Configuring the Y-View Operator Interface for use with Modbus TCP/IP

***This document assumes the user is familiar with the Y-View Configuration Software.

## Modbus TCP/IP communications with a Modbus TCP/IP Server Device
This example outlines configuring a driver for Modbus TCP/IP and communicating with a Modbus TCP/IP device that fully supports reading and writing of up to 125 consecutive registers. Should a device limit the number of Modbus read/write register requests, refer to the Y-View Connections manual for using other Modbus device driver options.

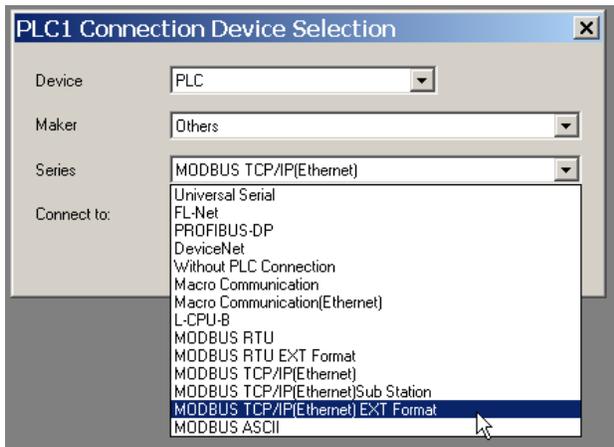In this example, we will configure device "PLC1" for Modbus TCP/IP communications.

1. Under the "PLC1 Connection Device Selection" dialog window, for "Device" select "PLC".
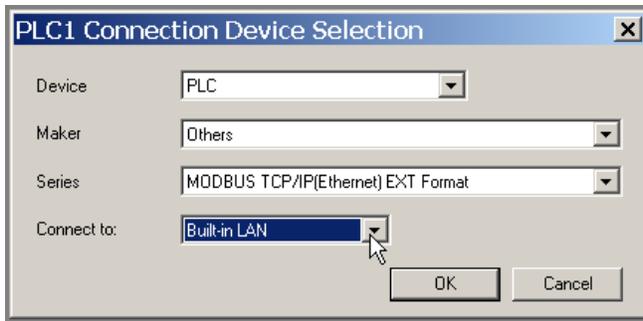

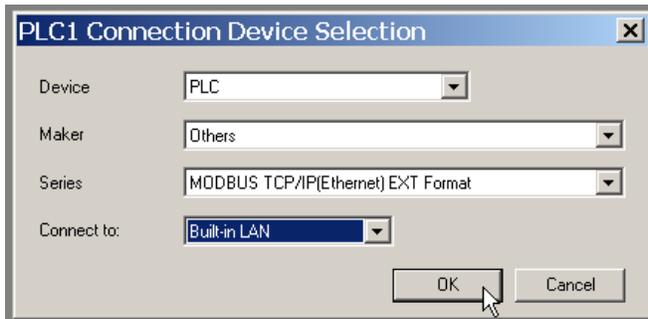2. For the "Maker" field, select "Others"
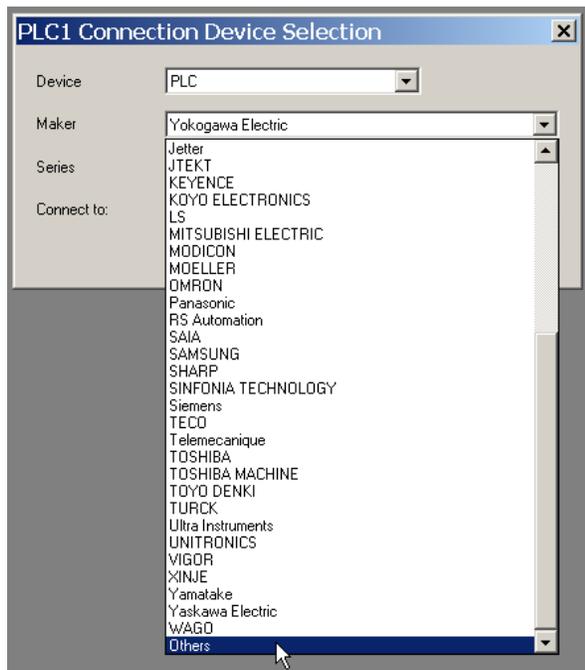
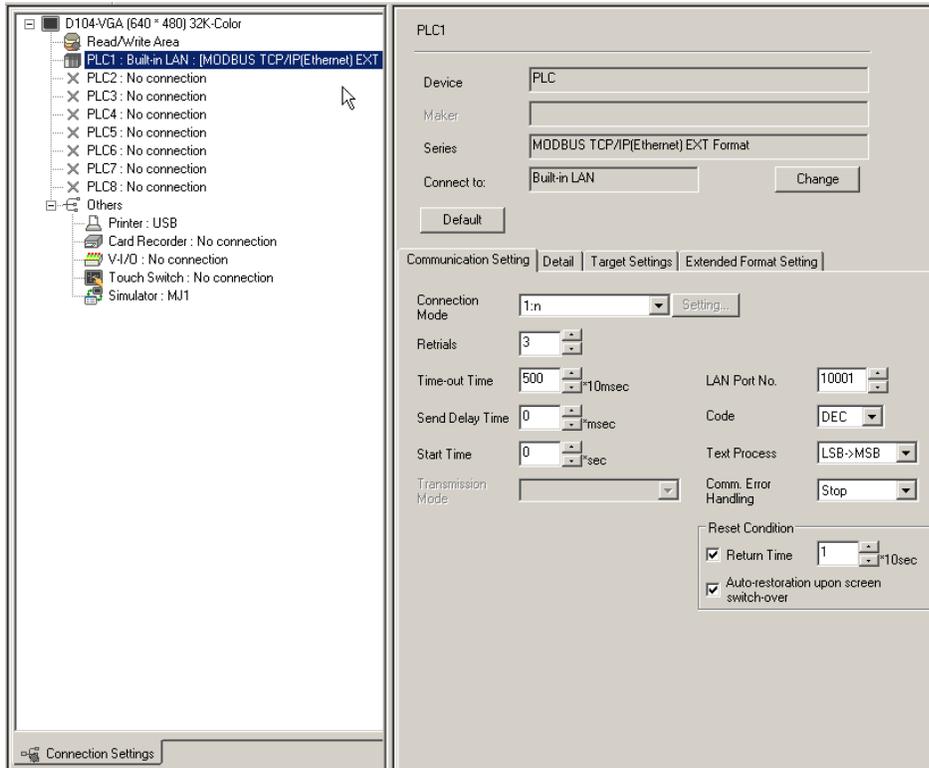3. For the "Series", select "Modbus TCP/IP (Ethernet) EXT Format"

