KIPP & ZONEN
SINCE 1830

SmartExplorer Software Manual

Software for Smart instruments

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1. Software installation and configuration

The SmartExplorer software allows you to configure a smart sensor and to collect real-time data from a sensor.

- Configuration makes it possible to configure a smart sensor 'out of the box' and test the smart sensor before the sensor is used in an operational network.
- Collecting data makes it possible to store data from the smart sensor in a comma separated file. The comma separated file is created at the beginning of every new day or at the beginning of the first day of the week.
- The SmartExplorer software can also be used to monitor and/or log up to 10 instruments simultaneously and works with all Smart Radiometers (SMP, SHP, SGR, SUV)

1.1 Installation for Windows 8, Windows 7 and Windows VISTA

The SmartExplorer uses the dot NET 4.5 frame work. For this reason the program cannot be used under Windows XP.

- Install the SmartExplorer program from the supplied DVD or download the latest version from the relevant product page under the tab download/software from our website
- Run the setup program from your local computer with administrator rights.

The installation program should download the .NET 4.5 frame work from the Microsoft Server, but if the .NET 4.5 framework is not downloaded under Windows VISTA after running the setup program, please download the .NET 4.5 framework manually from the Microsoft website.

The installation program will create a work directory in the program data directory:

C:\ProgramData\KippZonen\SmartExplorer

The program data directory on most computers is located on the C drive (please contact your network administrator for details). The program data directory is a hidden directory. Open the file browser and select the menu: 'organize map and search options' to make this directory visible.

