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Introduction

The Azure Series instruments can be conveniently configured by software. There is software available from PT and also third party software can be used for some configuration tasks. PT ships the necessary software packaged on a USB drive with the instruments where configuration can only be performed by software.

PT provided software for Windows

PT provides a range of software for configuring instruments to get you up and running with the minimum of fuss, but before you can use your software you must be able to connect your device to your computer.

Requirements

AzComT requires Windows XP or later.

EtherX (including started from AzComT) requires Windows 7, SP1 or later. When run EtherX will cause windows firewall (if running) to ask for permission to access the network. This must be allowed for EtherX to detect your device.

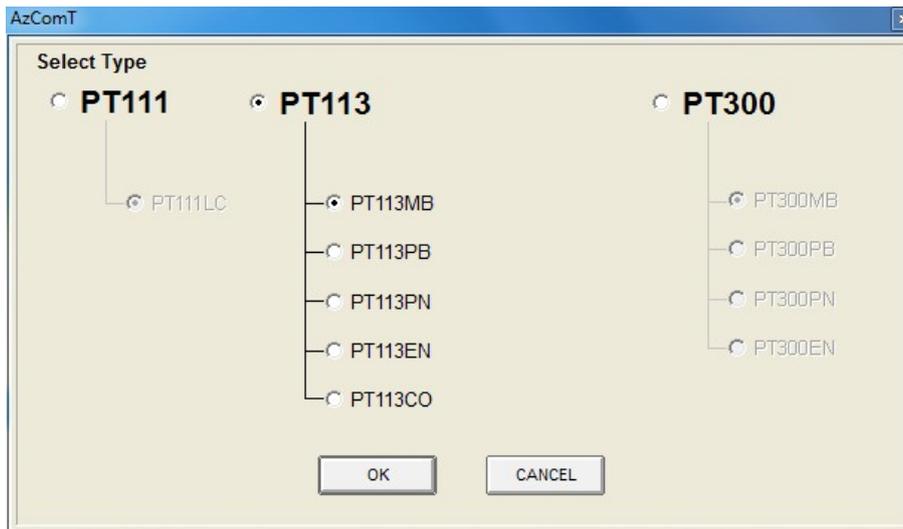
Connecting your device

The most common connection for setting up your device by software is RS-232C. PT offer a range of cables for serial and USB connection and drivers if required. If configuration via RS-485 is available, PT have a USB-RS-485 cable. Connect the cables as required and if necessary install the device driver. Installing the device driver may not be necessary as Windows will search for a driver on the internet and install it where possible. If an internet connection is not available and a USB connection is to be used then please install the USB driver for the cable or adaptor.

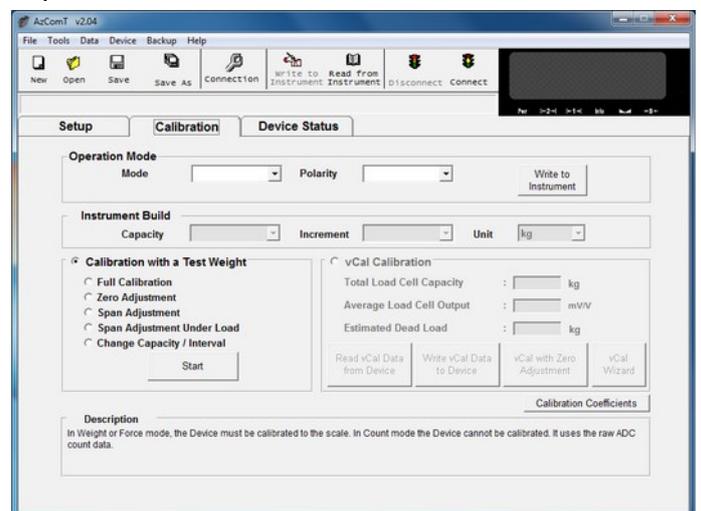
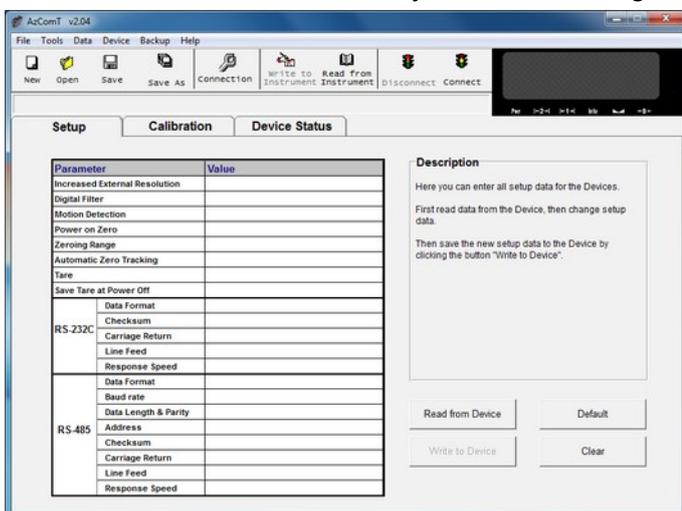
AzComT for configuring Transmitters

