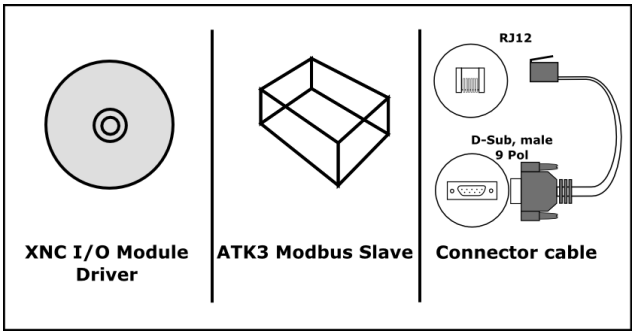
XNC IO Module

Quick Installation Guide

ELECTROCOM
RØDELEDSVEJ 95
DK 5700 - SVENDBORG
DENMARK
TEL. + 45 8880 7580

electrocom XNC I/O Module - Quick Installation Guide

I. Before Getting Started



Necessary materials and tools:

- PC/Laptop with network connection
- ATK3 Tool
- Network or RS485 cables*

Check contents:

- XNC I/O Module - Sofware CD
- ATK3 Modbus slave module boxes
- Serial RS232 connector cable

*) Depending on your choice of installation

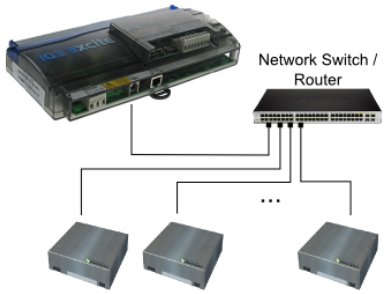
II. Hardware Installation

Place your Trend IQ3 Module in a dry, safe place and connect all the cables for communication, input and output channels. Finally connect the 230V power line.

Depending on the desired connection method, the communication between XNC I/O Module and ATK3 Modbus slaves can take place over:

Ethernet (TCP/IP)

The use of the network interface allows the connection of up to 32 ATK3 Modbus slave modules.

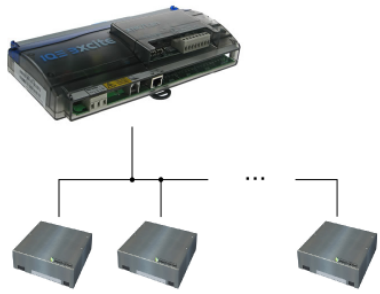


Connect the individual slave modules to the network, for example by using a network switch or router, and assign an ip address to every module.

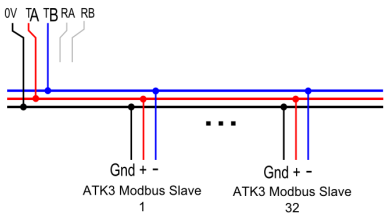
Even though automatic configuration by DHCP is available, the use of static ip addresses is recommended, so ATK3 modules stay in the same order stay available under a spe

RS485

When using RS485, up to 32 ATK3 Modbus slave modules can be connected over a 3-wired cable.



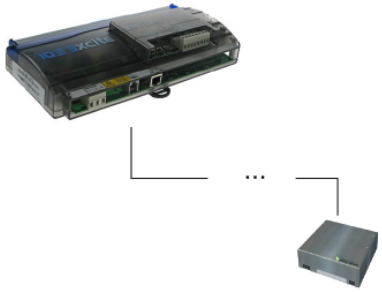
Connect the 3-wired cable with the IQ3 serial extension card and slave modules as shown in the picture below.



Maximum total length of 1200m.

RS232

When using RS232, only a point to point connection to exactly one ATK3 Modbus slave is possible.



There are two possible connection points for RS232 located on the Trend IQ3 serial extension card. The DE9M for common serial cables and the RJ12 female connector

Use the 'DE9 to RJ12' connector cable to connect the ATK3 Modbus slave to the Trend IQ3.

⚠ Make sure all wires are placed away from power lines and other high powered cables and that all modules are stored in a safe, dry place away from magnetic interference!

Note: Even though for RS485 a 2-wired cable is sufficiant, the use of a 3-wired cable is recommended. The 3rd line should be used as common ground that is connected to every module of the setup so ground potential between them can be eliminated.

III. Configuration of the ATK3 Modbus slave modules

For the configuration of ATK3 Modbus slave modules an ethernet connection to a PC/laptop is required. In case a permanent network connection is not desired or impossible, a temporary connection can be established with the use of a RJ45 crossover cable.