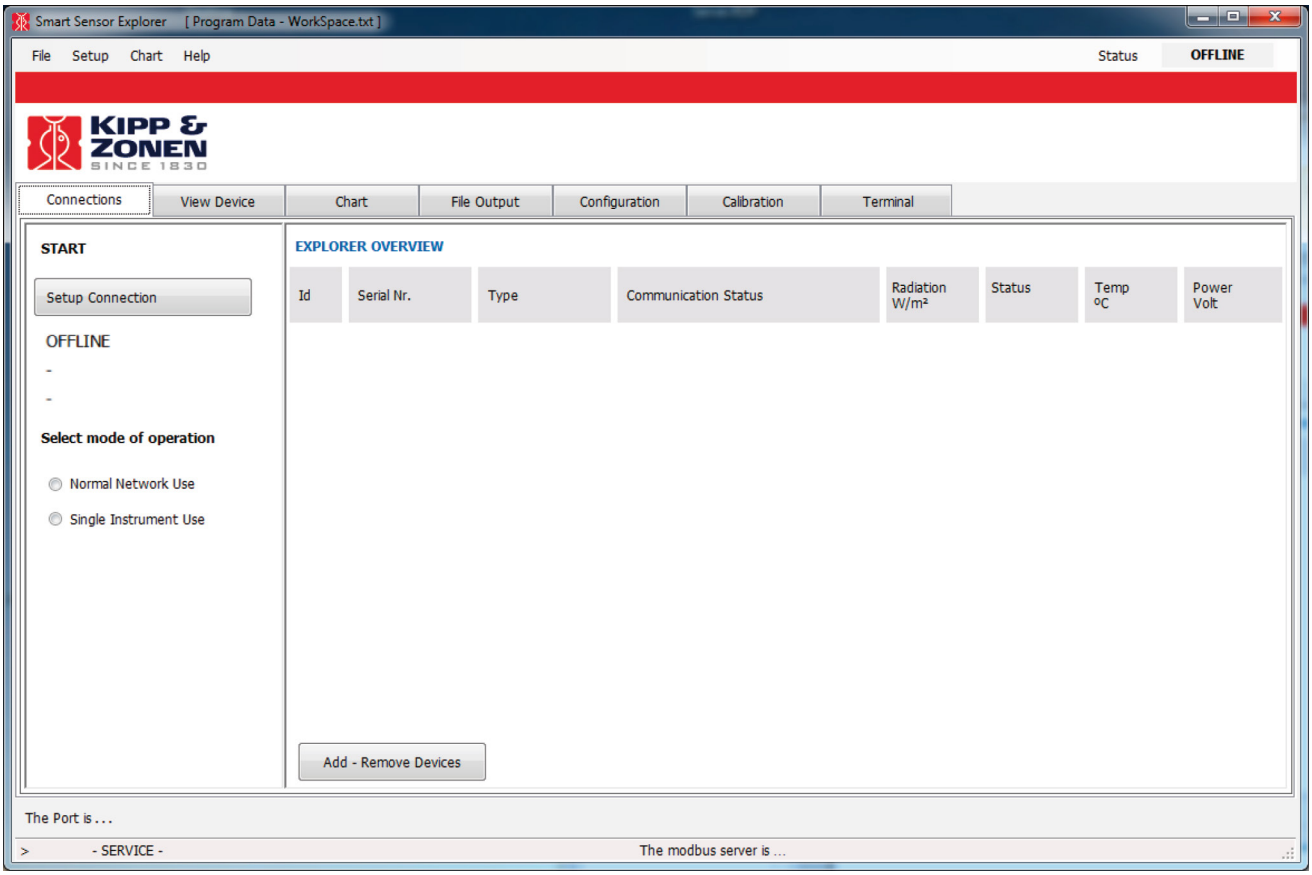
1.2 Running the SmartExplorer software

Start the application SmartExplorer.exe for Windows 7, Windows 8 and Windows VISTA.

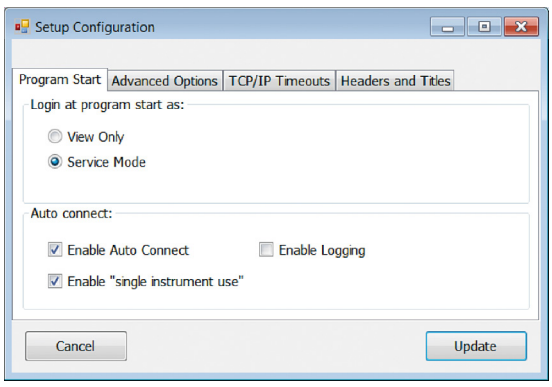
The workspace file is located in the work directory C:\ProgramData\KippZonen\SmartExplorer. The application will look for this workspace file.

The workspace file defines the default options, login-password, a list of the default devices and the default communication parameters. Changes made by the user can be saved in the workspace file. The next time the application is started it will start up with the last saved changes (see also Menu: File → Save Workspace).

After the first installation of the software and starting up the following menu is shown.



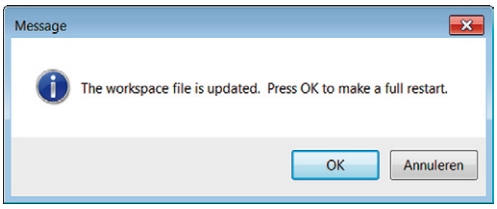
Select the menu option 'Setup'. The setup menu is shown:



1.2.1 Program Start

- Select the option Service mode if you want to configure smart-sensors. Select the option View only if you want to use the program as simple data-logger.
- Select the option Enable Auto Connect if the application should make a connection with sensors every time when the application is started and select the option ‘Enable logging’ to start logging every time when the application is started. Note: the option ‘Enable logging’ is shown when the option ‘Enable Auto Connect’ is set.
- Select the option ‘Enable single instrument use’ if you want to configure sensors, change the Modbus® address and change the communication parameters of the sensor.

Select the following options after the very first installation: Service Mode, Enable Auto Connect and Enable ‘single instrument use’. Press ‘Update’. The changes are not applied until after a full restart. Press ‘Ok’ to make a full restart.



1.2.2 Advanced options

With the advanced options it is possible to disable the login menu, enable the feature to support sensors with a long wave down output. There are also options to explicit save the configuration in a workspace file every time the application is closed.

1.2.3 TCP IP Timeouts

The tab TCP/IP times defines the TCP/IP time outs for the Modbus® TCP-IP protocol. If timeouts occurs frequently then these parameters must be increased.

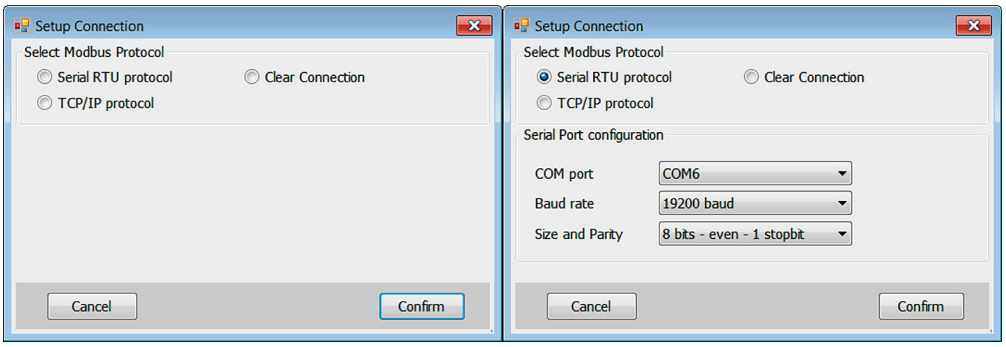
1.2.4 Headers and titles

In this section it is possible to customize the company name and address.

