



User Guide for Sensor Control Software

1. DESCRIPTION

The software SensorControl serves as a general tool to control all evaluation kits and accessories for our gas sensors through a customized

1-wire bus connection. It runs on a personal computer with installed 1-wire drivers and an installed LabVIEW® runtime engine. This guide supports you to install SensorControl on Windows PCs with 64 bit operation systems.

2. APPLICATION

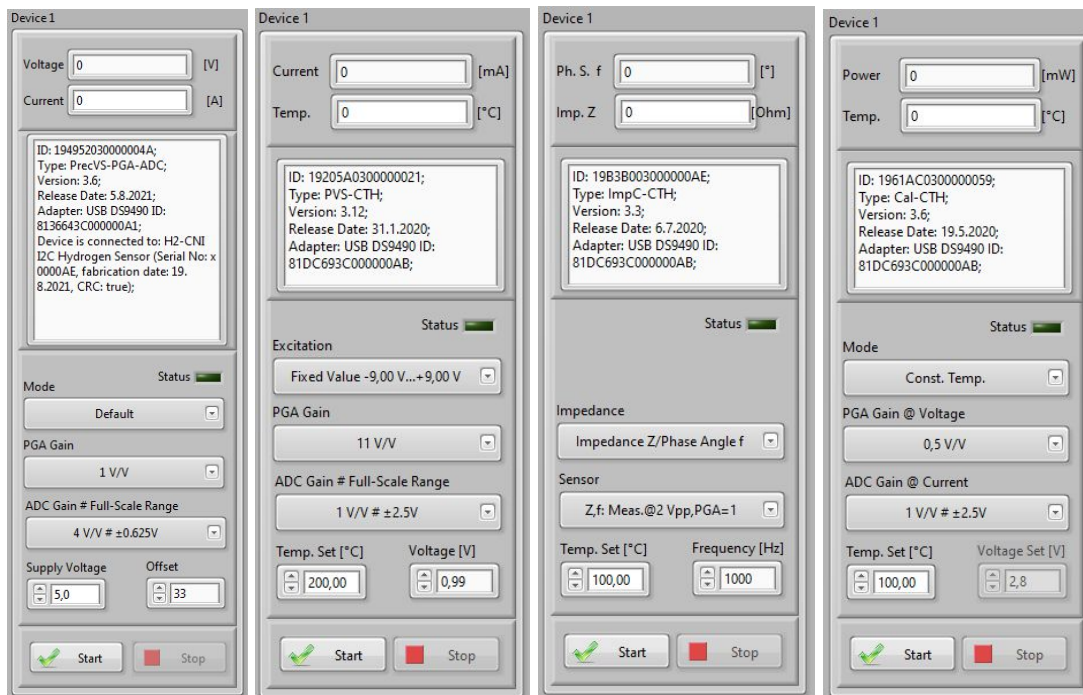


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3. REVISION HISTORY

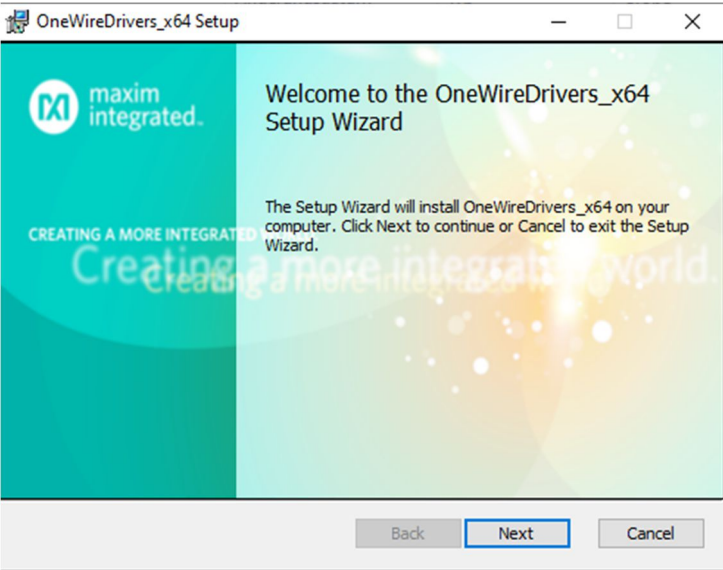

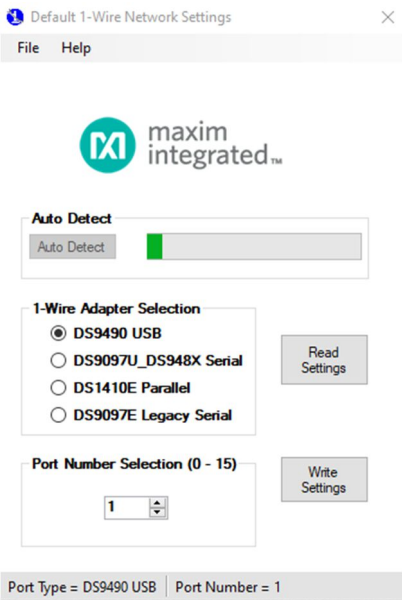
Date	Rev.	
Aug. 27, 2021	1.0	Initial Version

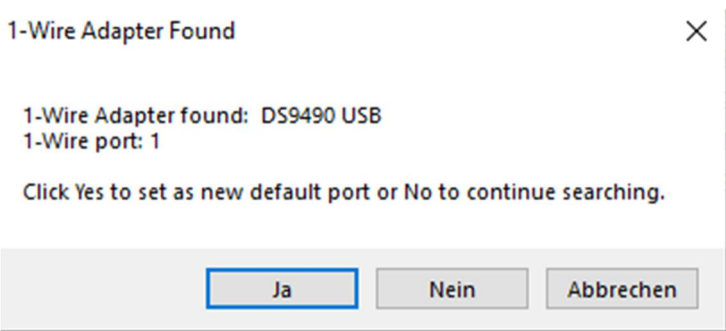
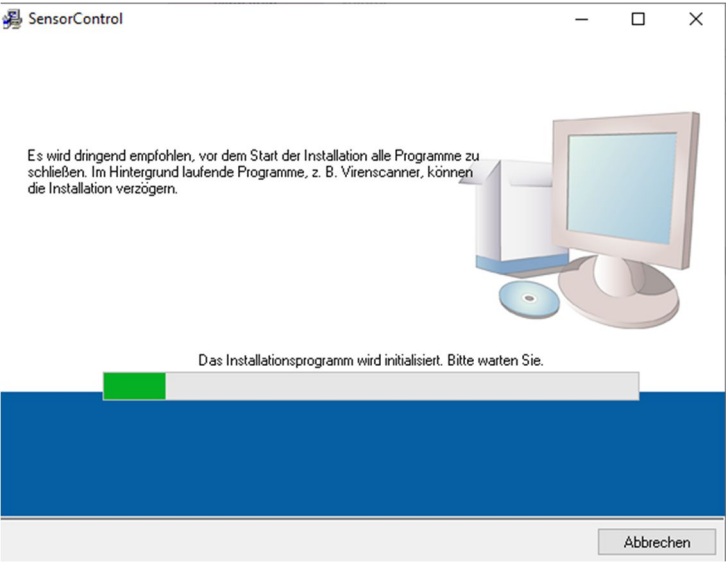
4. REQUIRED FILES

The USB flash drive contains all required for the installation.

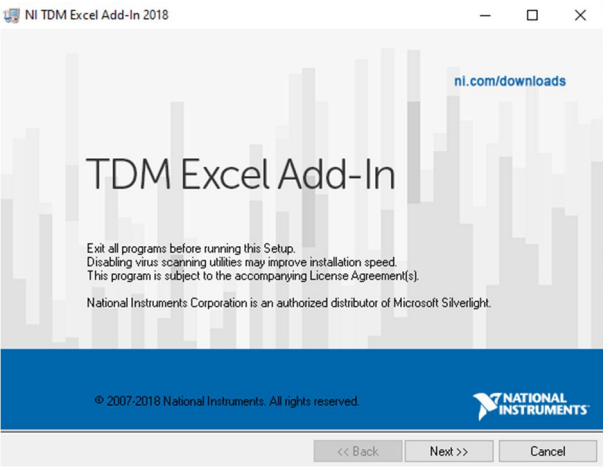
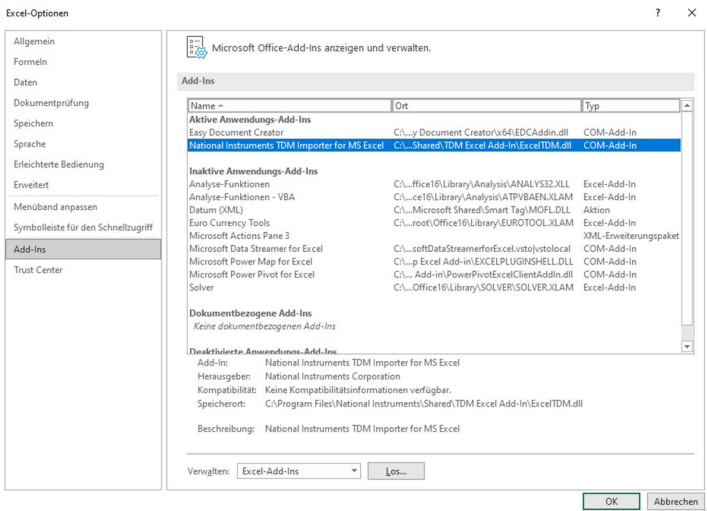
FILE OR FOLDER	DESCRIPTION
Install_1_wire_drivers_x64_v405	Installation file with 1-wire drivers
volume	Folder with files to install the LabVIEW® runtime engine
SensorControl.exe	SensorControl software as executable program
SensorControl.ini	Configuration file
data	Folder with files and libraries to run SensorControl
Nitdmexcel_18-0-1.exe	Installation file for MS Excel-Add-In to evaluate and represent measuring data with Microsoft Excel®

5. INSTALLATION OF SENSORCONTROL

INSTALLATION GUIDE FOR 1-WIRE DRIVERS		
1	Make sure that the 1-Wire USB adapter is not plugged in to an USB port of the running PC.	For details of installation, see APPLICATION NOTE 1740 White Paper 6: 1-Wire® Drivers Installation Guide for Windows (https://www.maximintegrated.com/en/design/technical-documents/app-notes/1/1740.html)
2	Open the folder Install_1_wire_drivers_x64_v405 and double click on OneWireDrivers_x64; follow the installation instructions	 <p>... until the installation is completed.</p>
3	Plug in the 1-Wire USB adapter 	You may check the installation by searching and opening 1-Wire Driversx64 (under Programs of your Windows app menu) and run Default 1-Wire Net.exe. 

		
4	Finish this procedure by closing all related windows	
INSTALLATION OF THE LABVIEW® RUNTIME ENGINE		
5	On the folder “volume” and double click setup(.exe)	
	Follow instruction of the installation program. Restart your PC.	



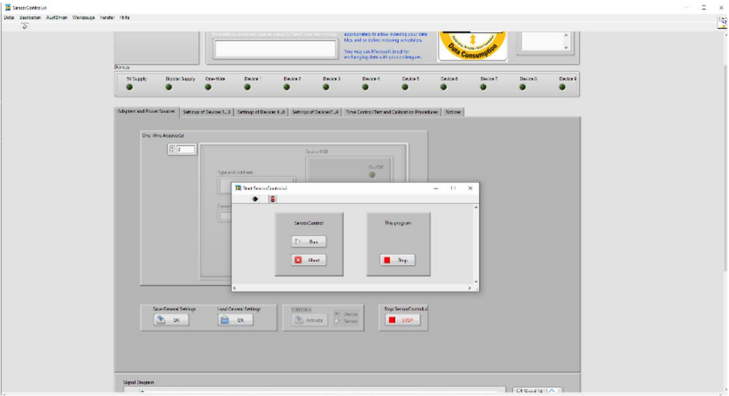


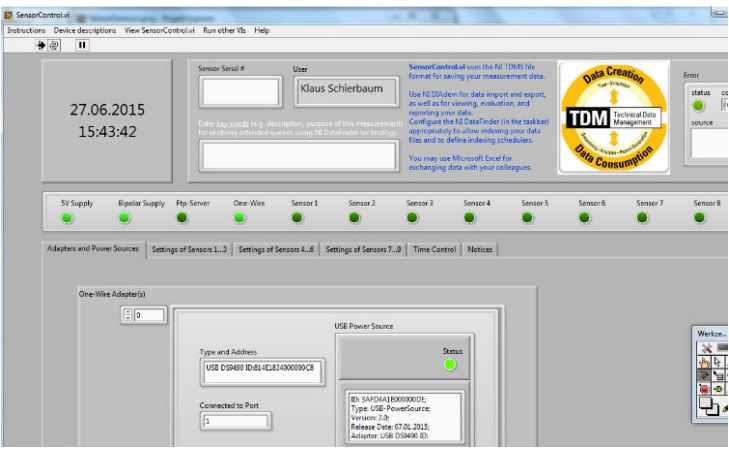
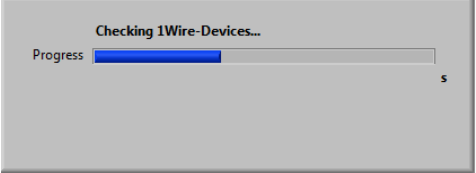
INSTALLATION OF THE ADD-IN FOR MS EXCEL

6	<p>Install the add-in by double click on NITDMExcel_18-0-1.exe to represent and evaluate TDM data which is the favored data format of National Instruments.</p>	
7	<p>Run EXCEL, open the menu item Files and go to Options. In the selection menu switch to Add-ins. Activate National Instruments TDM Importer for MS Excel.</p>	<p>Comment: This allows you to open all measurement data (that you save during your work with SensorControl in C:/Measurment Data)</p> 

CONNECTING THE HARDWARE

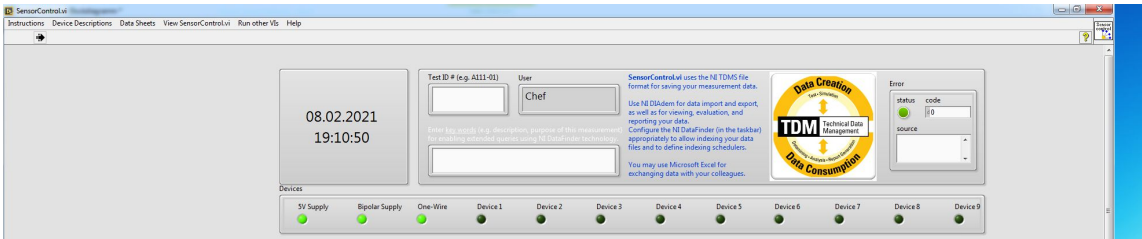
8	<p>Connect the USB power supply SBPS-eFuse-LDO 3.7 (or later versions) or SBPS-LDO 3.10 to the 1-Wire USB Adapter with a cable 6p6c RJ12 (see corresponding evaluation kit manuals). Connect the sensor controller to one of the two output sockets of the USB power supply. If necessary, connect a power supply (12V) to the 5.5 mm/2.5 mm plug of the USB power supply.</p>	
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Running SensorControl

8	<p>Under programs or apps, find and run SensorControl. The program “Start SensorControl” is immediately running (indicated by ). The second (larger) window shows the frontpanel of SensorControl which is not running (indicated by ).</p>	 
9	<p>Run SensorControl by clicking on  on its frontpanel. You could also start SensorControl by clicking on “Run” of the “Start SensorControl” program. The “Abort” button can be used to force stopping of “SensorControl” immediately (see “Trouble shouting”). It is also appropriate to stop “Start SensorControl” by clicking “Stop” on its frontpanel.</p>	
10	<p>The progress indicator window is displayed for a short time during the initialization. The windows disappears automatically.</p>	

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Elements of the frontpanel



Pull-down menu

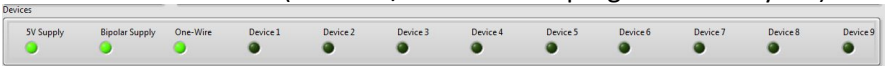


Running indicator

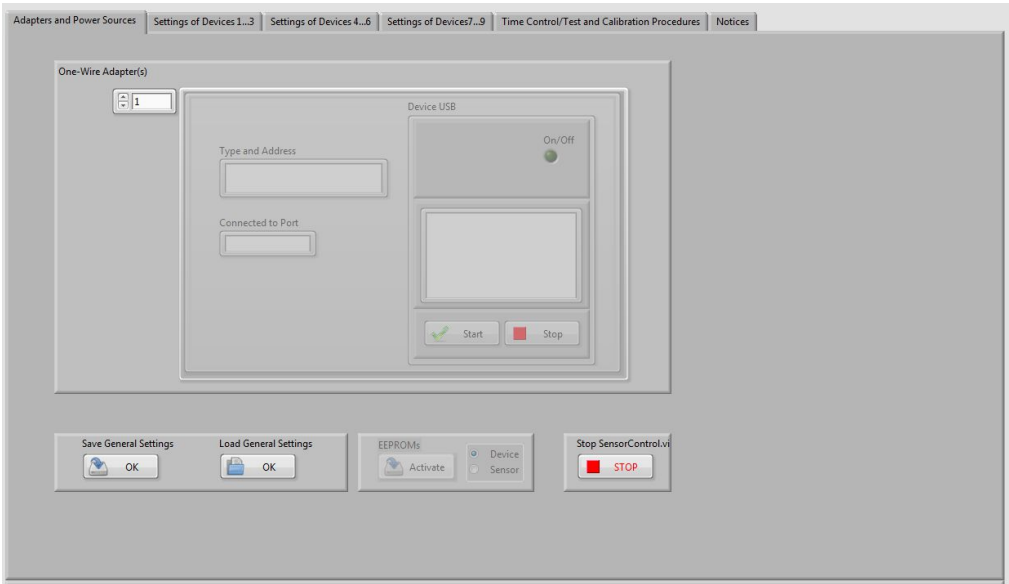


Current date and time, test id (note: under this id measurement data are saved in c:\Measurement data), user (Windows user account) and key words, global error code

Devices indicators (note: on/off states are programmatically set)

