

SF1 Filter Cap

Filter Cap for Humidity & Temperature Sensors SHT1x



- _ Protection against dust and other contaminants
- _ Water proof, IP67 protection class
- _ Easy mounting of sensor into housing

SF1 Filter Cap Product Summary

The SF1 Filter Cap provides IP67 protection against water, dust and other contaminants for the humidity and temperature sensors SHT11 and SHT15. It is a low cost part and very easy to use. The Filter Cap consists of a single piece of polypropylene including a filter membrane. It fits the outer dimensions of the SHT1x sensors and allows for compact system design. It also serves as an adaptor for mounting the sensor directly into the wall of a housing. Using a sealing ring, this results in a waterproof mounting solution.

Applications

- HVAC
- Automotive
- Test & Measurement
- Data Logging
- Automation
- White Goods
- Medical

Ordering Information

	Part Number
Filter Cap	1-100188-01

1 Filter Cap Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
Body material			Polypropylene (PP)		
Filter material			PTFE with polyester scrim (PP)		
Temperature Range		-40		100	°C
Mullen Hydrostatic (water resistance pressure)			70		kPa
			7		meter water column
Response Time RH	1/e (63%) slowly moving air ¹		30		s
Oleophobicity Rating ²			6		(Scale from 0-10)
Filtration Efficiency ³	0.1 µm particles @ 0.05 m/s air velocity		99.99		%
Filter pore size			1.5		micron
Protection class ⁴			IP67		

Table 1 Filter Cap Specifications

¹ Slowly moving air: 0.03m/s

² Repellence of oil and hydrocarbons according to AATCC (American Association of Textile Chemists and Colorists) standard. Rating 6 means n-decane is repelled.

³ Percentage of particles with size 0.1µm filtered at given air flow

⁴ IP67 requires to be "dust tight" and "protected against the effects of temporary immersion".

2 Application Information

Using the Filter Cap, a separation can be made between the environment, in which relative humidity is to be measured and the readout electronics. Such a separation is needed mainly in areas with a lot of dust particles in the air: in HVAC applications, where large volumes of airflow are passing the sensor, or in appliances (e.g. lints in garment dryers) or in agricultural environments, where dust and dirt are present. Furthermore, consistent and reliable humidity measurements are enabled by protection against water immersion.

Another important issue addressed by the Filter Cap is how to mount the sensor in a housing. It provides a simple, easy-to-apply possibility to mount the sensor in e.g. HVAC transmitters, data loggers, air ducts etc. The filter membrane allows for waterproof mounting up to 7 m water column when the sealing ring is used in addition.

3 Mounting Information

There are three possibilities to mount the through hole Filter Cap:

- Fixed between PCB and housing wall by small pressure
- Glued to the PCB and/or housing wall
- The two pins of the Filter Cap are heated up to at least 160°C with a heating tool to melt and form a robust fastening.

3.1 Mounting against housing wall

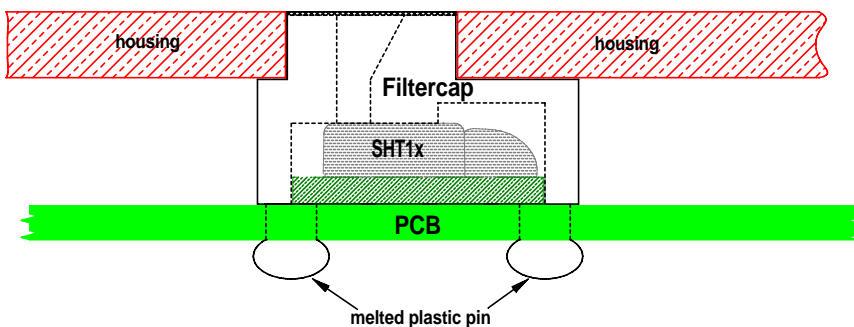


Figure 1 The PCB with the Filter Cap is pressed against the housing wall and the plastic pins are melted.

3.2 Waterproof mounting

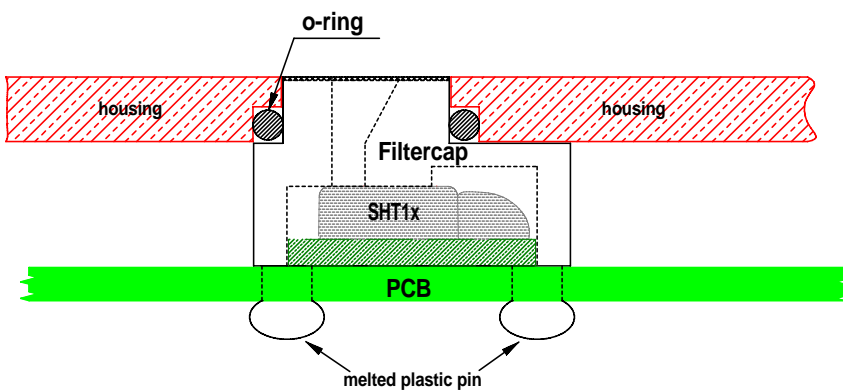


Figure 2 Waterproof mounting by using an O-ring for sealing

The o-ring, which is not provided by Sensirion, should meet the following specifications:

- Inner diameter: 6 mm (0.236 inch)
- Cross section: 1 mm (0.04 inch)
- Material: NBR

This o-ring can be sourced worldwide at Busak + Shamban: <http://www.busakshamban.com>, Part. No. OR1000600