1.3 Selecting the communication parameters

Selecting the communication parameters is not possible when the Modbus® TCP/IP mode is enabled (see the description of the workspace file for more details).

Press the button 'Setup Connection' and select the Modbus® Protocol (for example Serial RTU protocol).



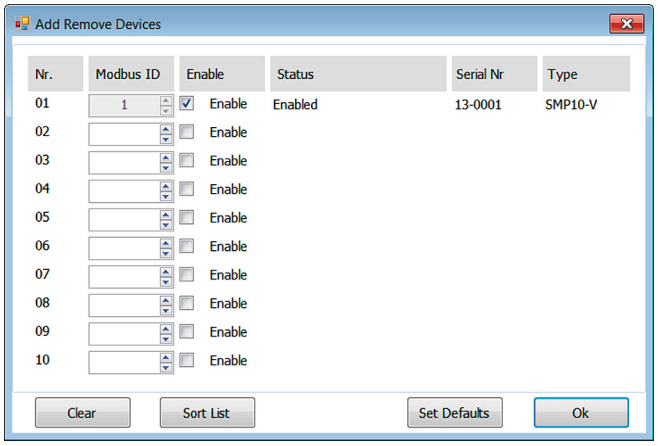
Select the Baud rate and Size and Parity.

The factory default communication parameters:

- The factory default Baud rate of a smart sensor is '19200 baud'
- The factory default Size and Parity is '8 bits - even - 1 stopbit'

1.4 Adding or removing a smart sensor

Press the button 'Add - Remove Devices'. The next menu will be shown:

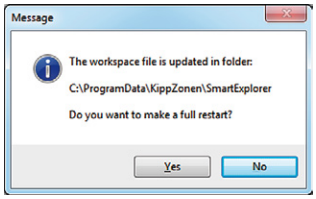


Enter the Modbus® ID of the device and select the option 'Enable' to enable the communication with the sensor or press the button 'Set Defaults' to enable the default sensors (the default sensors are defined in the workspace file). Press 'Ok' to continue.

The factory default Modbus® ID is of the smart sensor is 1.

After adding all sensors it is recommended to save the configuration in the workspace file.

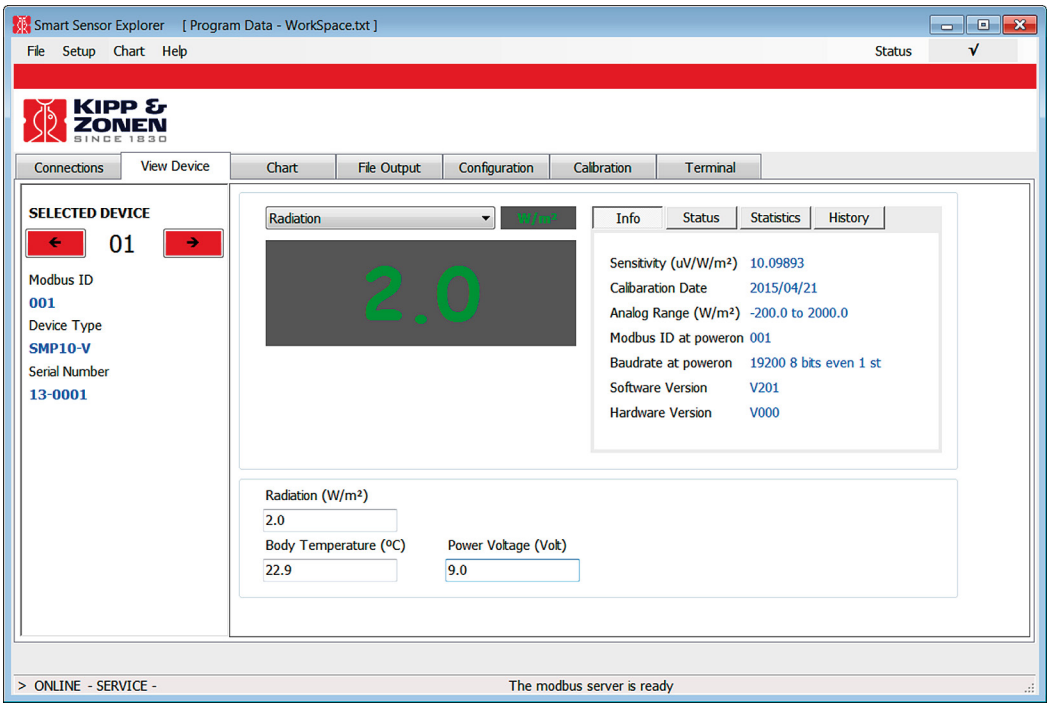
Select menu option File → Save Workspace or press Ctrl + S.