To open the webinterface:

(1) Connect the ATK3 Modbus slave and PC/laptop to the network

(2) If you're using a crossover cable connection, choose a static IP address for your PC/laptop within 10.0.0.1 and 10.0.0.254, excluding 10.0.0.100 and 10.0.0.200.

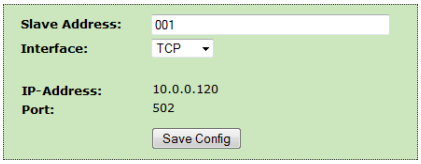
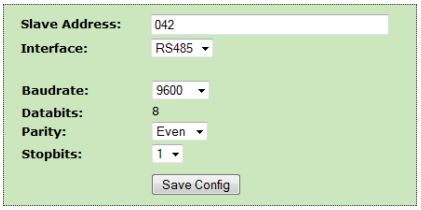
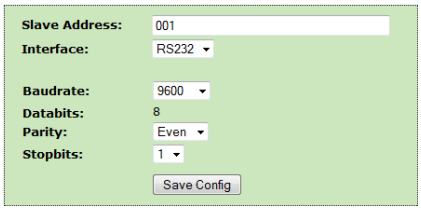
(3) Enter the modules IP address in a browser window (default http://10.0.0.200/) In case DHCP is used or the address is unknown, use the ATK3-Tool to locate it

(4) Navigate within the menu to *"Modbus Slave"*

(5) Login to the module on request. Default login:

username: *admin*

password: *ATK3_pa$$*

Ethernet (TCP/IP)	RS485	RS232
		
To connect the slave module via ethernet to the Modbus network, choose the option *TCP* as interface. As there's no more than one slave allowed at a specific IP address, the *'Slave Address'* will be ignored when using the ethernet interface.	When using the RS485 interface, assign a unique *'Slave Address'* between 1 and 247 for every slave. Choose the same *Baudrate*, *Parity* and *Stopbits* for all slave modules that match the XNC I/O Module modules configuration.	For a Point-To-Point connection between XNC I/O Module and exactly one ATK3 Modbus slave, choose the RS232 interface and set a *'Slave Address'* between 1 and 247. Set the same *Baudrate*, *Parity* and *Stopbits* for both the server and the slave module.

Once the communication interface has been configured you can set up the input channels of the ATK3. Later on, the XNC I/O Module will continuously request all input channel values and assign a value to all output channels as result of the given strategy set in the server.

To set the input channels:

(1) Navigate within the ATK3 webinterface menu to *"Inputs"*

(2) Set the type of every input you want to use and click *OK*

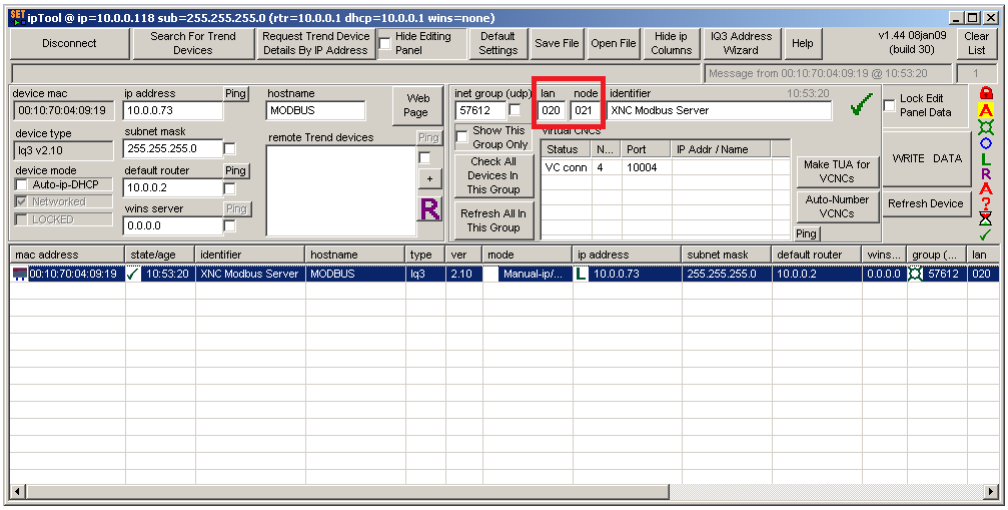
(3) Power off the module

(4) Set the jumpers for every input to match the type of input you've choosen

(5) Power on the module

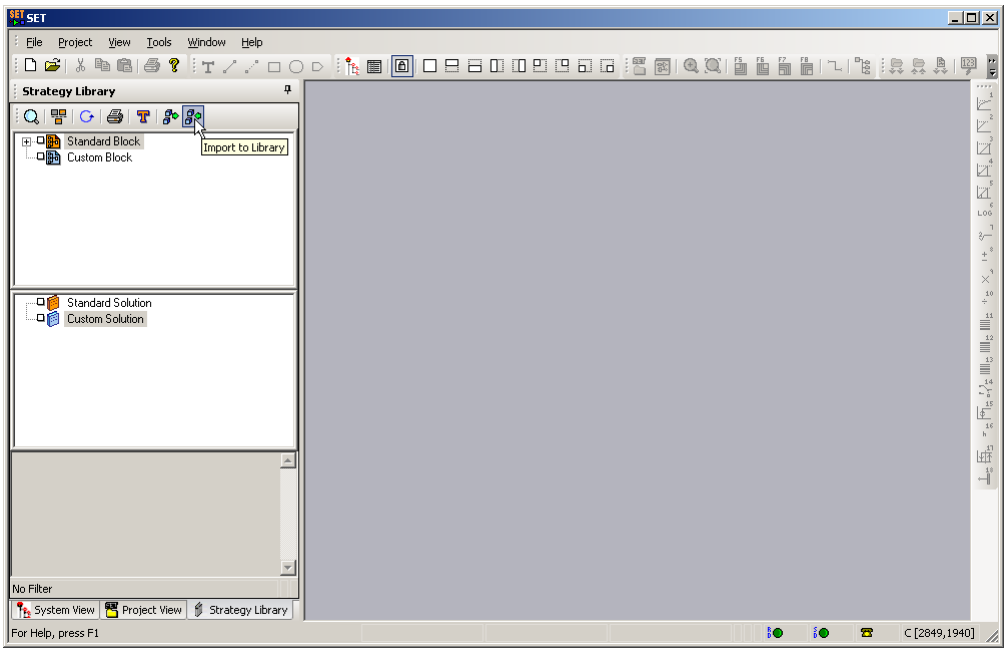
IV. Project Setup

To install the XNC I/O Module, connect the Trend IQ3 module to the local network. In case of the IQ3 is installed for the first time or its IP address is unknown, start the SET programm and click on *Tools → Trend ip-Tool*. In the upcoming window click the *Connect*-button and the tool will try to identify connected IQ3 modules within the local network.



Choose the correct IQ3 from the list and set its *lan* and *node* address. Click the *"WRITE DATA"* button to finish the address configuration and close the window.

Create a new SET Project by clicking *File → "Open / New Project"*. Enter at least values for *"Project Name"* and *"Project Nummer"* in the upcoming window and click OK to create a new empty project.



To import the library:

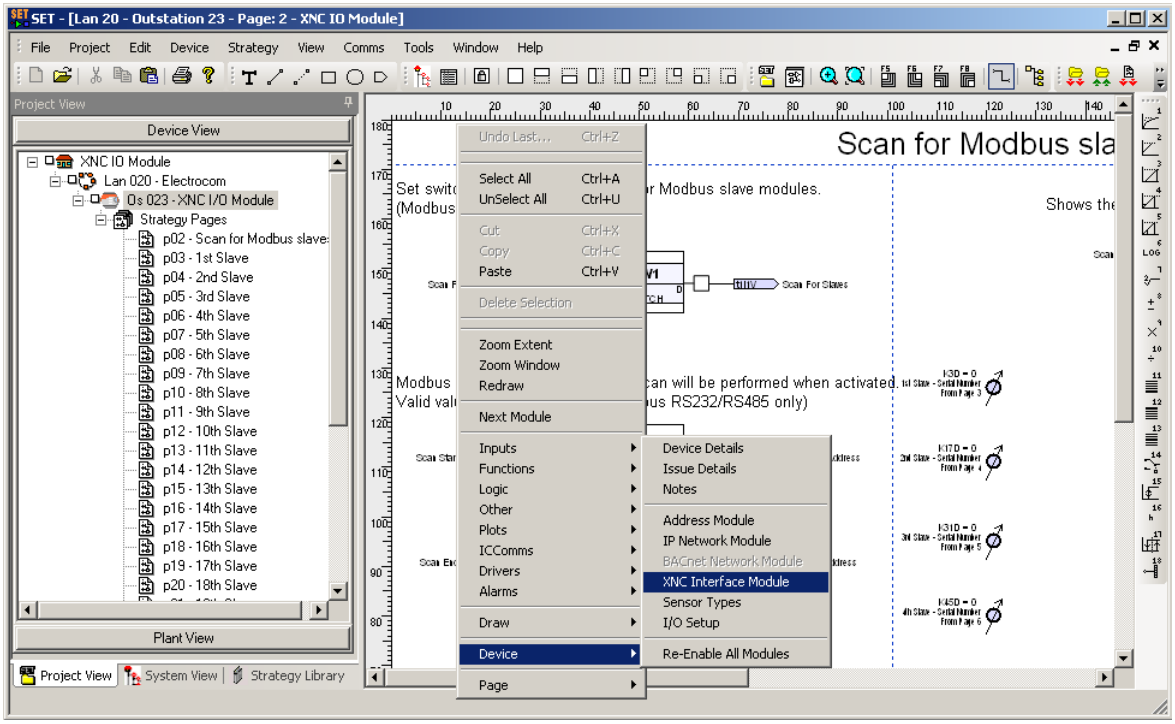
(1) Open the "Strategy Library" and click the button for "Import to Library"

