Si-Modbus-Configurator_V0.2n - Documentation

1 Introduction

Si-Modbus-Configurator_V0.2n is a software tool to set the Modbus parameter and test the communication for the silicon irradiance sensors (Si-RS485…-MB) and temperature sensors (T…RS485-MB) with Modbus protocol.

1.1 System Requirements

Recommended		Comments
General system	Windows-PC 1x available RS485 Port	If the system does not have any available RS485 Port it is recommended to use an RS485 to USB converter.
Operating system	Windows 2000/XP/7/8/10	
Hard drive disk space	At least 160 MB	
Display resolution	At least 1024 x 728 px	

1.2 Software Installation

To install the *Si-Modbus-Configurator_V0.2n,* execute the file *setup.exe* of the *Si-Modbus-Configurator_V0.2n* installation package and follow the instructions.

If the LabVIEW RunTimeEngine 2012 has not been previously installed, it will be automatically installed on your system.

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1.3 Hardware Installation

The PC system must have installed an RS485 port and set as a serial COM port. If this is not the case, you can use an USB-to-RS485 adapter.

Connect the sensor to the RS485-bus and to a power supply (10...28 Vdc).

It is not allowed to connect more than one sensor on the bus line during its configuration. In case than more than one sensor is installed on the bus system, disconnect either the bus line or the power supply wires of the sensors that do not need to be configured.

2   Using *Si-Modbus-Configurator_V0.2n*

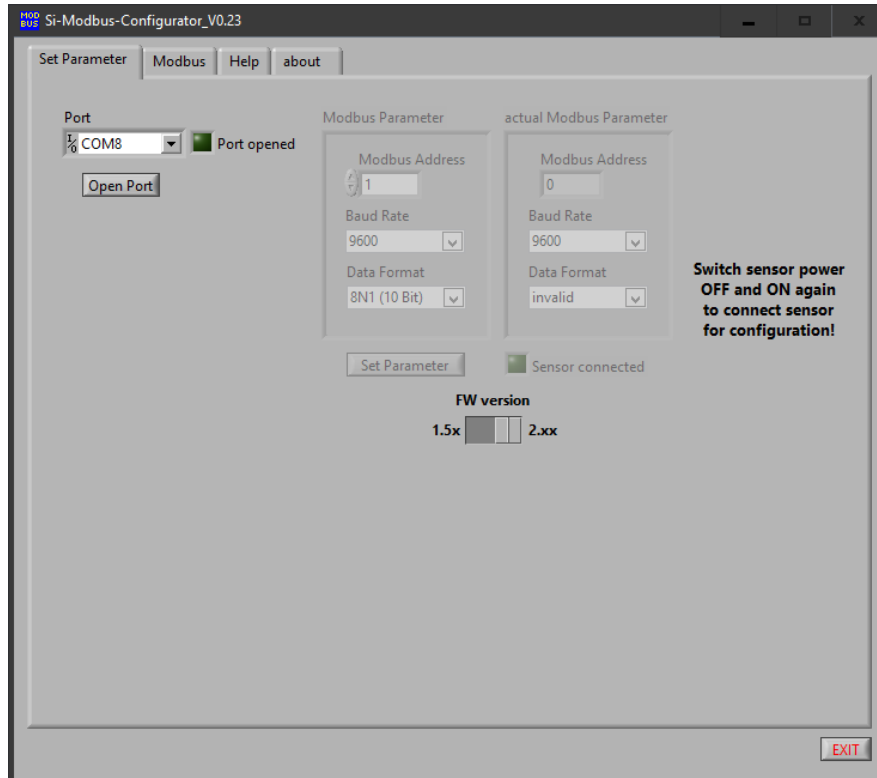After starting *Si-Modbus-Configurator_V0.2n* the following screen appears

Fig. 1: Open COM Port

At first select the COM port the Si-RS485 sensor is connected to and press "Open Port". Once the port is successfully opened, the green LED "Port opened" lights on. If the LED stays off, make sure that the port exists and no other application is already connected to the selected port.
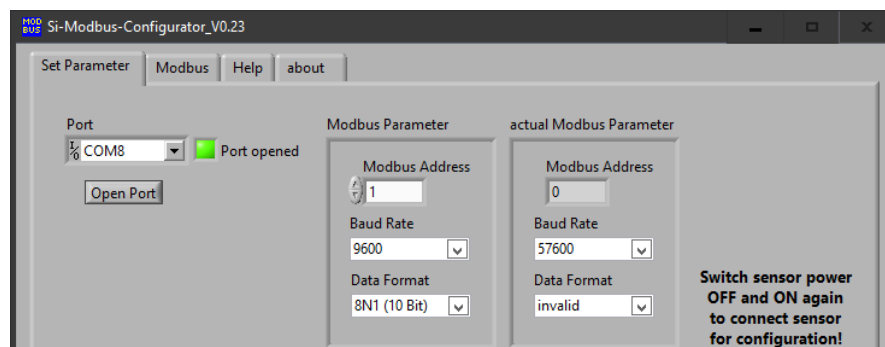

