

Establishing RS485 Communication with the RTGOM-02-xx on Windows

Establish terminal access with the primary USB connection

- If it has not been done already, it is best to get base-lined with terminal communications using only the USB port.
 - Ensure there is no L&M, or other, software that is claiming the RTGOM COM port.
 - Connect only the RTGOM USB mini connector to an available USB port on the Windows PC.
 - Follow the directions in: <http://landminstruments.com/wp-content/uploads/2014/06/RTGOM-Terminal-Access-on-Windows-1.pdf>
 - This will help confirm access via a terminal program, without the added complexity of RS485 setup and cabling.

Confirm proper configuration for RS485 connection

- Either via the terminal connection established above, or via standard “CLI” connection to the USB port, send the `getinfo` command to the device and ensure the following:
 - a. The Model Name starts with “RTGOM-02”, i.e., “RTGOM-02-Si” or is “RTGOM-Si02”.
 - b. That “Wireless/Auxiliary Listening” (or “Wireless Listening” on older firmware versions) is “Enabled” (4th from the bottom in the example below)
 - That “Multidrop” is “Disabled” (bottom item in the example below)

```
getinfo
Base Serial Number = 10005201602240005
Vendor Serial Number = -500
Model Name = RTGOM-02-Si
Friendly Name = NOT-DEFINED
Generation = 2
FW Version = 3.1.0.0
Dark mode (0=No,1=Factory,2=User) = 1
Rf Setting (0=Auto,1=Rf1,2=Rf2,3=Rf3,4=Rf4) = 0
Rf value R1 (kOhms) = 3
Rf value R2 (kOhms) = 1000
Rf value R3 (kOhms) = 10000
Rf value R4 (kOhms) = 10000000
Rf value in use (kOhms) = 10000
eCal: Disabled
eCal values = 1.000e+00 1.000e+00 1.000e+00 1.000e+00 1.000e+00 1.000e+00 1.000e
+00 1.000e+00 1.000e+00 1.000e+00 1.000e+00 1.000e+00 1.000e+00 1.000e
+00 1.000e+00 1.000e+00 1.000e+00 1.000e+00
Sample time (ms) = 1000
Auto Sample Time: Enabled
4-20mA mode (0=Auto/log, 1=min-max/linear, 2>manual) = 0
getvx1 = 0.002868
getvx17 = 0.046007
getvavg3 = 0.346078
Active voltage gain stage = 3
TIA voltage = -0.002048
getcurrent = 0.000e+00
Factory dark = R1 10272 10072 9974 R2 9531 9331 9232 R3 4452 4312 4244
User dark = -500
Ambient level = 0.000e+00
Logging: Disabled
Wireless/Auxiliary Listening: Enabled
Peak Tracking: Disabled
Fast Integrate: Disabled
Multidrop: Disabled
```

Establish terminal access with the RS485 connection on the DB15 connector

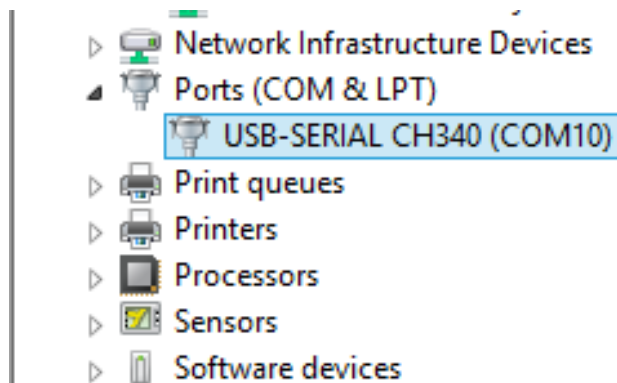
The following directions were tested with a USB<->RS485 connection on the PC.

USB<->485 Converter Used:

Baitaihem USB to RS485. http://www.amazon.com/Baitaihem-USB-485-Adapter-Converter-WindowsXP/dp/B00LNTN0H2/ref=sr_1_8?ie=UTF8&qid=1463863143&sr=8-8&keywords=USB+to+RS485

Chip-set: CH340, <https://www.olimex.com/Products/Breadboarding/BB-CH340T/resources/CH340DS1.PDF>

- Disconnect the USB connection to the device above.
 - The USB connection can sometimes cause conflict and/or confusion with the USB<->RS485 connection.
 - This will power down the device.
- Power the device with the 5V and GND power lines on the DB15 connector.
 - Pin 1 (5V)
 - CAUTION: Power over 5.25V can damage the device.
 - Pin 2 (GND)
 - When power is applied, the “Power On” LED should light and stay lit. The “Firmware OK/Saturation” LED should blink on for 1s and then blink off.
 - See the RTGOM-02 insert for more detail on the LED function.
- Connect the USB<->485 converter to the RTGOM-02 as follows:
 - USB<->485 (A/D+) to RTGOM-02 (DB15-6)
 - USB<->485(B/D-) to RTGOM-02 (DB15-5)
 - DO: Use a short, twisted pair cable without termination resistor for initial testing. Increase lengths and add termination resistors per RS485 spec only after initial success.
 - DO NOT: Connect grounds. Only A/B connections are required between the PC and the RTGOM-02.
- Determine the COM port in use for the USB<->RS485 Converter by accessing Control Panel and looking for the specific USB-SERIAL device “USB-SERIAL CH340 (COM10)” in the example below.



