TT-TS-12 MODBUS
CONNECTION TEST

APPLICATION & EQUIPMENT

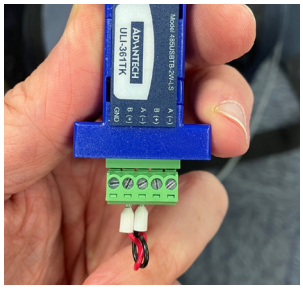
Application used : Modscan 64 downloadable - https://www.win-tech.com/html/demos.htm
Equipment used : ADVANTECH BB-485USBTB2WLS-A - Purchased Here

Modscan 64 is not a free software but it gives you 10 minutes for free, however, licenses are not expensive.

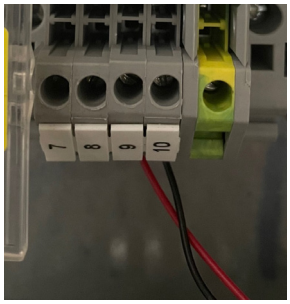
CONNECTION

Connect the RS485 converter to a PC/LAPTOP via a USB cable.

Connect a comms cable as shown below between the TT-TS12 and the RS485 Converter.

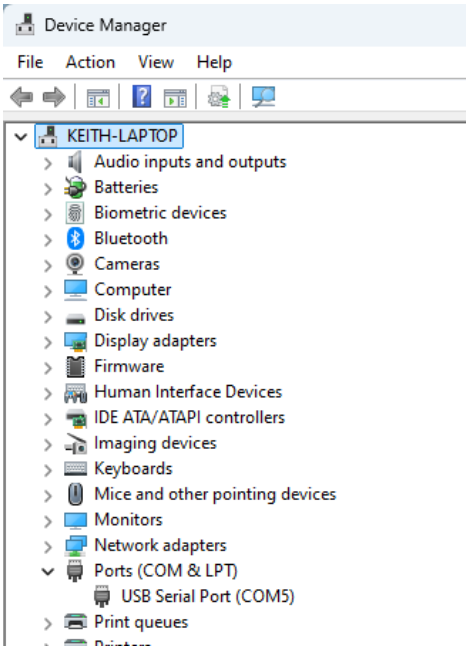


Rs-458 Converter

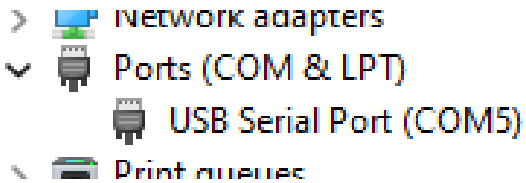


TT-TS12 HOST

Once the RS-485 converter is connected to the laptop you will need to get the PORT that the converter is using. You can find this out by going to you r computer's Device Manager is and look under the Serial Port section , for this instance the port is No 5, this can be shown as a different port on your PC/LAPTOP.



Ports under Device Manager.



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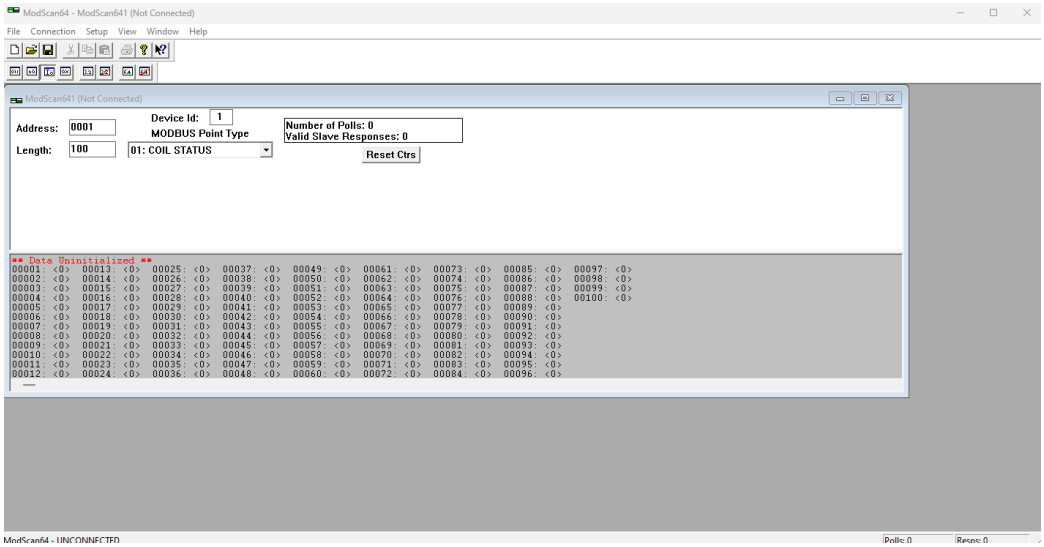
RS-485 CONNECTION AND SETUP

