Tritex II
PROFINET IO - Option

Contents

The following information describes the operation of PROFINET IO as it relates to Tritex II with PROFINET IO interface.

The Tritex II PROFINET IO option board supports the following features:

- Device IP Address assignment through DCP (Discovery and Configuration Protocol) or through Tritex Expert Software
- Drive commissioning through std RS485 communication to Tritex Expert Software
- PROFINET IO device capable of I/O Messaging
- Up to 100 input registers(INT16) and 100 output registers(INT16) are available to be user Mapped to Tritex (Server) parameters through the Tritex Expert Software
- Full functional control of Tritex parameters

1.   General

PROFINET is the Ethernet based automation standard of PROFIBUS International. It is based on Industrial Ethernet and uses TCP/IP and IT standards for automation in real-time.

PROFINET IO is used to connect distributed IO between a master and devices in real-time and isochronous real-time with the functionality of PROFIBUS. PROFINET IO field devices are always connected via switches as network components. This takes the form of star topography with separate multiport switches or a line topography with switches integrated into the field device.

1.1.   IP Address

An IP address is a 32-bit number that uniquely identifies a host (computer or other device, such as a printer or I/O block) on a TCP/IP network. It is divided into four octets (8-bit sections), each octet being in the range 0...255. Each octet is separated by a decimal point and this type of format is commonly called 'dotted decimal notation' (e.g. 201.103.61.121).

An IP address consists of two parts, one identifying the network and one identifying the node, or host. The Class of the address determines which part belongs to the network address and which part belongs to the node address. All nodes on a given network share the same network prefix but must have a unique host number.

1.2. Network Classes

These IP addresses are divided into classes. The most common and support by the Tritex are classes A, B, and C. Classes D and E exist, but are not generally used by end users. Each of the address classes has a different default subnet mask. You can identify the class of an IP address by looking at its first octet.

Class	Address Range	Default Subnet Mask
A	001.000.000.000 to 126.255.255.255	255.000.000.000
B	128.000.000.000 to 191.255.255.255	255.255.000.000
C	192.000.000.000 to 223.255.255.255	255.255.255.000
D	224.000.000.000 to 239.255.255.255	
E	240.000.000.000 to 254.255.255.254	

Figure 1 – Network Classes Table

Class A - This class is an IP Addresses has a value in the range 1...126 as the first octet. The values 0 and 127 are not available because they have special uses. Class A addresses use the first octet to identify the network which means that 126 addresses are usable, each of which can support 16,777,216 computers (hosts). An example of a Class A IP address is 102.168.212.226, where "102" identifies the network and "168.212.226" identifies the host on that network.

Class B - This class is an IP Addresses has a value in the range 128...191 as the first octet. Class B addresses uses the first two octets to identify the network which means that 16,320 addresses are usable, each of which can support 65,536 computers (hosts). An example of a Class B IP Address 168.212.226.204 where "168.212" identifies the network and "226.204" identifies the host on that network.

Class C - Intended for networks that would have a small number of computers (hosts) attached. Class C IP Addresses have a value in the range 192...223 as the first octet. Class C addresses use the first three octets to identify the network which means that 2,080,800 addresses (networks) are possible, each of which can support 254 computers (hosts). An example of a Class C IP address is 200.168.212.226 where "200.168.212" identifies the network and "226" identifies the host on that network.

Class D - This is a class meant for multicasting only, for sending multicast messages to other groups of host machines.

Class E - This is a class meant for experimental purpose only.

Loopback- Addresses 127.0.0.0 to 127.255.255.255 are reserved for loopback, for internal testing on a local machine. 127.0.0.1 typically refers to your own local machine, you can test this - you should always be able to ping 127.0.0.1, irrespective of connectivity to the network, as it represents your own machine. IP addresses in this range are never valid Internet addresses.

1.3.   Subnets

To allow routing within large networks a convention was introduced in the specification RFC 950. Part of the Internet address, the subscriber ID is divided up again into a subnet number and the station number of the node. With the aid of the network number it is possible to branch into internal subnet within the partial network, but the entire network is physically connected together. The size and position of the subnet ID are not defined; however, the size is dependent upon the number of subnets to be addressed and the number of subscribers per subnet.

1.4.   Subnet Mask

A subnet Mask is a 32-bit mask used to divide an IP address into subnets and specify the networks available hosts. In a subnet Mask, two bits are always automatically assigned. For example, in 255.255.225.0, "0" is the assigned network address; and in 255.255.255.255, "255" is the assigned broadcast address. The 0 and 255 are always assigned and cannot be used.

1.5.   Gateway

A Gateway is a device which is used to forward IP packets to a remote destination. Another name for a Gateway is a Router.

The definition of "remote" is a device that is not directly attached to the same network segment as the sending device.

Because the source device can't send the IP packet directly to the destination device, it must ask another device on the network to help. The device that helps it send to remote destinations is the gateway, attached to multiple networks.

The gateway, when it receives the packet to relay, determines the next closest hop on the path towards the ultimate destination, and relays the IP packet to that next hop. This next hop could either be the ultimate destination for the IP packet, or it could be another gateway closer towards the destination.

This hop-by-hop process continues until the IP packet reaches its ultimate destination.

2. GSD File

A GSD (General Station Description) file is a text file in XML format used by network configuration tools to identify products and commission them on a network. For example, a GSD file describes Tritex device type, product revision, and its configurable parameters on a network. The Tritex GSD file can be downloaded from Exlar Corporation website (www.exlar.com).

3. DCP

PROFINET IO controllers find IO devices based on their names which are linked to the MAC IDs and IP addresses in the configuration files that are created and downloaded to the IO controllers by an IO supervisor. The IO supervisor uses DCP (Discovery and Configuration Protocol) to detect all PROFINET nodes on the network and to assign names and change IP addresses as needed. Each device on a PROFINET network needs a name that is unique on that network. IP addresses can also often be changed by a standard DHCP/DNS server.
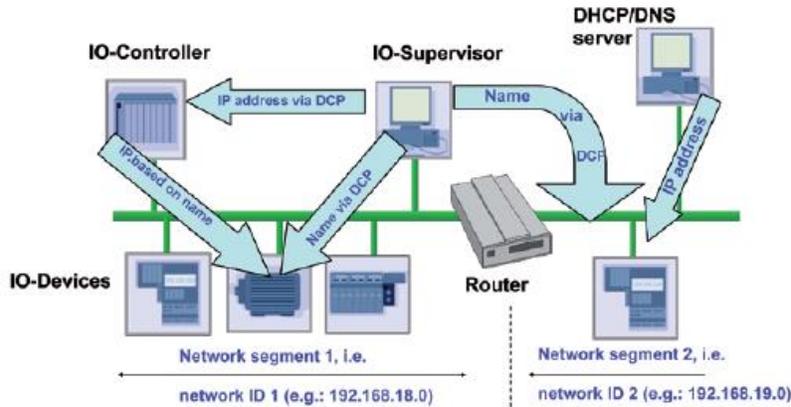
The Siemens Simatic Step 7™ software uses DCP to find PROFINET nodes on a network, assign names and change IP addresses. The name and IP address must be changed in the PROFINET configuration to match the device on the network. Any changes to the configuration must be saved, compiled and downloaded to the IO controller. If the name or IP address in the configuration does not match the device, the controller will not connect with the device and provide a communications fault.