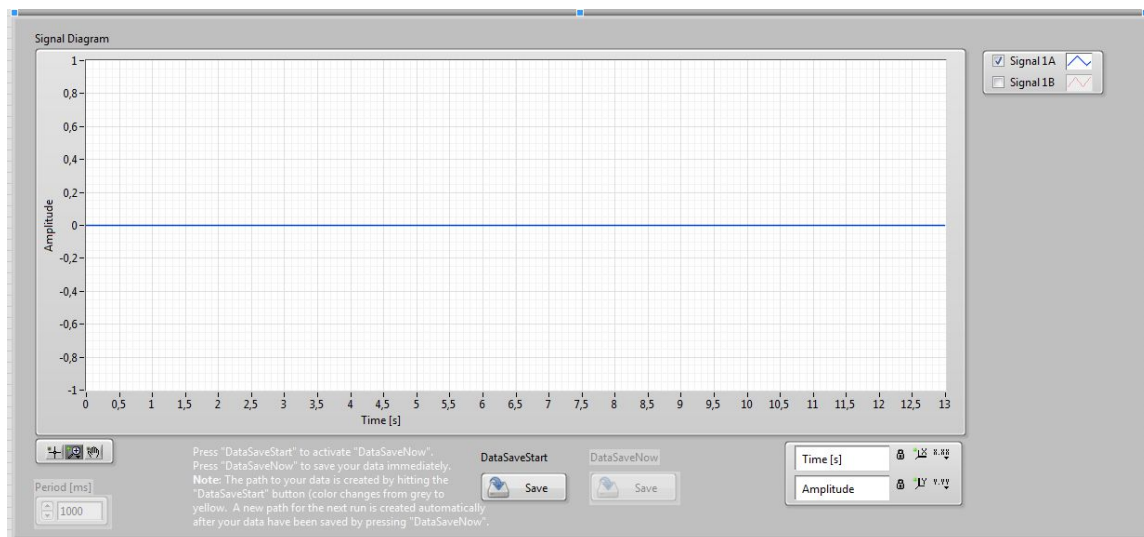


Register card: Adapters and Power Sources



1-Wire adapters (currently only one adapter is supported) connected to your PC and bipolar power sources connected with the adapter are listed here in the indexed array. Note: bipolar power lines (+ and -12 V on pin 5 and 6, respectively, of the R12 socket) are automatically switched on after starting the software for SBPS-eFuse-LDO. Do not press the Stop button in the Device USB cluster under normal circumstances. The + and -12 V are always on for SBPS-LDO 3.10 and later).

Save and load general settings, activate EEPROM (only if a device controller is ON, see register cards "Settings of Devices") to store and load from device or sensor (only if digital sensors are connected to the sensor controller, option can only be chosen before starting the software), **STOP** button (Note! This is the only button to stop SensorControl in a regular manner. See "Trouble shouting" to learn how to force an irregular stop of SensorControl).



Signal diagram

DataSaveStart and DataSaveNow:

Press "DataSaveStart" to activate "DataSaveNow".

Press "DataSaveNow" to save your data immediately.

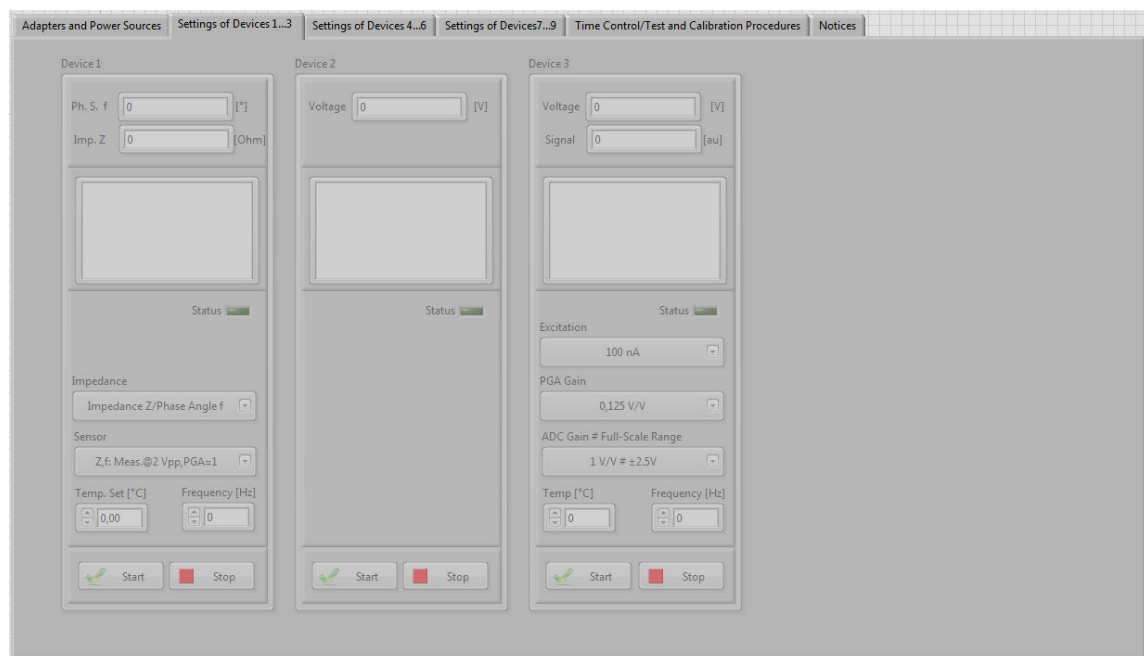
Note: The path to your data is created by hitting the