On the TT-TS-12 the ideal Modbus settings should be as follows :

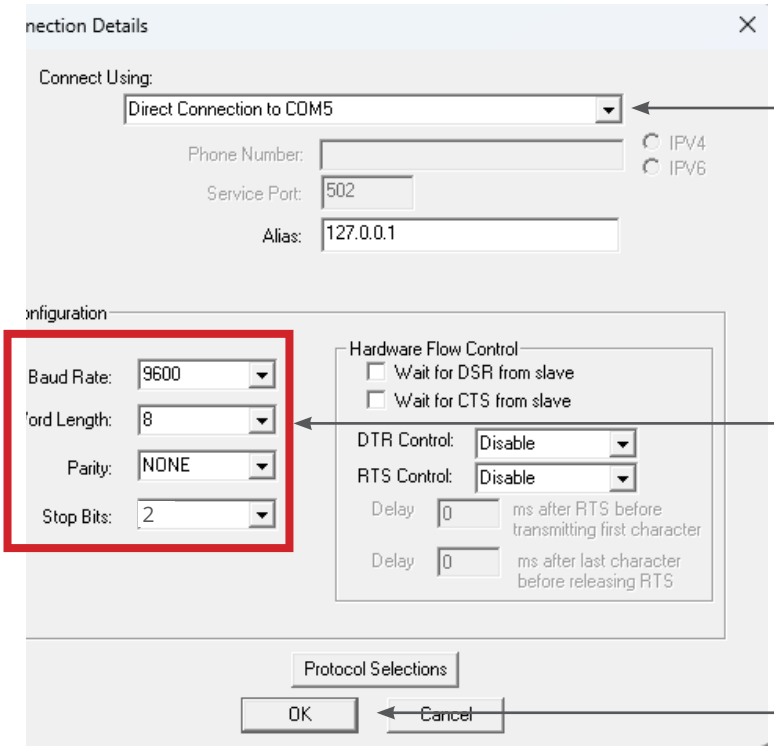
1. Setup and enter the password
2. System
3. Comms Port
4. Adjust the settings in the screen shown, Port is Rs-232 Host if you are using the wired connections, Baud Rate 9600, Stop Bits 2 , Parity None, Adjust the Modbus Address.
5. In the below examples we have selected Modbus 1 as an address.

