SENSIRION
THE SENSOR COMPANY

User Manual for EK-P2 Evaluation Kit for SDP600 Series Sensors
Installation Guide

Introduction

The evaluation kit EK-P2 contains everything needed for fast evaluation and qualification of the SDP600 series differential pressure sensors. This document describes the installation process and how to do first measurements with your SDP610 sensors.

Content of EK-P2

- 3 SDP610 sensors
- Connector with voltage regulator and pull-up resistors
- Cable to connect to sensor
- CD with free flow sensor sample code (for LabVIEW) and stand alone viewer software.
- National Instruments USB-8451 I²C Interface (not included in EK-P2-S)

ESD Protection

The content of your evaluation kit ships in an antistatic package to prevent electrostatic discharge (ESD) damage to the parts. For the Sensirion sensors, the black foam inlay works as antistatic protection. ESD can damage several components on the device.

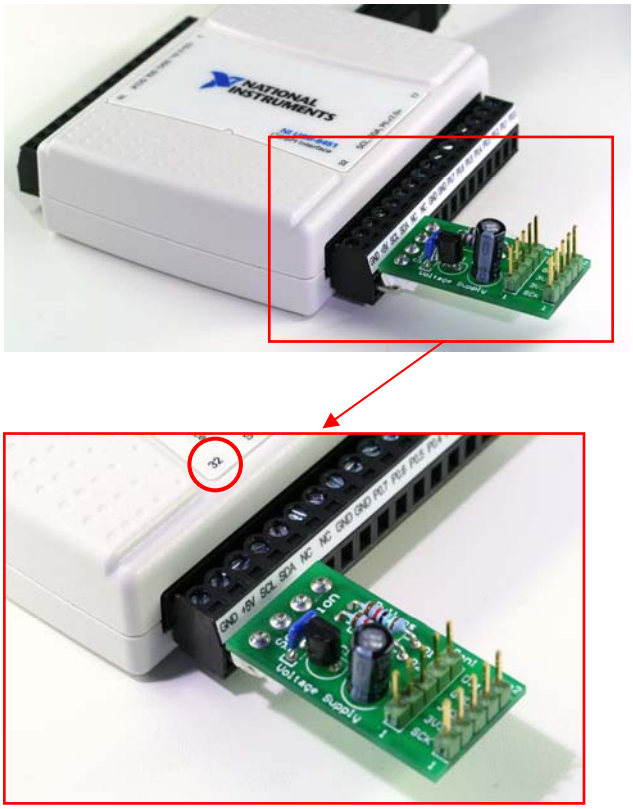
To avoid such damage, ground yourself using a grounding strap or by touching a grounded object. Furthermore store the parts in the antistatic package when not in use.

Hardware installation

The National Instruments USB-8451 I²C Interface [1] (NI USB 8451) features 32 ports. For connecting to a Sensirion SDP600 series sensor, only the following 4 ports are needed:

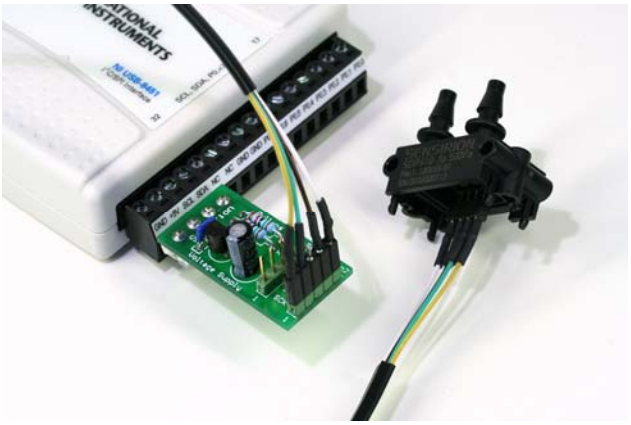
- 29: SDA
- 30: SCL
- 31: +5V
- 32: GND

The Evaluation Kit contains a connector board with voltage regulator (3.3V), pull-up resistors (both 15kΩ) and to capacitors (C1=2.2µF, C2=100nF) as filters. Connect the board to the ports 29 to 32 of the USB8451 interface as shown in the following picture and tighten the connector with the screws.

