

Application Note for SDP600 Series (SDPxxx)

Qualification Guide Flow

Summary

This Qualification Guide shall help to test and qualify the sensors reliably in due time. It is of great importance that all applicable documents (Datasheet, Set Up Guide and

Handling Instructions) are carefully studied before integration, testing and qualification of the sensor.

1. Sensor Testing and Qualification

For calibration and end testing of DP sensors Sensirion is using sophisticated calibration equipment and procedures to guarantee highest precision and reliability. In order to ensure consistent testing of SENSIRION's SDPxxx differential pressure sensors the following items should be carefully considered:

- a) **Test Objects:** The device under test (DUT) should consist of at least 5-10 sensors, which should be taken out of the original packaging.
- b) **Operating Conditions:** Make sure that sensors have not been exposed to excessive dust prior to the testing. Sensors should have been stored in original packaging until used for assembly.

- c) **Test set-up:** Make sure that DUT and reference sensor are at same temperature and avoid any air leakage. Remember that DP sensor uses a flow through measurement principle, i.e. pressure at one port needs to be applied continuously, because air flows through the sensor and flows out at the second port. Tubing to DP sensor ports should be kept short (e.g. less than 10in.) in order to avoid any pressure drop in the tube.
- d) **Reference sensor:** The reference sensor should have equal response time as the DUT. A SDPxxx sensor is suggested as a reference for relative accuracy testing. For absolute accuracy testing the reference sensor's calibration needs to be traceable to a standard reference.

2. DP Sensor Tests

- 1 Read-out serial number in order to test general communication functionality
- 2 Read-out supply voltage
- 3 Read-out measurement value at zero flow/DP (Please ensure that ports are shut - due to excellent sensor sensitivity at low flows even minor flows will cause wrong measurement)

- 4 Read-out measurement value at flow/DP set-point (a relative accuracy check from sensor to sensor is suggested instead of a difficult absolute accuracy check against a traceable standard reference)

IMPORTANT: Dynamic DP sensors with flow through measurement principle are air density dependent, i.e. measurements at extreme altitudes will exhibit an offset compared to static DP references.

Revision history

Date	Version	Changes
4. 9. 2008	V1.0	First release
June 2009	V1.1	Layout adapted and list of sales offices updated

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