maps all Profibus DP I/O data to Modbus TCP Registers.

This allows HMI, SCADA and other upstream Modbus TCP clients to access Profibus DP data on Ethernet.

## Hardware Features

The module has:

- LEDs to indicate the status of the connection to the Ethernet, its own internal state, and the state of the Profibus DP Slaves on the network
- An Ethernet RJ45 connector
- A 9-pin D Shell connector to connect to the Profibus network
- A 3-pin Phoenix power connector
- A microSD card for storage of configuration data and firmware

### Package Contents

- AN-X3-PB module
- Phoenix Power connector

### Using the microSD Card

The AN-X3-PB microSD card stores configuration data and firmware.

There are no restrictions on the size or speed of the card.

The format must be FAT-16 or FAT-32.

The microSD card must be present while the AN-X3-PB is running.

**WARNING!** Do not remove the microSD card while the AN-X3-PB is powered on!

**TIP** The most recent firmware for the AN-X is available at [qtsusa.com/dist](http://qtsusa.com/dist)

### AN-X3 Modes of Operation

There are two AN-X3 modes of operation:

- Maintenance mode. The AN-X3 runs the maintenance firmware at startup. It performs diagnostics (memory tests, etc), copies any changes from the microSD card. If there are no errors, it starts the AN-X3 in production mode.
- Production mode. This is the normal runtime mode of operation.

**WARNING!** If you remove the card to edit the configuration file, push the card in straight or the card might fall inside the case and you will have to disassemble the AN-X3 to retrieve it (7/64 Allen wrench).

# Installation

## Prevent Electrostatic Discharge

The module is sensitive to electrostatic discharge.

### **WARNING!**

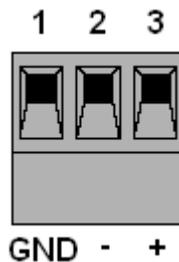
Electrostatic discharge can damage integrated circuits and semiconductors. Follow these guidelines when you handle the module:

- Touch a grounded object to discharge static potential
- Do not touch the connector pins

## Power

AN-X requires DC power input of anywhere from 12 to 24 VDC

Left to right the pins on the power connector are Chassis Ground, Negative Voltage and Positive Voltage.



Power consumption is 160 mA @ 12VDC or 80 mA @ 24VDC.

The part number for the power connector is:

Phoenix 1757022 (Old part number: MSTB 2.5/3-ST-5.08)

## Profibus Cabling and Termination

Use a cable with a standard Profibus 9-pin connector to connect the module to the network.

The network must be terminated at the physical ends of the network. There should be two and only two terminators on the network.

## Ethernet Cabling

The AN-X has a standard RJ45 connector for connecting to Ethernet.

If you are connecting AN-X to an existing network through a router or switch, use a standard Ethernet cable.

If you are connecting directly between a computer and AN-X, you may need to use a crossover cable.

## *IP Address Configuration*

Before you can use the AN-X3, you must configure its IP address on Ethernet. For the options and best procedures to configure AN-X3 modules, see:

[https://qtsusa.com/dist/AN-X3/AN-X3\\_ReadMe\\_and\\_QuickStart.txt](https://qtsusa.com/dist/AN-X3/AN-X3_ReadMe_and_QuickStart.txt)

### **Initial IP Configuration**

AN-X can be configured:

- To use a static (unchanging) IP address
- To obtain its IP address from a DHCP server
- To use the fixed link-local address 169.254.42.84

All AN-X modules are shipped with the link-local address 169.254.42.84.

Unless you have control of the DHCP server, in most applications you will assign the AN-X a static IP address. Otherwise the DHCP server may assign a different IP address each time AN-X powers up, and any software that accesses the AN-X module would have to be reconfigured.

#### **IMPORTANT!**

If you are connecting AN-X to an existing Ethernet network, consult the network administrator to obtain information about how you should configure AN-X or to obtain a static IP address for AN-X.

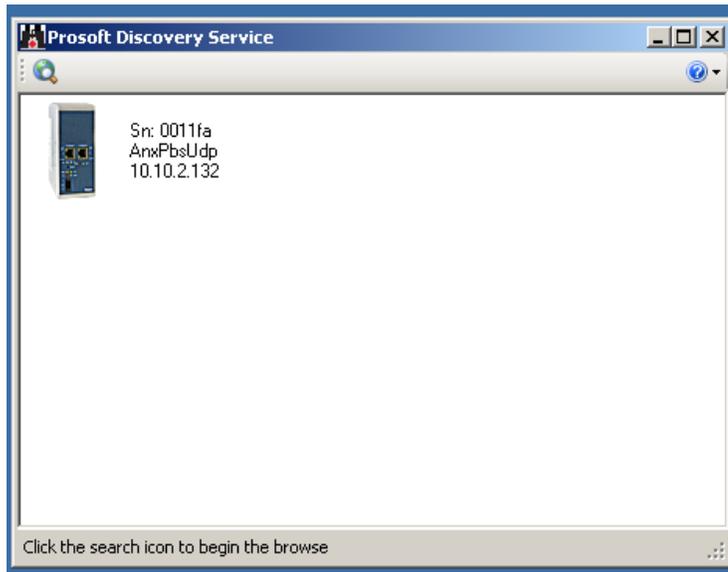
\*\* Since link-local IP addresses are not always accessible, the recommended method to set the initial IP address is with the Prosoft Discovery Service (PDS).

## Prosoft Discovery Service

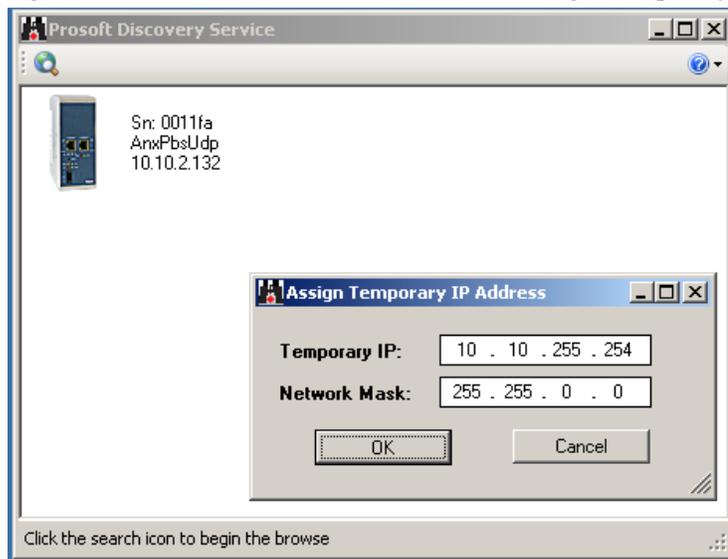
ProSoft Discovery Service (PDS) is a free application available from Prosoft's web page:

<https://www.prosoft-technology.com/Products/ProSoft-Software/ProSoft-Discovery-Service>

With the AN-X3 module connected to Ethernet and powered up, run PDS. It should find any AN-X modules on the network.



Right click on the module icon and choose 'Assign Temporary IP'.



Generally you can just use the default PDS Temporary IP.

Select 'OK', then use the Temporary IP address in your web browser to access the module and configure a permanent IP address with the web interface (see page 14).

## Link-Local IP Configuration

\* Many computers do not allow access to link-local addresses by default.

If you are using link-local IP addresses to configure multiple AN-X3 modules, connect and configure one at a time, since initially they will all be set to the same link-local IP address.

Enter the AN-X3's link-local IP address (169.254.42.84) in your web browser.

**TIP** The AN-X3 must be on the same subnet as the computer to use the link-local IP address. It cannot be connected through a router.

If the AN-X3's web page does not load, it's likely your computer is not configured to allow access to link-local IP addresses.

You can add a link-local route to your computer or use Prosoft Discovery Service or remove the microSD and edit Config.txt.

## microSD Config.txt

The microSD card contains a text configuration file named Config.txt. Config.txt contains the IP configuration and the name of the firmware file to load.

When you perform the '*Administration/AN-X IP/FW Configuration*' command from the web interface, it writes the results to config.txt.

Each line consists of a keyword followed by a colon and then a value. Example:

IP: 192.168.1.12

Anything after a semicolon on a line is treated as a comment.

Keyword	Possible Values
IP	LOCAL DHCP Static IP address
Netmask	Ethernet netmask, used only if IP is a static IP address
DefGtwy	default gateway, used only if IP is a static IP address
Hostname	Ethernet host name, from 1 to 30 characters
Firmware	Firmware file to run at startup, must be present on microSD card

If you edit the file and AN-X3 finds an error during startup, it flashes an error code on the SYS LED, see page 43.

### Sample config.txt files

#### *DHCP*

IP: DHCP  
 Hostname: AnxPbsUdp  
 Firmware: AN-X3-PBS-HMI

#### *Static IP Address*

IP: 10.10.2.132  
 NetMask: 255.255.0.0  
 DefGtwy: 10.10.0.1  
 HostName: AnxPbsUdp  
 Firmware: AN-X3-PBS-HMI

## Web Page IP Configuration

Select 'Administration/AN-X IP/FW Configuration'.

The screenshot shows the web interface with a navigation menu on the left. The 'Administration' menu is expanded, and 'AN-X IP/FW Configuration' is selected. The main content area displays the title 'AN-X3-PBS-HMI Profibus Multi-Slave Ethernet HMI Gateway (4.1.1)' and an introduction section. The introduction states that the device acts as a Profibus Slave Node and exchanges data using Ethernet protocols: Ethernet/IP Scheduled Messaging (ControlLogix I/O, etc.), Ethernet/IP PLC-5 Mapping (Emulates a PLC-5/20E), and ModBus TCP Mapping. A 'Directions' section explains that the main menu on the left provides configuration options and that sub-menus are accessed via down arrows. A 'Menu Details' section highlights the 'Automation Network' configuration, which requires text files for Profibus DP and Ethernet/IP connections, with auto-configure options available for PLC-5 and ModBus TCP mappings. A 'Configuration View' section is also visible at the bottom.

The AN-X IP/FW Configuration page appears.

The screenshot shows the 'AN-X IP/FW Configuration' page. The left navigation menu is the same as in the previous screenshot. The main content area displays the following information and configuration options:

- Serial Number: 1a0011fa
- MAC Address: 00:0C:1A:00:11:fa
- DHCP:
- Link-Local:
- Static:
- AN-X Hostname: AnxPbsA
- AN-X IP Address: 10.10.2.132
- NET Mask: 255.255.0.0
- Gateway Address: 10.10.0.1
- Firmware Type: AN-X3-PBS-HMI
- SUBMIT button

The serial number and MAC address of the AN-X being configured are shown.