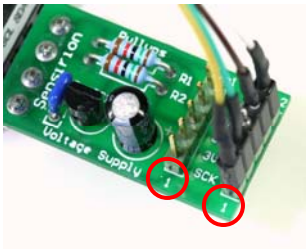


[1] The National Instruments USB-8451 I²C Interface is shipped in the original sealed box of the manufacturer. National Instruments maintains full service and warranty and provides implementation of the I²C commands into LabVIEW. Please read also the specific documentation provided with the interface box and contact the National Instruments support team in case of any questions regarding this device.

Then connect the SDP610 series sensor with the connector board.



Ensure that you connect pin 1 of the board with pin 1 of the sensor (with the same colored wire). Caution: An inverted connection may damage the sensor!



Remarks:

- The central pin of the connector board is not needed for SDP610, therefore the connecting cable is not wired for the central pin.
- The connector board features two connector rows. For normal measuring, only one row is needed.

LabVIEW source code

With the NI USB 8451 interface, the sensor can also be accessed by LabVIEW. For Open Source LabVIEW code, please check the Folder “Source_Code” in the FlowViewer directory.

Software

A. Installation

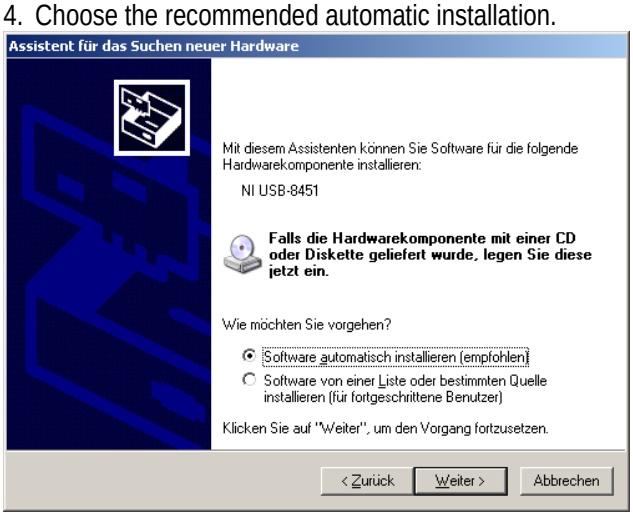
Requirements: The setup program is made for Windows XP and works without additional LabView software. It should also run on newer Windows versions (as Windows Vista). For other operating systems (such as Mac OS, Linux) you may use the available source code and your own LabVIEW environment with LabVIEW version later than 8.0.

1. On the delivered CD from Sensirion with Viewer Software, open the “FlowViewer” folder, start the Setup.exe and go through the guided installation. This installation assistant installs a Sensirion flow viewer software as well as the drivers for the NI USB 8451.

2. Restart your computer (when you are asked for it).

3. Connect the Device (NI USB 8451). Thereby the hardware assistant will pop up. Choose not to establish a connection to Windows Update.

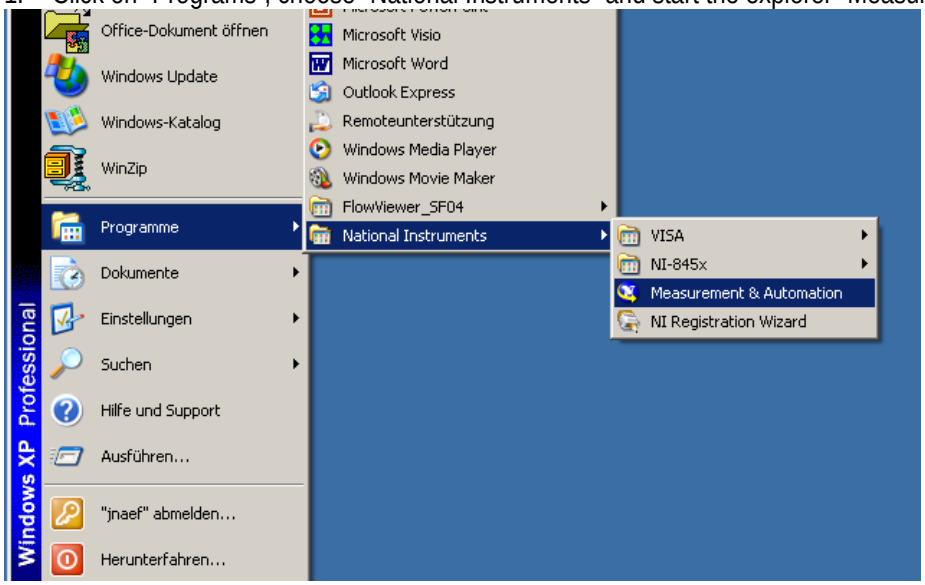
4. Choose the recommended automatic installation.