4. Leave the "Connect to:" field set to "Built-in LAN"


5. Select "OK"

6. Under the "Connection Settings" tab, the driver setup for PLC1 will be displayed.


7. Each driver can support up to 254 devices. If the application requires communicating to only one Modbus TCP/IP device, under "Connection Mode", select "1:1". If the application requires communicating with multiple devices, select "1:n". In this example, we will use the "1:1" option.
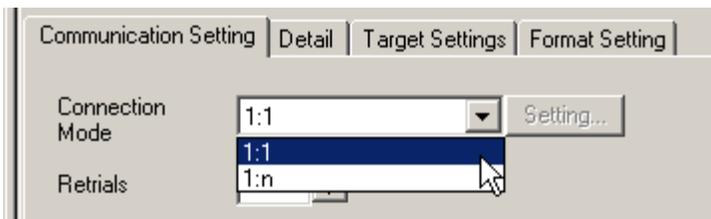
8. The other settings on the "Communications Setting" tab can now be configured.
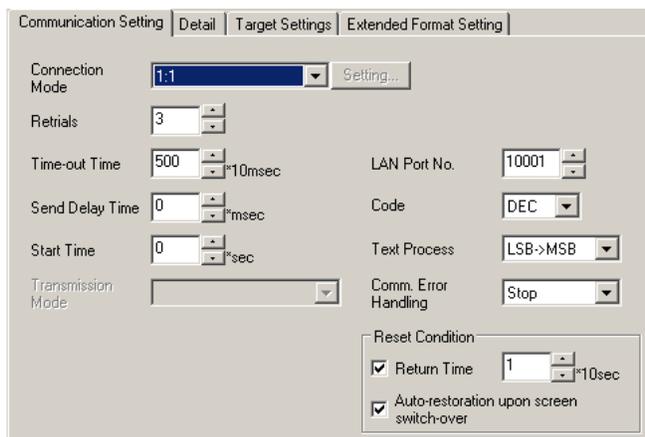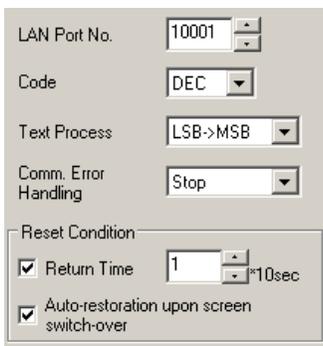
10. Parameter definitions:
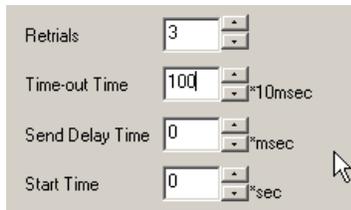
"Retrials" – The number of times the driver should attempt to communicate to the device before an error is generated.

"Time-Out Time" – After a request is sent to the device, the length of time to wait for a response before re-sending.

"Send Time Delay" – After a successful response is received, the delay before the next request is sent.

"Start Time" – After the Y-View is powered up, a Delay time can be entered that will not allow the driver to send requests to the device until after a period of time. This is useful when the end device has a long power up and initialization delay.
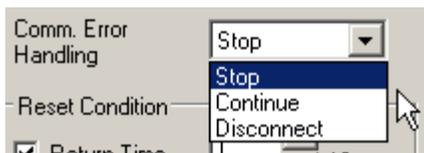

"LAN Port No." – The port number assigned to the Ethernet port under the "Ethernet" settings for the Y-View. 10001 is the default value.

"Text Processing" – This setting determines the byte order for ASCII characters.

"Comm. Error Handling" – Determines the action taken when a communication error is detected.

Select an action to be taken in the event of a communication error.
• [Stop]
Communication will be stopped entirely and the communication error screen will be displayed. The [RETRY] switch is available to retry the reestablishment of communication.
• [Continue]
The communication error message will be displayed in the top-left of the screen. The same communication will continue until restoration, and screen operation is not allowed then. When communication has been returned to a normal state, the message disappears and screen operation is allowed.
• [Disconnect]
No error message will appear and communication for other devices will continue. However, communication with the device, in which a timeout was detected, will be disconnected.

"Reset Condition" – Determines the action to be taken when a communication error occurs.

This setting is valid when [Disconnect] is selected for [Comm. Error Handling].
• [Return Time] 1 to 255 sec (* 10 sec)
When the specified time has elapsed, Y-View checks the restoration of the device which discontinued communications.
• [Auto-restoration upon screen switch-over]
When the screen is switched, Y-View checks the restoration of the device which discontinued communicating.

"Detail" tab - The Priority setting determines the order of driver processing when using multiple drivers.
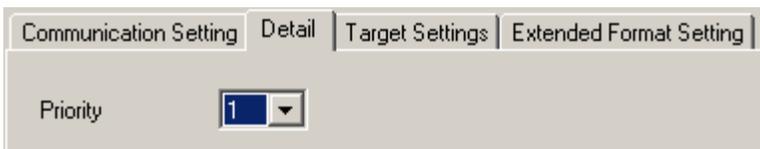


[1] (higher priority) - [8] (lower priority)
Specify a priority taken during communications when multiple drivers are configured. If interrupts from two or more devices occur at the same time, communication with these devices will take place in order of priority. When only one driver is configured, the default setting is "1" and does not need to be changed.

"Target Settings" tab – Device IP address settings are assigned in the area. Up to 255 addresses can be entered. In this example, the driver is configured for "1:1" communications with a single device. Devices are entered into the PLC Table with the name, IP address, and port # (typically 502 is the stand Modbus port number for most devices).
In this example, the device will be an MW100 located at IP address 192.168.1.200 with a Modbus Port setting of 502. With a 1:1 setting, a device must be selected from table to communicate with, in this case, device #0 is selected from the "Connect To" drop down box.
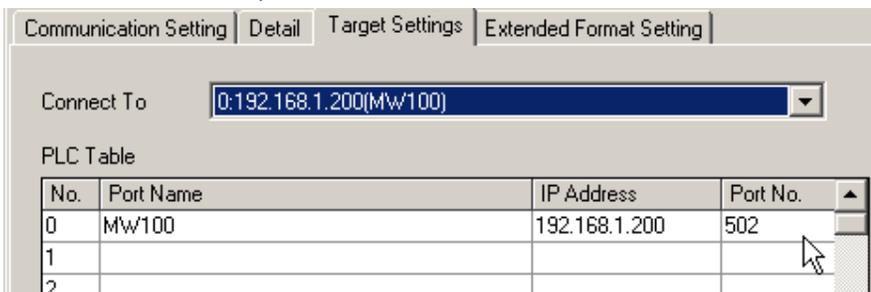
"Extended Format Setting" tab – If desired, a "Station Name" can be entered for the Y-View. If the device the system was connected to required the use of a sub-station (Unit ID#), the "Sub Station" box would need to be checked.
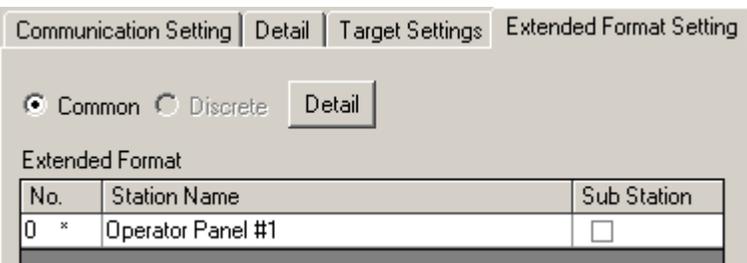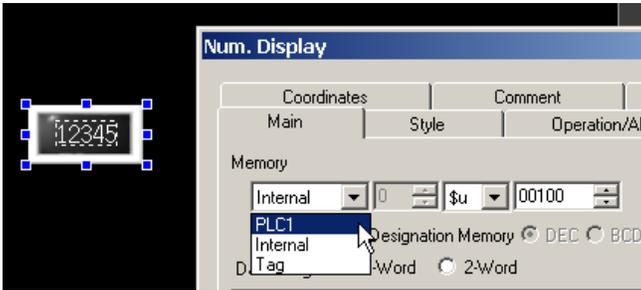

The driver configuration is now complete.

Assigning Modbus addresses to screen devices

In the example below, a numeric display will be assigned to a measurement channel in a Yokogawa MW100 recorder. Measurement channel #1 is assigned to Modbus Address 30001.
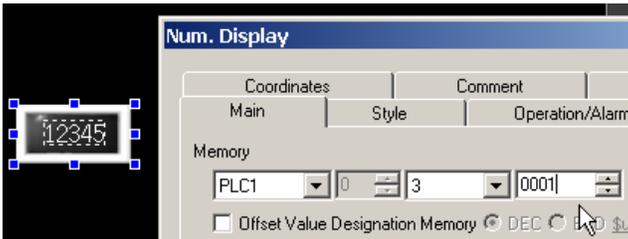
Under the "Memory" section of the numeric display configuration, select "PLC1".

Then select the memory type, in this case "3".
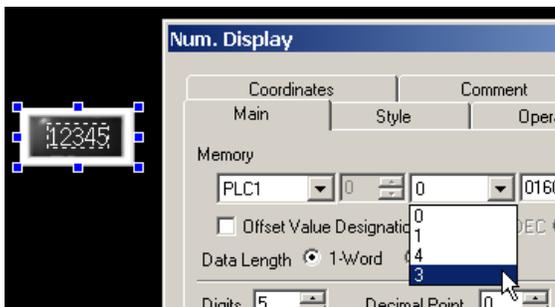
Enter the device number, in this case "1". The numeric display and now configured.


In the case where the Modbus driver was setup for "1:n" and multiple Modbus devices were entered into the PLC Table, an additional setting would be available. This selection dictates which device in the PLC table will receive the communication request.
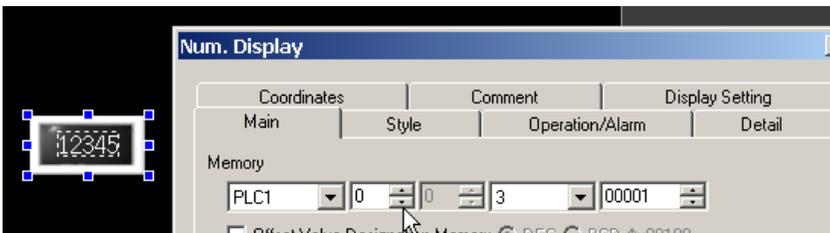
If a Modbus device requires the use of a "Unit ID", in the device configuration settings under the "Extended Format Setting" tab, check the "Sub Station" box.

When entering an address for a screen item, a Unit ID section will now be displayed. The field would contain the Unit ID# of the connected device.
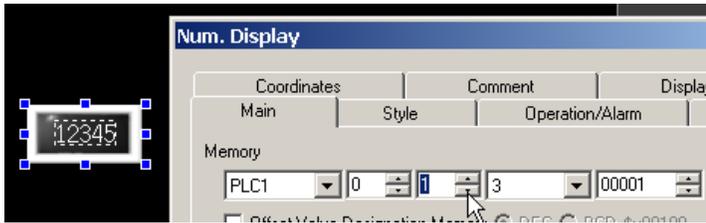
For further information, contact Yokogawa Technical Support at 770-254-0400 Ext. 4250