Check either DHCP or Static. If Static, fill in the required fields.

### DHCP

If the AN-X3 finds a DHCP server on the network, it obtains an IP address and other network parameters (netmask and default gateway) from the DHCP server.

To find the address assigned, you have to look at the DHCP server log.

When you submit the changes, if the AN-X3 does not find a DHCP server, it reverts to the default link local address 169.254.42.84 and repeatedly flashes the SYS LED 3 times red followed by a pause (see page 43).

## Static IP Address

If you select static IP address, enter:

- The IP address for the AN-X.
- The netmask for the AN-X
- The default gateway for your network.

You must enter a valid default gateway address even if there is no device at the gateway address on the network.

## Hostname

Enter a Hostname for the AN-X3. This name is used internally by AN-X and may be used to identify the AN-X if you have a DNS server on your network. The name can be from 1 to 30 characters long.

## Firmware

Select the firmware the AN-X is to load from the list provided. AN-X builds the list from the firmware files on the microSD card that are compatible with the AN-X hardware.

## Submitting the Configuration

Once you have entered all required parameters, click **SUBMIT** to write the configuration to the file config.txt on the microSD card. The changes do not take effect until the AN-X restarts.

The following page appears when you click **SUBMIT**.



Click **Continue** to restart the AN-X3, then wait until the AN-X has completely restarted before continuing.

If you have changed the IP address, you will need to enter the new IP address in the browser's address field.

## ***Reconfiguring an AN-X from an Unknown State***

It sometimes happens that an AN-X has been previously configured with an IP address that causes it to be inaccessible on the current Ethernet network or the IP address is unknown.

In most cases, the Prosoft Discovery Service will be able to find the AN-X3 module, even if its IP address is not accessible on the computer's subnet.

If not, remove the microSD card and edit the Config.txt file (see page 13).

### **Non-Booting AN-X3 or Factory Reinitialize**

If the AN-X3 microSD becomes corrupted and the AN-X3 will no longer boot, or if you want to reinitialize the AN-X3 to factory state:

- Download the appropriate factory image file from the QTS website.  
[qtsusa.com/dist/AN-X3](https://qtsusa.com/dist/AN-X3) (AN-X3-PBS-uSD.v4.01.01.img.zip for example).

**WARNING:** This process will erase all AN-X3 configuration files.

If possible, make copies of any configuration files on the microSD you need to preserve before initializing it.

There are many ways to Flash .img.zip files to the microSD. We recommend Balena Etcher. It's free and seems to work very well.

<https://www.balena.io/etcher>

This factory image will have the LOCAL IP address.

The individual microSD files are available on [qtsusa.com/dist/AN-X3](https://qtsusa.com/dist/AN-X3) in the appropriate uSD\_Files directory.

## Configuration

The AN-X3-PBS-HMI Profibus Network and Ethernet/IP Scheduled Connection configuration require text configuration files.

The Profibus DP Configuration text file defines the AN-X Active and Monitor Profibus Slave Nodes.

The Ethernet/IP Scheduled Connection configuration text file defines data mapping between Profibus Slave Nodes and Ethernet/IP Scheduled Connections.

Auto Configure options are also available.

PLC-5 and ModBus TCP mappings are automatically generated when Profibus is configured.

Select '*Automation Network/Configuration*'.

<b>AN-X3-PBS-HMI Home</b>	<b>Configuration</b>
▼ <b>Automation Network</b>	<b>Caution: Configuration operations disrupt Profibus Slave and Ethernet communication.</b> <b>Configuration should not be performed while the process is in production mode.</b>
Configuration	The AN-X-PBS-HMI Profibus Network and Ethernet/IP Scheduled Connection configuration require text configuration files. The Profibus DP Configuration text file defines the AN-X Active and Monitor Profibus Slave Nodes. The Ethernet/IP Scheduled Connection configuration text file defines data mapping between Profibus Slave Nodes and Ethernet/IP Scheduled Connections. PLC-5 and ModBus TCP Mappings are automatically generated when Profibus is configured.
Configuration View	
Configuration Sample	
Monitor Profibus DP	Select file: <input type="button" value="Choose File"/> No file chosen <input type="button" value="Send Profibus DP Config to AN-X"/>
Monitor Ethernet/IP	Select file: <input type="button" value="Choose File"/> No file chosen <input type="button" value="Send Ethernet/IP Config to AN-X"/>
PLC-5 Mapping	
Modbus TCP Mapping	
▼ <b>Log Files</b>	Profibus Auto Config allows the AN-X to listen to an existing Profibus Network and generate a Monitor configuration. This may be a useful starting point even if the AN-X will include Active Nodes later.
▼ <b>Administration</b>	<input type="button" value="Profibus DP Auto Config"/>
▼ <b>Support</b>	Ethernet/IP Auto Config uses the I/O sizes in the current Profibus DP configuration to generate an Ethernet/IP Scheduled Connection Configuration File that maps Profibus DP data to Scheduled Connections.
	<input type="button" value="Ethernet/IP Auto Config"/>

## Profibus DP Configuration

Choose your Profibus Configuration text file, then select 'Send Profibus DP Config to AN-X'.

The screenshot displays the AN-X3-PBS-HMI software interface. On the left is a navigation menu with categories: Automation Network, Log Files, Administration, and Support. The main window shows the Profibus Configuration File and its Log.

**Automation Network**

- Configuration
- Configuration View
- Configuration Sample
- Monitor Profibus DP
- Monitor Ethernet/IP
- PLC-5 Mapping
- Modbus TCP Mapping

**Log Files**

- Log Files

**Administration**

- Administration

**Support**

- Support

sample\_AnxBpsCfgProfib.txt (1422 bytes, text/plain) saved. File transfer Complete.  
 Profibus Configuration Complete...  
 HMI Scheduled Ethernet/IP Reconfiguration Complete...  
 HMI Modbus TCP Reconfiguration Complete...

Profibus Configuration File:

```

;-----
; QTS-AN-X-PBS Sample Profibus Configuration File
;
; Text after a semi-colon is a comment and is ignored
;
; MonTout <time> - Monitor Timeout in 10ms increments, default 100 (1 sec)
;
; BaudRate <baud> ; Profi Baud Rate - 12m 6m 3m 1m5 500k 187k5 93k75 19k2 9k6
;
; Slave <node> <mode> <inp_len> <out_len> <dev_id> ; Configure a Profi Slave
; ; <node> Profi Node - 1 - 125
; ; <mode> Active (AN-X sends inputs) or Monitor (AN-X monitors inputs)
; ; <inp_len> Input Length in bytes
; ; <out_len> Output Length in bytes
; ; <dev_id> Profibus Device ID
;
;-----
BaudRate 12m ; 12m 6m 3m 1m5 500k 187k5 93k75 19k2 9k6

; Node Mode ILen OLen DeviceID
Slave 2 Active 244 244 0x08a5
Slave 3 Monitor 1 1 0x08a5
Slave 4 Active 11 10 0x08a5
Slave 5 Monitor 22 21 0x08a5
Slave 6 Active 33 32 0x08a5

```

Retrieve [Current Profibus Configuration](#)

Profibus Configuration Log:

```

;QTS AN-X3-PBS Profibus Configuration Utility
;Ver 4.1.1

Stopping UDP...
Stopping Profibus...
Clearing Profibus Memory (00100000)...
Reading Profibus Configuration File

Slave 2 Active Inp 244 80000-800f3 Out 244 c0000-c00f3
Slave 4 Active Inp 10 800f8-80101 Out 11 c00f4-c00fe
Slave 6 Active Inp 32 8011c-8013b Out 33 c0100-c0120
Slave 8 Active Inp 51 80168-8019a Out 52 c0124-c0157
Slave 10 Active Inp 70 801d8-8021d Out 70 c0158-c019d
Slave 58 Active Inp 10 80270-80279 Out 11 c01a0-c01aa
Slave 60 Active Inp 32 80294-802b3 Out 33 c01ac-c01cc
Slave 122 Active Inp 51 802e0-80312 Out 52 c01d0-c0203
---
Slave 3 Monitor Out 1 800f4-800f4 Inp 1 80350-80350
Slave 5 Monitor Out 21 80104-80118 Inp 22 80354-80369
Slave 7 Monitor Out 43 8013c-80166 Inp 44 8036c-80397
Slave 9 Monitor Out 60 8019c-801d7 Inp 60 80398-803d3
Slave 11 Monitor Out 80 80220-8026f Inp 80 803d4-80423
Slave 59 Monitor Out 21 8027c-80290 Inp 22 80424-80439
Slave 61 Monitor Out 43 802b4-802de Inp 44 8043c-80467
Slave 123 Monitor Out 60 80314-8034f Inp 60 80468-804a3

```

The Profibus DP Configuration File sent is shown along with the Profibus DP Configuration Log that shows the results of the configuration.

The Ethernet/IP Scheduled Connection Configuration File and Log are also shown. If changes have been made to the Profibus DP configuration, the Ethernet/IP Scheduled Connection configuration may fail.

Changes may need to be made to match the Profibus DP configuration.

The format of the Profibus DP Configuration file is documented in the sample file below.

```

;-----
; QTS-AN-X-PBS Sample Profibus Configuration File
;
; Text after a semicolon is a comment and is ignored
;
; MonTout <tme> - Monitor Timeout in 10ms increments, default 100 (1 sec)
;
; BaudRate <baud> ; Profi Baud Rate - 12m 6m 3m 1m5 500k 187k5 93k75 19k2 9k6
;
; Slave <node> <mode> <inp_len> <out_len> <dev_id> ; Configure a Profi Slave
;       ; <node> Profi Node - 1 - 125
;       ; <mode> Active (AN-X sends inputs) or Monitor (AN-X monitors inputs)
;       ; <inp_len> Input Length in bytes
;       ; <out_len> Output Length in bytes
;       ; <dev_id> Profibus Device ID
;

```

```

BaudRate 12m ; 12m 6m 3m 1m5 500k 187k5 93k75 19k2 9k6

```

```

; Node Mode ILen OLen DeviceID
Slave 2 Active 244 244 0x08a5
Slave 3 Monitor 1 1 0x08a5
Slave 4 Active 11 10 0x08a5
Slave 5 Monitor 22 21 0x08a5
Slave 6 Active 33 32 0x08a5
Slave 7 Monitor 44 43 0x08a5

Slave 8 Active 52 51 0x08a5
Slave 9 Monitor 60 60 0x08a5
Slave 10 Active 70 70 0x08a5
Slave 11 Monitor 80 80 0x08a5

Slave 58 Active 11 10 0x08a5
Slave 59 Monitor 22 21 0x08a5
Slave 60 Active 33 32 0x08a5
Slave 61 Monitor 44 43 0x08a5
Slave 122 Active 52 51 0x08a5
Slave 123 Monitor 60 60 0x08a5

```

## Profibus DP Auto Config

The AN-X-PBS can listen to an active Profibus DP network and generate a Monitor configuration.

