

Using NAMUR Sensors with the DX99 Nodes



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To use a NAMUR sensor with the DX99 Nodes, select a DX99 with a 10V sensor power supply and a 0 to 20 mA input. The following models are suggested:

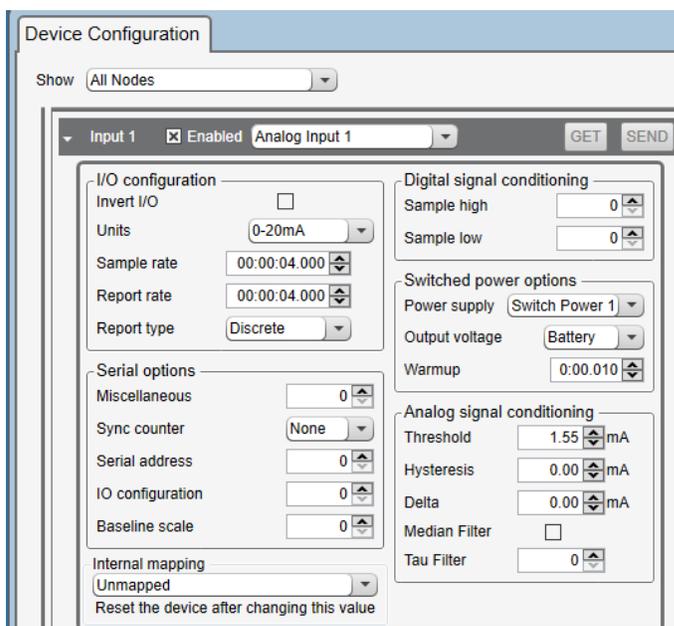
- DX99N2X1S2N0M2X0D1 - DX99 Node, 2.4 GHz, Integrated Battery, 2 discrete NPN IN, 2 analog 0 to 20 mA IN
- DX99N9X1S2N0M2X0D1 - DX99 Node, 900 MHz, Integrated Battery, 2 discrete NPN IN, 2 analog 0 to 20 mA IN

Download and install the User Configuration Tool (UCT) on a PC to configure this application. You will need:

- Computer
- UCT software (Download from www.bannerengineering.com)
- BWA-HW-006
- DX80 Gateway

NAMUR sensors connect to the Analog input of the DX99 because the DX99 digital inputs are designed for contact closures and NAMUR products actually work like a 0 to 4 mA current source with a switch point at 1.55 mA.

1. On the DX99's wiring board: Connect the positive end of the NAMUR sensor to SP1 and connect the negative end to AI1.
2. On the DX99 Node, set DIP switches 6, 7, and 8 to use Host Configured mode. Use Host Configured mode to set the switching threshold. You cannot use the DIP switches to set the sample and report rate for NAMUR sensors.
3. Bind the DX99 to its Gateway.
4. Use the USB to RS-485 cable (model BWA-HW-006) to connect the Gateway to the computer.
5. On the PC: Launch the User Configuration Tool. The following example assumes the DX99 is Node 1.
6. Go to the **Configuration > Device Configuration** screen.
7. Next to Node 1's entry, click **GET Node** to retrieve the Node's settings for all I/O.



8. Click the arrow to the left of Node 1 to expand Node 1's parameters. Input 1 should be enabled, set to Analog Input 1. Verify the units are set to 0-20 mA.
9. Enter a threshold parameter of 1.55 mA.

10. Enter a warm-up time of 10 ms.

11. Enter a sample rate of 4 seconds.

12. Enter a report rate of 4 seconds.

With a single NAMUR sensors, these settings should result in a battery life of just over three years.

13. Some NAMUR proximity switches are ON when the target is not present (backwards). If this is the case, you may want to invert the signal by setting the invert flag to Value = 1.

14. Click **SEND** to send the changes to the network.

For Modbus Host systems, read the analog value. The full value represents the current flowing through the sensor. The least significant bit represents the digital state: 1 if it is above the threshold, 0 if it is below the threshold.

When using a host-controlled system the setup can be greatly simplified. Instead of using the UCT tool, use the DIP switches to set the sample and report rates. Then decide in the PLC or host if the sensor is on or off based on the analog value being above or below the threshold.