This software is specific to the Azure Series Transmitters. Please install EtherX first if you have a transmitter with Ethernet port.

Connect your device (for instance with a 3 wire RS232C cable) and start AzComT.



Select the model of transmitter you wish to configure and press OK.



- Click Connection and set the communication parameters and click connect from the menu.
- Always click Read from Device before changing settings.
- Click on the Value of a Parameter to change the value or select from a list. Configure as required.
- Click on Write to Device to save the settings.
- Now select the calibration tab and configure and calibrate as required.
- Make sure to Write changes to the device before exiting.

Refer to the appropriate device manual for details.

Note: For the PT113EN there is a gateway tab, when selecting a Modbus protocol for the Ethernet port, disable the checksum.

Note: For the PT113EN there is no user setting for Device ID for Modbus on RS-232C or Ethernet. This is pre-set to 01.

Note: Click Disconnect in AzComT to enable communication. Modbus, BSI and continuous output are disabled while AzComT is in the connect mode.

Note: For any changes made to a port (gateway) or protocol the power must be cycled off and on for the changes to take effect.

The Transmitter is now ready to check and use.

AzComI for configuring Indicators

Due to the different requirements for indicators, this version of AzCom is used. Information is in development.



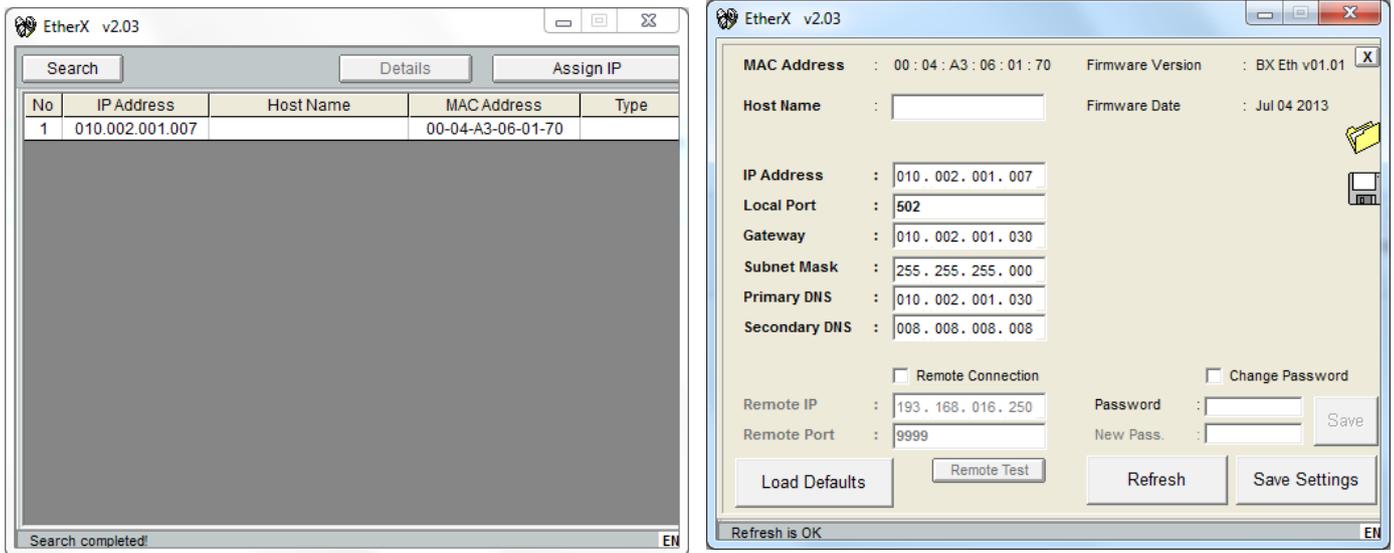
EtherX for configuring Ethernet ports.