While in Listen Mode, the AN-X does the following:

- Determines the Baud Rate
- Listens to the Profibus DP I/O frames to determine DP Slave Nodes and their I/O sizes
- If the Profibus DP Master is restarted, the AN-X captures the Slave IDs from the Set Parameter frames

On the ‘Automation Network/Configuration’ page, select the ‘Profibus DP Auto Config’ button.

<b>AN-X3-PBS-HMI Home</b>	<b>Profibus DP Auto Config</b>
▼ <b>Automation Network</b>	The AN-X-PBS can listen to an active Profibus DP network and generate a Monitor configuration.
<a href="#">Configuration</a>	While in Listen Mode, the AN-X does the following:
<a href="#">Configuration View</a>	- Determines the Baud Rate
<a href="#">Configuration Sample</a>	- Listens to the Profibus DP I/O frames to determine Active Nodes and their I/O sizes
<a href="#">Monitor Profibus DP</a>	- If the Profibus DP Master is restarted, the AN-X captures the Slave ID's from the Set Parameter frames
<a href="#">Monitor Ethernet/IP</a>	To perform a Profibus DP Auto Config
<a href="#">PLC-5 Mapping</a>	- Click on the 'Start Profibus DP Listen' button
<a href="#">Modbus TCP Mapping</a>	- If possible, restart the Profibus DP Master
▼ <b>Log Files</b>	- On the 'Profibus DP Listen' page, click on the 'Generate Profibus DP Config' button
▼ <b>Administration</b>	A 'Profibus DP Listen' log is displayed so the configuration capture process may be monitored.
▼ <b>Support</b>	You can check this log to make sure all expected slaves have been heard.
	* If a Slave ID is not heard, it will be set to 0x08a5 (QTS's Slave ID)
	<a href="#" style="background-color: white; color: #1a3d4d; padding: 5px;">Start Profibus DP Listen</a>

**To perform a Profibus DP Auto Config:**

- Click on the ‘Start Profibus DP Listen’ button
- If possible, restart the Profibus DP Master
- On the ‘Profibus DP Listen’ page, click on the ‘*Generate Profibus DP Config*’ button

A ‘Profibus DP Listen’ log is displayed so the configuration capture process may be monitored.

You can check this log to make sure all expected slaves have been heard.

## Profibus DP Listen

Refresh Log  Auto Refresh

```

Setting Baud Rate 12m
Active Node 37 ILen= 0 OLen=243 SlvID=08a5
Active Node 39 ILen= 1 OLen= 1 SlvID=08a5
Active Node 41 ILen= 22 OLen= 21 SlvID=08a5
Active Node 43 ILen= 44 OLen= 43 SlvID=08a5
Active Node 45 ILen= 60 OLen= 60 SlvID=08a5
Active Node 47 ILen= 80 OLen= 80 SlvID=08a5
Active Node 49 ILen=100 OLen=100 SlvID=08a5
Active Node 51 ILen=120 OLen=120 SlvID=08a5
Active Node 53 ILen=140 OLen=140 SlvID=08a5
Active Node 55 ILen=243 OLen=243 SlvID=08a5
Active Node 57 ILen= 1 OLen= 1 SlvID=08a5
Active Node 59 ILen= 22 OLen= 21 SlvID=08a5
Active Node 61 ILen= 44 OLen= 43 SlvID=08a5
Active Node 123 ILen= 60 OLen= 60 SlvID=08a5
Active Node 125 ILen=244 OLen=244 SlvID=08a5
Active Node 3 ILen= 1 OLen= 1 SlvID=08a5
Active Node 5 ILen= 22 OLen= 21 SlvID=08a5
Active Node 7 ILen= 44 OLen= 43 SlvID=08a5
Active Node 9 ILen= 60 OLen= 60 SlvID=08a5
Active Node 11 ILen= 80 OLen= 80 SlvID=08a5
Active Node 13 ILen=100 OLen=100 SlvID=08a5
Active Node 15 ILen=120 OLen=120 SlvID=08a5
Active Node 17 ILen=140 OLen=140 SlvID=08a5
Active Node 19 ILen=243 OLen=243 SlvID=08a5
Active Node 21 ILen= 1 OLen= 1 SlvID=08a5
Active Node 23 ILen= 22 OLen= 21 SlvID=08a5
Active Node 25 ILen= 44 OLen= 43 SlvID=08a5
Active Node 27 ILen= 60 OLen= 60 SlvID=08a5
Active Node 29 ILen= 80 OLen= 80 SlvID=08a5
Active Node 31 ILen=100 OLen=100 SlvID=08a5
Active Node 33 ILen=120 OLen=120 SlvID=08a5
Active Node 35 ILen=140 OLen=140 SlvID=08a5
Active Node 37 ILen=243 OLen=243 SlvID=08a5

```

Generate Profibus DP Config
Cancel/Revert

**Caution:** Select 'Generate Profibus DP Config' or 'Cancel/Revert'  
Do not navigate away from this page.

\* If a Slave ID is not heard, it will be set to 0x08a5 (QTS' Slave ID)

If capturing configurations in a lab to emulate a bigger system, Profibus DP Listen may be left running as DP Slave Node(s) are modified and restarted and added to the AN-X configuration.

The Cancel/Revert button Cancels the ‘Profibus DP Auto Config’ operation and reverts to the configuration currently loaded.

**IMPORTANT!**

Select '*Generate Profibus DP Config*' or '*Cancel/Revert*'.  
Do not navigate away from this page.

## Ethernet/IP Scheduled Connection Configuration

Choose your Ethernet/IP Connection Configuration text file then, select '*Send Ethernet/IP Config to AN-X*'.

The screenshot displays the AN-X3-PBS-HMI configuration interface. On the left is a navigation menu with categories: Automation Network, Log Files, Administration, and Support. The main area shows the configuration file content and its execution log.

**Automation Network**

- Configuration
- Configuration View
- Configuration Sample
- Monitor Profibus DP
- Monitor Ethernet/IP
- PLC-5 Mapping
- Modbus TCP Mapping

**Log Files**

**Administration**

**Support**

sample\_AnxBpsCfgHmiEip.txt (5822 bytes, text/plain) saved. File transfer Complete...  
HMI Scheduled Ethernet/IP Reconfiguration Complete...

Ethernet/IP Configuration File:

```

-----
; QTS-AN-X-PBS-HMI Sample Ethernet/IP Scheduled Connection Configuration File
;
; Text after a semi-colon is a comment and is ignored
;
; ClxName AnxBpsHmi ; Name of module in CLX - defaults to AN-X Hostname
; ClxPrefix ANX_ ; prefix to all module tagnames - useful for unique aliases
; ; for multiple AN-X modules
;
; <> are required parameters, [] are optional
;
; ClxSlot <n> <type> <name> ; Start mappings for a Scheduled Connection
; ; <n> Slot number - 0-14
; ; <type> INT or DINT - DINT is used for REAL
; ; <name> Name shown on 'Monitor Ethernet/IP page'
;
; ClxInpMap <ofs> <order> <area> <alias> ; Map CLX Input
; ClxOutMap <ofs> <order> <area> <alias> ; Map CLX Output
; ; <ofs> ; INT or DINT offset in CLX Data[]
; ; <order> ; Profibus Byte Order - LoHi or HiLo
; ; <area> ; Area to Map
; ; ; ClxOutMap
; ; ; PbsInpAct <node> - Map CLX Out to Profi Active Inp
; ; ; ClxInpMap
; ; ; PbsOut <node> - Map CLX Inp to Profi Out
;

```

Retrieve [Current Configuration](#) [View Sample Configuration](#) [Logix Aliases](#) [Owner](#) / [Input Only](#)

Ethernet/IP Configuration Log:

```

59: ClxSlot 2 DINT REAL_2
ClxInpMap ZeroBlk 1 0-> 0 LoHi
ClxInpMap PbsOut 58 3 1-> 3 LoHi Pbs_58_Out
ClxOutMap PbsInpAct 58 3 0-> 2 LoHi Pbs_58_InpAct
ClxInpMap PbsOut 60 8 4-> 11 LoHi Pbs_60_Out
ClxOutMap PbsInpAct 60 9 3-> 11 LoHi Pbs_60_InpAct
ClxInpMap PbsOut 122 13 12-> 24 LoHi Pbs_122_Out
ClxOutMap PbsInpAct 122 13 12-> 24 LoHi Pbs_122_InpAct
ClxInpMap PbsOut 59 6 25-> 30 LoHi Pbs_59_Out
ClxInpMap PbsInpMon 59 6 31-> 36 LoHi Pbs_59_InpMon
ClxInpMap PbsOut 61 11 37-> 47 LoHi Pbs_61_Out
ClxInpMap PbsInpMon 61 11 48-> 58 LoHi Pbs_61_InpMon
ClxInpMap PbsOut 123 15 59-> 73 LoHi Pbs_123_Out
ClxInpMap PbsInpMon 123 15 74-> 88 LoHi Pbs_123_InpMon
ClxSlot 0 Min Out Len: 72
ClxSlot 0 Min Inp Len: 109
ClxSlot 1 Min Out Len: 30
ClxSlot 1 Min Inp Len: 102
ClxSlot 2 Min Out Len: 24
ClxSlot 2 Min Inp Len: 89
ClxSlot 15 Min Out Len: 0
ClxSlot 15 Min Inp Len: 29
.....Parse Successful
Profibus Multi-Slave HMI Ethernet/IP Configured Successfully

```

The Ethernet/IP Scheduled Connection Configuration File sent is shown along with the Configuration Log that shows the results.