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     Exlar Corporation
REV A   952-500-6200
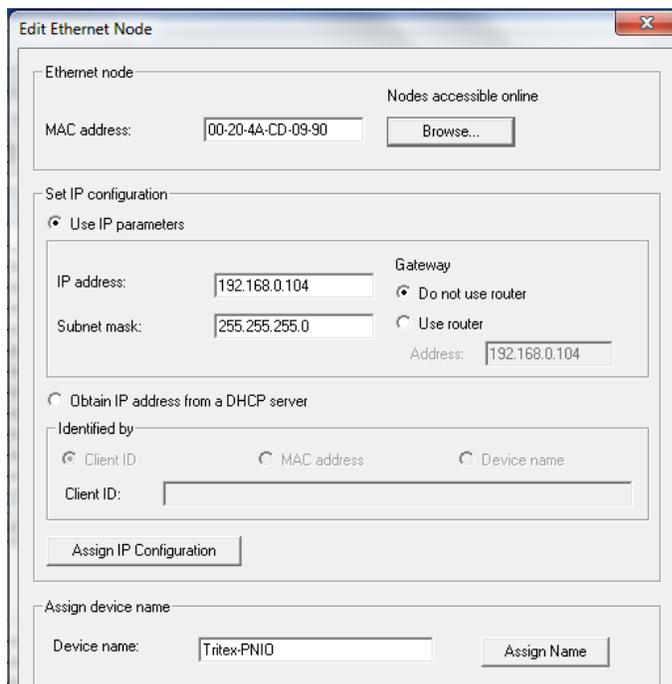
4. Configuring PROFINET IO Messaging

Note: The convention in this section of the manual is from the PLC (Client) perspective. As such, an assembly is called an "Output Assembly-Instance" when outputted from the PLC and received by the Tritex (Server). An "Input Assembly-Instance" is outputted from the Tritex and read by the PLC.

The Tritex PROFINET IO Input and Output messages are exchanged across I/O Connections with an associated Connection ID. The Connection ID defines the meaning of the data and establishes the regular/repeated transport rate and the transport class. No messaging protocol is contained within the message data. Messages can be point to point (unicast) or multicast and are used to transmit application specific I/O data.

4.1. Input/output Registers

The Tritex has a set number of 101 input and/or 101 output 16 bit registers that are transferred with each update. These registers are mapped to specific parameter definition in the Tritex Expert Software. Unmapped registers will carry data across with the messages, but will not be associated to affect any functionality of the Tritex. Outputs are sent from the Tritex consistently while the Inputs only updates when a value is changed. The Siemens I/O system uses 8 bit registers and will utilize 202 registers in the I/O system referenced using the PIW address type for inputs and PQW address type for outputs. The below examples(figures 12 & 14) assume the addressing for the Tritex is configured in the Simatic Step 7™ Hardware Manager to start at 300 for both Input addressing and Output addressing.

If a user wants to transfer a smaller number of octets for Input/output registers they can edit the GSD file at the lines

<DataItem TextId="IDT_DATAITEM_Inputs1" Length="202" DataType="OctetString"/> and

<DataItem TextId="IDT_DATAITEM_Outputs1" Length="202" DataType="OctetString"/>

To change the length from 202 to the number input or output registers the wish to transfer. Be sure to add 2 octets to each length for necessary overhead. **Caution: Editing the GSD file will not be compatible with Exlar's standard and support for it will be up to the user.**

4.1.1. Inputs

The first word(2 bytes) of the PLC input provides the status of the Tritex communication. It provides information about the status of the configuration, health of the Tritex option board.

PLC Inputs (Tritex Outputs)

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Tritex Output Word Ref	PLC Input Byte PIW	Bit 15 – Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	300-301	Input Status Word								
1	302-303	User Defined in Tritex Software								
...	. . .	User Defined in Tritex Software								
75	450-451	User Defined in Tritex Software								
...	. . .	User Defined in Tritex Software								
100	500-501	User Defined in Tritex Software								

Figure 2 – PLC Input Map

Bit (0 = LSB)	Status Flag
0	Error – Tritex is responding with error codes. Extended Module Status (Attribute 101) contains additional error information.
1	Error – communication with Tritex timed-out (was previously established)
2	Error – communication with Tritex cannot be established at all
3-7	Reserved
8	Unit is currently active at factory defaults
9	Unit has a new configuration that will take effect upon reset.
10-15	Reserved

Figure 3 – Input Status Word

4.1.2. Outputs

Bit 0 of the first word is defined as the Run/Idle command for the Tritex Port 2. When an I/O connection is active, a zero (0) in this bit represents Idle Mode and a one (1) represents Run Mode. In Idle mode, the Tritex will only update PLC Inputs (Tritex Output) information.

When Run/Idle is active (1) both the PLC and Tritex Expert Software have the capability of writing the same command to Tritex; disabling Run/Idle (0) could be used to insure command source.

Outputs PLC (Tritex Inputs)

Tritex Input Word Ref	PLC Output Bytes PQW	Bit 15 – Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	300-301									Run/Idle
1	302-303	User Defined in Tritex Software								
...	. . .	User Defined in Tritex Software								
75	450-451	User Defined in Tritex Software								
...	. . .	User Defined in Tritex Software								

REV A

100	500-501	User Defined in Tritex Software

Figure 4 – PLC Outputs

Name	Description
Run/Idle	Enable Output Update 0 : Idle - Tritex Output List are not updated 1: Run - Tritex Output List are updated

Figure 5 – Output Command Bit

4.2.   I/O Configuration Example

The following example describes the process used for configuring the Siemens I/O system using Siemens Simatic Step 7™ software and Tritex Expert Sofware.

1. Run Simatic Step 7™ software. Using the Harward Manager, configure the PLC for the correct processor, rack and slot configurations.

