

# Handling Instructions

## For the SFA30 Formaldehyde Sensor Module

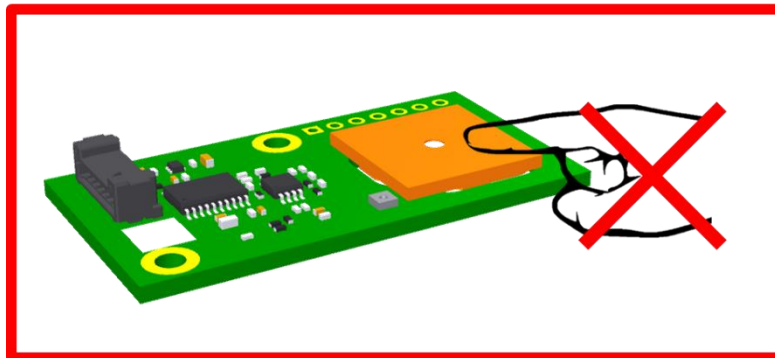
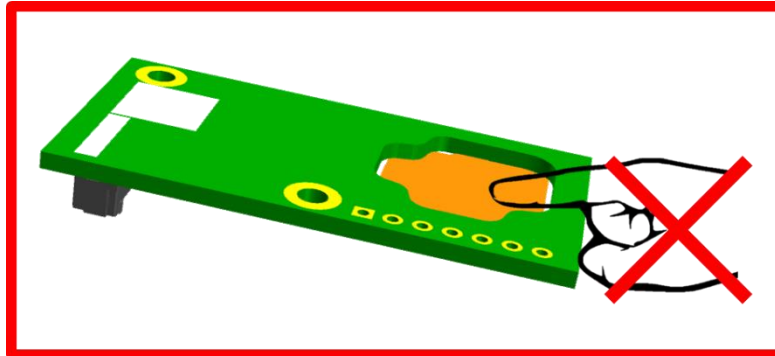
This application note describes the basic handling instructions which shall be followed at all times during handling and assembly of the SFA30 formaldehyde sensor module.

### Content

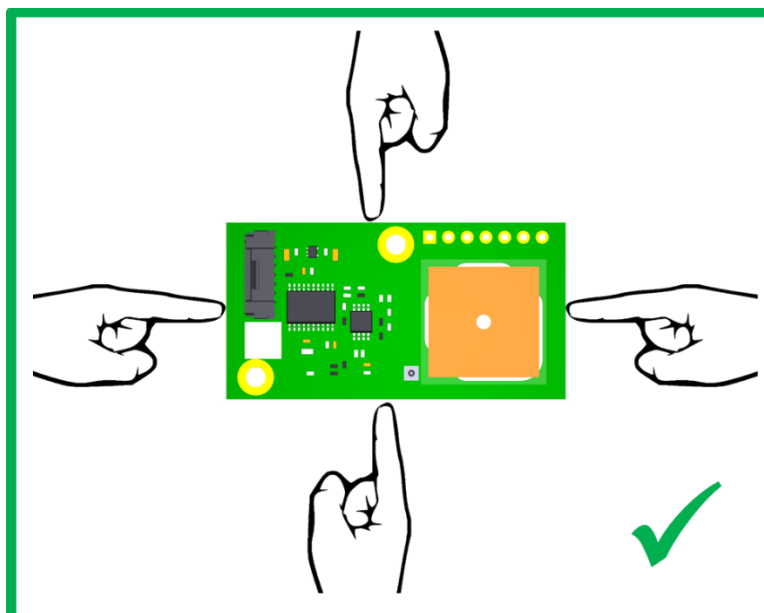
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## 1 Mechanical Handling

The SFA30 formaldehyde sensor module is a mechanically sensitive device. Handle with care at all times. Avoid exerting pressure or force on the brown top side of the sensor or the black bottom side of the sensor:



For handling or assembly, hold the sensor module at the edges of the PCB:



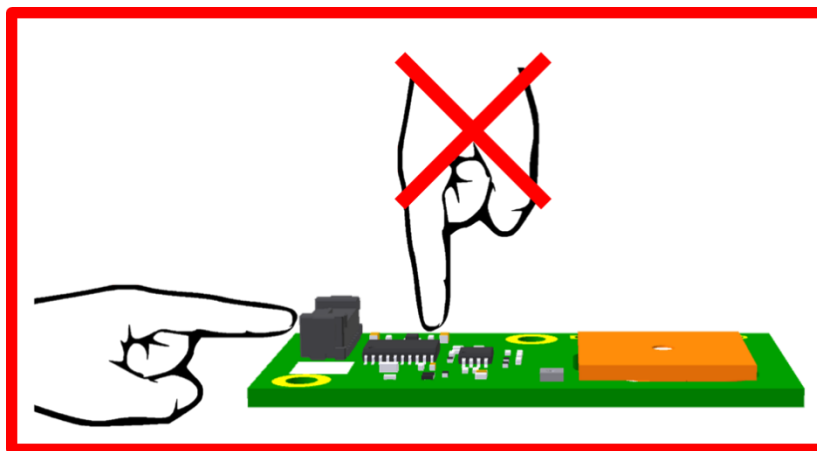
## 2 ESD Precautions

**WARNING:** The SFA30 formaldehyde sensor module is susceptible to damage by electro-static discharge (ESD). During handling and testing, suitable ESD precautions must be taken. Operators must always use proper ESD handling equipment.