The format of the Ethernet/IP Scheduled Connection Configuration file is documented in the sample file below.

```

;-----
; QTS-AN-X-PBS-HMI Sample Ethernet/IP Scheduled Connection Configuration File
;
; Text after a semicolon is a comment and is ignored
;
; ClxName AnxPbsHmi ; Name of module in CLX - defaults to AN-X Hostname
; ClxPrefix ANX_ ; prefix to all module tagnames - useful for unique aliases
; ; for multiple AN-X modules
;
; <> are required parameters, [] are optional
;
; ClxSlot <n> <type> <name> ; Start mappings for a Scheduled Connection
; ; <n> Slot number - 0-14
; ; <type> INT or DINT - DINT is used for REAL
; ; <name> Name shown on 'Monitor Ethernet/IP page
;
; ClxInpMap <ofs> <order> <area> <alias> ; Map CLX Input
; ClxOutMap <ofs> <order> <area> <alias> ; Map CLX Output
; ; <ofs> ; INT or DINT offset in CLX Data[]
; ; <order> ; Profibus Byte Order - LoHi or HiLo
; ; <area> ; Area to Map
; ; ; ClxOutMap
; ; ; PbsInpAct <node> - Map CLX Out to Profi Active Inp
; ; ; ClxInpMap
; ; ; PbsOut <node> - Map CLX Inp to Profi Out
; ; ; PbsInpMon <node> - Map CLX Inp to Profi Monitor Inp
; ; ; GlbCtl - Map CLX Inp to Profi Global Control
; ; ; 7 6 5 4 3 2 1 0 Profibus Global Control
; ; ; 0 0 0 Reserved
; ; ; x Clear Data, 1=Stop 0=Run
; ; ; x UNFREEZE
; ; ; x FREEZE
; ; ; x UNSYNC
; ; ; x SYNC; ; ; ZeroBlk <len>
- Zero CLX Inp <len> INTs or DINTs
; ; [alias] ; Generate CLX Alias with this name - Must be
unique;
; The layout of the Slot 15 connection is shown at the end of this file

```

```

ClxSlot 0 INT INT_0
ClxInpMap 0 LoHi GlbCtl PbsGlbCtl ; 2
ClxInpMap Auto LoHi PbsOut 2 ; 122
ClxOutMap Auto LoHi PbsInpAct 2 ; 122
ClxInpMap Auto LoHi PbsOut 4 ; 6
ClxOutMap Auto LoHi PbsInpAct 4 ; 6
ClxInpMap Auto LoHi PbsOut 6 ; 16
ClxOutMap Auto LoHi PbsInpAct 6 ; 18
ClxInpMap Auto LoHi PbsOut 3 ; 2
ClxInpMap Auto LoHi PbsInpMon 3 ; 2
ClxInpMap Auto LoHi PbsOut 5 ; 12
ClxInpMap Auto LoHi PbsInpMon 5 ; 12
ClxInpMap Auto LoHi PbsOut 7 ; 22
ClxInpMap Auto LoHi PbsInpMon 7 ; 22

```

```

ClxSlot 1 DINT DINT_1
ClxInpMap 0 LoHi ZeroBlk 1 ; 1
ClxInpMap Auto LoHi PbsOut 8 Pbs_8_Out ; 13
ClxOutMap Auto LoHi PbsInpAct 8 Pbs_8_InpAct ; 13
ClxInpMap Auto LoHi PbsOut 10 Pbs_10_Out ; 18
ClxOutMap Auto LoHi PbsInpAct 10 Pbs_10_InpAct ; 18
ClxInpMap Auto LoHi PbsOut 9 Pbs_9_Out ; 15
ClxInpMap Auto LoHi PbsInpMon 9 Pbs_9_InpMon ; 15
ClxInpMap Auto LoHi PbsOut 11 Pbs_11_Out ; 20
ClxInpMap Auto LoHi PbsInpMon 11 Pbs_11_InpMon ; 20

```

```

ClxSlot 2 DINT REAL_2
ClxInpMap 0 LoHi ZeroBlk 1 ; 1
ClxInpMap Auto LoHi PbsOut 58 Pbs_58_Out ; 3
ClxOutMap Auto LoHi PbsInpAct 58 Pbs_58_InpAct ; 3
ClxInpMap Auto LoHi PbsOut 60 Pbs_60_Out ; 8
ClxOutMap Auto LoHi PbsInpAct 60 Pbs_60_InpAct ; 9
ClxInpMap Auto LoHi PbsOut 122 Pbs_122_Out ; 13
ClxOutMap Auto LoHi PbsInpAct 122 Pbs_122_InpAct ; 13
ClxInpMap Auto LoHi PbsOut 59 Pbs_59_Out ; 6
ClxInpMap Auto LoHi PbsInpMon 59 Pbs_59_InpMon ; 6
ClxInpMap Auto LoHi PbsOut 61 Pbs_61_Out ; 11
ClxInpMap Auto LoHi PbsInpMon 61 Pbs_61_InpMon ; 11
ClxInpMap Auto LoHi PbsOut 123 Pbs_123_Out ; 15
ClxInpMap Auto LoHi PbsInpMon 123 Pbs_123_InpMon ; 15

```

```

;-----
; Slot 15 Diagnostics Connection Data Layout
; DataOutput
; 0 "AnxAmxDcs Zero Diagnostic Counters on bit 0 transition to 1"
; DataInput
; 0 Profi Tx Frames N9:0
; 1 Profi Rx Frames Good N9:1
; 2 Profi Rx Lo=StpErrs Hi=ParErrs N9:2
; 3 Profi Rx Lo=SD_Errs Hi=RptErrs N9:3
; 4 Profi Rx Lo=UndErrs Hi=FcsErrs N9:4
; 5 Profi Rx Lo=ED_Errs Hi=OvrErrs N9:5
; 6 Profi Rx Lo=LngErrs Hi=LngNode N9:6
; 7 Profi Rx Lo=DupFrm Hi=TnsOvr N9:7
;
; 8 Profi Good Node List 0- 15 N9:8
; 9 Profi Good Node List 16- 31 N9:9
; 10 Profi Good Node List 32- 47 N9:10
; 11 Profi Good Node List 48- 63 N9:11
;
; 12 Profi Good Node List 64- 79 N9:12
; 13 Profi Good Node List 80- 95 N9:13
; 14 Profi Good Node List 96-111 N9:14
; 15 Profi Good Node List 112-125 N9:15
;
; 16 "AnxAmxDcs UDP TX Count"
; 17 "AnxAmxDcs UDP RX Count"
; 18 "AnxAmxDcs UDP EthErr Ctr(Lo) Typ(Hi)"
; 19 "AnxAmxDcs UDP PrtErr Ctr(Lo) Typ/SlT(Hi)"
;
; 20 "AnxAmxDcs CLX -> AN-X Slot 0 Upd Time (*100us, Avg)"
; 22 "AnxAmxDcs CLX -> AN-X Slot 0 Upd Time (*100us, Min)"
; 24 "AnxAmxDcs CLX -> AN-X Slot 0 Upd Time (*100us, Max)"
;
; 30 "AnxAmxDcs CLX -> AN-X Slot 1 Upd Time (*100us, Avg)"
; 32 "AnxAmxDcs CLX -> AN-X Slot 1 Upd Time (*100us, Min)"
; 34 "AnxAmxDcs CLX -> AN-X Slot 1 Upd Time (*100us, Max)"
;
; 40 "AnxAmxDcs CLX -> AN-X Slot 2 Upd Time (*100us, Avg)"
; 42 "AnxAmxDcs CLX -> AN-X Slot 2 Upd Time (*100us, Min)"
; 44 "AnxAmxDcs CLX -> AN-X Slot 2 Upd Time (*100us, Max)"
;
; 50 "AnxAmxDcs CLX -> AN-X Slot 15 Upd Time (*100us, Avg)"
; 52 "AnxAmxDcs CLX -> AN-X Slot 15 Upd Time (*100us, Min)"
; 54 "AnxAmxDcs CLX -> AN-X Slot 15 Upd Time (*100us, Max)"
;-----

```

## ControlLogix Aliases

AN-X uses the Ethernet/IP configuration to create aliases that can be imported into RSLogix 5000. Use these alias tags in your RSLogix 5000 program to access the data on the AN-X.

There are two sets of alias files, one for ‘Exclusive Owner’ connections and one for ‘Input Only’ connections.

In the web interface, select *Automation Network/Configuration View*.

Under the Ethernet/IP Configuration File, select *Logix Aliases*, either *Owner* or *Input Only*.

The screenshot shows a configuration page with a table of aliases and a navigation bar. The table lists various aliases and their configurations:

ClxSlot	1	DINT	DINT_1			
ClxInpMap	0	LoHi	ZeroBlk	1		; 1
ClxInpMap	Auto	LoHi	PbsOut	8	Pbs_8_Out	; 13
ClxOutMap	Auto	LoHi	PbsInpAct	8	Pbs_8_InpAct	; 13
ClxInpMap	Auto	LoHi	PbsOut	10	Pbs_10_Out	; 18

Below the table is a navigation bar with the following links: [Retrieve Current Configuration](#), [View Sample Configuration](#), [Logix Aliases Owner / Input Only](#)

## Importing Tags in RSLogix 5000

To import the tags into RSLogix 5000, you must be offline. Select *Tools/Import Tags* and import the file.

The screenshot shows the 'Controller Tags - AnxPbsTest(controller)' window. It displays a list of tags with columns for Name, Alias For, Base Tag, Data Type, and De. The tags listed are:

Name	Alias For	Base Tag	Data Type	De
WrtFltData			REAL[1000]	
WrtIntData			INT[1000]	
PbsGlbCtl	AnxPbsA:0:1.Data[0]	AnxPbsA:0:1.Data[0]	INT	
Pbs_58_Out_0	AnxPbsA:2:1.Data[1]	AnxPbsA:2:1.Data[1]	REAL	
Pbs_58_Out_1	AnxPbsA:2:1.Data[2]	AnxPbsA:2:1.Data[2]	REAL	
Pbs_58_Out_2	AnxPbsA:2:1.Data[3]	AnxPbsA:2:1.Data[3]	REAL	
Pbs_58_InpAct_0	AnxPbsA:2:0.Data[0]	AnxPbsA:2:0.Data[0]	REAL	
Pbs_58_InpAct_1	AnxPbsA:2:0.Data[1]	AnxPbsA:2:0.Data[1]	REAL	
Pbs_58_InpAct_2	AnxPbsA:2:0.Data[2]	AnxPbsA:2:0.Data[2]	REAL	
Pbs_60_Out_0	AnxPbsA:2:1.Data[4]	AnxPbsA:2:1.Data[4]	REAL	
Pbs_60_Out_1	AnxPbsA:2:1.Data[5]	AnxPbsA:2:1.Data[5]	REAL	
Pbs_60_Out_2	AnxPbsA:2:1.Data[6]	AnxPbsA:2:1.Data[6]	REAL	
Pbs_60_Out_3	AnxPbsA:2:1.Data[7]	AnxPbsA:2:1.Data[7]	REAL	

## Ethernet/IP Scheduled Connection Auto Config

Ethernet/IP Scheduled Connection Auto Config uses the I/O sizes in the current Profibus DP configuration to generate an Ethernet/IP Scheduled Connection Configuration File that maps all Profibus DP data to Scheduled Connections.