The following menu is shown: 

Press ‘Yes’ to make a full restart and make the changes effective, or ‘No’ to save the changes only.

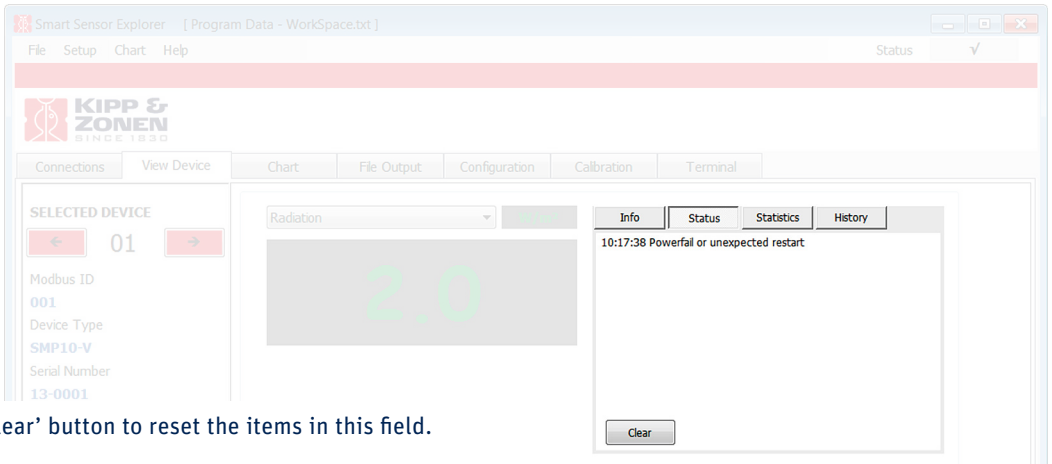
1.5 View Device

Select the tab ‘View Device’ to readout the actual data from the selected sensor.



Select the sensor with the ← and → buttons.

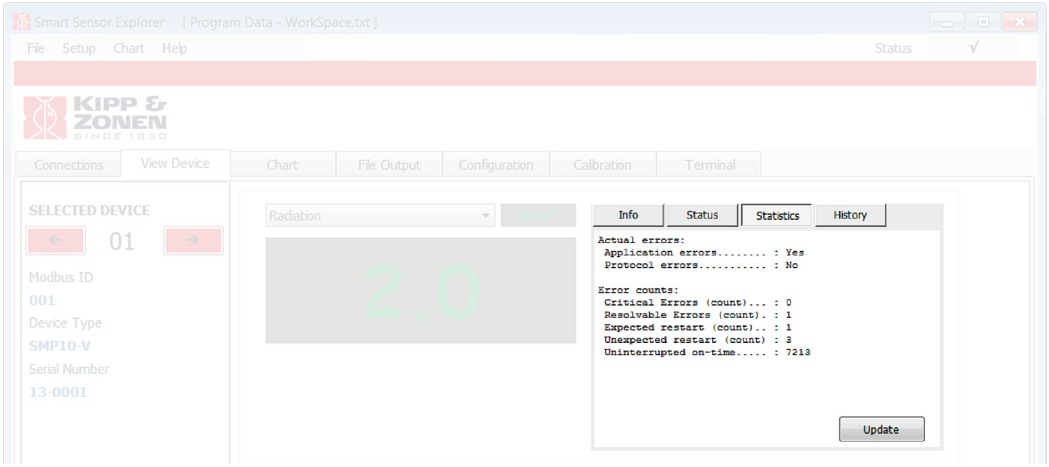
Select the tab ‘Status’ to show the status of the sensor. Sensor errors are shown here.



