PCD Application Note

OleumTech WIO® Wireless Gateways to Semaphore TBox LT2/TG2 Connectivity Guide

Description: This PCD Application Note will guide you through setting up serial communications via ModBus RTU Protocol between the OleumTech Gateway Products and the Semaphore TBox LT2/TG2 RTU's.

Requirements: Oleumtech Gateway - Either the Base Unit (Model WM2000-002) or DH2 Unit (Model SR5000-DH2), OleumTech BreeZ Software, Semaphore TBox RTU – Models LT2-5xx-x or TG2-5xx-x, Semaphore TWinSoft Programming and Configuration Software.

Assumptions: It is assumed that you have familiarity and experience with OleumTech Hardware and communications, Semaphore TBox RTU's and TWinSoftt Programming Software. It is assumed you have configured and can successfully communicate to the TBox RTU/PLC with TWinSoft Programming Software (via Ethernet or USB) and have the OleumTech Gateway units communicating to one or more OleumTech Wireless Transmitters.

Notes: All of the information provided is believed to be accurate and reliable; however, PCD assumes no responsibility for any errors. Further, PCD assumes no responsibility for the use of the information provided.

Section 1 - Introduction

The purpose of this application note is to summarize the integration of the OleumTech Wireless System with the Semaphore TBox. The OleumTech Wireless System consists of the Base Unit and DH2 Gateway receivers. Consult the appropriate installation guide for configuration, installation and setup of the OleumTech Corp. Wireless I/O Transmitters.

This document describes the basic TBox Modbus RTU communication setup requirements only. Consult the TBox product manual for more detailed information on settings and installation of the TBox.

Equipment needed

- Oleumtech Base Unit (W2000-002) or DH2 (SR5000-D2)
- OleumTech BreeZ Configuration Software
- OleumTech Configuration Cable (SX1000-CC1)
- Semaphore TBox LT2-5xx-x or TG2-5xx-x
- Semaphore TWinSoft Programming and Configuration Software

Section 2 – Communications Wiring

You can communicate between the OleumTech Gateway units and the TBox LT2 or TG2 models via either RS-232 or RS-485 Communications (with Modbus RTU Protocol).

On the OleumTech Gateway units the wiring is the same for both RS-232 and RS-485 communications, but internal jumpers must be set to ensure proper choice.
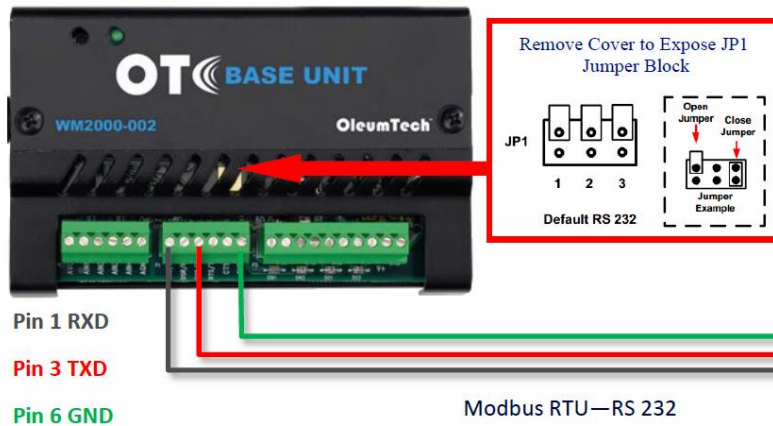
For the TBox LT2 and TG2 Products the wiring for RS-232 and RS-485 land on different connectors and must be configured in the TWinSoft configuration.

