

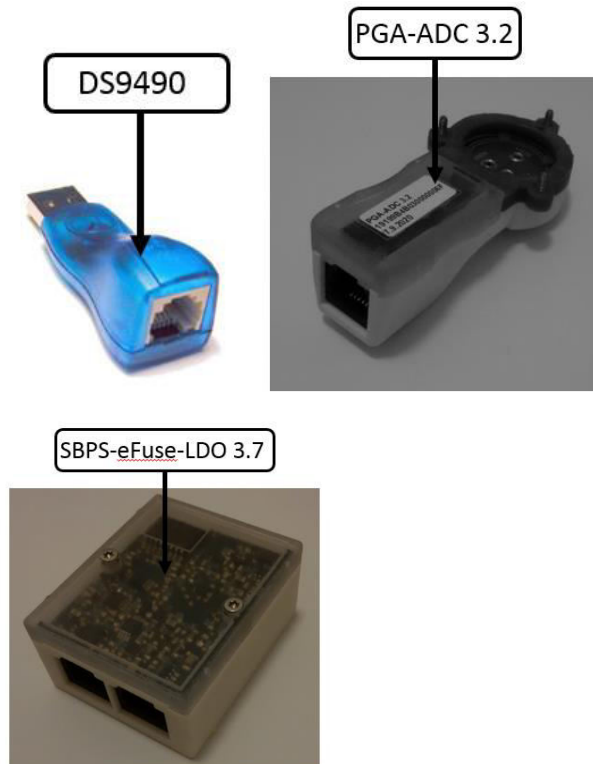
EVALUATION KIT PGA-ADC 3.2 FOR H2 CNI



Electronics for H2 CNI sensors with a precision, zero-drift programmable gain instrumentation amplifier (G_{InstrA} : 0.125, 0.172, 0.25, 0.344, 0.5, 0.688, 1, 1.375, 2, 2.75, 4, 5.5, 8, 11, 16, 22, 32, 44, 64, 88, 128, 176 V/V) and a 16-bit $\Delta\Sigma$ analog-to-digital converter with input current cancellation and a bandgap reference with very high accuracy and low thermal drift of 10 ppm/°C (max). It contains a 1K bit EEPROM for storing adjustments and three switchable LEDs (blue, orange, red) as optical signals for different H2 levels. It is operated through a 1-wire bus connector with a personal computer and installed LabVIEW®.