Press the ‘Clear’ button to reset the items in this field.

Note After power up, the sensor will show a power fail error. This error should disappear after resetting.

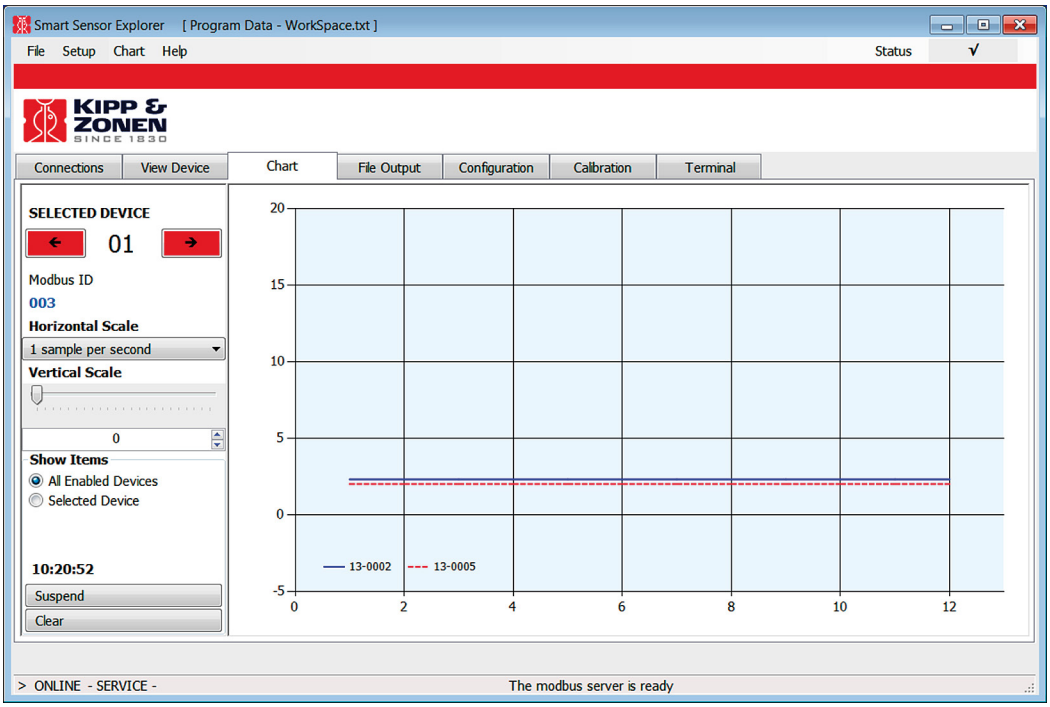
Select tab page ‘Statistics’ to show an overview of all errors, the button ‘Update’ will refresh the information.



1.6 Chart

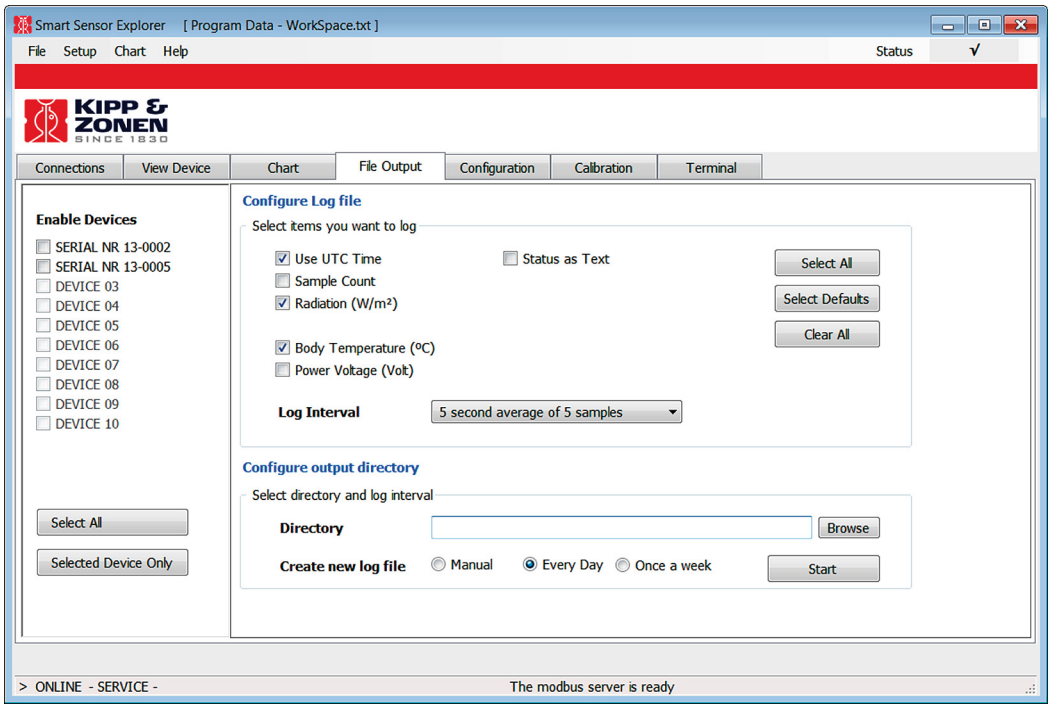
Select the tab ‘Chart’ to view the graph from the selected sensor.