Choose your desired method of communications and follow the wiring diagrams as follows on the next 2 pages:

RS-232 Wiring Options

RS-485 Wiring Options
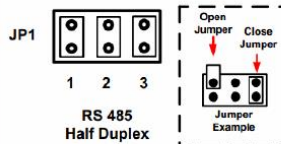
Section 3 – Gateway Configuration with BreeZ

The Base Unit or DH2 will be configured using the Oleumtech BreeZ configuration software. Connect the 9-pin connector cable provided with the Oleumtech equipment. If your computer does not have a 9-pin serial port, you must use a USB to serial adapter. After connecting the configuration cable to the computer, connect the RJ45 end to the configuration port on the Base Unit or D2 as shown.
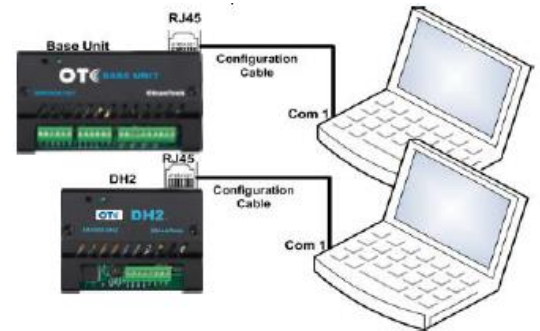
Once the connection has been made, you are ready to open the BreeZ configuration software. After BreeZ is running on the computer, configure the computer COM settings. This can be done by selecting the Edit tab, then options. After selecting the options tab the computer communications popup menu appears.
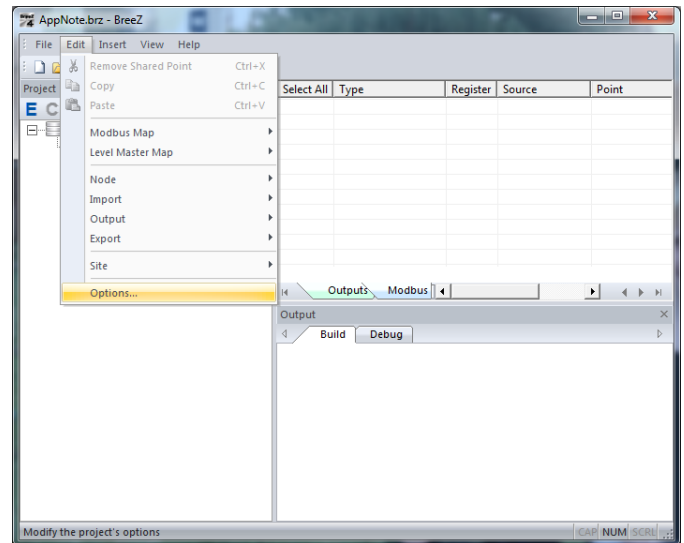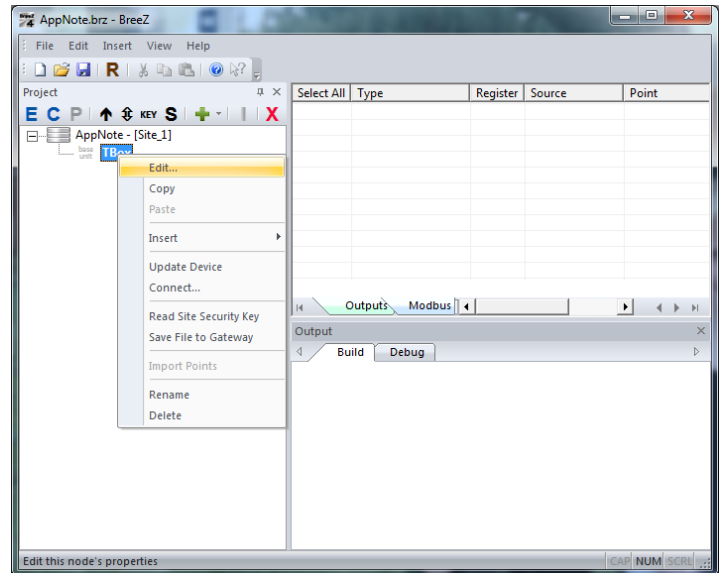