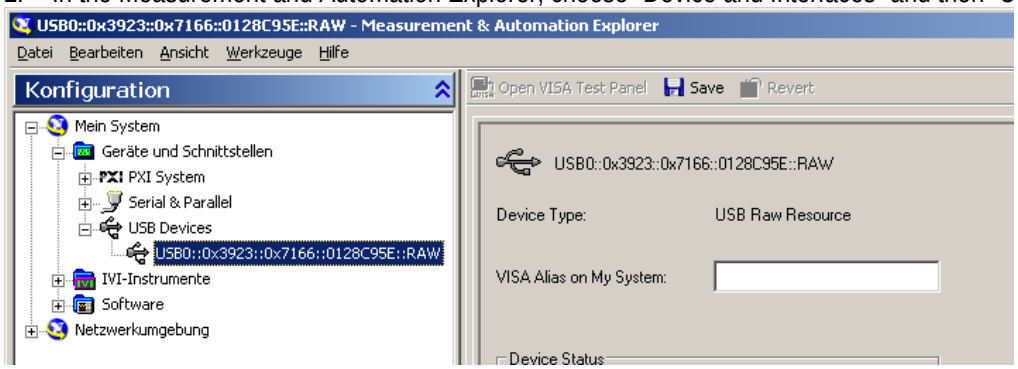
5. Follow the guided installation.

B. Confirguration of the Device (NI USB 8451)

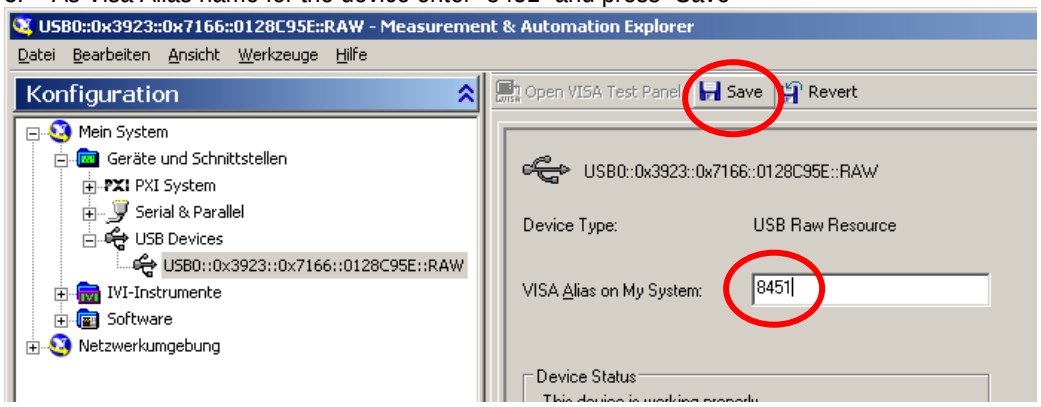
1. Click on “Programs”, choose “National Instruments” and start the explorer “Measurement and Automation”