EtherX is primarily used to configure Ethernet addresses for transmitters with Ethernet ports where the configuration cannot be performed from the front panel, as is possible with most indicators but not possible for instance with the PT113EN. EtherX can also be used to configure some of the Azure Series indicators with Ethernet ports.

Install EtherX from the USB drive supplied or download from the PT web site and install. When prompted to keep a newer already installed file, PT have opted to keep the already installed file in the use of this software.

Occasionally Windows has produced errors about missing files, but the software has functioned correctly by closing the windows and continuing.

Start EtherX and click the SEARCH button. A list of devices connected by Ethernet should show, check the MAC address on the label of the instrument you are configuring and you should be able to select that from the list in EtherX.



Double click on the device or select and use the EDIT button and set the addresses appropriate for your network, then click WRITE. The Ethernet port of your device is now configured.

Note: The default password is 123456. For Modbus TCP local port 502 is suggested.

Additional software

Additional software provided by other parties or built into operating systems can also be used for some configuration tasks. The following address this software by operating system.

Windows

Windows users can use the windows terminal program Hyperterminal to communicate using the BSI commands from the relevant device manual to perform some configuration.

Commands for BSI can also be sent from the command line.

The mode command will set the serial port mode (i.e. mode COM22 BAUD=38400 PARITY=n DATA=8).

The echo command will send a BSI command with <CR><LF> (i.e. echo P > COM1).

To send a command without <CR><LF> use (set /p x="Z" <nul >\\.COM1).

To read and display a serial port use (copy com1 con) and to exit the command (ctl+z)

Mac. OSX

OSX users can use the inbuilt screen command to send commands to most devices and Cutecom-ng for serial communication. For Ethernet communication using the BSI protocol you can use telnet from the terminal which works well.



Linux

Linux users can use built in commands to communicate by BSI or Modbus for configuration according to the relevant device manual. The BSI commands require a <CR><LF> termination. Modbus commands are configurable. Checksums may or may not be required depending upon device and settings. For Ethernet communication, no checksum is required.

For communication with a device RS-232C or RS-485 port, Cutecom is a simple yet functional application.

For communication with an Ethernet port

An example command for the PT210EN using Modbus follows, type ^c (ctl-c) after the command to view the response;

```
>echo -n 000100000006110300630001 | xxd -r -p | socat -,ignoreeof TCP4:10.2.1.7:502 > socatatest ; xxd -p < socatatest
```

The command is 000100000006110300630001 where each pair of digits is hexadecimal for a character.

00 01 00 00 00 06 11 03 00 63 00 01

00 01 is the transaction identifier,

00 00 is the protocol identifier,

00 06 is the message length (i.e. 6 bytes to follow)

11 is the unit identifier (address). Hex 11 = decimal 17.

03 is the function code (read analogue registers)

00 63 is the address of the first register requested, hex 0063 = dec. 99. Address = 40001+99=40100
(for the PT210 this is power supply voltage)

00 01 is the total number of registers to read.

A typical response shown here in hexadecimal is 0001000000051103020077

Transaction 0001, protocol 0000, length 0005, address 11, function 03, data bytes 02, data 0077.

Hex 0077 = dec. 119 = voltage 11.9

Using BSI mode the command

```
echo -n 3137500d0a | xxd -r -p | socat -,ignoreeof TCP4:10.2.1.7:502 > socatatest ; xxd -p < socatatest
```

sends 17P<CR><LF> to read a stable weight. The response is typically 17PS-00000002

In BSI mode a simple telnet connection can be made for BSI communication

```
>telnet 10.2.1.7 502
```

```
17A
```

```
17AS-00000002+00000000-00000002
```

```
17P
```

```
17PS-00000002
```

edit the .telnetrc file in your home directory to have the 2 following lines.

```
10.2.1.7
```

```
toggle crlf
```



Third Party Devices

Information is contained below to help configuration of devices, such as a PLC, provided by other suppliers.