- Ensure there is no L&M, or other, software that is claiming the RTGOM COM port.
- Run terminal access software to access the device.
 - Settings:
 - Baud Rate / Bits per second: 9600
 - Data bits: 8
 - Parity: None
 - Stop bits: 1
 - Flow control: None
 - See Terminal Program Options below.
 - If there is not success, and a different USB<->RS485 device than the one mentioned above is being used, attempt to swap the “A” and “B” RS485 signal wires.
 - There have been some reports that some manufacturers reverse the labeling on these signals.

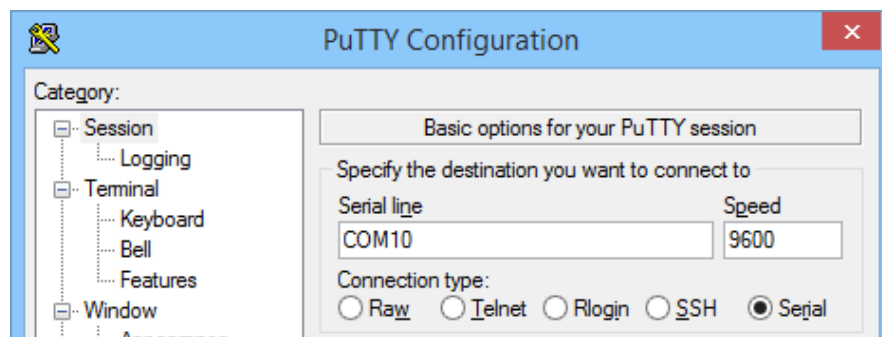
Terminal Program Options

“CLI9600” from L&M.

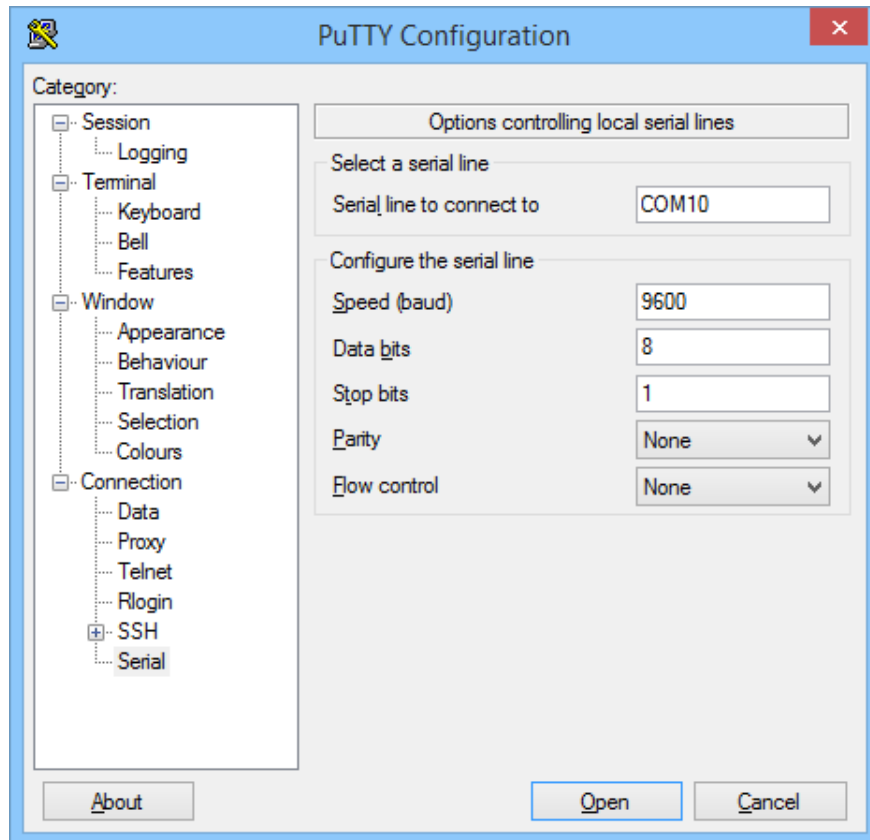
This is the equivalent of the “CLI” program, but running at 9600 baud as opposed to 115200 baud. This program will scan all the devices and find the first RTGOM that is connected properly for 9600 baud.

“PuTTY”

- Download PuTTY from <http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>
- Run PuTTY
- Within the default Session screen, select the “Serial” radio button for Connection Type and insert the appropriate COM port identifier in the Serial line box (COM10 in the example below).



- Select the “Serial” Category on the left side of the dialog box to bring up the screen below, and set the “Configure the serial line” settings exactly as indicated below.
 - o Note that Speed (baud) should be set to 9600 for RS485 connection to the RTGOM-02.



- Select 'Open' to start your session
- Enter the `getinfo` command to test connectivity