2. In the Measurement and Automation Explorer, choose “Device and Interfaces” and then “USB Devices”.



3. As Visa Alias name for the device enter “8451” and press “Save”

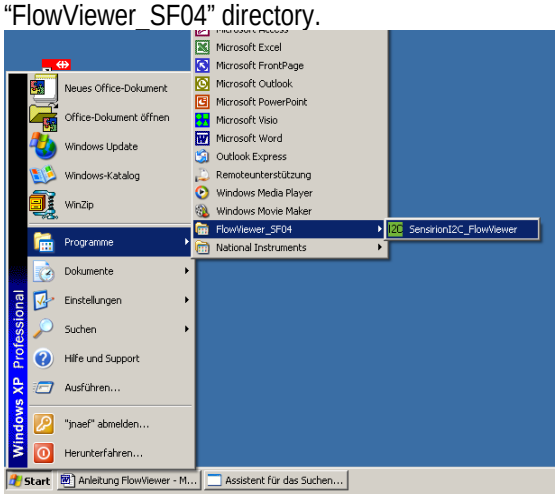


C. Start of the program

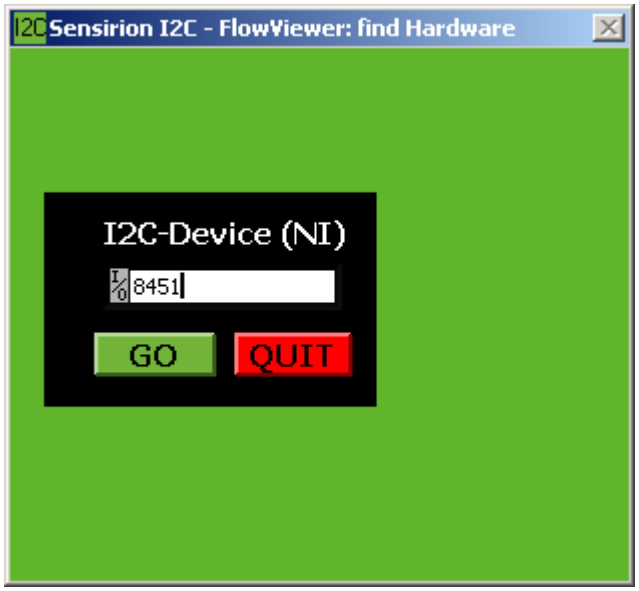
1. Make sure that the following requirements are fulfilled:

- Installer has been executed.
- Device (NI USB 8451) has been configured (Visa Alias has been entered).
- Device (NI USB 8451) is connected.
- Sensor is correctly connected.

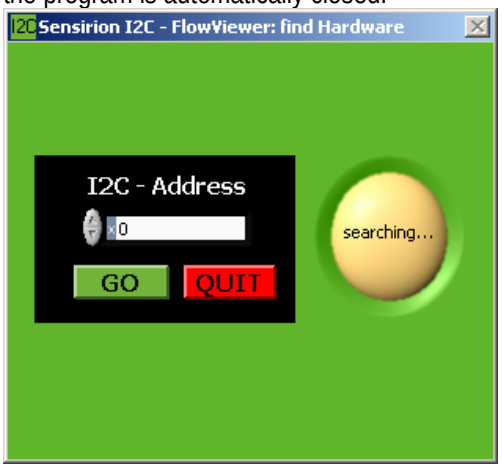
2. Start the program “SensirionI2C_FlowViewer” in the “FlowViewer_SF04” directory.



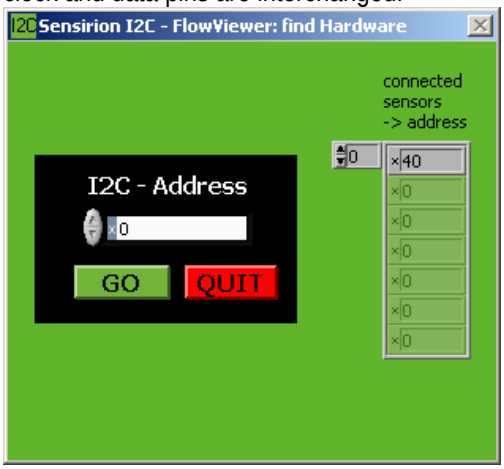
3. Enter “8451” (Visa Alias, see “Configuration of the device”) in order to identify the I²C device. Then, choose “GO”.