Select the computer comport. The configuration Baud Rate is always set to 57600. Parity should be set at none and stop bits at 1.
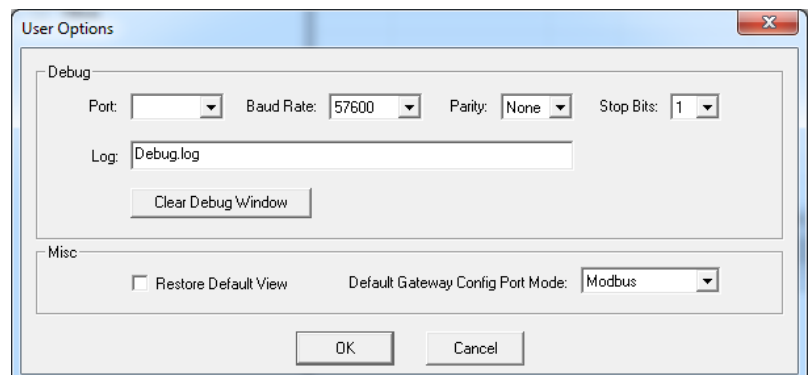
The next parameter is the Wireless Gateway
(Base Unit or DH2) RTU port COM settings.
Select the Base Unit or D2 Properties then select
Edit.

RTU Port Configuration

Once at edit screen, set parameters on RTU tab to
Modbus Slave with correct ID# (RTU Master is the
TBox). Set rate and stop bits the same as the TBox
com port. In this example, we are using RS232
(Oleumtech default) and Baud Rate of 9600 8N1.
Once the parameters have been set, the file can then
be uploaded to the Base Unit or DH2 for changes to
take effect.

**Note: If RS485 is preferable, then it must be
checked at this time.**
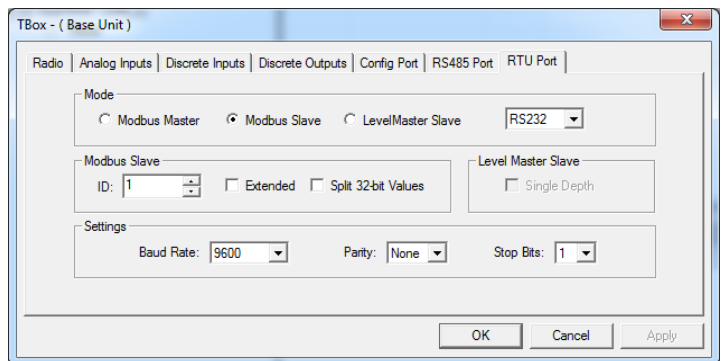
The Modbus must be configured in BreeZ accordingly to reflect all data exports wanted from Oleumtech
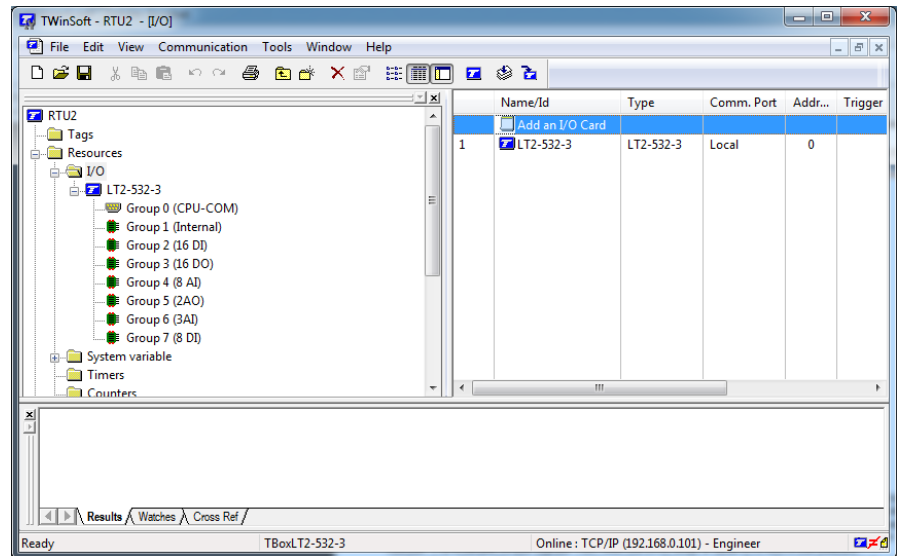wireless transmitters. Refer to Modbus Map as shown:
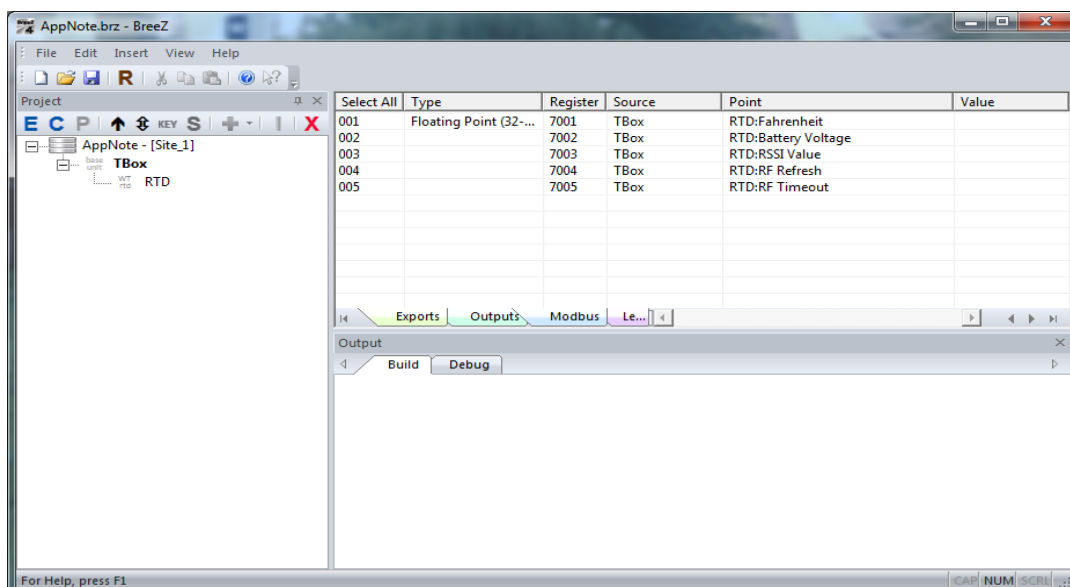
TWinSoft Setup

