



SGX

SENSORTECH

An Amphenol Company



SGX – DX05A

Dewpoint sensor Datasheet

Since heating and cooling consume significant amount of energy, efficiency of climatisation becomes more and more important especially with upcoming electric battery powered transportation.

Key to efficiency is a precise measurement of the climatic properties the system has to control.

SGX's humidity sensors provide accurate measurement of air dew point, humidity and air temperature.

They are made to operate at the harsh climate conditions inside the air flow channel of road vehicles and come with a strong protection against splash water, dust, vibration and electric disturbances.



Quality, Safety, Responsibility

Functional specifications

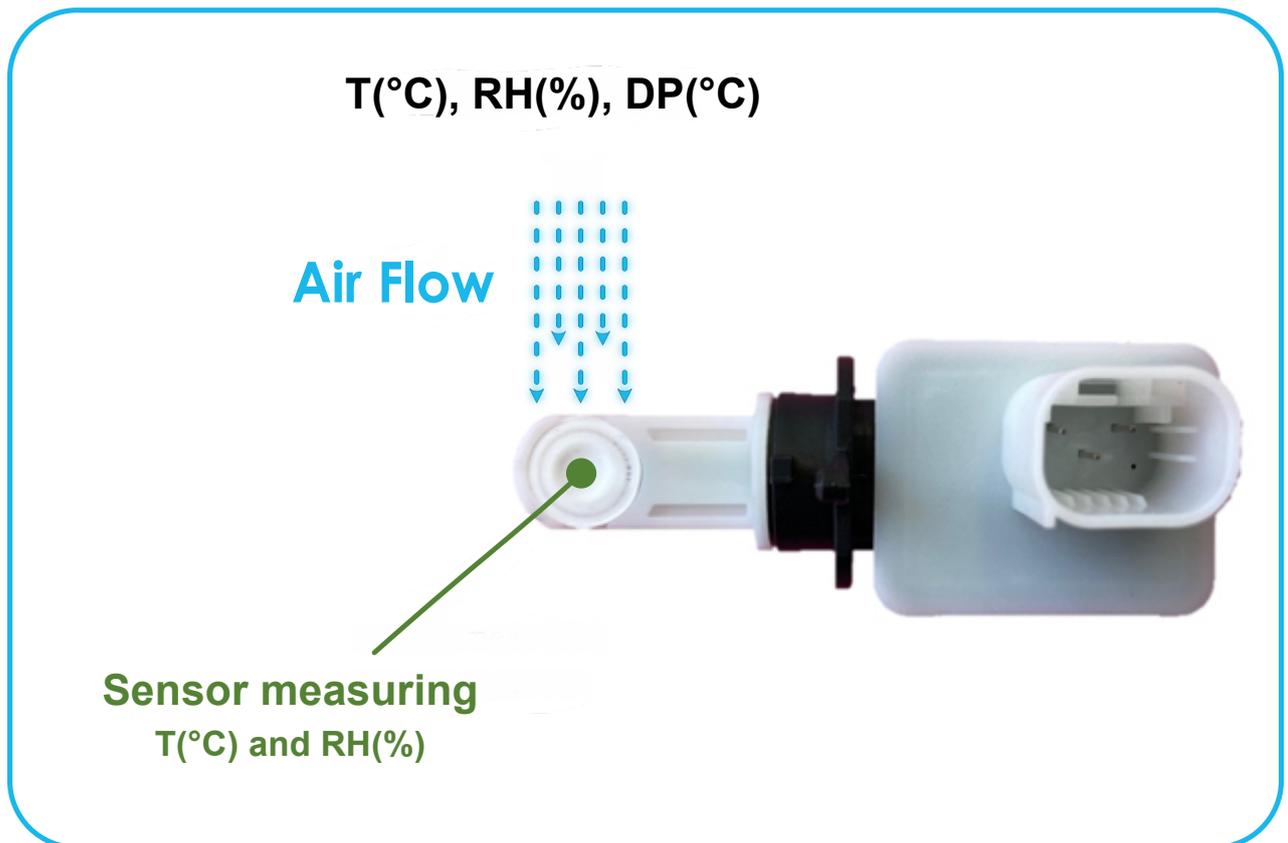
Features

- Automotive product
- Accurate Dewpoint, Relative humidity and Temperature measurement
- Low power (<3 mA)
- Compact size (customizable)
- LIN 2.1 output
- Standard 3 pins connector
- Watertight housing IP6K9