Allen-Bradley Micrologix 1400

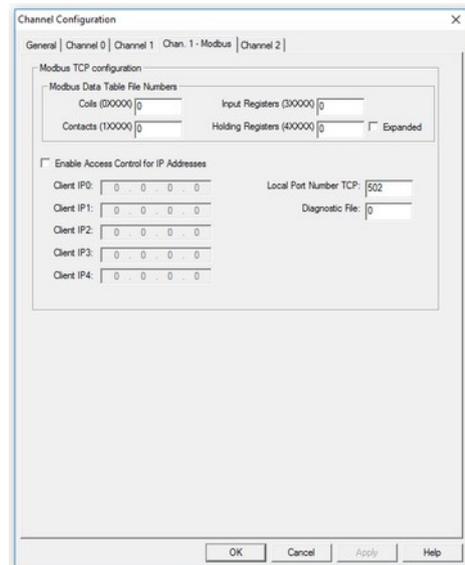
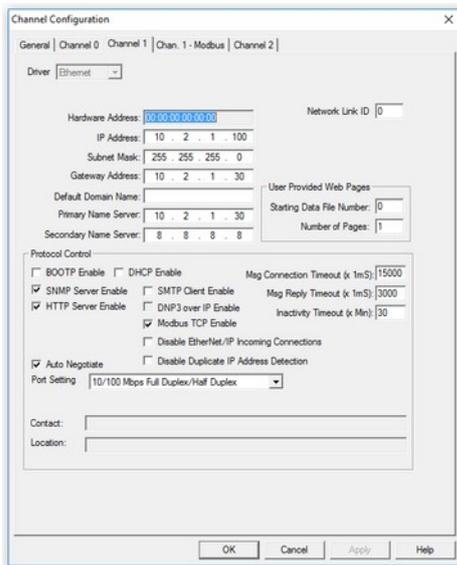
The Micrologix 1400 can communicate very effectively with PT Ethernet enabled instruments (PT113EN, PT210EN).

Using RS Logix 500 software;

A. In Channel 1 Modbus configuration with driver Ethernet tick (check) Modbus TCP Enable.

For port setting, take note that the PT instruments are 10Mbit half duplex. The PT instruments may not connect through some Ethernet hubs. When connecting through auto sensing Ethernet switches a setting of 10/100 Mbs Full Duplex/Half Duplex is suitable.

Note: After you set Modbus TCP and have saved the configuration, you should cycle the PLC power off and on to ensure the settings are activated.



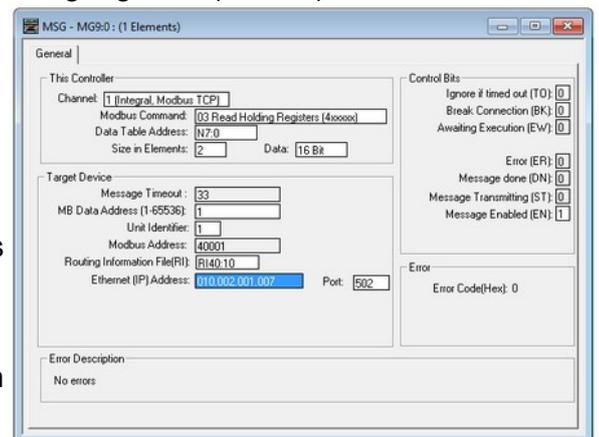
B. Make sure you have a Data File configured, such as N7, with enough storage elements.