On the ‘Automation Network/Configuration’ page, select the ‘Ethernet/IP Auto Config’ button.

**Ethernet/IP Auto Config**

Ethernet/IP Auto Config uses the I/O sizes in the current Profibus DP configuration to generate an Ethernet/IP Configuration File that maps Profibus DP data to Scheduled Connections. Connections may be scheduled as INT or DINT. LoHi (Little Endian) or HiLo (Big Endian) may be selected. ControlLogix Aliases may be enabled per Node.

Clx Offset Format :  Auto  Numeric

Node	2	3	4	5	6	7	58	59	60	61	122	123	All	Act	Mon	None
Config	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
DINT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
HiLo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
Alias	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											

Generate Ethernet/IP Config

Choose which Profibus Nodes you want mapped to Scheduled connections.

For DINT or REAL connections, select the ‘DINT’ checkbox.

If the Profibus data is in Hi/Lo Byte format, select the ‘HiLo’ checkbox.

Select the ‘Alias’ checkbox to generate ControlLogix aliases for the corresponding Profibus Node.

Select the ‘Generate Ethernet/IP Config’ button.

**Ethernet/IP Auto Config**

HMI Configuration File:

```

-----
;
; QTS-AN-X-PBS-HMI Sample Ethernet/IP Scheduled Connection Configuration File
; Text after a semi-colon is a comment and is ignored
;
; ClxName AnxPbsHmi ; Name of module in CLX - defaults to AN-X Hostname
; ClxPrefix ANX_ ; prefix to all module tagnames - useful for unique aliases
; ; for multiple AN-X modules
;
;
ClxSlot 0 INT INT_0
ClxInpMap 0 LoHi GlbCtl PbsGlbCtl ; 2 0
ClxInpMap Auto LoHi PbsOut 2 Pbs_2_Out ; 122 2
ClxOutMap Auto LoHi PbsInpAct 2 Pbs_2_InpAct ; 122 0
ClxInpMap Auto LoHi PbsOut 4 Pbs_4_Out ; 6 124
ClxOutMap Auto LoHi PbsInpAct 4 Pbs_4_InpAct ; 6 122
ClxInpMap Auto LoHi PbsOut 6 Pbs_6_Out ; 16 130
ClxOutMap Auto LoHi PbsInpAct 6 Pbs_6_InpAct ; 18 128
ClxInpMap Auto LoHi PbsOut 3 Pbs_3_Out ; 2 146
ClxInpMap Auto LoHi PbsInpMon 3 Pbs_3_InpMon ; 2 148
ClxInpMap Auto LoHi PbsOut 5 Pbs_5_Out ; 12 150
ClxInpMap Auto LoHi PbsInpMon 5 Pbs_5_InpMon ; 12 162
ClxInpMap Auto LoHi PbsOut 7 Pbs_7_Out ; 22 174
ClxInpMap Auto LoHi PbsInpMon 7 Pbs_7_InpMon ; 22 196
;
ClxSlot 1 DINT DINT_1
;

```

Retrieve [Current Configuration](#) View [Sample Configuration](#) [Logix Aliases Owner](#) / [Input Only](#)

HMI Configuration Log:

```

10: ClxSlot 0 INT INT_0
ClxInpMap GlbCtl 1 0-> 0 LoHi PbsGlbCtl
ClxInpMap PbsOut 2 122 2->123 LoHi Pbs_2_Out
ClxOutMap PbsInpAct 2 122 0->121 LoHi Pbs_2_InpAct

```

## Configuration View

Select 'Automation Network/Configuration View' to view or retrieve the current Profibus DP and Ethernet/IP Scheduled Configuration Files and view their corresponding Configuration Logs.

**AN-X3-PBS-HMI Home**

- Automation Network
  - Configuration
  - Configuration View**
  - Configuration Sample
  - Monitor Profibus DP
  - Monitor Ethernet/IP
  - PLC-5 Mapping
  - Modbus TCP Mapping
- Log Files
- Administration
- Support

### Configuration View

Profibus DP Configuration File:

```

;-----
; QTS-AN-X-PBS Sample Profibus Configuration File
;
; Text after a semi-colon is a comment and is ignored
;
; MonTout <time> - Monitor Timeout in 10ms increments, default 100 (1 sec)
;
; BaudRate <baud> ; Profi Baud Rate - 12m 6m 3m 1m5 500k 187k5 93k75 19k2 9k6
;
; Slave <node> <mode> <inp_len> <out_len> <dev_id> ; Configure a Profi Slave
; ; <node> Profi Node - 1 - 125
; ; <mode> Active (AN-X sends inputs) or Monitor (AN-X monitors inputs)
; ; <inp_len> Input Length in bytes
; ; <out_len> Output Length in bytes
; ; <dev_id> Profibus Device ID
;
BaudRate 12m ; 12m 6m 3m 1m5 500k 187k5 93k75 19k2 9k6
;
; Node Mode ILen OLen DeviceID
Slave 2 Active 244 244 0x08a5
Slave 3 Monitor 1 1 0x08a5
Slave 4 Active 11 10 0x08a5
Slave 5 Monitor 22 21 0x08a5
Slave 6 Active 33 32 0x08a5
Slave 7 Monitor 44 43 0x08a5
;
Slave 8 Active 52 51 0x08a5
Slave 9 Monitor 60 60 0x08a5
Slave 10 Active 70 70 0x08a5
;

```

[Retrieve Current Profibus DP Configuration](#)

Profibus DP Configuration Log:

```

;QTS AN-X3-PBS Profibus Configuration Utility
;Ver 4.1.1
;
Stopping UDP...
Stopping Profibus...
Clearing Profibus Memory (00100000)...
Reading Profibus Configuration File
;
Slave 2 Active Inp 244 80000-800f3 Out 244 c0000-c00f3
Slave 4 Active Inp 10 800f8-80101 Out 11 c00f4-c00fe
Slave 6 Active Inp 32 8011c-8013b Out 33 c0100-c0120
Slave 8 Active Inp 51 80168-8019a Out 52 c0124-c0157
Slave 10 Active Inp 70 801d8-8021d Out 70 c0158-c019d
;

```

**AN-X3-PBS-HMI Home**

- Automation Network
  - Configuration
  - Configuration View**
  - Configuration Sample
  - Monitor Profibus DP
  - Monitor Ethernet/IP
  - PLC-5 Mapping
  - Modbus TCP Mapping
- Log Files
- Administration
- Support

### Ethernet HMI Configuration File:

```

;-----
; QTS-AN-X-PBS-HMI Sample Ethernet/IP Scheduled Connection Configuration File
;
; Text after a semi-colon is a comment and is ignored
;
; ClxName AnxPbsHmi ; Name of module in CLX - defaults to AN-X Hostname
; ClxPrefix ANX_ ; prefix to all module tagnames - useful for unique aliases
; ; for multiple AN-X modules
;
; <> are required parameters, [] are optional
;
; ClxSlot <n> <type> <name> ; Start mappings for a Scheduled Connection
; ; <n> Slot number - 0-14
; ; <type> INT or DINT - DINT is used for REAL
; ; <name> Name shown on 'Monitor Ethernet/IP page
;
;
; ClxInpMap <ofs> <order> <area> <alias> ; Map CLX Input
; ClxOutMap <ofs> <order> <area> <alias> ; Map CLX Output
; ; <ofs> ; INT or DINT offset in CLX Data[]
; ; <order> ; Profibus Byte Order - LoHi or HiLo
; ; <area> ; Area to Map
; ; ; ClxOutMap
; ; ; PbsInpAct <node> - Map CLX Out to Profi Active Inp
; ; ; ClxInpMap
; ; ; PbsOut <node> - Map CLX Inp to Profi Out
; ; ; PbsInpMon <node> - Map CLX Inp to Profi Monitor Inp
; ; ; GIBcT1 ; - Map CLX Inp to Profi Global Control
; ; ; ZeroBlk <len> - Zero CLX Inp <len> INTs or DINTs
; ; ; [alias] ; Generate CLX Alias with this name - Must be unique
;
;

```

[Retrieve Current Configuration](#)
[View Sample Configuration](#)
[Logix Aliases](#)
[Owner](#) / [Input Only](#)

Ethernet HMI Configuration Log:

```

33: ClxSlot 0 INT INT_0
ClxInpMap GIBcT1
ClxInpMap PbsOut 2 122 2->123 LoHi
ClxOutMap PbsInpAct 2 122 0->121 LoHi
ClxInpMap PbsOut 4 6 124->129 LoHi
ClxOutMap PbsInpAct 4 6 122->127 LoHi
ClxInpMap PbsOut 6 16 130->145 LoHi
ClxOutMap PbsInpAct 6 18 128->145 LoHi
ClxInpMap PbsOut 3 2 146->147 LoHi
ClxInpMap PbsInpMon 3 2 148->149 LoHi
ClxInpMap PbsOut 5 12 150->161 LoHi
ClxInpMap PbsInpMon 5 12 162->173 LoHi
ClxInpMap PbsOut 7 22 174->195 LoHi
ClxInpMap PbsInpMon 7 22 196->217 LoHi
48: ClxSlot 1 DINT DINT_1
ClxInpMap ZeroBlk
ClxInpMap PbsOut 8 13 1-> 13 LoHi Pbs_8_Out
;

```

## Configuration Sample

Select 'Automation Network/Configuration Sample' to view and retrieve Sample Profibus DP and Ethernet/IP Scheduled Connection Configuration Files.

