Configuring for Sample on Demand

Theory and Terminology

What is Sampling on Demand?

Sample on Demand allows a host system to send a Modbus command to any register and require the Node's inputs to immediately sample the sensor and report readings back to the host system. Sampling on demand can be used between the normal periodic reporting.
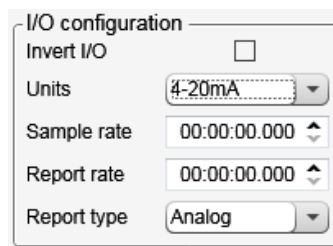
To use the Sample on Demand feature requires using a host-controlled system capable of sending Modbus commands to the Gateway.

Configure for Sample on Demand

To configure a Node to use Sample on Demand, use the User Configuration Tool (UCT) to change the Sample Rate of each I/O point to 0.

Changing the sample rate to 0 shuts off the periodic sampling and configures the I/O point to only sample when the host system demands a sampling.

Setting the sample rate set to a non-zero value configures the input to sample the inputs periodically or when the host system demands a sampling.

1. Connect the Gateway to a computer with the UCT software installed and launch the UCT software.
2. On the **Configuration** > Device **Configuration** screen, click on the arrow next to the Node you'd like to sample on demand.
3. Click on the arrow next to that Node's input number to expand the input's parameters.
4. Change the Sample rate to zero (00:00:00.000).

5. Click SEND to send the changes to the network.
    This input will now only report sensor readings when demanded to by the host system.

Sample an Input Using a Host System

To sample the input, have the Host System send a Read command to the Node using system message register 15 (15 + (Node # × 16).

1. Have the Host System send a 0x13xx Read command to the Node's register 15, where xx defines the input you want to sample. The table below defines the Hex to Decimal conversion for inputs 1 through 6.

Input	Binary Representation	Hex Representation	Read Command (Hex)	Read Command (Dec)
1	0000 0000 0000 0001	0x0001	0x1301	4865
2	0000 0000 0000 0010	0x0002	0x1302	4866
3	0000 0000 0000 0100	0x0004	0x1304	4868
4	0000 0000 0000 1000	0x0008	0x1308	4872
5	0000 0000 0001 0000	0x0010	0x1310	4880
6	0000 0000 0010 0000	0x0020	0x1320	4896
All Inputs	0000 0000 0011 1111	0x003F	0x133F	4927

To send the Sample on Demand to more than one input, add the binary representation values. For example, to demand a sampling of inputs 1, 2, and 3, the binary representation would be 0000 0000 0000 0111 and the Hex command is 0x1307.

2. After sending the message to the Node's register 15, configure the host system to write a 0x0000 (0 in decimal) back to the Node's register 15 to prepare the Node to accept the next command.