

1. Features

- Measurable flow rates up to 25 mL/min
- High accuracy of $\pm 2.5\%$ reading
- Wide dynamic range with the turndown ratio of 100:1
- Excellent reliability
- Package enclosure made of polycarbonate (PC)

2. Description

The ASLF-25 liquid flow sensors are manufactured using the proprietary MEMS flow sensing and packaging technology. The principle of the flow sensor is based on the thermal property variation (heat transfer) of fluid flows at different flow rates. It is able to measure flow rates up to 25 mL/min of water-based solutions, and the sensors have a bidirectional option.

3. Sensor Performance

Unless otherwise noted, all data shown in Table 1 are calibrated with distilled water at 20 °C, 1.0 atmospheric gauge pressure.

Table 1. Specifications for Model ASLF-25 flow sensors.

Model	ASLF-25
Full Scale Flow Rate	± 10 , ± 15 , ± 20 , ± 25 mL/min, or customer specified
Turndown Ratio	100:1
Accuracy	$\pm 2.5\%$ reading or $\pm 0.15\%$ FS whichever is greater
Repeatability	$\pm 0.5\%$
Offset Stability	$\pm 0.1\%$ Full Span (FS)
Supply Voltage (V_s)	3.6 – 6.0 Vdc
Power Consumption	60 mW
Current Draw	12 mA
Response Time (T_{63})	40 ms
Output	Analog; Digital with I ² C
Maximum Pressure	0.5 MPa
Operating Temperature	5 – 50 °C
Pins Out	5 pins
Calibration	Using distilled water at 20 °C and 1 atm
Packaging Material	Polycarbonate
Dimensions	62 x 52 x 12.8 mm
Weight	15 g
Storage Temperature	-10 ~ +60 °C, but avoid icing inside

4. Assembly Interface

4.1 Pin definition

The ASLF-25 series provide a 5-pin interface. The pin layout and definition are indicated in Figure 1 and Table 2, respectively.

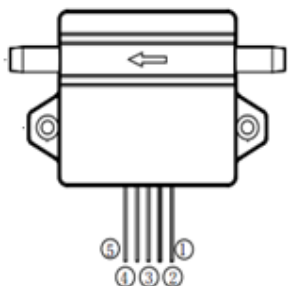


Figure 1. Pin configuration.

Table 2. Pin definition.

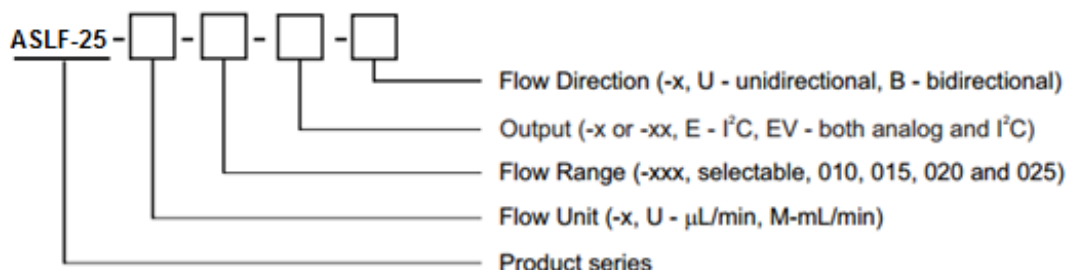
Pin	Definition
1	SCL (Serial Clock Line, I ² C clock)
2	GND (Ground)
3	Vcc (DC supply)
4	Vout (Analog voltage output)
5	SDA (Serial Data Line, I ² C data)

4.2 Pin description

Vcc and GND: the ASLF-25 is powered by 3.6~6 Vdc, for which the voltage regulation circuit is integrated within the sensor, and 110 – 220 Vac can be directly connected to the unit. SDA and SCL are I²C communication data and clock pins, respectively. For detailed description, please refer to the document, Liquid Flow Sensor-I²C-CommunicationProtocol.

4.3 Ordering information

The sensor part number is composed of the model number and suffix indicating the full-scale flow rate, output format as well as the flow direction. Refer to the following for details.



5. Mechanical Dimensions and Mounting Guidance

The ASLF-25 has dimensions of 62 x 52 x 12.8 mm. The detailed mechanical dimensions are illustrated in Figure 2.

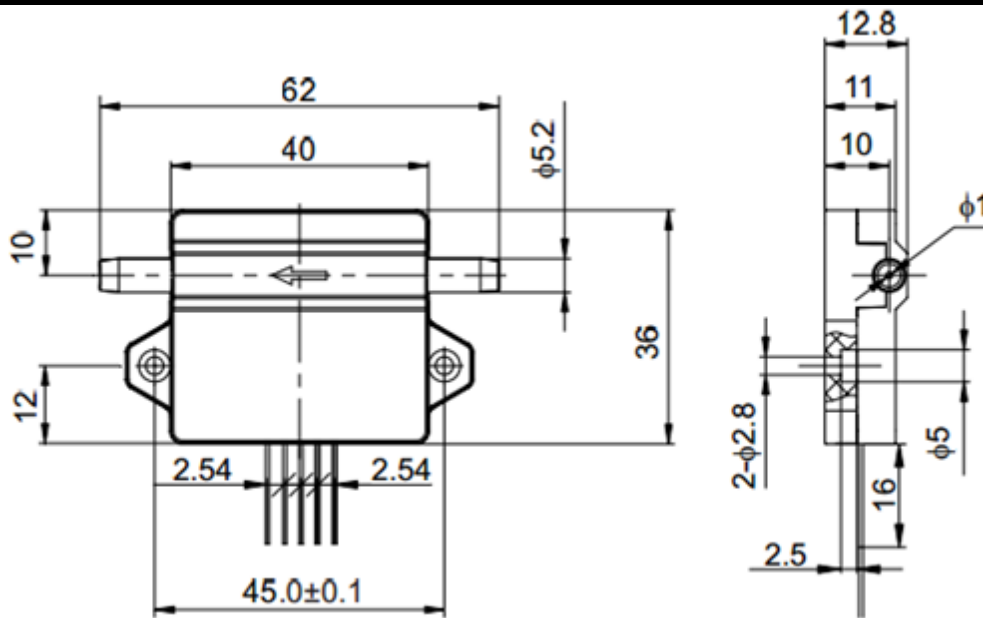


Figure 2. Mechanical dimensions of the ASLF-25 flow sensor.

6. Important Notes

6.1 Wetted materials and compatibility

The sensor body is made of medical compatible plastics. The sensor chip comprises of silicon, silicon nitride and silicon dioxide; and the sensor chip surfaces are passivated with silicon nitride and silicon dioxide. The electronic sealing is provided by RTV (room temperature vulcanizing) with silicone sealant WR-704 composed of $\text{HOCH}_2(\text{SiO})_n\text{CH}_2\text{OH}$.

6.2 Cautions for handling and installation

All sensors are fully inspected before being shipped to ensure all quality and safety requirements. Additional safety measures during handling and installation should be cautioned. To prevent ESD (electrostatic discharge) damage and/or degradation, take customary and statutory ESD precautions when handling. Do power the product with the correct polarity, voltage and amperage. All precautions and measures for electrical voltage handling must be taken. The sealing ensures each sensor to work under the working pressure of 0.5 MPa. Further leakage test should be performed after installation to ensure leakage free, because leakage may cause severe safety issues.

7. Attention

This datasheet is downloaded from Aurora Pro-Scientific LLC. Its specifications are subject to change or the related products may be discontinued without advance notice. Please check with our sales representatives or product engineers before ordering.