Next, edit the TWinSoft configuration file. Once you establish communications with the TBox, Add and I/O Card under the Resources> I/O folder. Double click **Add an I/O Card** and select Modbus Device.

Once you select the Modbus Device, choose the address that corresponds with the Base Unit or DH2 unit, the RTU Port (RS232 in this example), and the Tagname for the Communication Trigger.
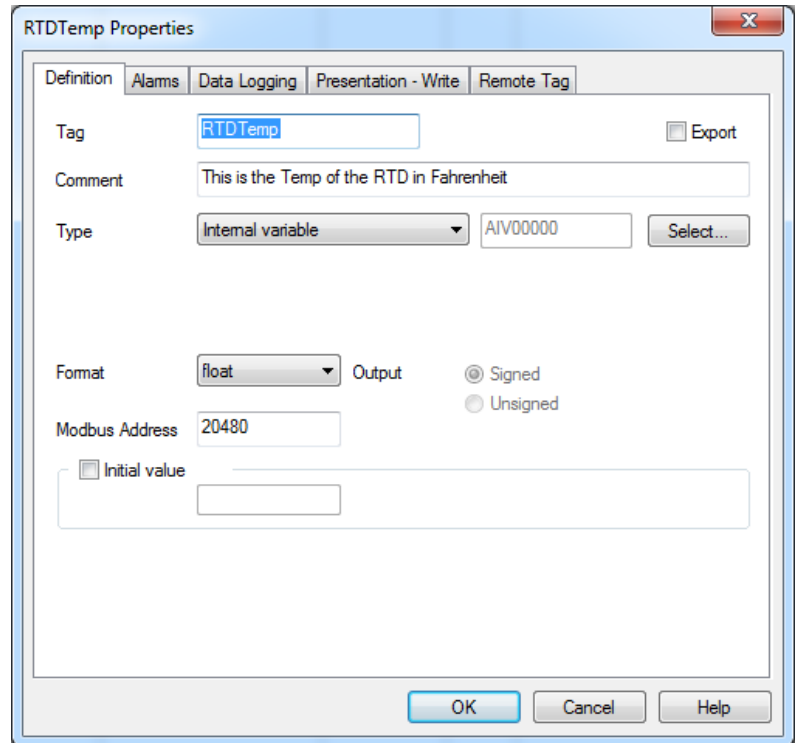

Go to the **Advanced Section** of the I/O remote Device, select the Compatibility Tab, and check the Enron Addressing option. Select OK, and then OK.