(2) Select the *XNC-IO-Module.block.zip* file in the the Open File dialog

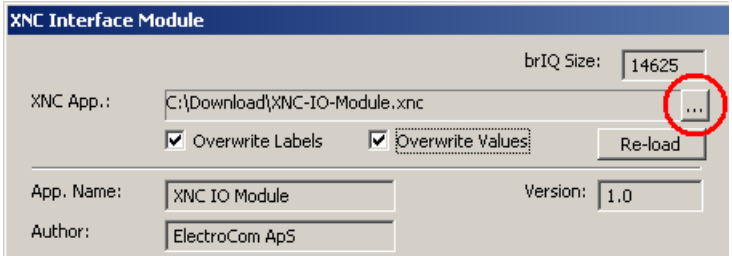
(3) Click *Open* to import the XNC I/O Module into "Custom Solutions"

Right-click the solution and choose *"Copy to Project"* from the Pop-up menu. Enter the *Lan* and *Node* address of your IQ3 in the ensuing dialog and click *OK*.

Open the *"Project View"* and and expand the project tree until you see the newly added strategy pages. Double-click the first page *"p02 - ..."* to open it.



Right-click on an empty spot on the strategy page and choose *"Device"* → *"XNC Interface Module"* from the Pop-up menu.



Within the XNC Interface Module dialog:

(1) Check the checkboxes for *"Overwrite Labels"* and *"Overwrite Values"*

(2) Click the *"..."* button

(3) Choose the *XNC-IO-Module.xnc* file in the Open File dialog and click *OK*

V. Configuration of the XNC I/O Module

Within the *XNC Interface Module* dialog the String values in the *Store* area define the configuration of the XNC I/O Module. The following options are available:

Communication setup:

- CommunicationType *RS232, RS485, TCP*
- Baudrate* *300, 600, 1200, 2400, 4800, 9600, 19200*
- Parity* *EVEN, ODD, NONE*
- StopBits* *1, 2*

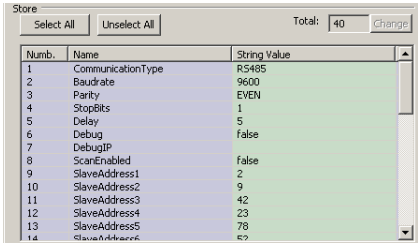
*) Serial interfaces RS232/RS485 only

Slave setup:

- ScanEnabled *true, false*
- SlaveAddress1..32 *<slave address> | <IP address>*

The XNC I/O Module's slave setup can be done in two ways. In case slave addresses are well known, one can provide a static list of up to 32 addresses. The other possibility is to initialize a scan and that way automatically search for available slaves.
While both ways are possible for the serial interfaces RS232/RS485, the network interface only allows the use of a static list.

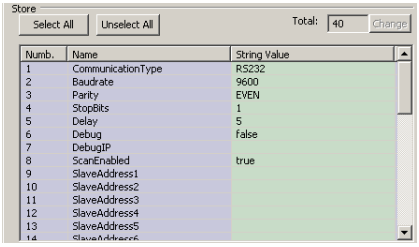
RS232/RS485 (static list)



To provide a static list of slaves for a serial interface, insert the Modbus slave addess of every slave into the list (*SlaveAddress1..32*) and set *ScanEnabled* to *false*.