2. From the Options menu, install the Tritex GSD file. Once installed, the Tritex Device will become available in the product catalog listing under PROFINET IO>>Additional Field Devices>>General>>Tritex PROFINET IO as shown:
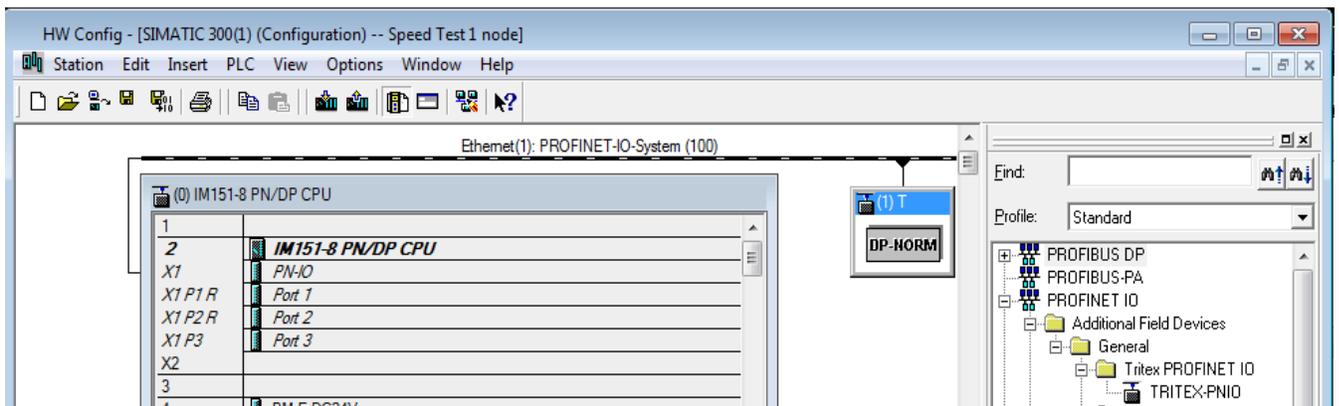
3. The TRITEX-PNIO device must be dragged from the catalog to the Ethernet System. This process is repeated for each Tritex Axis being used. Double clicking on the Tritex device added to the System will allow you to define the Device Name and the IP address being used by the Tritex Axis you are configuring:
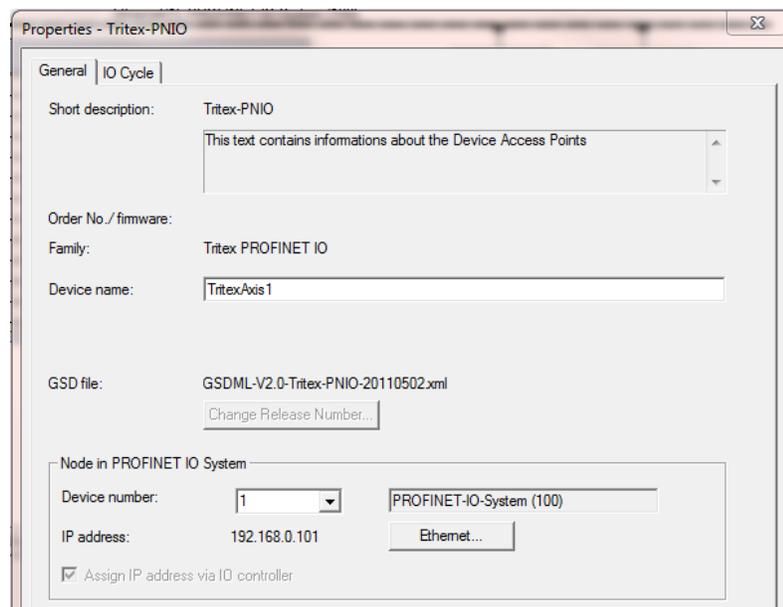
4. Once the Device Name and IP address are entered as desired, change the I/O cycle rate. Exlar recommends using a fixed update time of at least 8ms or longer. Settings lower than 8ms may cause data collisions that will cause a connection fault on the plc:
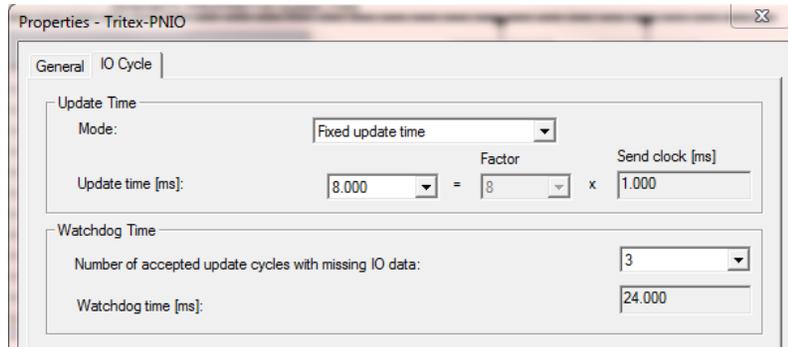
5. Change the starting address for the Input module and Output module. Each Tritex Axis requires 202 8bit registers(101-16bit registers). As show below, both the inputs and outputs use registers 300-501 for reference in Organization Block(OB) programming:

Note: Exlar recommends using a starting address of 300, 600, 900, etc… for each axis. Since 202 8 bit registers are required for each device, moving to the next 100 registers allows for easiest identification of the parameters in comparison to the parameter mapping in the Tritex Expert Software.

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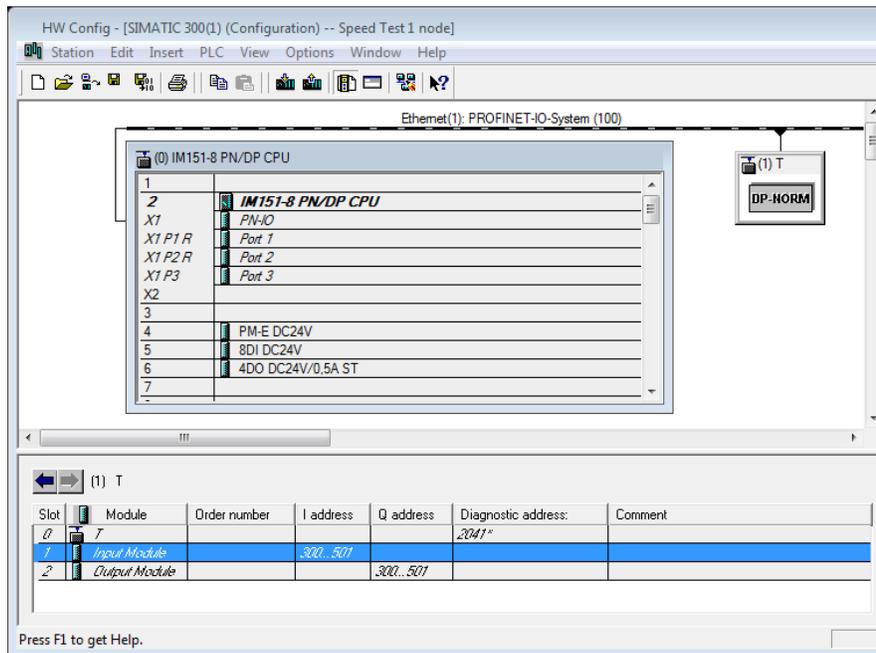
5. Tritex Expert Software

5.1. PC Communication

When using the Expert software, an RS485 converter will be required to interface between one of the PC communication ports and the RS-485. Please refer to the Tritex Installation guide for more information.

5.2. IP Parameters and Status
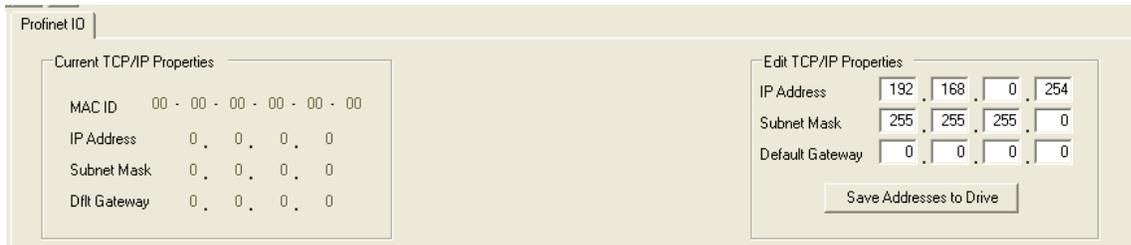
Figure 6 – Offline view of the Active IP parameters and Address Setup fields

Using the Tritex Expert software, you will see the above values populate the Active IP parameters. Here the Ethernet MAC-ID, IP Address, Subnet Mask and Default Gateway are displayed. The data enter fields to the right are used to configure the IP Address, Subnet Mask and Default Gateway.