Principle

- It measures the temperature $T(^{\circ}\text{C})$ and relative humidity $\text{RH}(\%)$ of the air flow.
- The Dewpoint value is calculated based on these values.
- $T(^{\circ}\text{C})$, $\text{RH}(\%)$ and $\text{Dp}(^{\circ}\text{C})$ are available on LIN bus



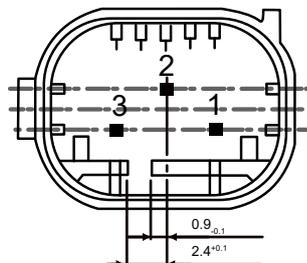
Main technical characteristics

Temperature and humidity range	0~95% RH -40°C to +85°C
Temperature storage	-40°C to 105°C
IP level	IP6K9 with harness plug-in and no direct water jet on the membrane
Fixing	Bayonet
Connector	3pins connector ref : AMP 967642-1 Coding B
External dimensions	66mm x 26mm x 35mm
Weight	< 15 g
Power supply operating range	9 to 16V
Power consumption	<3 mA
Output signal	LIN 2.1 / 19'200 Bds
Temperature Resolution	0.1°C
Temperature Accuracy	0.5°C typical
Temperature Response Time (T63%)	Step ambient to 60°C = 30s
Humidity Resolution	0.5%
Humidity Accuracy	1.8% typical
Humidity Response Time (T63%)	Step ambient to 80% = 15s
Dewpoint Resolution	0.1°C
Dewpoint Accuracy	2°C typical
Lifetime	Minimum 15 years Minimum 8'000h

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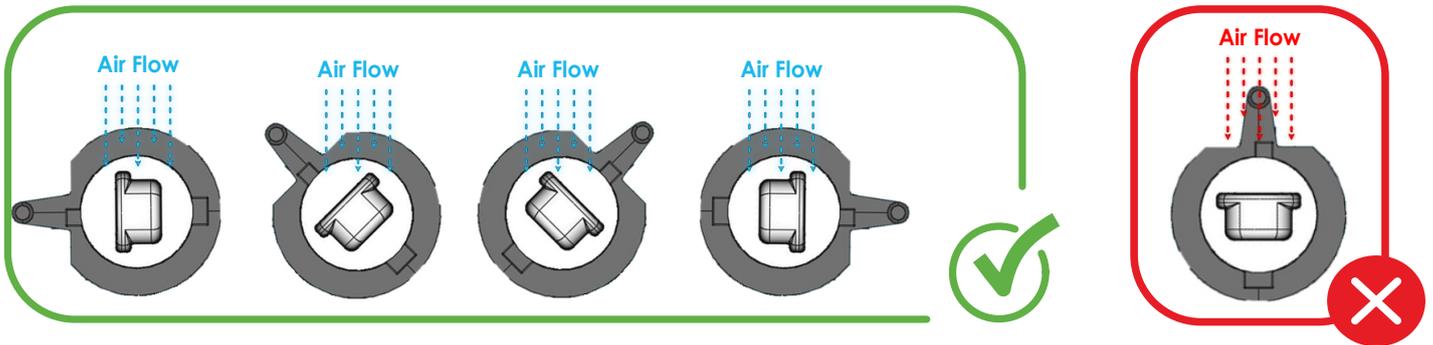
Connector specification

Connector type	AMP 967642-1 Coding B
Communication	LIN 2.1 / ID 0x07
Pinout	Pin1: GND Pin2: LIN Pin3: Vbat