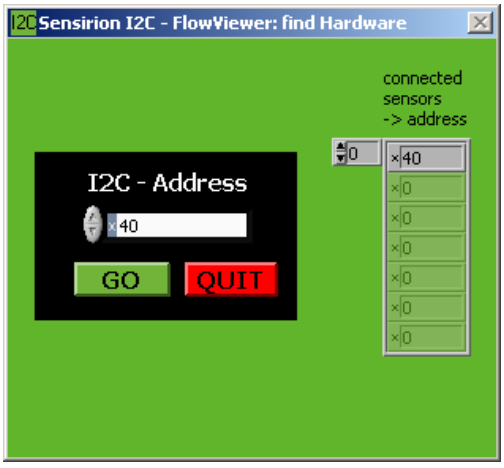
4. System searches for connected sensors. If there is no device found within 10s, an error notification pops up and the program is automatically closed.



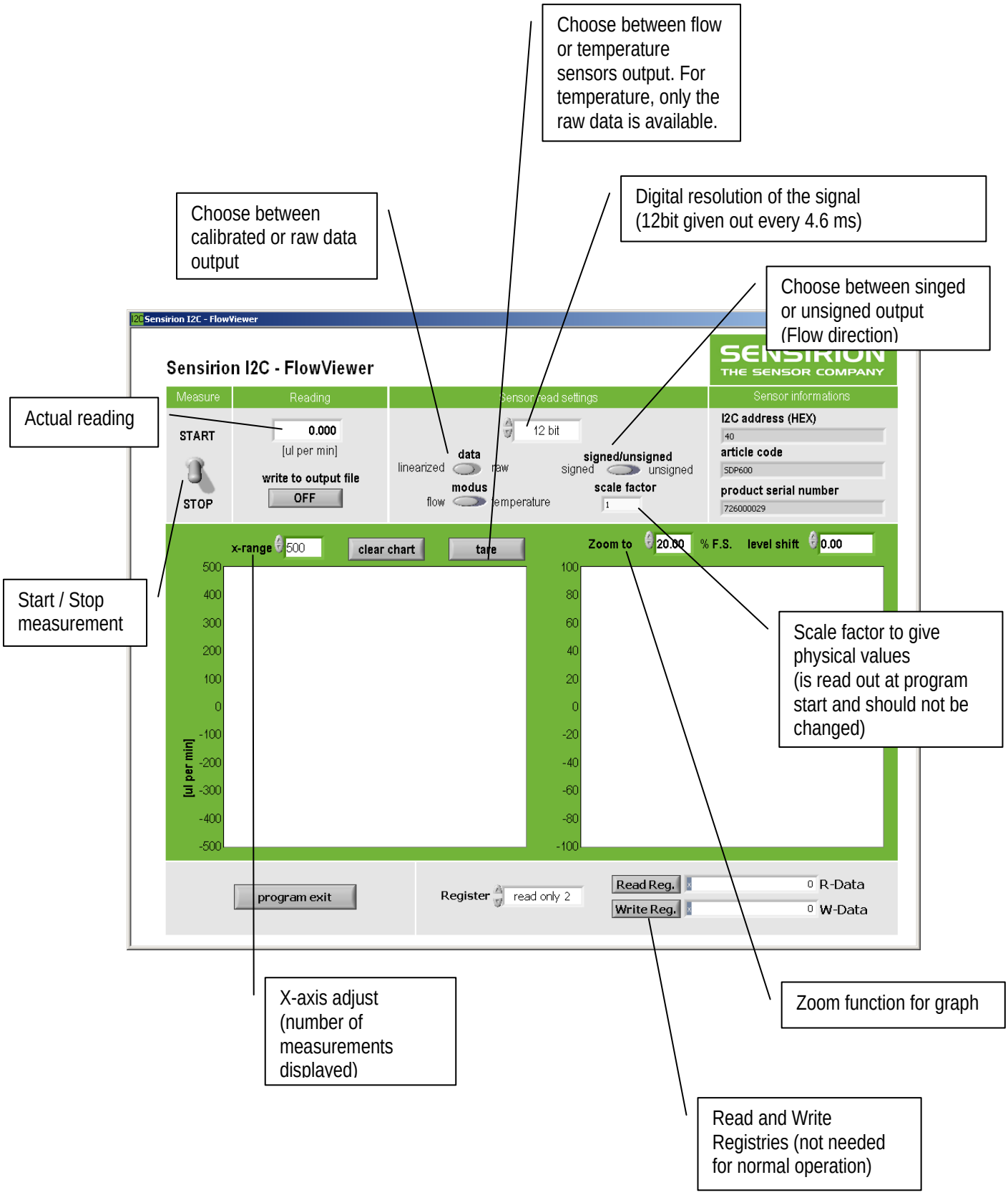
In the example pointed out below, the system has found a sensor with the hexadecimal address “40” (which is the default address). If no address appears, no sensor has been found. Possible reasons: No sensor is connected or clock and data pins are interchanged.