NOTE! **MAC–ID is a unique identifier assigned to each Tritex**

5.2.1. IP Parameters

5.2.1.1.   Active Parameters

Display Tritex active IP parameters
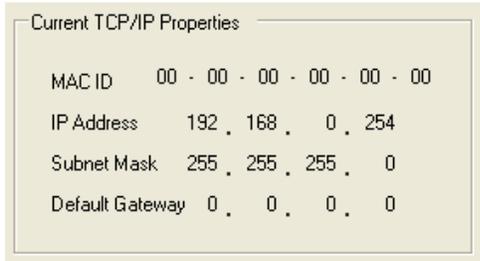
Figure 7 – Active Parameters

IP Address	192.168.000.254
Subnet Mask	255.255.255.000
Default Gateway	000.000.000.000

Figure 8 – Default IP Parameters

5.2.1.2.   Set Parameters

In previous versions the user could use the Tritex setup software to set the IP address, subnet mask and default gateway for each unit. The current version of firmware allows the Profinet setup software and PLC to override these values so configuring through the Tritex software is no longer available.
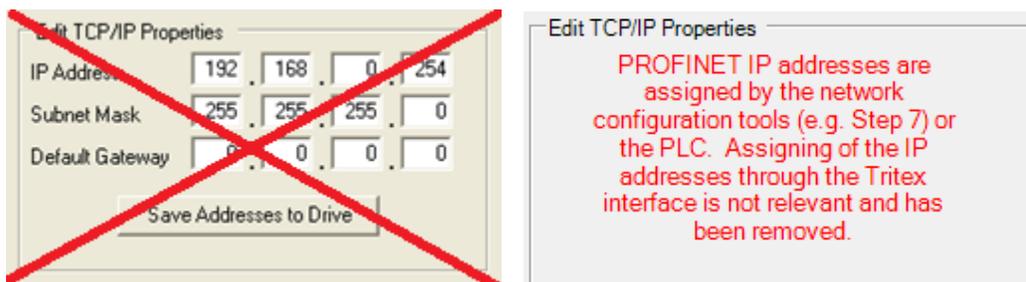
Figure 9 – Set Parameters

IP Address	Class A: 001.000.000.000 to 126.255.255.255 Class B: 128.000.000.000 to 191.255.255.255 Class C: 192.000.000.000 to 223.255.255.255
Subnet Mask	255.000.000.000 to 255.255.255.000

Figure 10 – IP Parameters Limits

5.3.   Tritex Data Mapping to I/O registers

All Tritex functionality is parameter based. This means we have a listing of parameters associated with every functional capability of the Tritex. When setting up the PROFINET IO mapping to the 101 Inputs and 101 Outputs, first a list of the parameters must be defined and determined whether they are Read Parameters from the PROFINET IO Host or Write Parameters to the Host. Once this list is created, mapping the parameters to the Translation Table of registers is done as shown in Figure x.2. The Output Mapping tab is used to map the parameters that are Output by the Tritex and Read into the Host. The Input Mapping tab is used to map the parameters that are Inputs to the Tritex and Written from the Host. The Input Mapping and Output Mapping tabs work in the same manner.
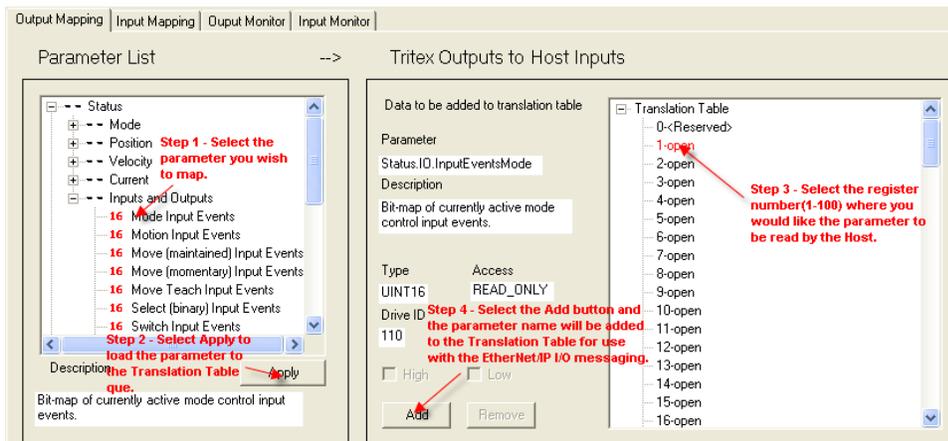
Figure 11– Selecting parameters to be mapped to the Translation Table.

Note: Tritex works with 16 bit words where PROFINET IO uses 8 bit bytes or "octets". There will be 2 PROFINET IO octets for each Tritex word.

After step #2 above information about the parameter is displayed. 32 bit or double word parameters can only be assigned to tables starting with odd numbers. If a 32 bit parameter is selected and even table number is selected the "Add" button will be gray.

If only half of a 32 bit parameter is needed, for example, all velocities are 32 bit parameters their data format is 8.24 revs/sec, rarely would 24 bits of precision be needed to the right of the decimal point from a user perspective. In this case one could select only the high word of the parameter by un-checking the Low box resulting in a 16 bit velocity parameter in the format of 8.8 revs/sec , 8 bits on each side of the decimal point.

Now that assigning the parameters to be transferred between the Tritex and PLC has been explained we need an understanding of the Tritex parameters and their format so they can be controlled from the PLC. The Tritex II Parameters manual describe the function of every parameter, in some cases the interaction with other parameters and most importantly the format of data for each parameter. Parameters such as Move Distances and Velocity are straight forward however many of the parameters used for control are 16 bit registers represented by bit maps or Enumeration tables, the common bit maps are covered in Appendix A of the Parameter Manual.

To assist with validating the data sent/received, the Input/Output Monitor tabs allow the user to view the non-scaled decimal value of the 16 bit register. This value will match the value observed from the Host. See figure x.3 to identify its use. The Input Monitor and Output Monitor tabs both operate in the same manner.
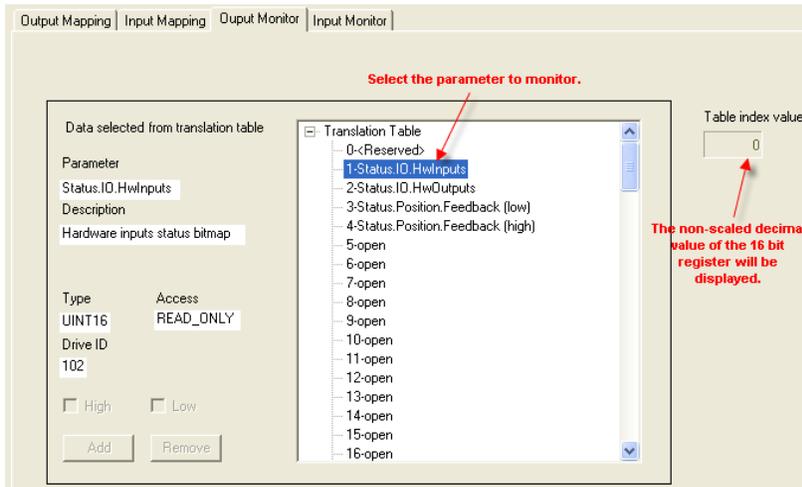
Figure 12– Monitoring parameters to validate data sent/received by the host.

6. Step 7™ Examples using FM352-5 library

This section describes some useful functions of the Siemens FM352-5 library to merge and break up bits, bytes, words and double words, while keeping the bit/byte/word order correct for transferring data between the Tritex and the Siemens PROFINET IO system.

