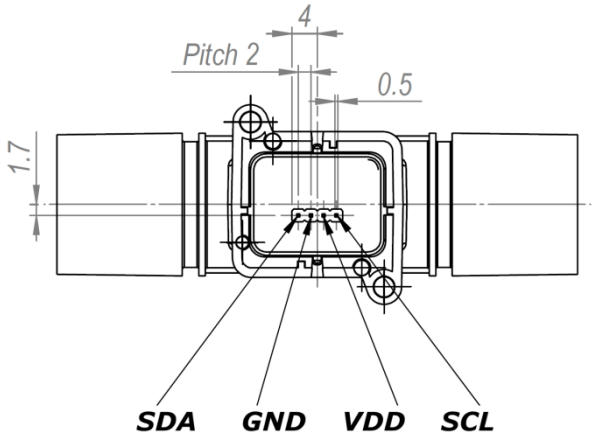
2. Electrical specifications

2.1 Electrical characteristics

Electrical properties	Condition	Value		Unit
Interface		I²C		
Default Sensor Address		64 (0x40)		
Soft Reset Time		80		ms
Start-up Time [12]	Max.	100		ms
Supply Voltage (VDD)		5V +/-5%		V
I²C Communication Level		Min.	Max.	V
	High	2.5	VDD	
	Low	GND	1.1	
I²C Bus clock frequency	Max.	400		kHz
Power Consumption		< 50		mW
Electrical Connector		2 mm pitch, 4 pins in a row		
Output signal resolution		14[13]		bit
Scale Factor Flow	Air, N2	140		1/slm
	O2	142.8		
Offset Flow		32'000		

[12] After 4.75V is reached
[13] 16 bit with two least significant bits always zero

2.2 Pin layout and mechanical concept of the electrical connection



Positive flow direction
(as marked on the sensor body)

The SFM3000 is designed for both connector attachment and through-hole technology hand-soldering to a PCB.

2.2.1 Connector attachment

The SFM3000 sensor's 4-pin 2 mm pitch electrical connector is compatible with Molex DuraClik™ socket (Molex product number: 502351-0400). For this type of connection please order the SFM3000 with a cap (according to the ordering information in Chapter 5). Diverse 4-core flat ribbon cables with crimp fittings can be used for electrical connection.

2.2.2 PCB soldering

Standard selective soldering systems may be used for soldering SFM3000 sensors. Reflow soldering is not feasible and may damage the sensor. The sensor ports must be protected from solder splash and flux during soldering. The characteristics of selective soldering machines vary, so any soldering setup must be tested before production use.

2.3 Conversion to physical values

In order to obtain the measured flow in [slm], the measured value needs to be converted using the following formula:

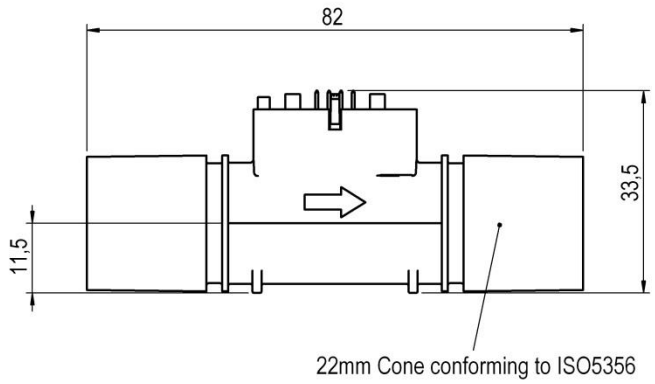
$$flow\ [\text{slm}] = \frac{measured\ value - offset\ flow}{scale\ factor\ flow}$$

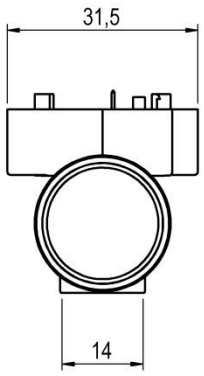
Please note that the first measurement performed directly after chip initialization is not valid.

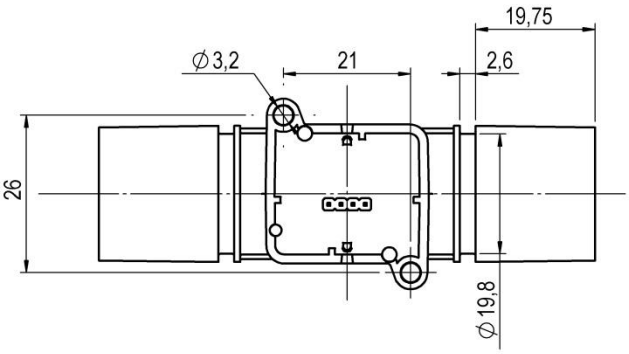
3. Mechanical specifications

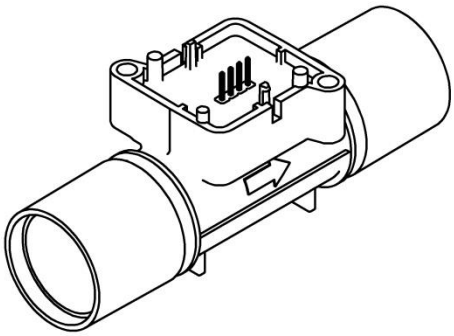
All dimensions are in millimeters (mm).

3.1 SFM3000 without cover (PCB mount)



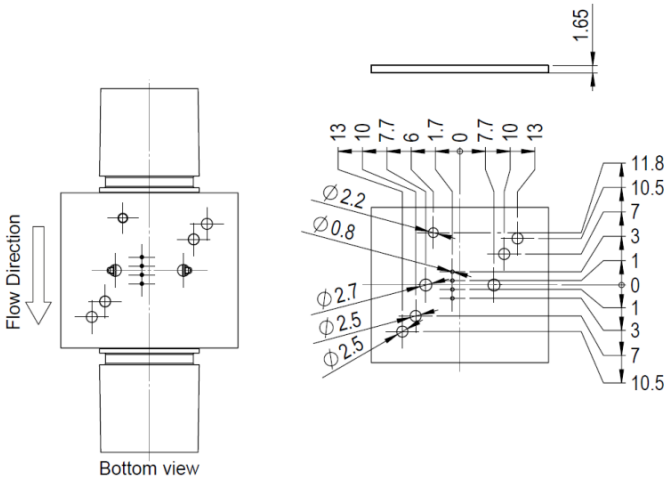






3.2 Footprint

Please refer to the mask given below for reliable PCB attachment using the dedicated snap-in feet.
Consider using the screw holes of the SFM3000 for a sturdy integration of the sensor.



3.3 SFM3000 with cover

If used with cover, sensor height is 34.4 mm instead of 33 mm. All the other dimensions are the same