Press the keys Control + → or Control + ← to increase or reduce the vertical scale.



1.7 Log file options

Select the tab ‘File Output’.



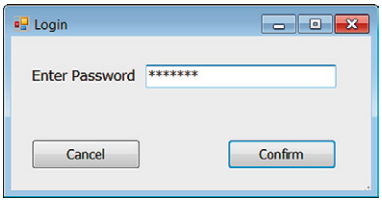
In the left column select the devices to enable the devices for logging.

- Select the ‘Log file’ options
- Select a ‘Log interval’
- Select a ‘Directory’
- Select a ‘Create new log file’ option

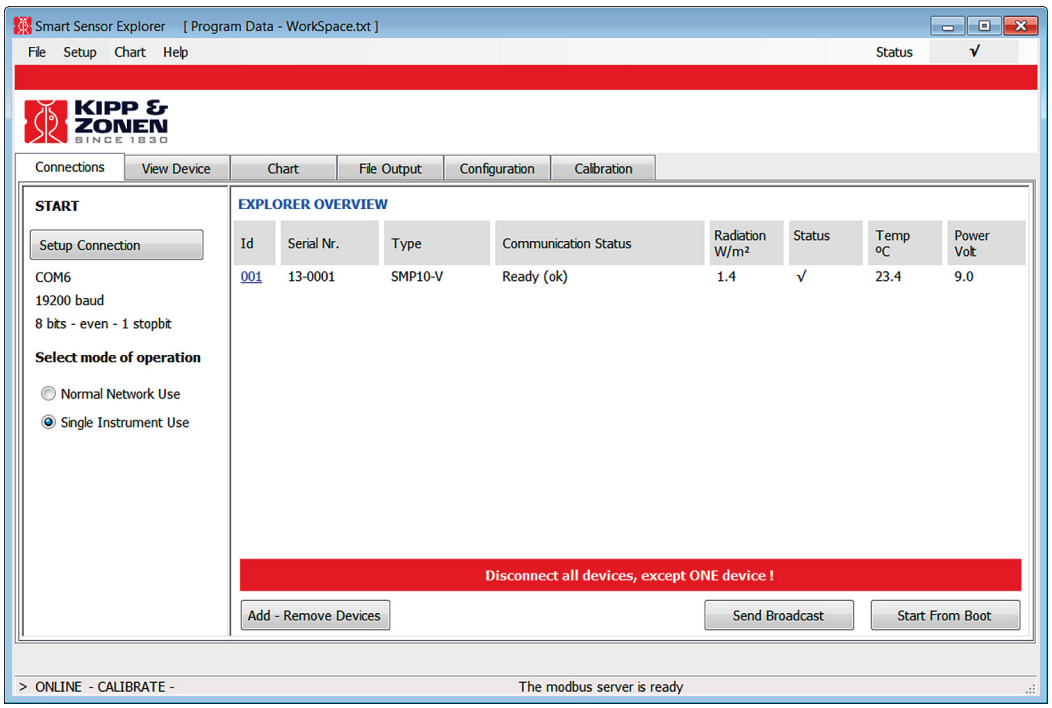
Press the ‘Start’ button to start logging.

1.8 Configure sensor

Before you can change the configuration you must set the service mode. The status line at the bottom must show: ‘> ONLINE - SERVICE’. If not, press ‘File’ → ‘Login’ and enter the password ‘MODIFY’ and press ‘Confirm’.