Note: Link to the Configuration Software add on to Simatic Step 7™ for the SIMATIC FM 352-5 Boolean Processor install the file FM352-5_V122.EXE
http://support.automation.siemens.com/WW/view/en/28789987

The above software add-on to Step 7 allows for the use of a number useful Function Blocks for manipulating the parameters mapped to the Tritex PROFINET IO device. Once installed the Function Blocks can be added to your project from the Organization Block program as shown:
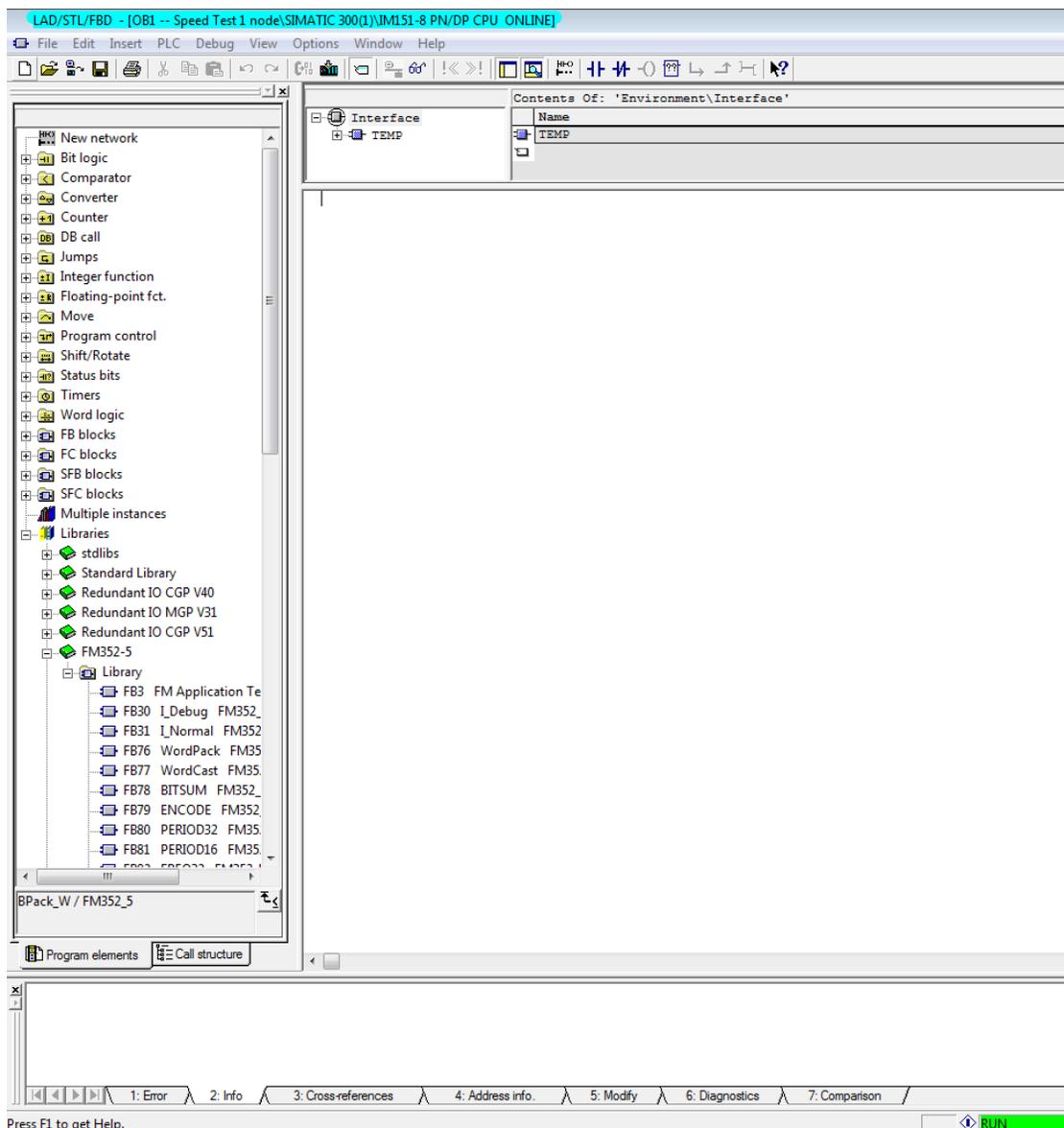
6.1. FB93 BitPack_W

As shown below, this function block allows you to individually control the bit operation of Tritex control words. In this example PQW304(Tritex Input Register 2) is defined as the Control.InputEvents.Mode Register.
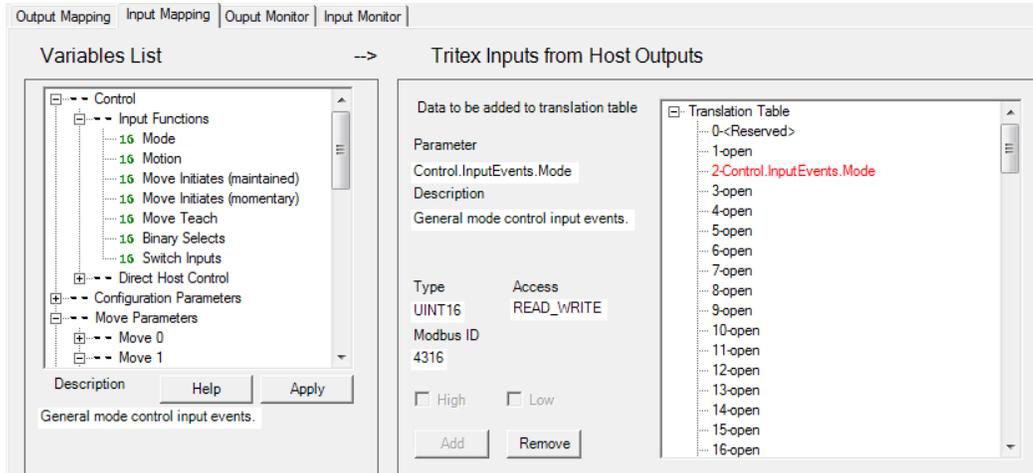
IEG_MODE

RESET	BKOV	TSEL	TENA	H2	H1			ALT						EL	EE
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

EL – Enable Maintained
The Enable Maintained operates in a manner similar to the Enable Momentary input. Like the momentary enable, the rising edge of Enable Maintained will reset faults. A new rising edge, however, is not required after resetting faults through the RESET input – the drive will automatically enable whenever no hard faults are pending and Enable Maintained is active.

As described bit 1, EL is Enable Maintained, when physical Input I1.1 is fired, it in turn sets the EL bit in the IEG mode register. The rung is constantly read and updated as soon as a change to I1.1 is seen.
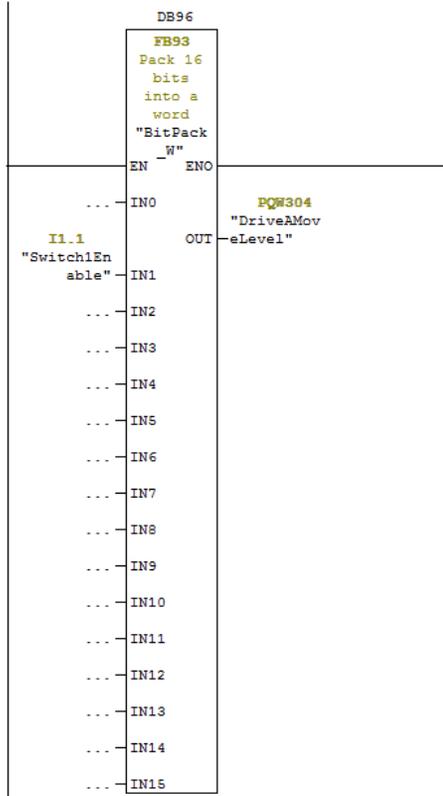
6.2. FB91 BitCast_W

As shown below, this function block allows you to individually read the bit operation of Tritex output status words. In this example PIW302(Tritex Output Register 1) is defined as the Status.IO.OutputEventsStatus Register in the Tritex mapping table.
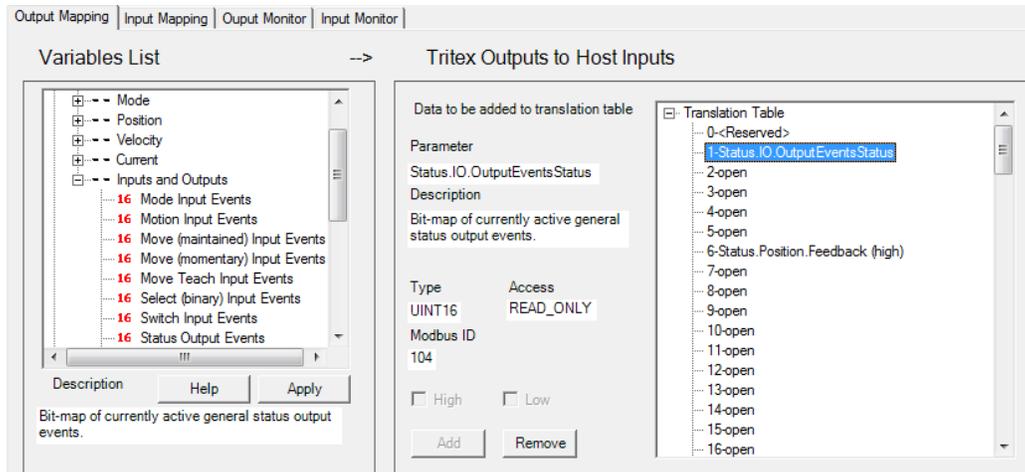
OEG_STATUS

								ALT M	DEF M	F W	WAR N	FL T	RD Y	HOME D	EN A
1 5	1 4	1 3	1 2	1 1	1 0	9	8	7	6	5	4	3	2	1	0

RDY – Ready
The *READY* flag is set when both the *ENA* and *HOMED* flags are active indicating that the drive is homed and enabled.

As described bit 2, RDY is the Ready flag, when the Tritex Outputs the ready flag in the OEG_STATUS register, this function block will allow you to track only the individual bits you require in your project. Output Q2.0 will fire anytime the ready bit is active in the Tritex.

Network 9: Title:

OEG_STATUS

```
                          DB91
                          FB91
                          Cast
                          word
                          into 16
                          discrete
                          bits
                          "BitCast
                           _W"
                      EN     ENO

   PIW302
   "DriveASta
        tus" — IN    OUT0 —...
                     OUT1 —...
                     OUT2 —Q2.0
                     OUT3 —...
                     OUT4 —...
                     OUT5 —...
                     OUT6 —...
                     OUT7 —...
                     OUT8 —...
                     OUT9 —...
                    OUT10 —...
                    OUT11 —...
                    OUT12 —...
                    OUT13 —...
                    OUT14 —...
                    OUT15 —...
```
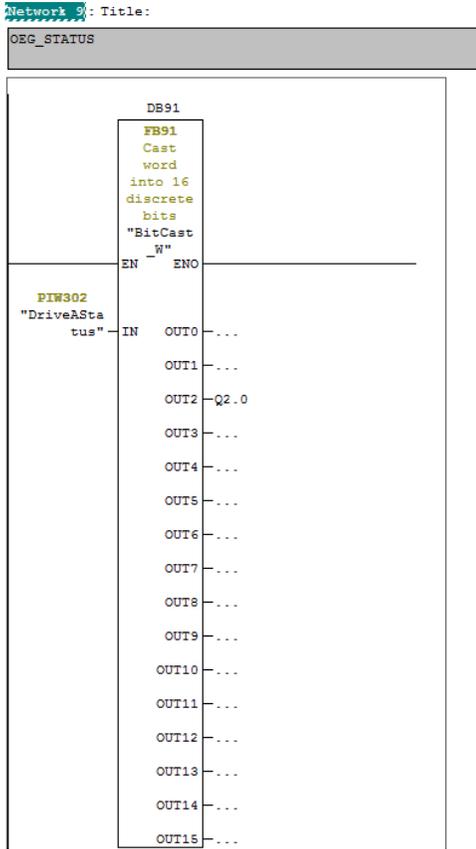
6.3. FB76 WordPack

As shown below, this function block allows you to merge 2-16bit word registers into a single 32bit double word to be allowed to read the current feedback position. In this example PIW310 and PIW312(Tritex Output Registers 5 and 6) are defined as the Status.Position.Feedback(low) and (high) registers in the Tritex mapping table.
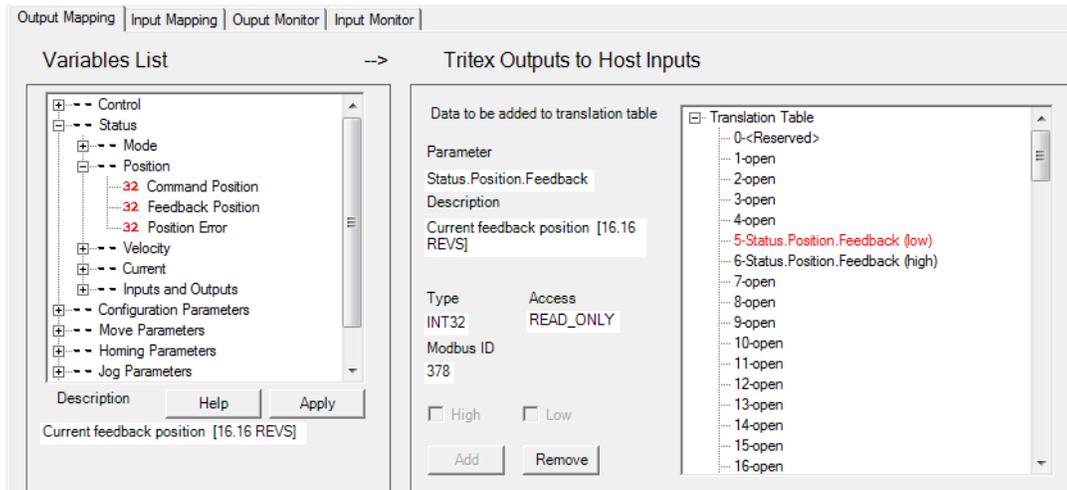
In this example, the Tritex reference high word(in this case PIW312) is always IN_A and the low word(in this case PIW310) is always IN_B. These 2 registers are merged into a double word MD20. This contains the current absolute feedback position of the Tritex. To read as a decimal, MD20 must be converted to a real(decimal) value and then the scaling factor for position registers must be used(16.16=2^16=65536) to generate the decimal value of the current feedback position. This register will be updated at the cycle IO update rate or the PLC scan time, whichever is slower. In this case the current position is 4.69148 REVS

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Exlar Corporation
REV A   952-500-6200
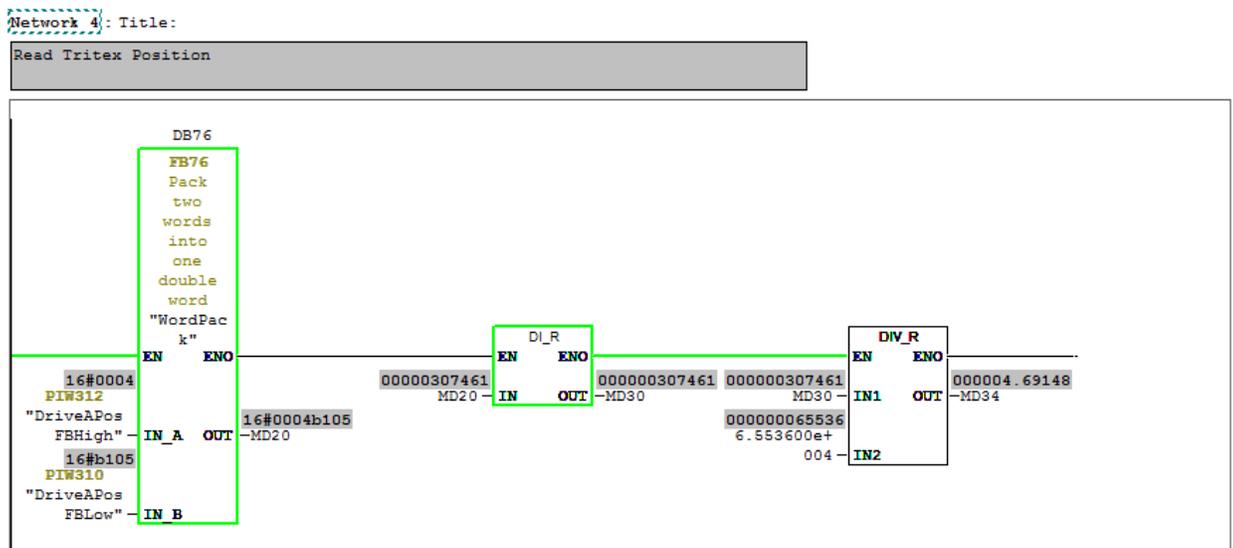
6.4. FB77 WordCast

As shown below, this function block allows you to break apart a 32 bit double word parameter into 2-16bit words to be allowed to write a position distance. In this example PQW310 and PQW312(Tritex Input Registers 5 and 6) are defined as the Move.1.Primary.Position(low) and (high) registers in the Tritex mapping table.
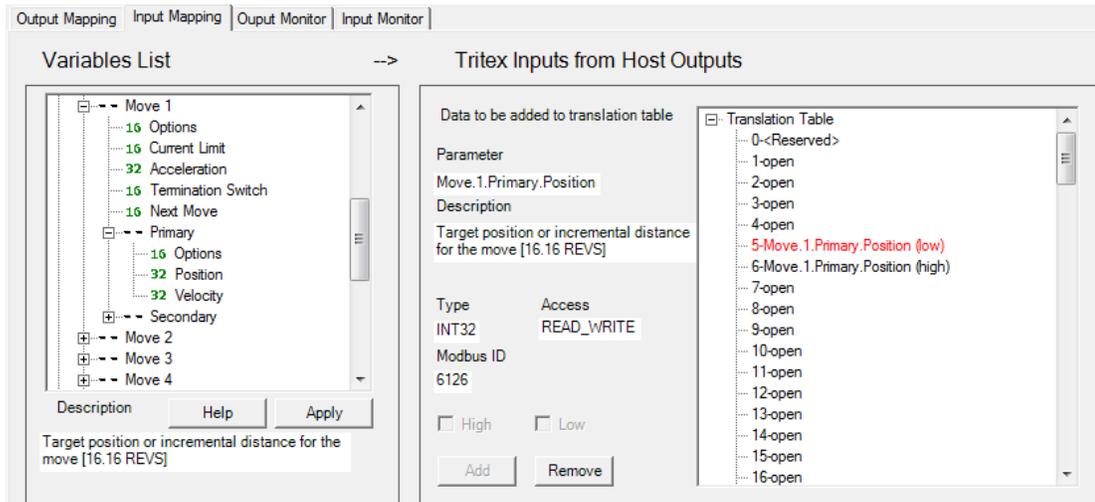
In this example, MD68 is set to a value of 12.875, which is the decimal value that is being set to the Move 1 Primary position registers. The scaling factor for a position register(16.16=2^16=65536) must first be multiplied out to get a non-decimal double integer. This number can then be rounded and cast into 2-16bit words to write the value to the Tritex. The Tritex reference High word(in this case PQW312) is always Out_A and the Low word(in this case PQW310) is always Out_B. In this case, the Move 1 primary position is being set to 12.875 REVS.
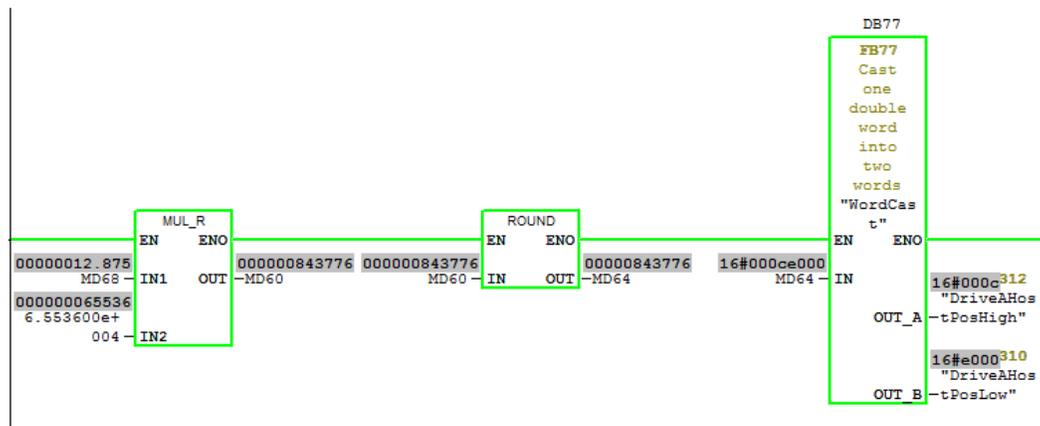
7. Troubleshooting PROFINET IO

Exlar Tritex II option board with PROFINET IO is an intelligent interface between PROFINET IO and Tritex registers. Communication fault information is available from the PROFINET IO and Exlar Expert Software.

7.1.   Ethernet Connection

7.1.1. Ping

1. To test the communication with the Tritex and the correct assignment of the IP address call up the DOS prompt under **Start menu** / **Program** / **MSDOS Prompt**.

2. Enter the command: "**ping**" with the IP address you have assigned in the following form:
ping [space] XXX **.** XXX. XXX. XXX (=IP address).