The screenshot displays the AN-X3-PBS-HMI Configuration Sample interface. On the left is a navigation menu with the following items:

- AN-X3-PBS-HMI Home
- Automation Network
  - Configuration
  - Configuration View
  - Configuration Sample
  - Monitor Profibus DP
  - Monitor Ethernet/IP
  - PLC-5 Mapping
  - Modbus TCP Mapping
- Log Files
- Administration
- Support

The main content area is titled "Configuration Sample" and contains two sections:

**Sample Profibus DP Configuration File:**

```

-----
;
; QTS-AN-X-PBS Sample Profibus Configuration File
;
; Text after a semi-colon is a comment and is ignored
;
; MonTout <tme> - Monitor Timeout in 10ms increments, default 100 (1 sec)
;
; BaudRate <baud> ; Profi Baud Rate - 12m 6m 3m 1m5 500k 187k5 93k75 19k2 9k6
;
; Slave <node> <mode> <inp_len> <out_len> <dev_id> ; Configure a Profi Slave
;
;   <node> Profi Node - 1 - 125
;   <mode> Active (AN-X sends inputs) or Monitor (AN-X monitors inputs)
;   <inp_len> Input Length in bytes
;   <out_len> Output Length in bytes
;   <dev_id> Profibus Device ID
;
-----
BaudRate 12m ; 12m 6m 3m 1m5 500k 187k5 93k75 19k2 9k6

; Node Mode ILen OLen DeviceID
Slave 2 Active 244 244 0x08a5
Slave 3 Monitor 1 1 0x08a5
Slave 4 Active 11 10 0x08a5
Slave 5 Monitor 22 21 0x08a5
Slave 6 Active 33 32 0x08a5
Slave 7 Monitor 44 43 0x08a5

Slave 8 Active 52 51 0x08a5
Slave 9 Monitor 60 60 0x08a5
Slave 10 Active 70 70 0x08a5

```

Below the configuration file is a button: [Retrieve Sample Profibus DP Configuration](#)

**Sample HMI Ethernet/IP Scheduled Connection Configuration File:**

```

-----
;
; QTS-AN-X-PBS-HMI Sample Ethernet/IP Scheduled Connection Configuration File
;
; Text after a semi-colon is a comment and is ignored
;
; ClxName AnxPbsHmi ; Name of module in CLX - defaults to AN-X Hostname
; ClxPrefix ANX_ ; prefix to all module tagnames - useful for unique aliases
; ; for multiple AN-X modules
;
; <> are required parameters, [] are optional
;
; ClxSlot <n> <type> <name> ; Start mappings for a Scheduled Connection
; ; <n> Slot number - 0-14
; ; <type> INT or DINT - DINT is used for REAL
; ; <name> Name shown on 'Monitor Ethernet/IP page
;
;
; ClxInpMap <ofs> <order> <area> <alias> ; Map CLX Input
; ClxOutMap <ofs> <order> <area> <alias> ; Map CLX Output
; ; <ofs> ; INT or DINT offset in CLX Data[]
; ; <order> ; Profibus Byte Order - LoHi or HiLo
; ; <area> ; Area to Map

```

The format and layout of the configuration files are documented in these sample files (see page 19 and page 23).

# Monitor

## Monitor Profibus DP

To monitor Profibus Diagnostic Counters, Active Node List and Profibus DP I/O data, select 'Automation Network/Monitor Profibus DP'.

### Monitor Profibus DP

[Clear Diagnostics](#)  
 [Refresh](#)  
  Auto Refresh  
  Hex  
  Lo-Hi  
  8-Bit  
  16-Bit  
  32-Bit

Profibus Diagnostics							
TX Good	47549	RX Good	11119	Global Control		RUN	
Errors							
Stop Bit	0	Parity Bit	0	Start Delim	0	Repeat	0
Under-run	0	Check Sum	0	End Delim	0	Over-run	0
Dup Frame	0	Tns Over-run	0	Long Frames	0	Long Node	0

2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																	
22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
122	123	124	125	All	Act	Good	None												
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												

Node 3	Monitor	Good	OLen	ILen
Out	0	1	2	3
0	0000			
Inp	0	1	2	3
0	0000			
Node 4	Active	Good	OLen	ILen
Out	0	1	2	3
0	8400	8401	8402	8403
Inp	0	1	2	3
0	8400	8401	8402	8403
Node 5	Monitor	Good	OLen	ILen
Out	0	1	2	3
0	8500	8501	8502	8503
10	000a			
Inp	0	1	2	3
0	0000	0000	0000	0000
10	0000			

Standard Profibus Diagnostic Counters are shown as well as some specific to the AN-X.

If Error Counters are incrementing, this may indicate wiring, grounding or electrical noise problems.

A list of Active DP Slave Nodes is shown as well as check boxes to select DP Slave Nodes to monitor.

Data from any or all Active or Monitored Profibus DP slaves may be displayed.

The Mode (Active or Monitor) and State (Good or Timeout) is also shown for displayed Nodes.

Data can be displayed in Hexadecimal or Signed Integer.

Data display size can be 8, 16 or 32 bit.

For 16 and 32 bit, byte ordering can be low to high (Lo-Hi, Little Endian) or high to low (Big Endian).

## Monitor Ethernet/IP

To monitor Ethernet/IP Scheduled Connections, select '*Automation Network/Monitor Ethernet/IP*'.

TxFrms	TxBusy	RxFrms	RxBusy	EthErrs	ErrType	PrtErrs	PrtType	PrtCon#	pid
31581	0%	31461	0%	0	00	12	SeqMsm	15	879

Con	Name	State	RPI	Rx Avg	Rx Min	Rx Max	Rx Tout
0	INT_0	Act/Prg	50.0	50.2	49.8	999.9	200.0
1	DINT_1	Active	50.0	50.2	49.8	999.9	200.0
2	REAL_2	Active	50.0	50.1	49.8	999.9	200.0
15	Diag	Active	750.0	750.1	18.9	750.6	3000.0

### Ethernet/IP UDP Statistics

The Ethernet/IP Statistics consist of two portions:

- Global counters
- Statistics for each connection

The Global Counters consist of:

Counter	Description
TxFrms	Count of transmitted frames
TxBusy	Percentage of time the transmitter is not idle
RxFrms	Count of received frames
RxBusy	Percentage of time the receiver is not idle
EthErrs	Count of Ethernet errors
EthType	Type of last error
PrtErrs	Count of Ethernet protocol errors
PrtType	Type of last protocol error
PrtCon#	Connection number of last protocol error

The global counters cannot be cleared.

The Connection Statistics consist of:

Counter	Description
Connection number	0 to 15
Name	Name of Connection
State	Active or Idle
RPI	Requested Packet Interval
Rx Avg	The average of the last 32 update times, in ms.
Rx Min	The minimum update time since the last counter

---

Counter	Description
	reset, in ms.
Rx Max	The maximum update time since the last counter reset, in ms
Rx Tout	The receive timeout, calculated from the RPI

## PLC-5 Mappings

The AN-X3-PB-HMI maps all Profibus DP I/O data to PLC-5 N and F files.

Outputs are mapped first, then Monitored Inputs, from N10 to N16 and F50 to F56, as many files as are needed.

These files are typically Read-Only.

Active Inputs are mapped from N17 to N19 and F57 to F59 as needed.

These files are Read/Write.

If the Profibus I/O data is INTs, use the N files. If FLOAT, use the F files.

## Byte Order

Accessing N10 to N19 uses Lo/Hi byte order for Profibus DP I/O data.

Accessing N20 to N29 uses Hi/Lo byte order for Profibus DP I/O data.

Accessing F50 to F59 uses Lo/Hi byte order for Profibus DP I/O data.

Accessing F60 to F69 uses Hi/Lo byte order for Profibus DP I/O data.

### **IMPORTANT!**

Adding or removing Profibus Nodes changes PLC-5 File mapping.

### **IMPORTANT!**

Profibus Active Inputs can be overwritten by Scheduled Data or Modbus TCP Register write.

## Profibus Global Control

The Profibus Global Control value is mapped to N8:0.

This is used to determine whether the Profibus Master is in Run or Stop mode.

7	6	5	4	3	2	1	0	Profibus Global Control
0	0						0	Reserved
					x			Clear Data, 1=Stop 0=Run
				x				UNFREEZE
			x					FREEZE
				x				UNSYNC
						x		SYNC

## Profibus Diagnostic Counters and Good Node List

The AN-X Profibus Diagnostic Counters are mapped to N9 as follows:

```

; Profi Diagnostics   N9:0-15
; Profi Tx Frames           N9:0
; Profi Rx Frames Good     N9:1
; Profi Rx Lo=StpErrs Hi=ParErrs   N9:2
; Profi Rx Lo=SD_Errs Hi=RptErrs   N9:3
; Profi Rx Lo=UndErrs Hi=FcsErrs   N9:4
; Profi Rx Lo=ED_Errs Hi=OvrErrs   N9:5
; Profi Rx Lo=LngErrs Hi=LngNode   N9:6
; Profi Rx Lo=DupFrm Hi=TnsOvr     N9:7

; Profi Good Node List   0- 15     N9:8
; Profi Good Node List  16- 31     N9:9
; Profi Good Node List  32- 47     N9:10
; Profi Good Node List  48- 63     N9:11

```

```

; Profi Good Node List 64- 79      N9:12
; Profi Good Node List 80- 95      N9:13
; Profi Good Node List 96-111     N9:14
; Profi Good Node List 112-125    N9:15

```

## Modbus TCP Mappings

The AN-X3-PB-HMI maps all Profibus DP I/O data to Modbus TCP Registers.

Outputs are mapped first, then Monitored Inputs, to Modbus Input Registers from 300001 to 310000 as needed.

Active Inputs are mapped to Modbus Holding Registers 400000 to 410000 as needed.

## Byte Order

Accessing 300001 to 310000 or 400001 to 410000 uses Lo/Hi byte order for Profibus DP I/O data.

Accessing 310001 to 320000 or 410001 to 420000 uses Hi/Lo byte order for Profibus DP I/O data.

Accessing 320001 to 330000 or 420001 to 430000 uses Lo/Hi byte order, swapped words for Profibus DP I/O data.

Accessing 330001 to 340000 or 430001 to 440000 uses Hi/Lo byte order, swapped words for Profibus DP I/O data.

### **IMPORTANT!**

Adding or removing Profibus Nodes changes Modbus TCP Register Mapping.

### **IMPORTANT!**

Profibus Active Inputs can be overwritten by Scheduled Data or PLC-5 File write.

## Profibus Global Control

The Profibus Global Control value is mapped to 340001.

This is used to determine whether the Profibus Master is in Run or Stop mode.

```

7 6 5 4 3 2 1 0 Profibus Global Control
0 0           0 Reserved
           x Clear Data, 1=Stop 0=Run
           x UNFREEZE
           x FREEZE
           x UNSYNC
           x SYNC

```

## Profibus Diagnostic Counters and Good Node List

The AN-X Profibus Diagnostic Counters are mapped as follows:

```

; Profi Diagnostics          340201-340216
; Profi Tx Frames            340201
; Profi Rx Frames Good       340202
; Profi Rx Lo=StpErrs Hi=ParErrs 340203
; Profi Rx Lo=SD_Errs Hi=RptErrs 340204
; Profi Rx Lo=UndErrs Hi=FcsErrs 340205
; Profi Rx Lo=ED_Errs Hi=OvrErrs 340206
; Profi Rx Lo=LngErrs Hi=LngNode 340207
; Profi Rx Lo=DupFrm Hi=TnsOvr  340208

```

; Profi Good Node List	0- 15	340209
; Profi Good Node List	16- 31	340210
; Profi Good Node List	32- 47	340211
; Profi Good Node List	48- 63	340212
; Profi Good Node List	64- 79	340213
; Profi Good Node List	80- 95	340214
; Profi Good Node List	96-111	340215
; Profi Good Node List	112-125	340216

# Log Files

## Profibus DP Log

The Profibus DP log shows events related to Parameter and Config frames from the Master during Slave initialization.