Fig. 2: COM Port opened

Before setting any of the Modbus parameters, make sure you have selected the proper firmware version in the *Si-Modbus-Configurator_V0.2n*. The firmware version can be found on the sensor's label at the backside of your device.
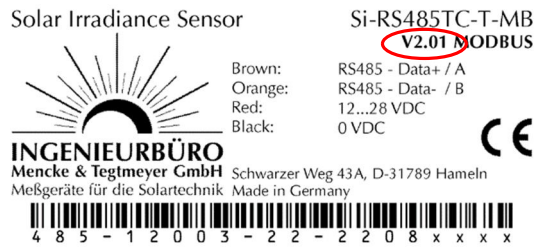
Fig. 3: Example label of an Si-RS485TC-T-MB sensor. Firmware version 2.01

If the firmware version of your sensor is 1.55 or lower select 1.5x with the toggle switch. Otherwise switch to 2.xx.
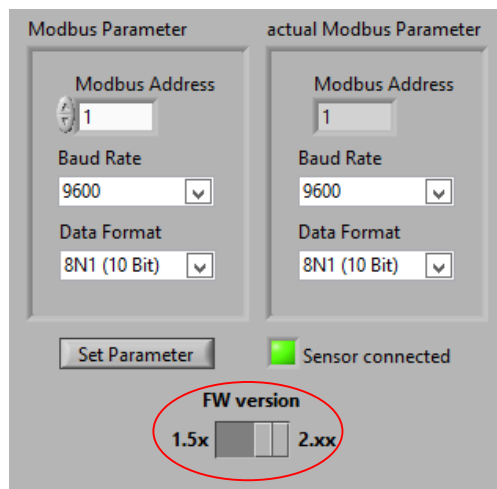

Fig. 4: FW Version toggle switch

The *Si-Modbus-Configurator_V0.2n* tries automatically to connect to the Si-RS485. Therefore, the Si-RS485 has to be in configuration mode. As the Si-RS485 stays in configuration mode for 4 seconds after power on, you may have to reset the Si-RS485 to establish the connection (switch power supply of Si-RS485 off and on). If the connection is established the green LED "Sensor connected" lights on and the actual Modbus parameter are read from the Si-RS485.
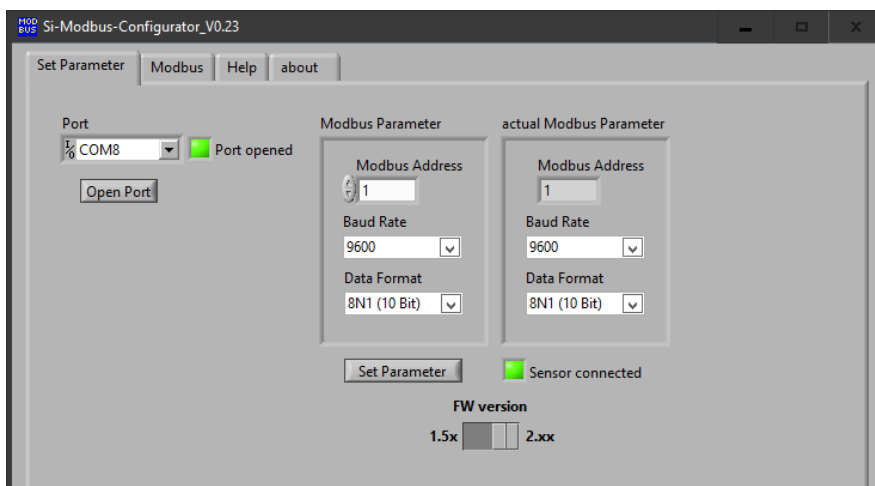