"DataSaveStart" button (color changes from grey to

yellow. A new path for the next run is created automatically


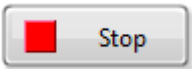
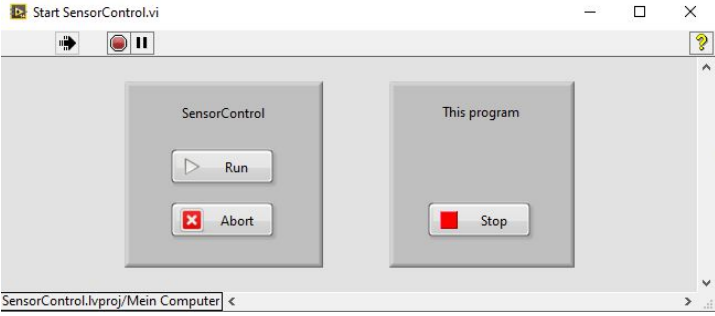
after your data have been saved by pressing "DataSaveNow"

(9)



All sensor controllers found in the initial phase after starting the software are shown here. Note: do not unplug any of the controllers during the program is running. Do not connect controllers while the program is running.

(9)	<p>Signal A and Signal B are attributed to outputs of the sensor controller. These data are shown in the signal diagram. Note: Signals A and B can be activated and inactivated in the signal diagram but there are always monitored after the sensor controller has been started.</p> <p>Display shows "Notices to Operators":</p> <p>ID of device; Type of device; Version of device (may include ID of integrated humidity sensor)</p> <p>Release date of device; Adapter to which the device is connected; dynamic notices: e.g. next start/stop times of heating</p> <p>Status indicator</p> <p>Various adjustments of sensor controller (depend on the type of controller)</p> <p style="text-align: center;">Start and Stop</p>
10	<p>Elements of the clusters "Device i" of the PGA-ADC 3.2 controller (for H2 CNI sensors)</p> <div data-bbox="699 698 1029 1529" data-label="Image"> </div> <p>Click "Start" for collecting data, operate mode and heating mode, change offset and PGA Gain</p> <p>Click "Stop" for stopping data collection and heater</p> <p>Note: Start and Stop also activate the Device Indicators. Start activates the EEPROM button on the register card "Adapters and Power Supplies). Click "Activate", go back to the device and press Save (only visible after EEPROM has been activated) to save all controller adjustments either in the controller or the sensor.</p>

11	Click on register card "Adapters and Power Supplies" and activate EEPROM		<p>Return to register card "Settings of Sensors 1...3".</p> <p>Stop button has disappeared and Start button has changed to Save. Clicking on Save stores all adjustments in the EEPROM of the sensor.</p>
12	Click "Stop"		Data collection and sensor stop.
Trouble Shooting			
13	Open the window with Start SensorControl and click Abort (if this program runs otherwise click on the arrow in the menu bar and click Abort). SencorControl is forced to stop but unlike the regular stopping it interrupts without a hardware control. You may then restart SensorControl by clicking on Run. The hardware is then re-started properly.		

6. ORDERING INFORMATION

SensorControl Software package is distributed with the sensor controllers of the evaluation kits and comes on an USB flash drive. The software package is also available for 2- and 3-electrode electrochemical sensors, PID sensors and some thermal conductivity sensors. Contact our sales and customer support for further information.

7. NOTES

8. WORLDWIDE SALES AND CUSTOMER SUPPORT

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