

# Technote 10 – ModHopper Install Questions

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## Time-out issues – what do they mean ?

“I connected my ModHoppers and then checked the status with my AcquiSuite to verify comms, and now I have error messages” What causes this ?

More than likely what has caused this is one of the ModHoppers has its baud rate selected to the 19200 baud rate, and the AcquiSuite is set to its default 9600. Log into your AcquiSuite and click on the Modbus setup page. Select the Opportunistic/Multi Speed setting for the baud rate. Here's a screen shot below of what the selection would look like.

### Modbus Loop Configuration

Modbus loop name:	Default
Data Logging period:	60 minutes
Modbus TCP Access:	Allow ModbusTCP access from any IP address
Modbus RS/485 baud rate:	Opportunistic/Multi-speed
Modbus RS/485 Parity:	None (default)
Modbus RS/485 Stopbit:	One (default)
Search for Acromag/Dataq devices:	<input type="checkbox"/> enable (9600 N 8 2)
Modbus debug information:	<input type="checkbox"/> enable debug (system debug messages)
Modbus RS/485 timeout:	2 seconds

## Baud Rate interoperability (I/O Cards, H8400,etc.)

Baud rate selection is important and its selection depends on a few import issues. First the ModHopper allows the user to select either 19200 or 9600 baud rate. Most of the time unless your *absolutely* sure all of your devices are communicating at a 19200, its best to place the switch in the 9600 baud rate selection, and leave it there. This still provides plenty of speed for any data you are monitoring. A good example of this would be the following, you have a ModHopper and its had connected to it several Veris Enercept Modbus data meters, and perhaps there is an additional mix of more complex data meters, and an assortment of A8923-4 I/O cards as well. Although many of the devices could be capable of transmitting at 19200, some may only be able to transmit at 9600 baud. This is why its a good idea to 'test bench' all of your connections and confirm functionality before deploying to the customer site. Although this may not always be possible or feasible to do. Connect everything up, and verify that all units can be 'seen' from the AcquiSuite browser interface.

## **Timeout**

The ModHopper introduces delay in the modbus query cycle as the data is passed over the wireless link to another ModHopper. The AcquiSuite Modbus RS485 Timeout should be adjusted upwards to 1.5 to 2 seconds to allow the ModHopper time to relay the query and response between locations.

## **Channel Selections**

When should you use the other channels ? Ideally in a busy industrial control network, you may have the need to have multiple wireless Modbus networks. And it may be necessary to have units separated from each others network. So switching channels would allow multiple separate Modbus networks to operate in the same area. Placing each group on it's own channel would help keep traffic moving without inference from the other separate ModHopper networks on the Modbus network. Keep in mind, this would be a rare instance to use the channel selector. Most of the time leaving all of the switches in the off positions will work just fine. The feature is there only for very special situations. There are up to six possible channels you can choose from using the three switch settings.

## **Adding higher gain antennas**

In some special installations some customers may want to have a directional antenna used to improve radio reception. If you decide to add another antenna here are the basic specs you'll need to have to order the right kind of antenna: 900 MHz ISM band, 50 ohms nominal impedance, a 2:1 VSWR and a RP-SMA connector type. Be careful when selecting another antenna, if you are uncertain about what type of antenna you need please call our tech support at Obvius for questions or are uncertain what type of application might need an additional antenna.

## **Adding additional devices, (up to 32)**

Up to 32 devices can be added to just one ModHopper. Remember the ModHopper acts just like a run of cable or wire for Modbus communications. So really any Modbus RS-485 device you want to connect with, you can. Where you might spend the time and labor to run a wire communication wire drop, in less than an hour you could have your remote Modbus devices communicating. Something else to that is often overlooked is that although you can only place 32 devices on one mod hopper, and individual device may have multiple inputs it is providing. A good example of this is the A8923-4. It has 4 pulse inputs and 4 analog inputs, all in a very small form factor.