Fig. 5: Sensor connected

To change the Modbus parameter (Modbus address, baud rate and data format) select the required setting in "Modbus Parameter" and press "Set Parameter".
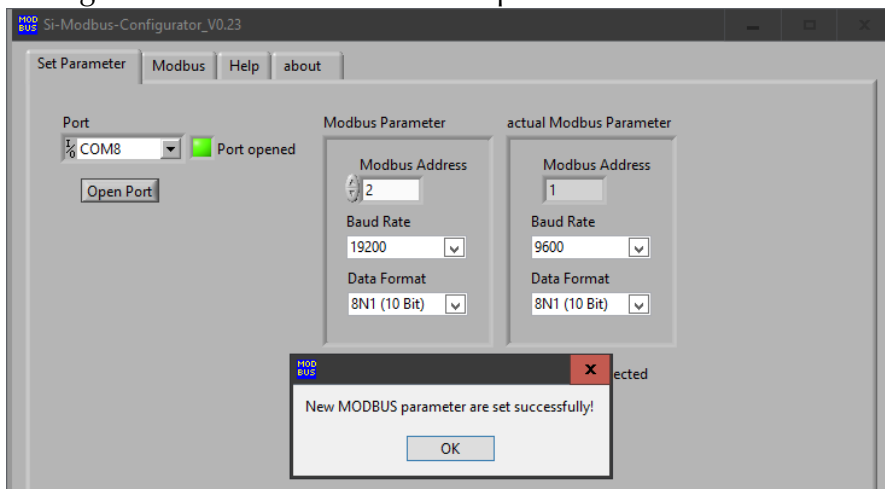

Fig. 6: Set Modbus parameter

If needed, you can also change to Modbus communication by pressing the "Modbus" tab. *Si-Modbus-Configurator_V0.2n* re-opens the COM port with the actual bus parameter of the Si-RS485 and Changes to Modbus communication.
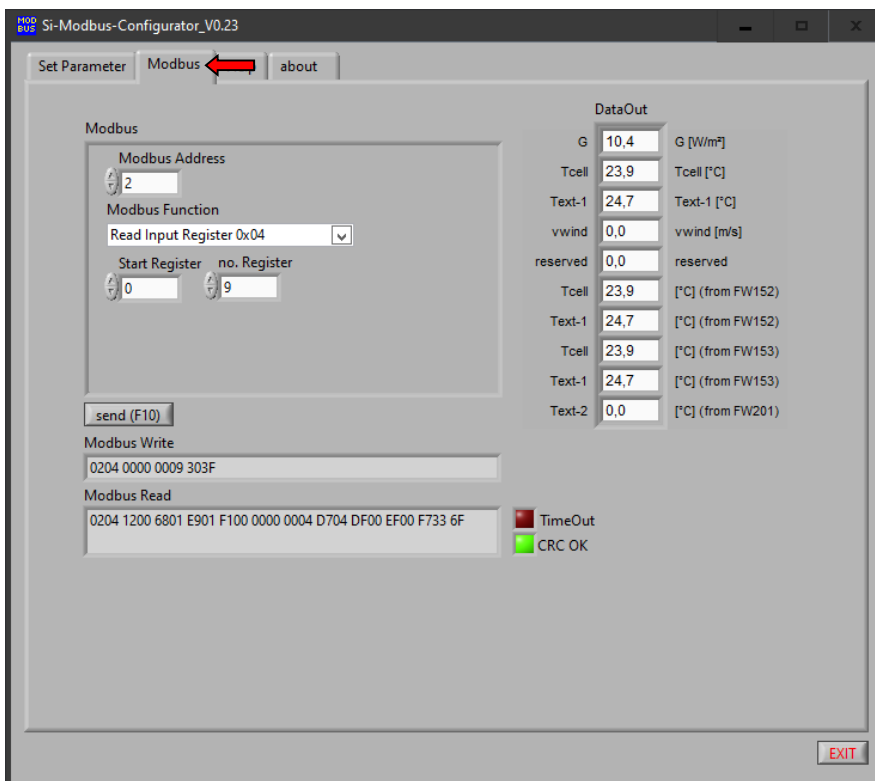

Fig 7: Modbus communication

Select the required Modbus function and press "Send". *Si-Modbus-Configurator_V0.2n* sends the Modbus command to Si-RS485 and reads the response.
By pressing the "Set Parameter" tab, *Si-Modbus-Configurator_V0.2n* changes back to configuration mode. To set the Si-RS485 in configuration mode, you have to reset the Si-RS485.

2.1   Trouble Shooting

In case that you cannot establish a connection to sensor, please check:
-   Is the sensor connected to a power supply (10...28 dc)?
-   Is the sensor properly connected to RS485 port or RS485 converter (data+ and data- not mismatched)?
-   Are the hardware drivers of your RS485 converter correctly installed? The RS485 port must appear as a COM port at you operating system.
-   Did you select the correct COM port?
-   Is your Si-RS485 sensor delivered with Modbus protocol (see sensor label)?
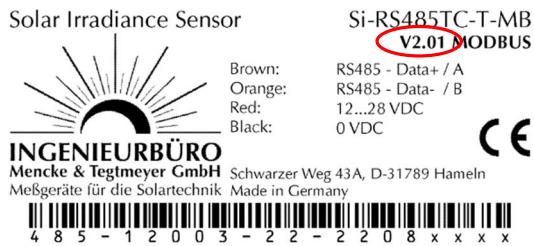
-   Is the sensor set to configuration mode (switch OFF and ON again while the software is waiting for connection)?