What is Sampling on Demand?

Sample on demand allows a host system to send a Modbus command to any register and require the 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 master radio.

Configuring for Sample on Demand

To sample inputs by writing to only one register, write to register x8201. Otherwise, use the registers listed for each input. Write a one (1) to initiate the Sample on Demand with the input associated to the selected register.

Register	Input
x8201	A 16-bit field for bit-packed inputs 1 through 16. Input 1 is represented by bit 0 and Input 16 is represented by bit 15.
x8221	Input 1
x8222	Input 2
x8223	Input 3
...	...
x8236	Input 16

After writing to the selected register, the MultiHop radio indicates the sampling is complete by writing zeros (0) back to the Sample On Demand register initially written to. For example, if you wrote a one (1) to register x8222 to sample input 2, the system writes a zero to this same register to indicate when the sampling is complete.

Example Sample-on-Demand Command

1. To force a sample on demand for multiple inputs by writing to only one register, use the bit field x8201. The 16-bit register represents 16 input points with bit 0 representing input 1 and bit 15 representing input 16. Otherwise, write a one (1) to the appropriate registers listed in the Single Bit Register table.

Bit position	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Input	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1	1

   Sending this value (0x0413) to the selected MultiHop radio's register x8201 triggers a sample on demand for inputs 11, 5, 2, and 1. This same command can be achieved by writing a 1 to registers x8221, x8222, x8225, and x8231.

2. Read register x8201.
   When all bit values have been reset to zero, all sample demands are completed. If this register is not zero, read the register again.

3. After the Sample On Demand process is completed, read the input registers.
   In this example, inputs 1, 2, 5, and 11 on the selected MultiHop radio have been sampled.