5. Type the address of the sensor in the address box and click on “GO”



D. Use of the FlowViewer



Important Notices

Warning, personal injury

Do not use this product as safety or emergency stop devices or in any other application where failure of the product could result in personal injury (including death). Do not use this product for applications other than its intended and authorized use. Before installing, handling, using or servicing this product, please consult the datasheet and application notes. Failure to comply with these instructions could result in death or serious injury.

If the Buyer shall purchase or use SENSIRION products for any unintended or unauthorized application, Buyer shall defend, indemnify and hold harmless SENSIRION and its officers, employees, subsidiaries, affiliates and distributors against all claims, costs, damages and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if SENSIRION shall be allegedly negligent with respect to the design or the manufacture of the product.

ESD Precautions

The inherent design of this component causes it to be sensitive to electrostatic discharge (ESD). To prevent ESD-induced damage and/or degradation, take customary and statutory ESD precautions when handling this product.

See application note "Handling Instructions" for more information.

Warranty

SENSIRION warrants solely to the original purchaser of this product for a period of 12 months (one year) from the date of delivery that this product shall be of the quality, material and workmanship defined in SENSIRION's published specifications of the product. Within such period, if proven to be defective, SENSIRION shall repair and/or replace this product, in SENSIRION's discretion, free of charge to the Buyer, provided that:

- notice in writing describing the defects shall be given to SENSIRION within fourteen (14) days after their appearance;
- such defects shall be found, to SENSIRION's reasonable satisfaction, to have arisen from SENSIRION's faulty design, material, or workmanship;
- the defective product shall be returned to SENSIRION's factory at the Buyer's expense; and
- the warranty period for any repaired or replaced product shall be limited to the unexpired portion of the original period.

This warranty does not apply to any equipment which has not been installed and used within the specifications recommended by SENSIRION for the intended and proper use of the equipment. EXCEPT FOR THE WARRANTIES EXPRESSLY SET FORTH HEREIN, SENSIRION MAKES NO WARRANTIES, EITHER EXPRESS OR IMPLIED, WITH RESPECT TO THE PRODUCT. ANY AND ALL WARRANTIES, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSLY EXCLUDED AND DECLINED.

SENSIRION is only liable for defects of this product arising under the conditions of operation provided for in the datasheet and proper use of the goods. SENSIRION explicitly disclaims all warranties, express or implied, for any period during which the goods are operated or stored not in accordance with the technical specifications.

SENSIRION does not assume any liability arising out of any application or use of any product or circuit and specifically disclaims any and all liability, including without limitation consequential or incidental damages. All operating parameters, including without limitation recommended parameters, must be validated for each customer's applications by customer's technical experts. Recommended parameters can and do vary in different applications.

SENSIRION reserves the right, without further notice, (i) to change the product specifications and/or the information in this document and (ii) to improve reliability, functions and design of this product.

RoHS and WEEE Statement

The SDP600 Series complies with requirements of the following directives:

- EU Directive 2002/96/EC on waste electrical and electronic equipment (WEEE), OJ13.02.2003; esp. its Article 6 (1) with Annex II.
- EU Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electricaland electronic equipment (RoHS), OJ 13.02.2003; esp. its Article 4.

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