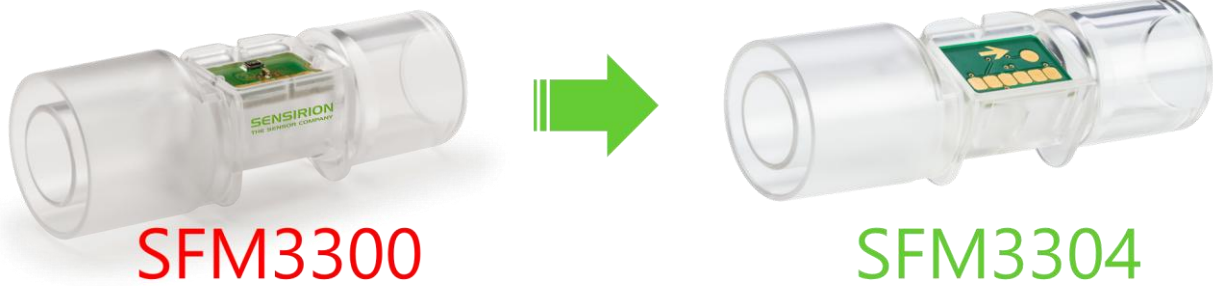


Transition guide from SFM3300-250-D to SFM3304-250-D

What do you need to change to switch to the new generation SFM3304-250-D?



This guide explains what is different between the SFM3300-250-D and the new generation SFM3304-250-D. We will focus on three topics:

1. Mechanical considerations: shape and fittings
2. Electrical interface
3. Software changes
4. Wetted materials

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1 Mechanical considerations: shape and fittings

Outer shape and mechanical fittings of the SFM3304-250-D are identical to the legacy product SFM3300-250-D.

1.1 Comparison of dimensions

Dimension	SFM3300-250-D	SFM3304-250-D
Height	22 mm	
Length	69.3 mm	
Width	25.3 mm	

Mechanical envelope. The published overall dimensions are unchanged.

1.2 Comparison of pneumatic fitting

Pneumatic fitting	SFM3300-250-D	SFM3304-250-D
Proximal pneumatic connection	22/15 mm standardized medical cone/socket combination	
Distal pneumatic connection	22/15 mm standardized medical cone/socket combination	
Compatible with medical cone standard	ISO 5356-1:2004	ISO 5356-1:2015

Transition impact. No redesign of the general sensor envelope is expected.

2 Cable compatible with both generations SFM330x

The SFM3304-250-D features a different I2C command set and works under a lower voltage supply than the legacy product SFM3300-250-D (see next sections).

The latest SEK-SFM3xxx-AW/D Evaluation Cable Gen. 2 (P/N 3.001.306) is specified for both the SFM3300-D and SFM3304-D, as well as other SFM3x00-AW/D proximal sensors. It therefore provides a practical way to evaluate both generations using the same clip-on cable.

The cable includes firmware on a PCB that handles:

- a routine to **detect which sensor generation** is connected and apply the correct voltage supply
- the different I2C command set of each sensor generation and translates them to a **unified RS232 communication protocol** (RS485 on demand, see below)
- the **heater control** on the sensor's PCB, including a logic to avoid overheating beyond the operating conditions of the sensor (50°C).

It is possible to reach out directly to Nicolay GmbH, which produces the evaluation cable and can customize cables for the medical industry. Further details about the cable and its manufacturer Nicolay can be found in the Clip-on Cable Application Note.

Please note that the medical device manufacturer is responsible for cable validation for medical purposes, both hardware and software.

3 Electrical interface

Parameter	SFM3300-250-D	SFM3304-250-D
Voltage supply	5 V $\pm$ 5%	3.15–3.45 V (3.3 V nominal)
Default I ² C address	0x40	0x2E
I ² C clock frequency	Up to 400 kHz	400 kHz typical; up to 1 MHz
I ² C pull-up / logic consideration	3.3 V pull-up is compatible with the specified logic-high threshold	SDA/SCL must remain $\leq$ VDD + 0.3 V use 3.3 V pull-ups
Electrical connector	Identical 6-pad clip-on interface	

If the evaluation cable (section 2) cannot be used, consider the following approach for a custom mating connector that supports both sensor generations:

Step	Proposed start up routine
1	Detect sensor presence using the heater connection with the main sensor supply off and only a small sensing current.
2	Apply 3.3 V and attempt communication with the SFM3304 at I ² C address 0x2E.
3	If there is no valid response, switch the sensor supply off, allow the rail to discharge, then apply 5 V and probe the legacy SFM3xxx at address 0x40.
4	After identification, use the generation-specific I ² C commands and data conversion described in Section 3.

Important: Do not operate the SFM3304 from the 5 V SFM3300 supply. The 5.5 V value in the SFM3304 datasheet is an absolute maximum rating, not an operating supply specification.

4 Software changes

Function	SFM3300-250-D	SFM3304-250-D
Start measurement	0x1000	0x3603
Device identification	32-bit serial number and article number via separate commands	Product/revision ID and 64-bit serial number via 0xE102
Flow data format	16-bit unsigned value + CRC	16-bit signed two's-complement value + CRC
Flow conversion	Scale factor: 120 counts/slm Offset: 32768	Scale factor: 120 counts/slm Offset: 0
Additional measurement data	Flow (temperature available through extended commands)	Flow, temperature, and status
Configurable filtering / averaging	No	Yes
Filter settings	Fixed sensor behavior	Configurable response time: 1 to 10 ms Averaging configurable

Firmware migration summary. The I²C physical interface remains, but the firmware should treat the SFM3304 as a different protocol implementation. At minimum, update the address, measurement-start command, raw-flow interpretation, and product/serial-number readout. Do not reuse the SFM3300 raw-flow conversion with the 32768 offset for SFM3304 data.

5 Wetted materials

For a precise and updated description of the wetted materials, please refer to the official documentation available upon request to your Sensirion contact. **The published wetted-material list is the same for both generations:** Si, Si₃N₄, SiO_x, Gold, Epoxy, MABS, and silicone.

Subcomponent	Wetted surface	Comparison
Flow tube	~6000 mm ²	Identical
Sealing onto flow tube	< 10 mm ²	Identical
Sensor's chip	< 50 mm ²	Chip on board for SFM3300-D QFN for SFM3304-D

The part-level assignment above is intended only as a preliminary mapping; use the latest official material declaration for regulatory or detailed material assessment work.

6 Reference documents

- [Datasheet SFM3300-D / SFM3300-AW, Version 1.4, March 2022](#)
- [SFM3x00 I²C Functional Description, Version 1.4, October 2025](#)
- [Datasheet SFM3304-xxx-D, Version 1.3, September 2026](#)
- [Clip-On Evaluation Cable for SFM3x0x-AW/D, Version 2.1, August 2026](#)

7 Revision History

Date	Version	Pages	Changes
Date (Month Year)	1	all	Initial version
Date (Month Year)			