The Log is contained in two files that are rotated when they become full.

**AN-X3-PBS-HMI Home**
**Profibus DP Log**

▼ Automation Network
The Profibus DP log shows events related to Parameter and Config frames from the Master during Slave initialization.

▼ Log Files
The Log is contained in two files that are rotated when they become full.

Profibus DP Log
The 'Previous Profibus DP Log' will only exist when the 'Current Profibus DP Log' is full.

Ethernet/IP Log

Modbus TCP Log

System Info Log

View All Logs

▼ Administration

▼ Support

Current Profibus DP Log
 Previous Profibus DP Log
[Refresh Log](#)
 Auto Refresh

00:23.049 774 :t12 h1a Dst= 8 Src= 1 DSAP=61 Param RxTout=10.00 MinTsd=11 SlvID=6706
00:23.050 479 :t13 h1a Dst= 8 Src= 1 DSAP=62 Config OutLen= 1 Bytes Inplen= 0 Bytes
00:23.051 115 :t14 h1a Dst= 10 Src= 1 DSAP=61 Param RxTout=10.00 MinTsd=11 SlvID=6708
00:23.051 782 :t15 h1a Dst= 10 Src= 1 DSAP=62 Config OutLen= 1 Bytes Inplen= 0 Bytes
00:23.052 419 :t16 h1a Dst=122 Src= 1 DSAP=61 Param RxTout=10.00 MinTsd=11 SlvID=6760
00:23.053 124 :t17 h1a Dst=122 Src= 1 DSAP=62 Config OutLen= 1 Bytes Inplen= 0 Bytes
00:23.053 920 :t18 h1a Dst= 4 Src= 1 DSAP=61 Param RxTout=10.00 MinTsd=11 SlvID=6702
00:23.054 645 :t19 h1a Dst= 4 Src= 1 DSAP=62 Config OutLen= 1 Bytes Inplen= 0 Bytes
12:11.050 810 :t00 h01 Dst= 58 Src= 1 DSAP=61 Param RxTout=10.00 MinTsd=11 SlvID=6756
12:11.058 099 :t01 h02 Dst= 58 Src= 1 DSAP=62 Config OutLen= 1 Bytes Inplen= 0 Bytes
12:11.084 216 :t02 h03 Dst= 60 Src= 1 DSAP=61 Param RxTout=10.00 MinTsd=11 SlvID=6758
12:11.090 744 :t03 h04 Dst= 60 Src= 1 DSAP=62 Config OutLen= 1 Bytes Inplen= 0 Bytes
12:11.127 810 :t04 h06 Dst=122 Src= 1 DSAP=61 Param RxTout=10.00 MinTsd=11 SlvID=6760
12:11.128 649 :t05 h06 Dst=122 Src= 1 DSAP=62 Config OutLen= 1 Bytes Inplen= 0 Bytes
12:11.179 196 :t06 h08 Dst= 2 Src= 1 DSAP=61 Param RxTout=10.00 MinTsd=11 SlvID=6700
12:11.179 984 :t07 h08 Dst= 2 Src= 1 DSAP=62 Config OutLen= 1 Bytes Inplen= 1 Bytes
12:11.200 253 :t08 h0a Dst= 4 Src= 1 DSAP=61 Param RxTout=10.00 MinTsd=11 SlvID=6702
12:11.201 085 :t09 h0a Dst= 4 Src= 1 DSAP=62 Config OutLen= 1 Bytes Inplen= 0 Bytes
12:11.213 102 :t0a h0b Dst= 6 Src= 1 DSAP=61 Param RxTout=10.00 MinTsd=11 SlvID=6704
12:11.252 788 :t0b h0e Dst= 6 Src= 1 DSAP=62 Config OutLen= 1 Bytes Inplen= 0 Bytes
12:11.253 488 :t0c h0e Dst= 8 Src= 1 DSAP=61 Param RxTout=10.00 MinTsd=11 SlvID=6706
12:11.254 410 :t0d h0e Dst= 8 Src= 1 DSAP=62 Config OutLen= 1 Bytes Inplen= 0 Bytes
12:11.524 113 :t0e h14 Dst= 10 Src= 1 DSAP=61 Param RxTout=10.00 MinTsd=11 SlvID=6708
12:11.524 890 :t0f h14 Dst= 10 Src= 1 DSAP=62 Config OutLen= 1 Bytes Inplen= 0 Bytes
12:11.525 542 :t10 h14 Dst= 2 Src= 1 DSAP=61 Param RxTout=10.00 MinTsd=11 SlvID=6700
12:11.526 254 :t11 h14 Dst= 2 Src= 1 DSAP=62 Config OutLen= 1 Bytes Inplen= 1 Bytes
12:11.526 864 :t12 h14 Dst= 4 Src= 1 DSAP=61 Param RxTout=10.00 MinTsd=11 SlvID=6702
12:11.527 573 :t13 h14 Dst= 4 Src= 1 DSAP=62 Config OutLen= 1 Bytes Inplen= 0 Bytes
12:11.534 110 :t14 h15 Dst= 6 Src= 1 DSAP=61 Param RxTout=10.00 MinTsd=11 SlvID=6704
12:11.544 276 :t15 h16 Dst= 6 Src= 1 DSAP=62 Config OutLen= 1 Bytes Inplen= 0 Bytes
12:11.574 378 :t16 h17 Dst= 8 Src= 1 DSAP=61 Param RxTout=10.00 MinTsd=11 SlvID=6706
12:11.584 693 :t17 h18 Dst= 8 Src= 1 DSAP=62 Config OutLen= 1 Bytes Inplen= 0 Bytes
12:11.608 572 :t18 h19 Dst= 10 Src= 1 DSAP=61 Param RxTout=10.00 MinTsd=11 SlvID=6708
12:11.616 278 :t19 h1a Dst= 10 Src= 1 DSAP=62 Config OutLen= 1 Bytes Inplen= 0 Bytes

## Ethernet/IP Log

The Ethernet/IP log shows messages and errors associated with Ethernet/IP communication, both scheduled and unscheduled.

**AN-X3-PBS-HMI Home**

▼ **Automation Network**

▼ **Log Files**

Profibus DP Log

**Ethernet/IP Log**

Modbus TCP Log

System Info Log

[View All Logs](#)

▼ **Administration**

▼ **Support**

### Ethernet/IP Log

This page shows the log files produced by the Ethernet/IP function of this AN-X gateway. The Ethernet/IP log is contained in two files that are rotated when they become full. The 'Previous Enet Log' will only exist when the 'Current Enet Log' is full.

Current Enet Log
  Previous Enet Log
 [Refresh Log](#)
 Auto Refresh

```

14:17.019 236 :Inf [10.10.0.84 e00 c02 s01] SCHED ExcOwn Removed Count is now 0
14:17.019 609 :bus_StopSchdCon Slot 1
14:17.019 940 :NOT All Required CLX Connections Open: 0 1 2
14:17.020 649 :Inf [10.10.0.84 e00 c01 s02] SCHED ExcOwn Removed Count is now 0
14:17.021 060 :bus_StopSchdCon Slot 2
14:17.021 402 :NOT All Required CLX Connections Open: 0 1 2
14:17.022 112 :Inf [10.10.0.84 e00 c00 s15] SCHED ExcOwn Removed Count is now 0
14:17.022 490 :bus_StopSchdCon Slot 15
14:17.022 821 :NOT All Required CLX Connections Open: 0 1 2
14:17.025 055 :SIGHUP - Reloading Configuration
14:17.301 879 :Required CLX Connections: 0 1 2
14:17.468 098 :Profibus Multi-Slave HMI Ethernet/IP Configured Successfully
14:17.468 450 :NOT All Required CLX Connections Open: 0 1 2
14:17.469 404 :ERR [10.10.0.84 e00 ] CIP FwdCls ConSerNum=0001 Connection Not Found
14:17.470 661 :ERR [10.10.0.84 e00 ] CIP FwdCls ConSerNum=0002 Connection Not Found
14:17.472 208 :ERR [10.10.0.84 e00 ] CIP FwdCls ConSerNum=0003 Connection Not Found
14:19.684 427 :ERR [10.10.0.84 e00 ] CIP FwdCls ConSerNum=0004 Connection Not Found
14:19.706 250 :Inf [10.10.0.84 e00 ] CIP FwdOpnNULL
14:20.603 458 :Inf [10.10.0.84 e00 c00 s00] CIP FwdOpnSchd ConSerNum=0001 Tout=200000 0->TLen=502 T->OL
14:20.604 313 :NOT All Required CLX Connections Open: 0 1 2
14:20.604 998 :Inf [10.10.0.84 e00 c00 s00] SCHED ExcOwn Added Count is now 1
14:20.605 432 :NOT All Required CLX Connections Open: 0 1 2
14:20.606 696 :Inf [10.10.0.84 e00 c01 s01] CIP FwdOpnSchd ConSerNum=0002 Tout=200000 0->TLen=502 T->OL
14:20.607 352 :NOT All Required CLX Connections Open: 0 1 2
14:20.608 421 :Inf [10.10.0.84 e00 c01 s01] SCHED ExcOwn Added Count is now 1
14:20.608 809 :NOT All Required CLX Connections Open: 0 1 2
14:20.610 119 :Inf [10.10.0.84 e00 c02 s02] CIP FwdOpnSchd ConSerNum=0003 Tout=200000 0->TLen=502 T->OL
14:20.610 731 :All Required CLX Connections Open: 0 1 2
14:20.611 460 :Inf [10.10.0.84 e00 c02 s02] SCHED ExcOwn Added Count is now 1
14:20.611 840 :All Required CLX Connections Open: 0 1 2
14:22.834 706 :Inf [10.10.0.84 e00 c03 s15] CIP FwdOpnSchd ConSerNum=0004 Tout=3000000 0->TLen=10 T->OL
14:22.835 406 :All Required CLX Connections Open: 0 1 2
14:22.836 133 :Inf [10.10.0.84 e00 c03 s15] SCHED ExcOwn Added Count is now 1
14:22.836 523 :All Required CLX Connections Open: 0 1 2
  
```

This may be useful for troubleshooting Scheduled Connection issues and PLC-5 file access issues.

