

Communication troubleshooting on RS485 networks

When one of our multifunction transducers or meters is first put onto an active RS485 network, it will sense the network's settings by monitoring traffic and latch onto it.

The network address of the device has to be unique if its joining an established network.

If a device fails to decode up to five consecutive messages from the network's controller, due to noise or other type of interference, it will start looking for a valid network unless it has been 'locked' to prevent it hunting.

To prevent unnecessary hunting the settings can be locked into the EEPROM and will always be used unless they are unlocked again.

To 'Lock' a device and prevent it from hunting, first establish communication with it and then use MultiView's 'Lock' button or send 20904 to Modbus address 40097 as example below:

Sample Coding

Slave Address = 1

Writing To 4X Registers - code 16 (10 hex)

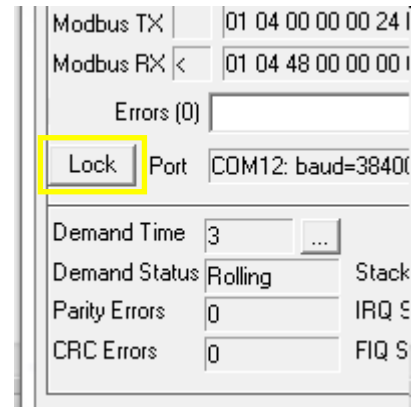
Message Packet To SLAVE (Big Endian)

01 10 00 60 00 02 04 46 A3 50 00 2C ED

N.B. 46 A3 50 00 = 20904

Response Packet From SLAVE

01 10 00 60 00 02 41 D6



It's worthwhile noting the address of a device and, if it's locked, all the network settings (address, baud rate, stop bits and parity).

When a device which has had its network settings locked is moved to a new network or is taken out of service, determining the correct settings can be difficult if the settings stored are unknown.

The recommended procedure to establish communication with a device when it's locked and all settings are unknown is as follows.

Separate the device from the network and connect as a one to one with a PC.

Using Multiview, set Node # to 254 (all devices respond when Node # is set to 254).

Click on Start and select a baud rate that is known to be in the device's range, No Parity, and two Stop Bits.

Allow a reasonable length of time (30 seconds maximum) before trying another combination of Parity and Stop Bits. Remember the maximum character length is 11 bits so you shouldn't use a parity bit together with two Stop Bits. However, you can use No Parity and one Stop Bit.

When every combination of Parity and Stop Bits has been tried, select another Baud Rate and repeat as above.

When communication has been established, unlock the device (setting the Pass Code first if necessary) and set its address to 1