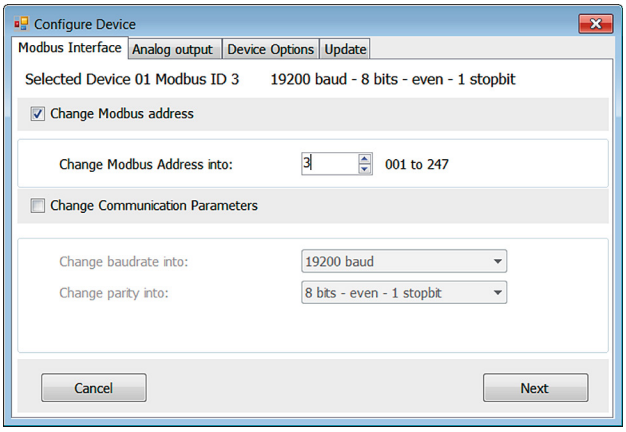


Select the tab ‘Connections’.

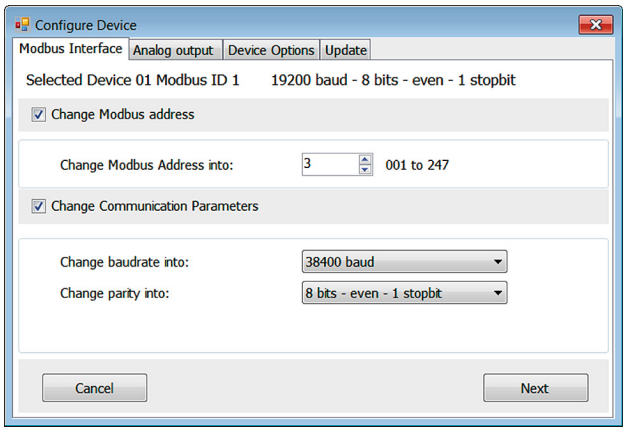


Select ‘Single Instrument Use’.
Disconnect all sensors, except the sensor you want to configure.
Select the tab ‘Configuration’ and press the button ‘Configure Device’.

Change Modbus® Address



Change Communication Parameters

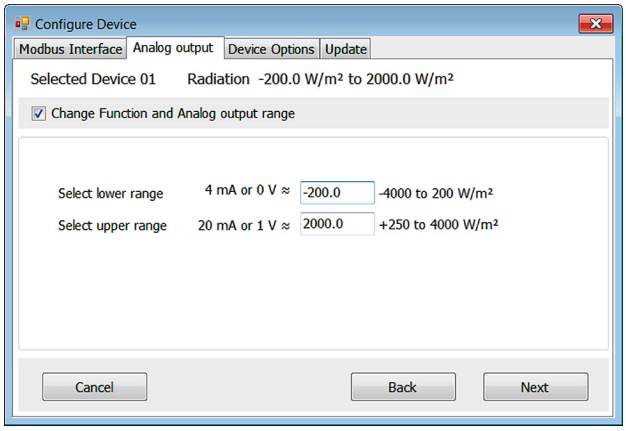


Note In an operation network it is allowed to change the Modbus® address but it is not allowed to change the baud rate or parity because this will have an impact on the communication to all other sensors.

Note It is not recommended to change the baud rate if the sensor is connected to a wireless network (wireless Modbus®, Bluetooth, Bluegiga, Zigbee etc) because changing the baud rate of the sensor does not change the baud rate of the wireless network.

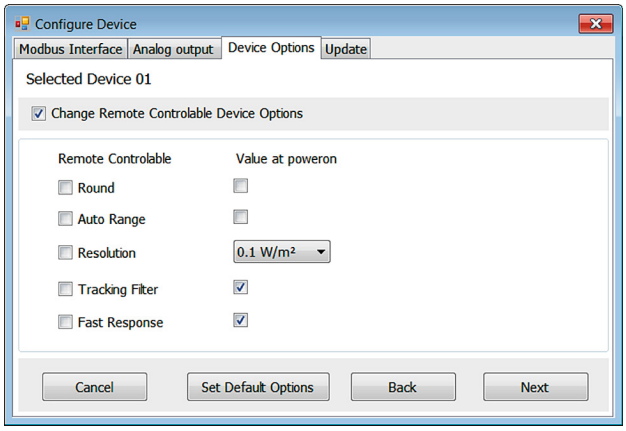
Press 'Next'.

Change Function and Analog output range



Press 'Next'.