## Modbus TCP Log

The Modbus TCP log shows messages and errors associated with Modbus TCP communication.

**AN-X3-PBS-HMI Home**

- Automation Network
  - Log Files
    - Profibus DP Log
    - Ethernet/IP Log
    - Modbus TCP Log**
    - System Info Log
    - View All Logs
  - Administration
  - Support

**Modbus TCP Log**

The Modbus TCP log shows events related to the Modbus TCP Server. The Log is contained in two files that are rotated when they become full. The 'Previous Modbus TCP Log' will only exist when the 'Current Modbus TCP Log' is full.

Current Modbus TCP Log
  Previous Modbus TCP Log
 [Refresh Log](#)
 Auto Refresh

```

00:00.000 000 :INF AN-X-PBS-HMI Modbus TCP Server Version 4.1.1
00:00.000 000 :Inf AnxIp=10.10.2.132
00:00.000 000 :INF SigHup Reconfigure
  
```

This may be useful for troubleshooting Modbus TCP Register access issues.

## System Info Log

The *System Info Log* records informational messages during AN-X startup and normal operation. This is mostly used by technical support and does not contain information useful to the end user.

## View All Logs

Use *View All Logs* to list and view all the AN-X logs. To view a log file, click on the file name.

## Administration

The *Administration* menu contains items used to configure, control and update the AN-X.

### AN-X IP/FW Configuration

See page 14 for details on setting the IP address.

If other firmware images are available and on the microSD card, you can select this firmware with the ‘*Firmware Type*’ Drop Down box.

### AN-X Firmware Update

Use AN-X Firmware Update to transfer a firmware file to the microSD card on the AN X. Firmware files for the AN-X3 have names that begin with AN-X3 and have extension \*.qtf.

**TIP** The most recent firmware for the AN-X is available at [qtsusa.com/dist](http://qtsusa.com/dist)

**WARNING!** Do not update firmware in the AN-X while applications that use the AN-X are running.

**AN-X Firmware Update**

**Caution: this operation requires a restart of the AN-X module and disrupts communication. After clicking the Update Firmware button, do not move off the current web page until the firmware update is complete.**

Select a Firmware File to Upload

Choose File AN-X3-PBS-UDP.v4.1.3.qtf

Update Firmware

Browse to select the file, then click the ‘*Update Firmware*’ button to transfer the file.

**WARNING!** It is essential that you do not disrupt power while updating firmware, especially maintenance firmware, to the AN-X3 or while the AN-X3 is restarting following a firmware update.

Interrupting power at some points in the update process could render the AN-X inoperative and it will have to be returned to the factory for re-initialization.

AN-X displays progress and status information as the firmware is updated.

### AN-X Firmware Update

**Caution: this operation requires a restart of the AN-X module and disrupts communication. After clicking the Update Firmware button, do not move off the current web page until the firmware update is complete.**

Select a Firmware File to Upload

Choose File AN-X3-PBS-UDP.v4.1.3.qtf

Update Firmware

**Sending firmware file, please wait....13% complete**

### AN-X Firmware Update

**Caution: this operation requires a restart of the AN-X module and disrupts communication. After clicking the Update Firmware button, do not move off the current web page until the firmware update is complete.**

Select a Firmware File to Upload

Choose File AN-X3-PBS-UDP.v4.1.3.qtf

Update Firmware

**Firmware sent ... waiting for validation and copy processes to finish (about a minute)...**

When the update is complete, AN-X displays a message that indicates the success or failure of the update.

### AN-X Firmware Update

**Caution: this operation requires a restart of the AN-X module and disrupts communication. After clicking the Update Firmware button, do not move off the current web page until the firmware update is complete.**

Select a Firmware File to Upload

Choose File No file chosen

Update Firmware

Firmware update to AN-X3-PBS-UDP.v4.1.3.qtf was successful.

Click this **RESTART** link to restart the AN-X and run the new firmware version

## Manual Firmware Update

AN-X Firmware qtf files can be copied and updated on the microSD manually.

- Remove the microSD and insert it into your computer. You should see the current qtf file (AN-X3-PBS-HMI.v4.1.1.qtf for example).
- Delete or change the name of the current qtf file (zzAN-X3-PBS-HMI.v4.1.1.qtf for example). Renaming may be useful in case we need to revert back to the previous version.
- Copy the new qtf file to the microSD.
- Remove the microSD from your computer and insert it back into the AN-X. Be careful not to insert it above the connector (see page 8).

**TIP** The most recent firmware for the AN-X is available at [qtsusa.com/dist](http://qtsusa.com/dist)

**IMPORTANT!** Make sure there is only one qtf filename that starts with the ‘*Firmware Type:*’ specified. If not, the AN-X may use the wrong one.

## Diagnostic Capture

Use ‘*Administration/AN-X Diagnostic Capture*’ to create an archive tar file that contains the current AN-X configuration and logs for use by technical support. There may be a slight delay while AN-X builds the archive file.

### AN-X Diagnostic Capture

#### Instructions:

Use the link provided below to retrieve the newly created diagnostic capture file. This file contains all the current configuration information, logs etc.

The archive file is a standard tar file.

This file contains the current configuration, logs and other diagnostic information which is useful for troubleshooting by technical support staff.

#### Archive File

Click the Archive File link.

Select the destination where the file will be stored and save the file.

## AN-X Module RESTART

Use the '*AN-X Module RESTART*' page to restart the AN-X module.

### AN-X Module Restart

To restart the AN-X module hit the 'Restart Now' link.

[Restart Now](#)

**Warning: Hitting the 'Restart Now' link will cause the AN-X module to restart. All communication with Ethernet and automation networks will be disrupted.**

## Support Menu

### Contact Information

The Support contains contact information and links if you need help with the AN-X.

## Troubleshooting

### LEDs

The AN-X3-PB has LEDs that indicate the state of the Ethernet connection, the overall module state and the connection to the Profibus network.

### Ethernet LEDs

There are two LEDs that indicate the state of the Ethernet connection.

The upper, yellow LED, labeled 100, is on if the link is running at 100 Mbits/second and is off otherwise.

The lower green Link/Act LED is off if the link is inactive and is on if the link is active. If activity is detected, the link blinks at 300 ms intervals and continues blinking as long as activity is present.

If the AN-X3 is not connected to Ethernet, the 10/100 LED is on.

### SYS LED

The SYS is used by the AN-X operating system and software to indicate the state of operations and errors. Errors or status indication in boot mode cause the LED to flash yellow. Otherwise, the LED flashes red.

The SYS should be used in conjunction with the logs to locate the cause of problems.

In the following, Red 3 means three red flashes followed by a pause, and so on.

### Powerup/Reboot

SYS LED	Meaning
Red 3	DHCP configuration failed
Yellow 2	microSD card not present
Yellow 3	AN-X3 Maintenance firmware file not found on microSD card
Yellow 4	config.txt file not found on microSD card or error parsing file
Yellow 5	Production firmware filename was not specified in config.txt
Yellow 6	AN-X3 production firmware file not found on microSD card
Yellow 7	Production firmware file invalid or error programming to flash
Yellow 8	Daughterboard mismatch
Yellow 9	Error processing option file or file not found
Yellow 10	Option file mismatch

## ‘Railroading’ – SYS and NET LEDs

AN-X3 alternates (railroads) flashing the SYS and NET LEDs to indicate its state.

It railroads the LEDs red while it is copying new maintenance firmware files from the microSD card to flash memory. **\* Make sure power is not removed while railroading red.**

It railroads the LEDs yellow while it is copying new production firmware files from the microSD card to flash memory.

It railroads the LEDs green for 15 to 20 seconds as it starts normal production mode.

## SYS and NET LEDs: Runtime

### SYS – AN-X Status

The SYS is used by the AN-X operating system and software to indicate the state of configuration and Ethernet communication.

SYS LED	Meaning
Flashing green/off	One or more configured Scheduled Connection is not active
Flashing green/red	Unscheduled messaging, addressing or connection problem
Flashing red/off	Configuration file problem

The SYS should be used in conjunction with the logs to locate the cause of problems.

### NET LED – Network Status

The NET LED indicates the status of the Profibus DP Network.

NET LED	Meaning
Red	One or more Active or Monitored DP Slaves has not been updated from the Profibus DP master within the Timeout period
Green	All Active and Monitored DP Slaves are being updated successfully

## Specifications

Parameter	Specification
Function	Gateway between Ethernet and Profibus
Maximum Power Consumption	160 mA at 12 VDC, 80 mA at 24 VDC
Maximum Power Dissipation	2 Watts
Operational Temperature	0-50°C (32-122°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Relative Humidity	5-85% without condensation

# Support

## How to Contact Us: Sales and Support

Sales and Technical Support for this product are provided by ProSoft Technology. Contact our worldwide Sales or Technical Support teams directly by phone or email:

### Asia Pacific

Languages Spoken: Chinese, English

+60.3.2247.1898

[support.ap@prosoft-technology.com](mailto:support.ap@prosoft-technology.com)

### Europe – Middle East – Africa

Languages Spoken: French, English

+33.5.34.36.87.20

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### North America

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[support@prosoft-technology.com](mailto:support@prosoft-technology.com)

### Latin America (Brasil)

Languages Spoken: Portuguese, English

+ 55.11.5084.5178

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### Latin America ( Spanish Speaking Countries)

Languages Spoken: Spanish, English

+52.222.264.1814

[support.la@prosoft-technology.com](mailto:support.la@prosoft-technology.com)

## **Warranty**

Quest Technical Solutions warrants its products to be free from defects in workmanship or material under normal use and service for three years after the date of shipment. Quest Technical Solutions will repair or replace without charge any equipment found to be defective during the warranty period. Final determination of the nature and responsibility for defective or damaged equipment will be made by Quest Technical Solutions personnel.

All warranties hereunder are contingent upon proper use in the application for which the product was intended and do not cover products that have been modified or repaired without Quest Technical Solutions approval or that have been subjected to accident, improper maintenance, installation or application, or on which original identification marks have been removed or altered. This Limited Warranty also will not apply to interconnecting cables or wires, consumables nor to any damage resulting from battery leakage.

In all cases, Quest Technical Solutions' responsibility and liability under this warranty shall be limited to the cost of the equipment. The purchaser must obtain shipping instructions for the prepaid return of any item under this Warranty provision and compliance with such instructions shall be a condition of this warranty.

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## ***Revisions***

Version	Date	Changes
1.1	Apr 16/25	Initial Release