



# I/O Transfer configuration for E2 modules

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# Getting Started with E2 I/O Transfers



- **Add E2 I/O module to Tool Kit Project, and select product type.**
- **Setup Ports**
- **Check Virtual register allocation**
- **Add IO Transfer configuration option in the E2 Configuration**
  - Select Add new Transfer**
  - Select the Remote Station**
  - Name the Transfer**
  - Select Transfer Type (Read or Write Modbus I/O)**
  - Select port (RS-485 or Ethernet)**
  - Set Scan Options**
  - Select I/O Options (I/O Type, Register count, Local Reg #, Remote Reg #)**

**I/O Transfer complete, OK and Save**

# Add Module to Station



- **Configure Menu > Add New Station.....**

The screenshot displays the 'SIXNET I/O Tool Kit' software interface. The main window title is 'Untitled - SIXNET I/O Tool Kit'. The menu bar includes 'File', 'Edit', 'View', 'Device', 'Configure', 'Operations', 'Tools', 'Panels', and 'Help'. The toolbar contains various icons for file operations and device management. The main workspace shows a table with columns: 'Status', 'Station Name', 'Station Number', 'Station Type', 'Connect To', and 'Serial Number'. A 'Tree Views' panel on the left shows 'All Stations' selected. A 'Report Views' panel at the bottom left shows a log of operations: 'Verifying comm port information...', 'Reading file /etc/stacfg/ports.config...', 'Resetting station (hard reset)...', and a warning: '8 warning(s) found. See items above for details.' A 'Select New Station Type' dialog box is open in the center, with 'EtherTRAK2' selected in the dropdown menu. The dialog has 'OK', 'Cancel', and 'Help' buttons. The status bar at the bottom indicates 'Single Station Mode' and 'Ethernet (Use Specific IP) 10.1.0.1'.

# Setup Ports details



- **E2 Modules have jumpers in the base to assign the Ethernet port mode. Assign the jumpers accordingly.**
  - **Modes are Switch, Dual Network, & Ring. See manual for more details.**
- **In the configuration set Dual Ethernet Mode to “Follow Jumper” (see next slide)**
- **In switch, and ring modes the module supports only one IP address**
- **Setup IP address, and or RS-485 port.**
- **Use USB port for basic setup and maintenance (loading, test I/O, verify).**

# Setup Ports



**I/O Module Configuration** E2/EB-MIX24880

Dual Ethernet Mode:  Serial message passthru:

Network 1 | Network 2 | Advanced Options

**IP Address Assignment**

Options	<input type="radio"/> Enter IP address manually <input type="radio"/> Obtain an IP address automatically (DHCP) <input checked="" type="radio"/> Auto-assign IP address by station number
IP Address	10.1.0.1
Subnet mask	/8
Default gateway	

**Security**

Enable	<input type="checkbox"/>
Range from	
Range to	
Secured addr 1	
Secured addr 2	

<< Back      Next >>

OK  
 Cancel  
 Help  
 Red/Yellow Help

# Check Virtual register allocation



- **The E2 module supports the onboard physical IO registers, as well as the ability assign additional register to store values. Users can read and map data to these registers, or a master can write/map data to these registers.**
- **Increase the number of registers to support the application accordingly (see next image).**
- **Analogs support up to 256 IO registers per type**
- **Discretes support up to 512 registers per type**
- **Use the I/O Transfers to read in I/O (map) and store the data locally into these registers.**
- **Use the IO Transfers to write the physical or any additional registers to another station.**

# Check virtual expansion registers



**I/O Module Configuration** E2/EB-MIX24880

**Discrete Options**

**Discrete input options**

**Discrete input filtering**

- Fast response (no filtering)
- Slow response (more filtering)

Enable counters

- Enable high speed counter on channel 1
- Enable high speed counter on channel 2
- Report 32 bit counter result as pairs of registers

Source/Sink mode:

Number of DI registers:

**Discrete output options**

- Use last 8 discrete channels as outputs
- Turn OFF outputs on communications loss
- Enable time proportioned outputs

Cycle time:  mS

Min. OFF/ON:  mS

Number of DO registers:

<< Back      Next >>

OK  
Cancel  
Help  
Red/Yellow Help

# Add I/O Transfer to Station



- Select I/O Transfers in the Tree view, Then Add New

**I/O Module Configuration** E2/EB-MIX24880

**I/O Transfers**

Scan Order	Action Name	Defined Action	Local Type	Local Start	Remote Type	Remote Start	Number of Registers
------------	-------------	----------------	------------	-------------	-------------	--------------	---------------------

Navigation: <> I/O Transfer Options / Scan Options <>

Scan order: \_\_\_\_\_ I/O Transfer management: \_\_\_\_\_

Buttons: Move Up, Add New Transfer, Delete Selected Transfer, Move Down, Edit Selected Transfer

Communications options: \_\_\_\_\_

Scan rate:  sec    UDP/IP timeout:  ms    Serial timeout:  ms

Control Panel: OK, Cancel, Help, Red/Yellow Help

# Select the Remote Station



- **For Modbus Station select Specify by Station number.**
- **Select Internal Block move to copy a block of registers to a different location.**
- **Uncheck Specify by station number and select Remote station name for E2 stations already added to the Tool Kit project.**

**-Note: Use this option for the E2 or RTUs and many of the parameters will be available by default as the transfer is configured (recommended for easy setup for SIXNET devices). It is not required. Users can also poll SIXNET devices via the Specify by Station Number option above.**

# Select the Remote Station



**I/O Transfer Wizard - Select Remote Station**

**Select the Remote Station**

Identify the station that you wish to transfer I/O with. Specify the station by its name if it exists in this project file. If the station is made by a different manufacturer, or is just not in this project file, specify it by station number.

Internal "Block Move"

Specify by station number

Remote station number:

Remote station name:

Remote station type: --N/A--

< Back   Next >   Cancel   Help

- Next to setup Transfer Name....

# Name the Transfer



**I/O Transfer Wizard - Select Transfer Name** ✕

**Select the Transfer Name**

Please enter a name to identify this transfer. If this transfer is a Remote I/O Link, then this name will be the name of the virtual module created by this wizard.

Name:

# Select Transfer Type



- Read using SIXNET or Read Modbus protocol
- Write using SIXNET or Write Modbus protocol

The screenshot shows a software dialog box titled "I/O Transfer Wizard - Select Transfer Type". The dialog has a blue title bar with a close button (X) on the right. Below the title bar, there is a section header "Select the Transfer Type" in a blue box. Below this header, there is a paragraph of text: "I/O Transfers can either read data from a remote station, or write data to it. Select the type of action you wish to perform on the remote station. Each choice also includes the protocol that will be used to transfer the I/O." Below the text, there is a label "Transfer type:" followed by a dropdown menu. The dropdown menu is currently set to "Read Modbus I/O". At the bottom of the dialog, there are four buttons: "< Back", "Next >", "Cancel", and "Help".

# Select Port



- **RS-485 and/or Ethernet**

**I/O Transfer Wizard - Select Port**

**Select Communications Port**

Select the port that this station will use to communicate to the remote station.

Communications port:

Current port settings: --N/A--

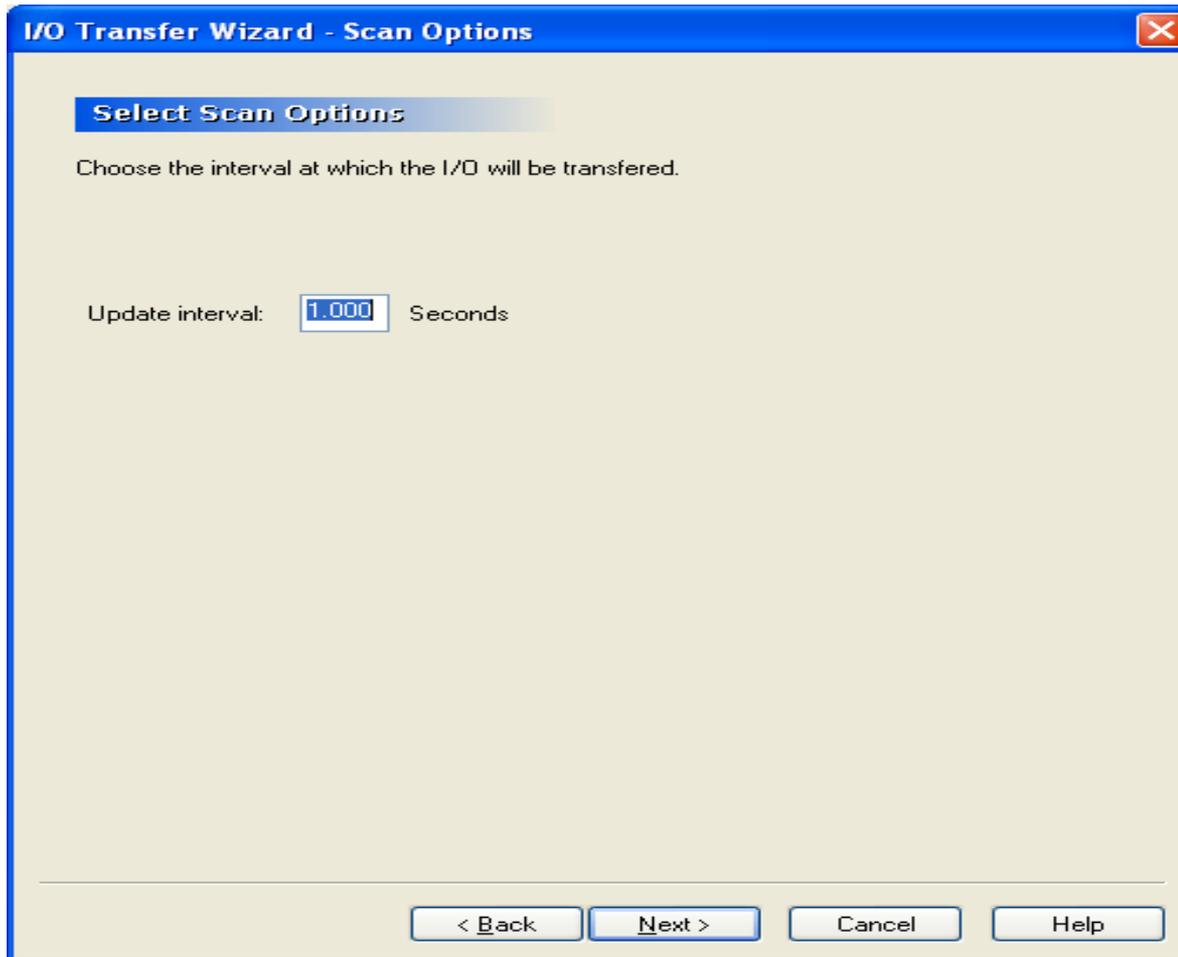
Use this destination IP Address:

The image shows a Windows-style dialog box titled "I/O Transfer Wizard - Select Port". It has a blue title bar with a close button. The main area is light beige. At the top, there's a blue header with the text "Select Communications Port". Below that, a paragraph of text asks the user to select a port. There are two rows of labels: "Communications port:" followed by a dropdown menu showing "Modbus UDP/IP", and "Current port settings:" followed by "--N/A--". Below these is a checked checkbox labeled "Use this destination IP Address:" followed by a text box containing "10 . 1 . 0 . 3". There is an "Advanced >>" button below the IP address. At the bottom of the dialog, there are four buttons: "< Back", "Next >", "Cancel", and "Help".

# Set Scan Interval



- Transfer scan time is selectable per transfer



# Select I/O Options



- Select I/O type, Register Count
- Select the Local (E2) first register for this transfer
- Select the first remote register number

The screenshot shows a software dialog box titled "I/O Transfer Wizard - I/O Options". The window has a blue title bar with a close button in the top right corner. The main content area is light beige and contains the following elements:

- Select I/O Options**: A sub-header in a blue bar.
- Instructions**: "Choose the type of I/O to be transferred, the number of registers, and starting addresses in each station. If you are using Modbus, you can enter the remote register as a Modbus address, or as a native address."
- I/O type**: A dropdown menu currently set to "Discrete".
- Register count**: A text input field containing the number "8".
- Local registers**: A section for "[NewSta1]" with two radio buttons: "Discrete Inputs" (selected) and "Discrete Outputs". Below is a "First register number" input field with "0".
- Read from remote registers**: A section for "[Station #4]" with two radio buttons: "Discrete Inputs" and "Discrete Outputs" (selected). Below are two input fields: "First register number" with "0" and "Native address", and "Modbus address" with "0" and "0001".
- Navigation**: Four buttons at the bottom: "< Back", "Next >", "Cancel", and "Help".

# IO Transfer complete



- **Once completed the configuration must be loaded to the E2 module and the transfer will be running.**
- **Repeat to add the number of transfers to the E2 module configuration as needed. The limiting factor is the number of I/O available to hold registers in the E2 module (256 for Analogs, 512 for Discrete per type)**



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