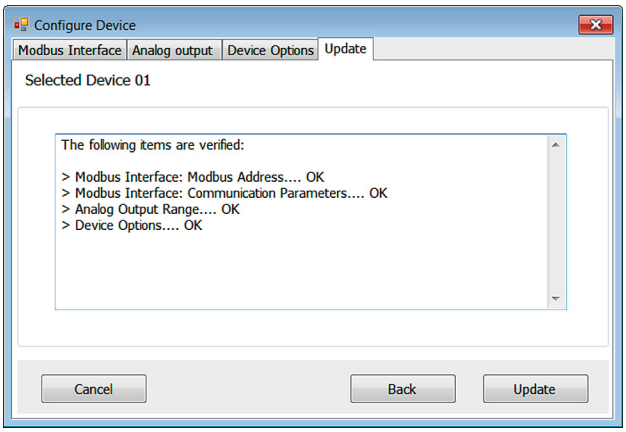
Change Remote Controllable Device Options



The recommended options at power on are ‘Round’ and ‘Auto Range’ not enabled and ‘Tracking Filter’ and ‘Fast Response’ enabled. In some applications auto range and resolution can be set by the user in real time mode. To enable this feature enable the remote controllable options ‘Auto Range’ and ‘Resolution’. However SmartExplorer software does not allow you to change this in real time mode.

Press ‘Next’.

You will see an overview of the verified items.



Press ‘Update’.

The selected sensor will restart with the new configuration. At the same time the baud rate of the computer (PC) is changed to the new baud rate.

After restarting the selected device the ‘Communication Status’ field in the main menu must show ‘Status √’. If a boot error is shown, disconnect the power for at least 10 seconds and reconnect the power again. Press the ‘Send Broadcast’ button to rediscover the device.

1.9 Single instrument use

Select ‘Single Instrument Use’ if you want to configure the communication parameters of a sensor or if there is an error from which it is difficult to recover.

Select in ‘Setup’ → ‘Program Start’ → ‘Service Mode’ → ‘Single Instrument Use’. Then press ‘Update’ and disconnect all sensors except the faulty sensor.

1.10 The sensor does not respond

If the sensor does not respond, press ‘Send Broadcast’.

Note Do not press this button in an operational network with 2 or more sensors.

If the sensor has the same parameter as the computer, the status line will show: ‘Communication parameters for device <Modbus® ID> changed <baud rate, parity etc.>’

1.11 The sensor does not respond after a send broadcast

If the communication parameters (baud rate, parity etc.) of the computer and device are not the same, or the communication parameters are not known, the sensor will not respond on a sent broadcast command. There is an escape sequence to start the sensor with default communication parameters (19200 baud, 8 bits - even - 1 stopbits) and default Modbus® ID (address 1).

Transmitting a broadcast over a Modbus® TCP network is not possible, because the Modbus® gateway will block the special broadcast address (0xFF).

Press 'Setup Connection' and select the default baud rate (19200), data bits, parity and stop bits (8, even, 1).

1.12 Starting from boot

Click 'Start From Boot'.
Disconnect the faulty sensor or disconnect the power.
Click 'Ok'.
Reconnect the power as soon as possible (at least within 10 seconds).

After this escape sequence the sensor will start with a temporary Modbus® ID 1, default baud rate (19200) default parity (even) default data bits (8) and default stop bits (1). The sensor operates now in a special mode. The communication parameters in the EEPROM of the sensor are not changed.

To return to the original configuration and leave the special mode after the 'Start From Boot' you must disconnect the power for at least 10 seconds in order to restart the sensor with the original parameters stored in EEPROM.

1.13 Resetting a smart sensor

To change the communication parameters of a smart sensor with unknown communication parameters perform the following procedure:

1. Select the tab 'Connections' and select option 'Single Instrument Use'
2. Press 'Start From Boot' and disconnect the power immediately after pressing the key
3. Disconnect the power of the sensor and wait a few seconds
4. Click 'Ok'
5. Reconnect the power as soon as possible (at least within 10 seconds)
6. Wait until the sensor is ready, if not, repeat step 2 and 3
7. On the tab 'Configuration', press 'Configure Device' or press function key F3
8. Change the communication parameters and Modbus® ID
9. After a few seconds a reboot error is shown in the 'Communication Status' field
10. Disconnect the power of the sensor and wait **at least** 10 seconds, reconnect the power and press 'Send Broadcast'

Always disconnect the power at least 10 seconds after you change the configuration and start from boot.

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