Parameter	Rating
Electrostatic discharge voltage (human body model)	Class 1C (1000 V)
Electrostatic discharge voltage (charge device model)	Class C2a (500 V)

**Table 1:** ESD rating of SFA30. Reproduced from the SFA30 datasheet.

In particular, avoid touching the exposed electronics or the connector pins without suitable ESD protection.



## 3 Storage

Refer to the SFA30 datasheet for recommended storage conditions. Store the sensor in its closed original package in a clean and dry place.

Parameter	Rating	Unit
Recommended storage temperature	10 ... 30	°C
Recommended storage humidity	30 ... 70	% RH

**Table 2:** Recommended storage conditions for SFA30. Reproduced from the SFA30 datasheet.

## 4 Exposure to Chemicals

The SFA30 formaldehyde sensor module and its on-board Sensirion SHT humidity and temperature sensor should be protected from volatile chemicals, in particular at high concentrations.

The “*Handling Instructions for SHTxx Humidity and Temperature Sensors*” apply. The latest version of these handling instructions is available on the Sensirion webpage: [http://www.sensirion.com/file/handling\\_instructions\\_rht](http://www.sensirion.com/file/handling_instructions_rht).

Pay special attention to the relevant sections on “*Exposure to Chemicals*” as well as “*Packaging and Storage*”.

## 5 Assembly

### 5.1 Soldering Instructions

The SFA30 formaldehyde sensor module offers two interface connection options, a Molex Micro-Lock Plus connector and 0.1" pitch contact pads. Only either of the two connection options must be used at any time. For the pin assignment of the Molex connector please refer to the SFA30 datasheet. The pin assignment of the 0.1" pitch pads is identical, with the left-most (square) pad being pad 1. Sensirion generally recommends using the Molex Micro-Lock Plus connector for SFA30 design-in. For prototyping or when the available space is tight, the contact pads may be used.

To connect the SFA30 sensor module over the contact pads to external electronics, a pin stripe with 0.1 inch / 2.54 mm pitch should be used. It is recommended to solder the SFA30 by hand only. Special care should be taken to ensure good ventilation throughout the soldering process and to keep the heat-up of the SFA30 PCB as low as possible. Especially the SFA30 sensor cell should not be heated up above the short-term temperature storage limit specified in the SFA30 datasheet. Sensirion further recommends not to use any board wash or cleaning agents for the SFA30 sensor module PCB after soldering.

Independent of the interface connection, the SFA30 sensor cell should face the device opening in the final assembly. Please refer to the SFA design-in guide for further recommendations on the SFA30 integration.

### 5.2 Conformal Coating

For some applications it may be desired to protect the electronic assembly with a passivation. Such passivation may be achieved by conformal coating.

The SFA30 sensor module is not compatible with spray coating and dip coating. Manual coating with a brush, dispensing and jetting can be used to apply conformal coating on the PCB while ensuring that no coating is applied to the sensor cell and the top surface of the humidity sensor. Already a thin layer of coating on the top of the SFA sensor cell or the included humidity sensor can clog the gas openings, blocking air molecules from reaching the sensing elements and thereby destroying the sensor. A layout of the coating area is given in Figure 1.

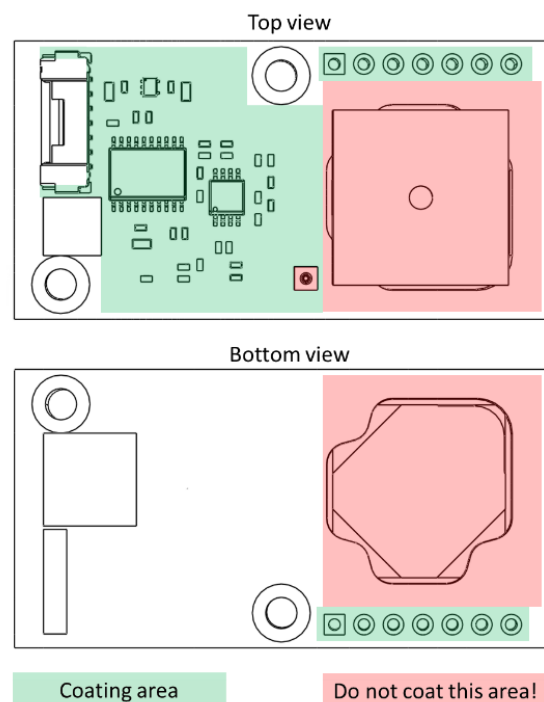
When selecting a conformal coating, special focus should be given to not use a product that is outgassing large amounts of volatile organic compounds (e.g., aromatics) or organic nitrogen compounds (e.g., amines). The outgassing of this substances could potentially influence the sensor readings in the final application or contaminate the built-in humidity sensor. In any case, ensure good ventilation throughout the application, staging and curing to prevent any sensor pollution.

Sensirion generally recommends curing at room temperature under good ventilation. If the selected coating process includes a curing step at higher temperatures, the SFA30 storage conditions specified in the datasheet should be adhered to at all times.

Sensirion tested and recommends the conformal coating listed in the table below. This coating is known to be suitable if applied and fully cured at room temperature under good ventilation (fresh air supply) and according to the respective datasheet.

Manufacturer	Product
Chase	HumiSeal 1B51NSLU

**Table 3:** Recommended conformal coating



**Figure 1:** SFA30 coating instructions

## 6 Important Notices

### 6.1 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. 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 data sheet 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.

### 6.2 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.

### 6.3 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.

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## 8 Revision History

Date	Revision	Changes
October 2020	1.0	Initial version
November 2020	1.1	Pictures updated
April 2021	1.2	Added chapter with soldering and conformal coating instructions