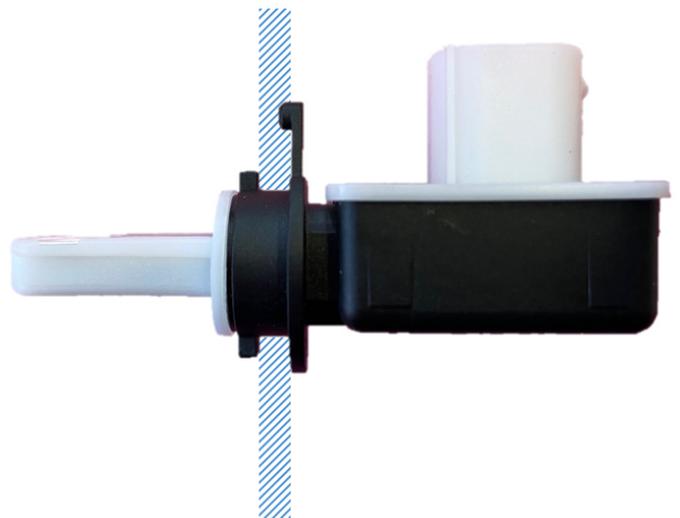
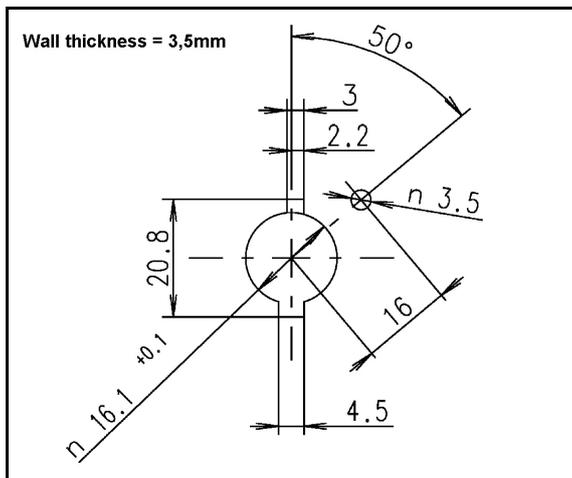


Recommendation for integration

The sensor must be exposed to the air flow. Preferably, the filtering membrane included in the module should never be facing the air flow, to prevent water and dust accumulation.



Bayonet fixing, mating with following interface:



LIN interface

Below is the description of the frame of the sensor, its ID is 0x16 and its DLC is 8 bytes.

frame 8 bytes		0	1	2	3	4	5	6	7
startbit	byte\bit								
0	0	DPS_DewTemp							
8	1	DPS_RelHum							
16	2	DPS_AmbTemp							
24	3	DPS_DewTemp_HiRslt_ST3							
32	4								
40	5	DPS_AmbTemp_HiRslt_ST3							
48	6								
56	7							WakeupStat	RsErr_MFS

Description of the signals:

Name	Description	Readings	Measurement data	Unit	Comments
DPS_DewTemp	Dewpoint	110	15	°C	(readings/2)-40
DPS_RelHum	Relative Humidity	100	50	%	(readings/2)
DPS_AmbTemp	Ambient Temperature	130	25	°C	(readings/2)-40
DOPS_DewTemp_HiRslt_ST3	Dewpoint	110	15	°C	(readings/10)-40
DPS_AmbTemp_HiRslt_ST3	Ambient Temperature	130	25	°C	(readings/10)-40

Dewpoint and Temperature values are available with a 0.5°C or 0.1°C resolution.

DISCLAIMER:

SGX Europe Sp. z o.o. reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. SGX Europe Sp. z o.o. accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

SGX Europe Sp. z o.o. sensors are designed to operate in a wide range of harsh environments and conditions. However, it is important that exposure to high concentrations of solvent vapours is to be avoided, both during storage, fitting into instruments and operation. When using sensors on printed circuit boards (PCBs), degreasing agents should be used prior to the sensor being fitted. SGX Europe Sp. z o.o. makes every effort to ensure the reliability of its products. Where life safety is a performance requirement of the product, we recommend that all sensors and instruments using these sensors are checked for response to gas before use.

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