If the RS232 interface is used, only the first entry – SlaveAddress1 - will be used!

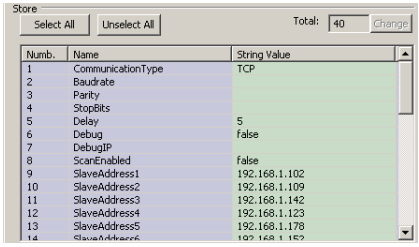
RS232/RS485 (dynamic list)



To scan the Modbus network for available slave modules, set the option *ScanEnabled* to *true.* the XNC I/O Module will ignore the entries for SlaveAddress1..32.

If the RS232 interface is used, the scan will stop once the first slave has been found!

Ethernet (TCP/IP)



The network interface will always use a static list of slaves. Therefore insert the IP address of every slave into the list (*SlaveAddress1..32*) and set *ScanEnabled* to *false*.

Make sure all IP addresses provided can be reached by the XNC I/O Module, as the Trend IQ3 module will try up to 2 minutes to establish a connection.

Once the configuration is done, close the XNC Interface Module window.

Note: When adding further elements to the strategy pages and/or a low IQ3 brIQ count is crucial, you can delete strategy pages at the end (*p34 - 32nd Slave, ..*) and that way free brIQs in expense of a lower number of possible slaves. Another possibility is it to delete the override box on every strategy page, in case the override functionality isn't used.

Back on the strategy page:

(1) Click *Comms* in the menubar and choose *Download*

(2) Confirm the *Connection Details* window and click *OK*

(3) In the ensuing window, check the checkboxes for *"IQ3 File"* and *"XNC File(s)"*

(4) Click *Start* to begin the driver and configuration download to the IQ3

Once the download is complete the XNC I/O Module is ready for operation.

VI. Scanning for Slaves

In case the XNC I/O Module is using a dynamic list, a scan of the Modbus network for slave modules must be performed.

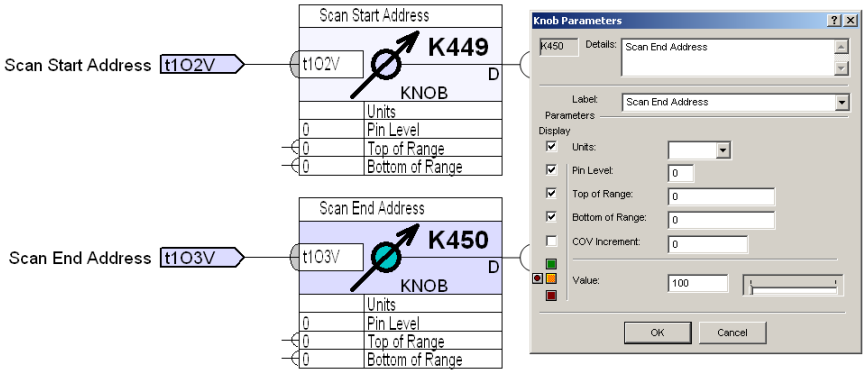
Therefore open the first strategy page named "*p02 – Scan for Modbus slaves*"

(1) Click *Comms* in the menubar and choose *Live Values*

(2) Confirm the *Connection Details* window and click *OK*

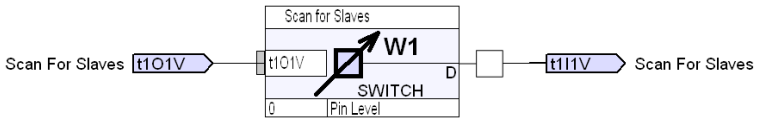
(3) Double-click the knob named *'Scan Start Address',* enter the address the scan shall start with into the *Value* field and click *OK*

(4) *Repeat (3) for the knob named 'Scan End Address'* to set the last address of the scan



(5) Double-click the switch named *'Scan for Slaves'*, set the Value field to *'1'* and click *OK*

Set switch to "1" to initiate a scan for Modbus slave modules.
(Modbus RS232/RS485 only)



The XNC I/O Module will start the scan before the next program cycle. While scanning, the current used slave address will be shown at the knob *'Scan Current Address'*. Once the server found a responding slave, the server will read its serial number and display it in ascending Modbus address order on the first strategy page.