CONNECT TO THE TT-TS-12

Open up ModScan you will see a welcome screen as below



Select Connection in the menu tab and then select Connect

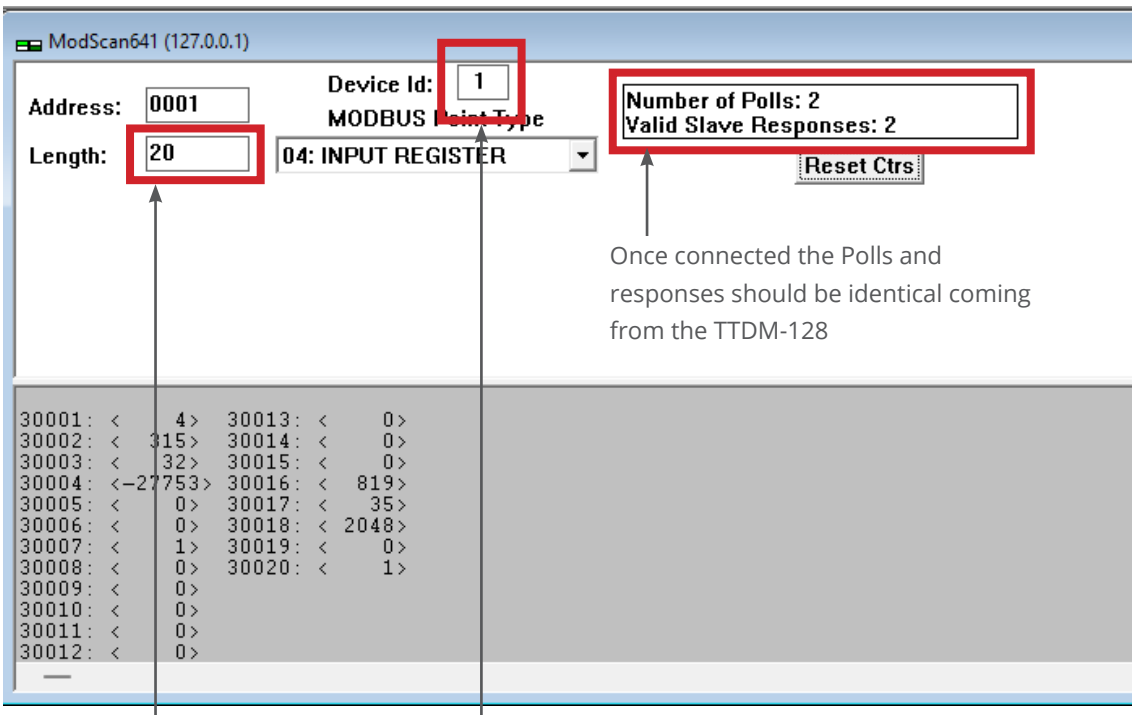


Select the port that the Converter is using, we found this from the Device Manager section.

These settings should be the same as the TT-TS12 is setup.

Press OK to Connect

Select Connection in the menu tab and then select Connect



Once connected the Polls and responses should be identical coming from the TTDM-128

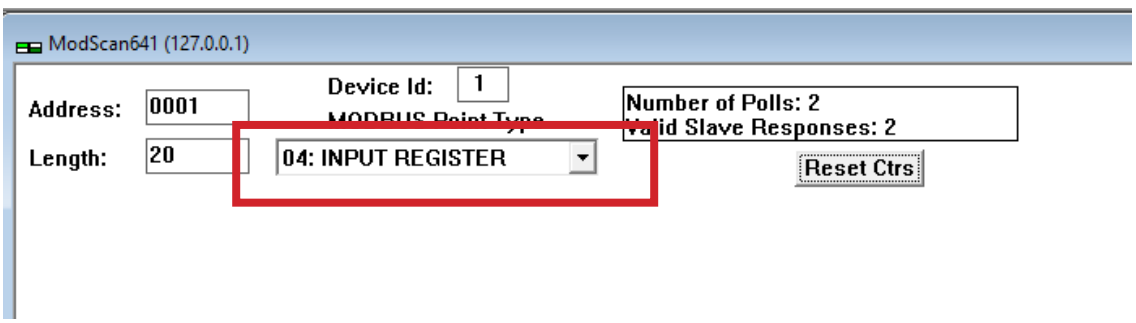
This is the TT-TS12 MODBUS id which was setup in the RS-485 Connection and Setup section Point 4.

IMPORTANT: Minimise the number of registers read below 100 , ideally 20-80 at a time.

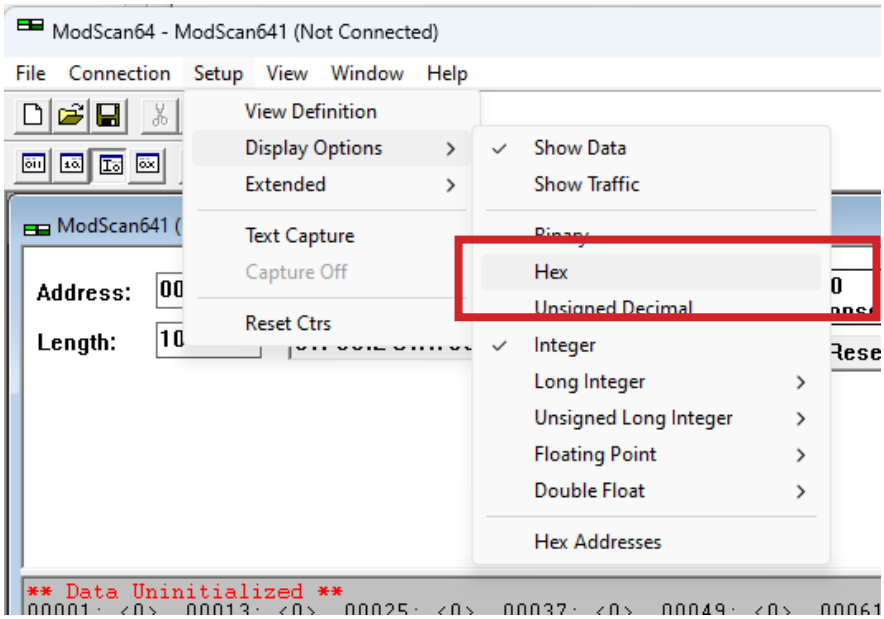
For this example we are going to monitor SIM number one on the TT-TS-12 from the TT-TS-12 modbus instructions you can see the this is Modbus register No 151 (these increment in hundreds depending on sim ID numbers, SIM 2 will have a register of 251, SIM 3 of 351 etc.