C. Create a message element, note the PT instruments use Modbus commands 03 for reading and 16 (0x10) for R/W. (setpoints, zero, tare)

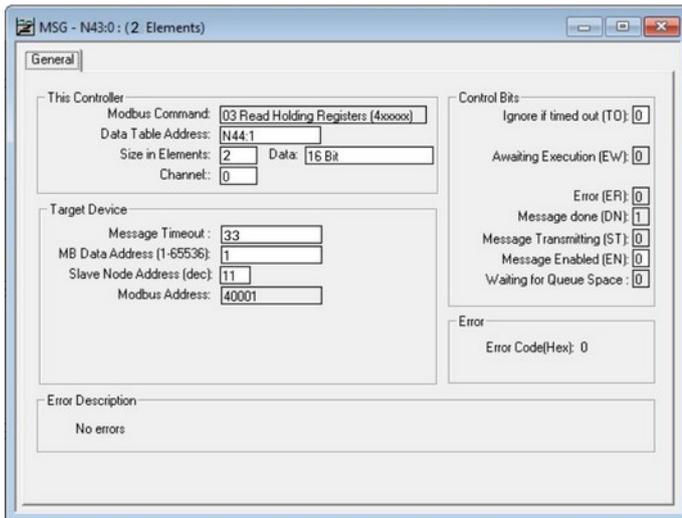
- *Note:* PT instruments use Modbus commands 03 for reading and 16 (0x10) for R/W. (setpoints, zero, tare)
- Set a data table address for the received data.
- Size in elements will be 1 or 2 and should match the table in the instrument manual. Reading a weight is 2 elements.
- Set the MB Data Address to match the address in the instrument manual. I.E Size = 1 and MB Data Address = 34 to read the PT113EN supply voltage or Size = 2 and MB Data Address = 6 to read the PT113EN gross weight.

The Micrologix 1400 should now be able to communicate with the PT instruments.

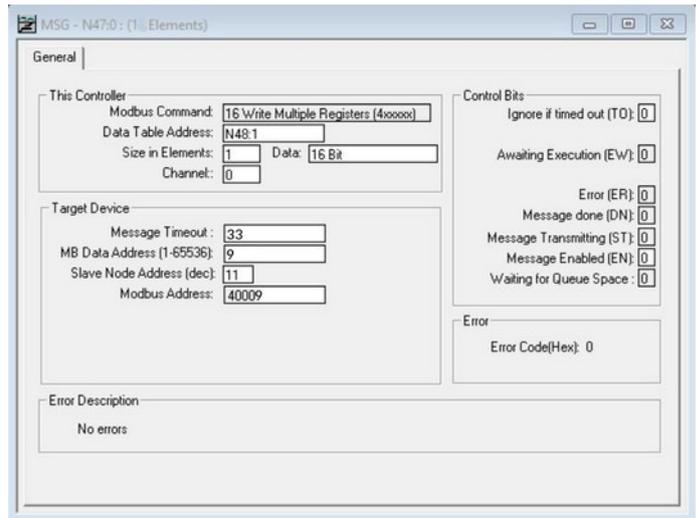
Note: Allow a short delay for the Micrologix to establish communication after cycling the power on the PT instrument or the Micrologix.



Below are 2 examples of the message set-ups for Modbus RTU with RS Logix to read the displayed weight and also to write a command for tare, zero, tare clear or print.



Read displayed weight



Write command to tare/clear/print

A weight reading is received into 2 words as an integer number without a decimal point. To use the weight reading as a floating point use the CPW instruction to copy to a float. For example CPW Source #N7:1, destination #F8:0, length 2. Then divide by 10 to the power of the number of decimal places (i.e divide by 100 if there should be 2 decimal places) using the DIV instruction so that the value correctly represents the weight.

Schneider HMIGTO 5310/Vijeo Designer.

Interfacing with the Schneider HMIGTO 5310/Vijeo Designer is very similar to the Micrologix, with the following point to note.

The PT instruments use Frame Code (FC) '0x10' (Preset Multiple Registers) to write commands to the instrument. The Schneider HMIGTO 5310/Vijeo Designer can use '0x06' (Preset Single Register) or '0x10' (Preset Multiple Registers) for a single word (such as a TARE instruction). Use of '0x06' (Preset Single Register) will cause an error response.

To ensure use of '0x10' (Preset Multiple Registers) set Preferred Frame Length to 'Custom' and 16 Bytes and not Minimum Possible.

This is found in Equipment Configuration > Communication Optimization > Preferred Frame.