   Example: ping 192.168.0.254
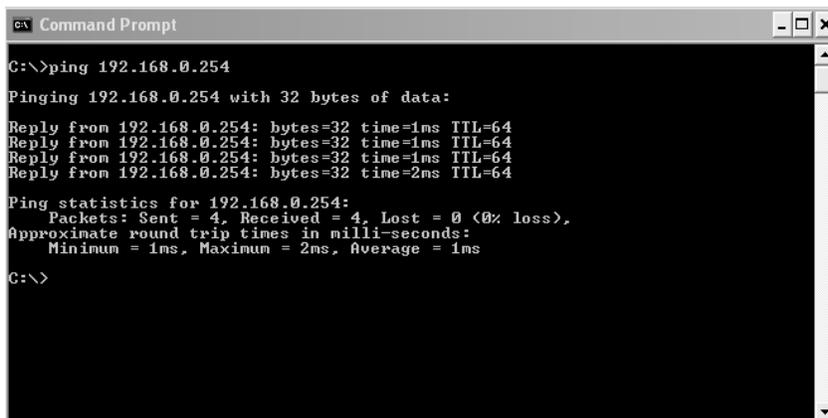
Figure 13 – Example Testing Tritex Ethernet Connection

3. When the **Return** key has been pressed, your PC will receive a response from the Tritex, which will then be displayed in the DOS prompt.

   If the error message: "Timeout" appears instead, please compare your entries again to the allocated IP address.

4. When the test has been performed successfully, you can close the DOS prompt.
The network node has now been prepared for communication.

7.2.   PLC Input status word

The first Input word always maintains the current status of the Tritex according to the bit fields of flags in the table below. A flag is considered to be "Set" if the corresponding bit is 1. If the value of the status word is zero (0), then everything is currently operating normally with a valid configuration and no pending errors.

Bit (0 = LSB)	Status Flag
0	Error – Tritex is responding with error codes. Extended Module Status contains additional error information.
1	Error – communication with Tritex timed-out (was previously established)
2	Error – communication with Tritex cannot be established at all
3-7	Reserved
8	Unit is currently active at factory defaults
9	Unit has a new configuration that will take effect upon reset.
10-15	Reserved

Figure 14 –Input Status word

Appendix A - Tritex PNIO History

There are 3 versions of PNIO for Tritex. Version 1 (PNIO module firmware version 0.14) that was shipped prior to January 2014, version 2 (PNIO module firmware version 1.0.0) with more features that shipped January and February 2014 and the version 3 (PNIO module firmware version 1.1.0) with a few more upgrades. This section describes how to replace a version 1 PNIO Tritex with a version 3 PNIO Tritex and the major differences between the two versions. The version 1 GSDML file had the name GSDML-V2.0-Tritex-PNIO-20110502.xml, the version 2 GSDML file had the name GSDML-V2.0-Tritex-PNIO-20131111.xml and the version 3 GSDML file will have the name GSDML-V2.3-Tritex-PNIO-20140213.xml.

Version	PNIO module FW version	Dates shipped	GSD Compatibility
Version 1	0.14	2011 - 2013	GSDML-V2.0-Tritex-PNIO-20110502.xml GSDML-V2.0-Tritex-PNIO-20131111.xml
Version 2	1.0.0	01.2014 - 02.2014	GSDML-V2.0-Tritex-PNIO-20131111.xml GSDML-V2.3-Tritex-PNIO-20140213.xml
Version 3	1.1.0	02.2014-	GSDML-V2.0-Tritex-PNIO-20131111.xml GSDML-V2.3-Tritex-PNIO-20140213.xml

1.   Replacing a version 1 instance of the Tritex PNIO with a version 2 or 3 instance

1. Install the new GSDML file into the Step 7 software. The ICON file GSDML_02A0_0001.bmp should be in the same folder that the new GSDML file is installed from. **The file GSDML-V2.3-Tritex-PNIO-20140213.xml is required for certified PNIO, but it is not compatible with version 1 Tritex units. Therefore we ship with and recommend using GSDML-V2.0-Tritex-PNIO-20131111.xml if there are any version 1 units on site. The V2.3 GSD file is available upon request.**
2. In the SIMATIC Manager -> HW Config view the drive that is being upgraded and record the Device Name, Device Number and IP Address along with the I/O address ranges.
3. Remove the old Tritex unit from the PNIO network configuration in Step 7 and replace it with a new object that uses the new GSDML file.
4. Go into the module properties for the new instance of the Tritex unit and set the Device Name, Device Number and IP Address to what the old instance was.
5. Set the I/O address ranges to what they were with the previous instance of the Tritex.
6. Connect to the drive with the Step7 software and send the new Device Name and IP Address to the drive. The upgrade configuration file will set the IP Address to 192.168.0.254 and the Device Name to "tritex-pnio". A new unit with version 3 will have the IP address set to 0.0.0.0 and the Device Name will be blank.
7. If all of these have been done but you still can't connect to the upgraded drive with the Step 7 software check the firewall settings.

2.   Operational differences between version 1 and version 2

1. Originally Tritex units shipped with a generic vendor ID of 0xFFFF. Later units shipped with the PNIO stack vendor's ID of 0x01EC. Units are currently shipping with Exlar's vendor ID of 0x02A0. This may cause conflicts with the GSD file. If an error or warning about a vendor ID conflict shows up with a Tritex drive the Step 7 Tritex object may have to be deleted and re-created with an updated GSD file.
2. The MainFamily has changed in the GSD file from General to Drives. This will place the Tritex in a Drives folder in the configuration software catalog. If a top-level folder of Drives already exists the Tritex objects will appear there. If not, they will appear in a Drives folder under Additional Field Devices.
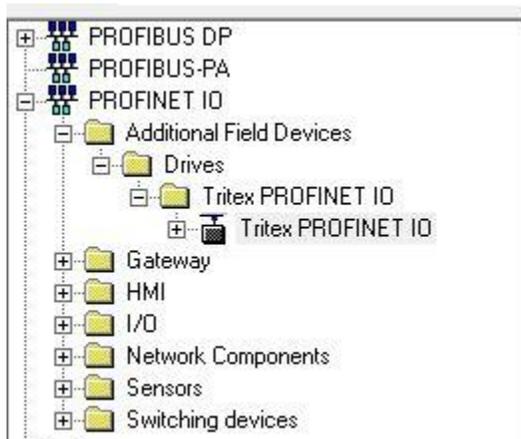
3. The Tritex units will now show up on the Step 7 topology tool.
4. New submodule information will show up in the Step 7 display for Tritex units. Slot 0 will now display memory areas for Tritex PNIO, DAP Interface Submodule, and Port Interface SubModule. These areas are not used and nothing needs to be done with them.
5. The IP addresses will work differently in units shipped after November 2013. **Profinet uses the station names to identify its nodes. The IP addresses of Profinet devices are generally set by the PLC or a network configuration tool such as Step 7.** Depending on which method of changing the IP address is used the IP address will be set as Temporary or Permanent. If the address is set as Temporary it will revert to 0.0.0.0 on the next power-up.

What this means with regard to Tritex – If there is a non-zero IP address in the PNIO module, setting a new IP address with the Expert software will take effect on the next power cycle. If the IP address is 0.0.0.0 the IP address cannot be set through the Expert software, it will revert back to 0.0.0.0. Setting the IP address to something else via Step 7 or another PROFINET configuration tool will work and then it can be set to something else via the Expert software. Connecting to a PLC will always cause the IP address to revert to 0.0.0.0 on a power cycle. **All of this makes the process of using the Expert software to set the IP address of a Tritex II PNIO irrelevant.**

3.   Operational differences between version 2 and version 3

The 3rd version of Tritex PNIO has passed the certification tests. It will have a port MAC ID that is different from the chassis MAC ID. The major difference that the users might see is that the version 2 PNIO might not work as expected with the topology tool with certain network configurations i.e. if PROFINET switches are used.