151	4	SIM Status 1	Normal = 0x0001 Service Alarm = 0x0004 Loop Imbalance YB Loop Break RG Loop Break Hardware Error Node Low Battery Node Battery Fail Node Device Fail Node Offline = 0x1000 New Leak = 0x8000	= = = = = = = = = = =	0x0000 Leak Alarm 0x0002 Cable Break 0x0008 0x0010 0x0020 0x0040 0x0100 0x0200 0x0400 0x0800 Leak ReAlarm 0x2000 Comm Alarm

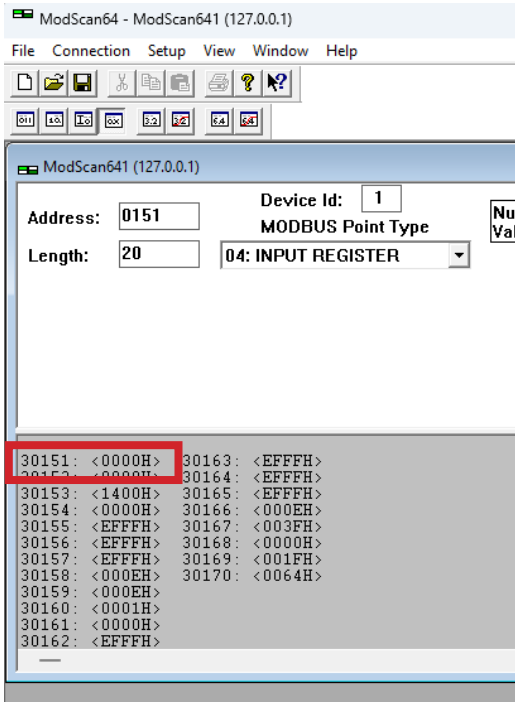
The registers for SIm 1 use SIm Address 151 , using Function 4, What is function 4? Please see below:



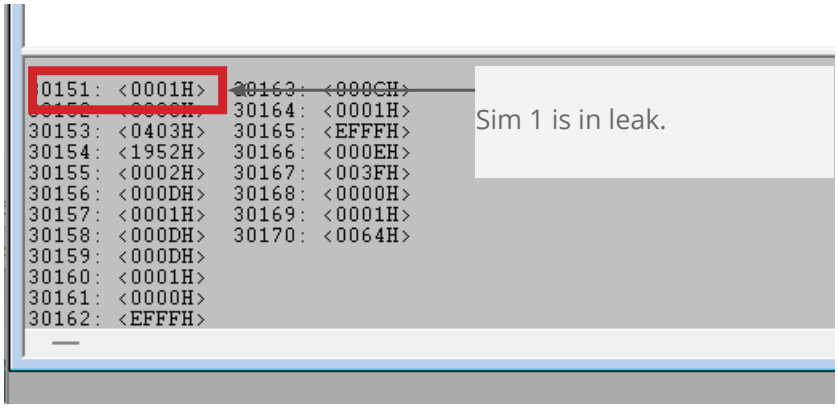
It is important that this register is read in HEX this can be changed from Modscan menu shown below:



In the below picture the Address 151 is targeted - as shown this is hex 0000H which means the Sim is in healthy state. A list of the Hex-codes can be found below and also in the TT-TS-12 MOdbus Instructions.