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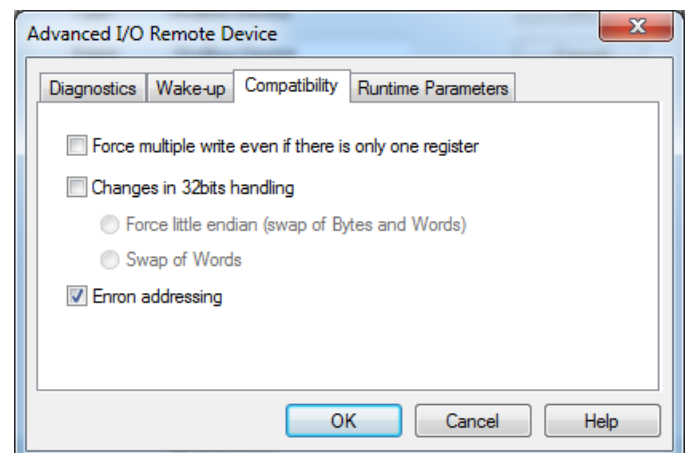
Select the Tags Folder in the navigation tree and double click **Add a Tag**.
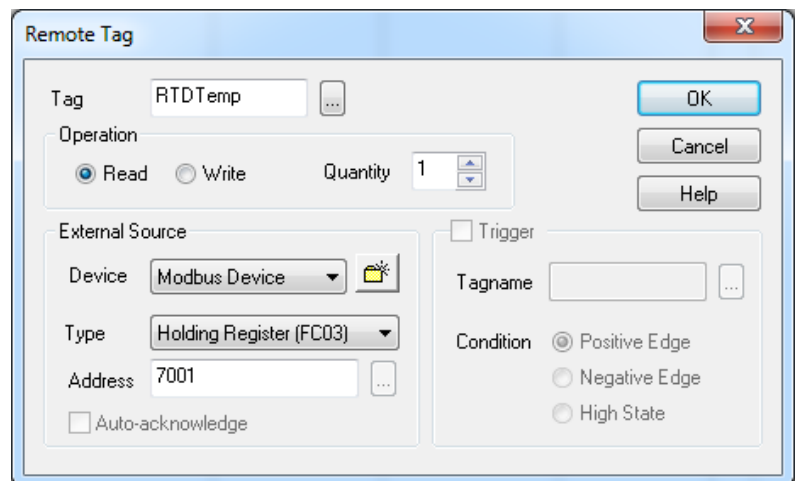
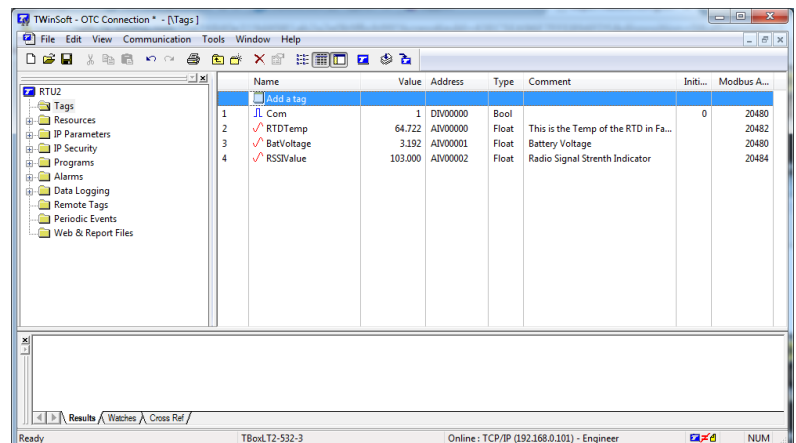Assign the Tag a Name and Comment (optional) Select OK.

Open Remote Tags in your navigation tree and double click **Add a Remote Tag**. Browse and select the internal tag you want to map this remote tag to, select the Modbus Device we created, select the Type (Holding Register (FC03)) and the address from the BreeZ configuration. In this example, we used 7001 for the RTD. You of course may add other tags as needed.

Return to your Tags Folder in the navigation tree. Compile and send your program to the TBox. Once this is completed, trigger your communications and you should see the Modbus values under the Value Column as shown: