

## Configuring the DX99 Radar Boost Node to Work with 4 to 20 mA Radar Sensor

This technical note describes how to configure the DX99N9X1S1N0M3X0D5 or DX99N2X1S1N0M3X0D5 Node to work with an Endress + Hauser FMR 245 (4 to 20 mA) or VEGAPULS 62 (PS62.UXCAE3DANXX) Radar Sensors. The DX99 Radar Boost Node allows user to power a radar sensor for a configurable length of time, known as the warm-up time, before taking a valid reading. The time frame during which the reading is taken is known as the sample interval.

Battery life for a DX99N9X1S1N0M3X0D5 or DX99N2X1S1N0M3X0D5 Node connected to an Endress + Hauser FMR 245 Radar Sensor:

Sample Rate (min)	Report Rate (min)	Average Current (mA)	Battery Life (yrs)
2	2	19.3	0.098
5	5	8.7	0.209
15	15	4.0	0.456
30	30	1.7	1.074
60	60	0.757	2.412

Battery life for a DX99N9X1S1N0M3X0D5 or DX99N2X1S1N0M3X0D5 Node connected to a VEGAPULS 62 (PS62.UXCAE3DANXX) Radar Sensor:

Sample Rate (min)	Report Rate (min)	Average Current (mA)	Battery Life (yrs)
2	2	9.8	0.186
5	5	4.9	0.372
15	15	2.6	0.702
30	30	1.1	1.66
60	60	0.5	3.65

Warm-Up Time of Endress + Hauser FMR 245 Radar Sensor = 29 sec

Warm-Up Time of VEGAPULS 62 (PS62.UXCAE3DANXX) Radar Sensor = 29 sec

Battery Voltage = 3.6V dc

Battery Nominal Capacity = 16000 mAhr

Battery Life = {mAhr/ (mA x 365 x 24)} yr

## Configuring the Parameters Using the User Configuration Tool (UCT)

The radar sensor parameters that need to be configured using the User Configuration Tool for the DX99 Radar Boost Node are:

1. Sample Rate
2. Report Rate
3. Default Value
4. Serial Address
5. Warm Up Time

# Tech Note: Configuring the DX99 Radar Boost Node



**Sample Rate:** The default sample rate for the DX99 Radar Boost Node is 20 min. The parameter value for a 20 min sample rate would be 19200.

The screenshot shows the Banner SureCross web interface. At the top, there are logos for Banner and SureCross wireless network. Below the logos is a navigation menu with tabs: Register View, Device Config, I/O Linking, System Parameters, Master Mode, Setup, and Help. Under Device Config, there are sub-tabs: Device Parameters, Device Information, Device Restore, Site Survey, Load/Save, and Network Formation. The Device Parameters tab is active, showing a sub-section for 'Device Parameters'. It includes a 'Show Value as:' dropdown set to 'Integer', and 'Get' and 'Send' buttons. Below this is a table with columns: Device, I/O Number, Parameter, and Value. The table contains one row: Node 1, 3, Sample Rate, 19200. Below the table is a description of the Sample Rate parameter: 'Sample Rate (bits 15:0). The rate at which the I/O point is sampled. The value represents the number of 62.5 ms increments. The sample rate/interval can be from 1 (0.0625 seconds, default) to 65535 (4095 seconds). Set to 0 to Sample on Demand. (Parameter number 0x03). Sample on Demand allows a host system to request a sample and report of any inputs within the wireless system. Supported in Gateway RF Firmware Version 2.7 and above. Supported in Node RF Firmware Version 1.0 and above.'

**Report Rate:** The default report rate for the DX99 Radar Boost Node is 20 min. The parameter value for a 20 min report rate would be 19200.

The screenshot shows the Banner SureCross web interface. At the top, there are logos for Banner and SureCross wireless network. Below the logos is a navigation menu with tabs: Register View, Device Config, I/O Linking, System Parameters, Master Mode, Setup, and Help. Under Device Config, there are sub-tabs: Device Parameters, Device Information, Device Restore, Site Survey, Load/Save, and Network Formation. The Device Parameters tab is active, showing a sub-section for 'Device Parameters'. It includes a 'Show Value as:' dropdown set to 'Integer', and 'Get' and 'Send' buttons. Below this is a table with columns: Device, I/O Number, Parameter, and Value. The table contains one row: Node 1, 3, Report Rate, 19200. Below the table is a description of the Report Rate parameter: 'Report Rate (bits 15:0) . The report rate defines the rate that the I/O status is reported back to the Gateway. The value represents the number of 62.5 ms increments. Report rates can be from 0 to 4095 seconds. A non-zero report rate guarantees a report on a periodic basis AND at change of state. When set to zero, there will only be a report at change of state. Value range: 0 through 65535. (Parameter number 0x04). Supported in Gateway RF Firmware Version 2.7 and above. Supported in Node RF Firmware Version 1.0 and above.'

**Warm-Up Time:** For a warm up time of 29 seconds (default), the value for the Warm-Up Time parameter would be 58. On the DX99 Radar Boost Nodes, the warm-up time is set in 500 millisecond increments. The valid range is from 0 (0.0 seconds) to 255 (127.5 seconds). The value 58 is applicable for both of the Endress + Hauser (FMR 245) and the VEGAPULS 62 (PS62.UXCAE3DANXX) radar sensors.

The screenshot shows the Banner Engineering web interface. At the top, there is a yellow banner with the BANNER logo on the left and the surecross wireless network logo on the right. Below the banner is a navigation menu with tabs: Register View, Device Config, I/O Linking, System Parameters, Master Mode, Setup, and Help. Under Device Config, there are sub-tabs: Device Parameters, Device Information, Device Restore, Site Survey, Load/Save, and Network Formation. The Device Parameters tab is active, and the 'Warm-up Time' parameter is selected. The parameter value is 58. Below the table, there is a description of the parameter and its supported firmware versions.

**Device Parameters**

Show Value as:  Integer  Hexadecimal

Get Send

Device	I/O Number	Parameter	Value
Node 1	3	Warm-up Time	58

**Warm-up Time (bits 7:0).** Values 00 through 127 set the number of 62.5 millisecond increments and values 129 through 255 sets the number of 250 microsecond increments. When the device supplies power to external sensors, this parameter defines how long power is applied before the input point is examined for changes. Value range: 00 (off, default) through 255. (Parameter number 0x05).

Supported in Gateway RF Firmware Version 2.7 and above.  
Supported in Node RF Firmware Version 1.0 and above.