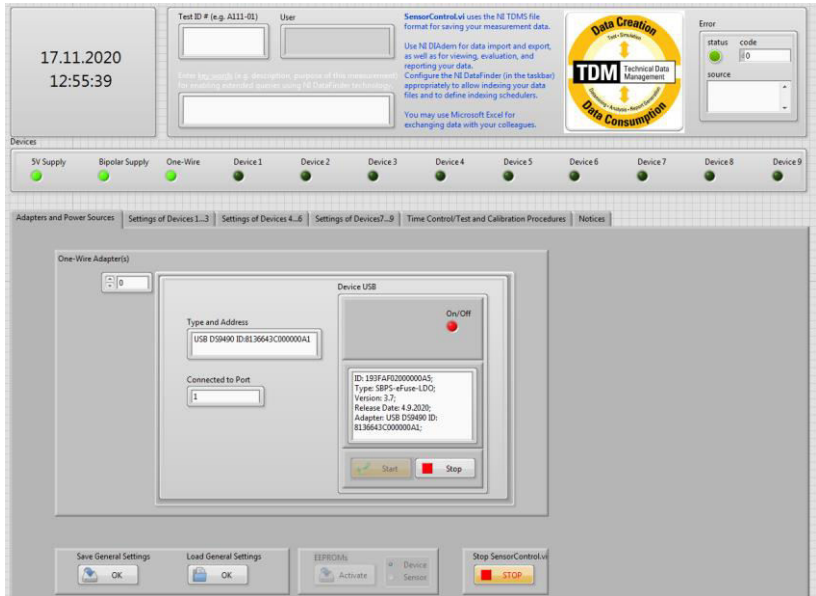
List of Parts

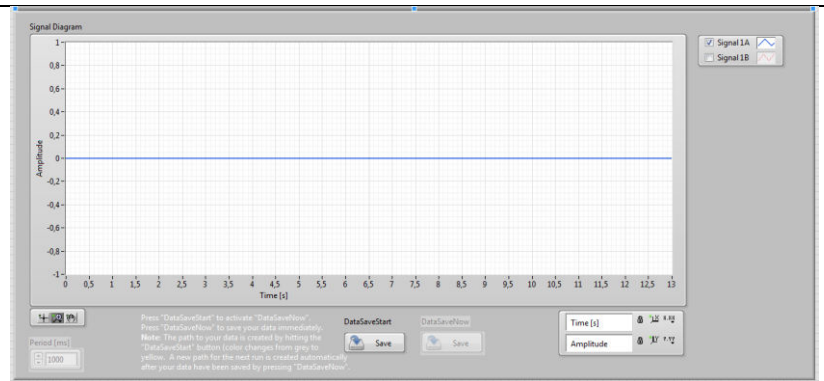
PART	DESCRIPTION	QUANTITY
PGA-ADC 3.2	Sensor controller	1
SBPS-eFuse-LDO 3.6	Bipolar power source	1
PS 12Volt	Power supply 12 Volt	1
DS9490R	1-Wire USB Adapter	1
6p6c RJ12 0,3	Cable 6p6c RJ12 0,3 m	2
Option:		
Gas flow test chamber with ¼" tubes and Swagelok®		



Revision History

Rev.	Date	Contributor	
0.1	August 2020	K. Schierbaum, M. El Achhab	Creation

#	STEP	FIGURE
Follow "INSTALLATION GUIDE 1-WIRE DRIVER"		
Run SensorControl.vi		
1	Plug 1-Wire USB Adapter to an USB port of the PC.	
2	Connect RJ12 socket (labeled USB) of the bipolar power source with the 1-wire USB adapter using a 6pc6 cable.	
3	Connect 12 V plug-in power supply with the power line and connect it with the bipolar power source.	
4	Plug the CNI-LEL H2 into the sensor controller PGA-ADC and connect one RJ12 socket of the bipolar power source with the sensor controller PGA-ADC using a 6p6c cable	
5	Run SensorControl (see User Guide SensorControl.vi for further explanations)*	
	<p>*for running all sensor electronics including ImpC-CTH (impedance converter with constant temperature heater), Cal-CTH (calorimeter with constant temperature heater), PVS-CTH (programmable voltage source/high-side current amplifier with constant temperature heater), PrecVS-PGA-ADC (precision bridge amplifier), PotStat-ADC (potentiostat)</p>	



6	<p>Click on the register card “Settings of Sensors 1...3” and click on the button “Start”</p>		<p>Voltage shows output voltage at pin 3 of H2 CNI</p> <p>Display shows “Notices to Operators”:</p> <ul style="list-style-type: none"> ID of device; Type of device; Version of device Release date of device; Adapter to which the device is connected; dynamic notices: e.g. next start/stop times of heating; <p>Status indicates overdrive condition of the ADC</p> <p>Ring to activate LEDs</p> <p>Ring to adjust gain of PGA</p> <p>Start and Stop button</p>
10	<p>Click “Start” for applying 12 V to the sensor and collecting data. Click on register card 1 for activating EEPROM: Stop button disappears and Start button changes to Save. Clicking on Save stores PGA adjustment in EEPROM. Click “Stop” for stopping data collection and sensor</p>		
11	<p>All data are displayed as a function of time in the signal diagram at a rate of 1000 ms⁻¹. Clicking on Save store all data in C:/Measurement data. Data are automatically saved after 24 h. Evaluate data with DÍADEM (National Instruments). Export to EXCEL is possible.</p>		