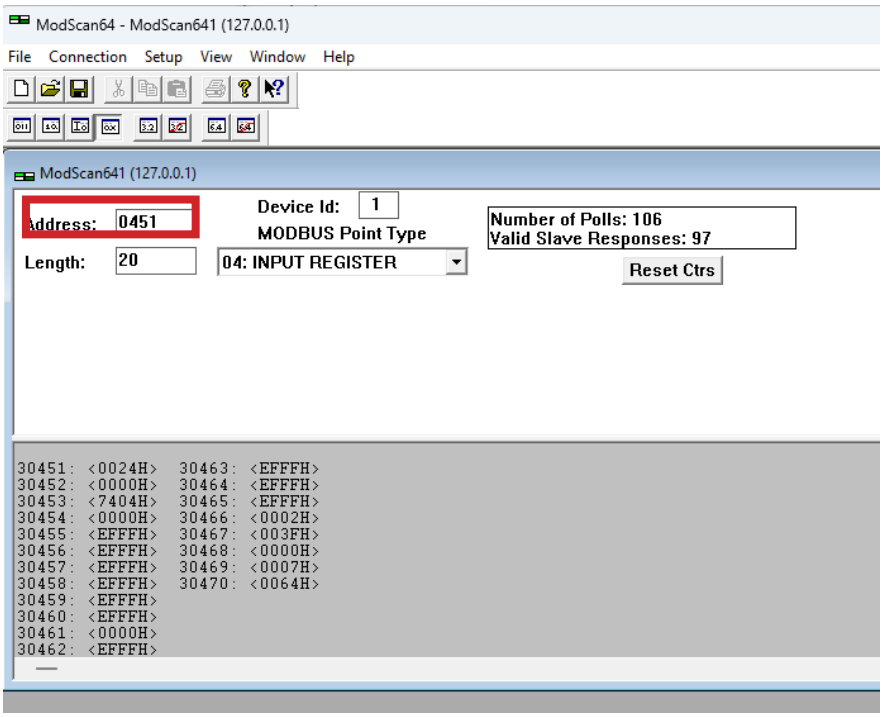


Normal	=	0x0000
Leak Alarm	=	0x0001
Service Alarm	=	0x0002
Cable Break	=	0x0004
Loop Imbalance	=	0x0008
YB Loop Break	=	0x0010
RG Loop Break	=	0x0020
Hardware Error	=	0x0040
Node Low Battery	=	0x0100
Node Battery Fail	=	0x0200
Node Device Fail	=	0x0400
Node Offline	=	0x0800
Leak ReAlarm	=	0x1000
New Leak	=	0x2000
Comm Alarm	=	0x8000



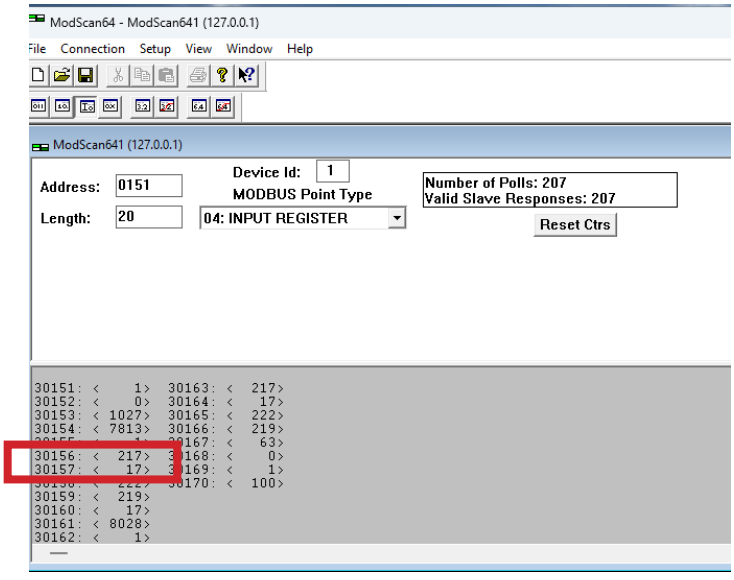
Sim 1 is in leak.

Note: Some registers such as the cable break register appear to have been modified. Example cable break is shown to be 00024H. However once you establish the Hex numbers these will be the same across all SIMS. We are simulating a leak and the adjacent image shows the register shown as 0001H. Which mean status is in leak.



In the above instance of Modscan SIM 4 is being monitored. SIM 4 is in cable break. Shown with HEX 00024H. To then identify where the leak is you can query two registers, 156 or 157 (these registers can be found in page 16 of the TT-TS-12 MOdbus instructions. These registers should be interrogated as Integers, this can be changed from Setup -> Display Options -> Integer to show normal numerics. In the below example you can see the resistance is 217 Ohms, and the distance shown on the TT-TS012 will be 17 (meters) (Register 517)

156	4	Location Resistance	Ohms
157	4	Location	In SIM Units feet/meters/zone



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