



# FUM-H025F1MD80000

## DOSIC

FLOW SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ

### Ordering information

| Type              | part no. |
|-------------------|----------|
| FUM-H025F1MD80000 | 1082034  |

Other models and accessories → [www.sick.com/DOSIC](http://www.sick.com/DOSIC)

### Detailed technical data

#### Features

|                                     |   |
|-------------------------------------|---|
| <b>Measurement principle</b>        | Ultrasonic sensor   |
| <b>Medium</b>                       | Conductive and non-conductive liquids   |
| <b>Nominal width measuring tube</b> | DN 25   |
| <b>Process temperature</b>          | -20 °C ... +95 °C, up to 143 °C for 60 minutes for SIP process (temperature measurement only) <sup>1)</sup> |
| <b>Process pressure</b>             | -0.5 bar ... 16 bar   |
| <b>Communication interface</b>      | IO-Link, IO-Link V1.1   |
| <b>Temperature measurement</b>      | ✓   |

<sup>1)</sup> 0 °C ... +95 °C with flow and temperature measurement; up to 143 °C only with temperature measurement.

#### Performance

|                             |   |
|-----------------------------|---|
| <b>Minimum flow</b>         | 1.5 l/min                               |
| <b>Inlet zone</b>           | 5 x DN (12.5 cm)                        |
| <b>Output zone</b>          | 3 x DN (7.5 cm)                         |
| <b>Conductivity</b>         | No limitation                           |
| <b>Measurement accuracy</b> | ± 1 % From measured value <sup>1)</sup> |
| <b>Repeatability</b>        | 0.5 %                                   |
| <b>Resolution</b>           | 10 ml/min                               |
| <b>Response time</b>        | 12 ms                                   |

<sup>1)</sup> Under the following reference conditions: water 26 °C ± 2 K, 2.5 bar ± 0.5 bar, standard settings, DN15: 8 l/min ... 80 l/min, DN25: 25 l/min ... 250 l/min.

#### Electronics

|                          |                                   |
|--------------------------|-----------------------------------|
| <b>Supply voltage</b>    | 12 V DC ... 30 V DC <sup>1)</sup> |
| <b>Power consumption</b> | < 3 W without output load         |

<sup>1)</sup> All connections are reverse polarity protected. Q<sub>A</sub> and Q<sub>B</sub> are short-circuit protected. Q<sub>1</sub> and Q<sub>2</sub> are short-circuit protected.

<sup>2)</sup> Digital output configuration: PNP/NPN/push-pull/open collector.

<sup>3)</sup> Selectable analog output: flow/temperature.

|                                |   |
|--------------------------------|---|
| <b>Switch-on time</b>          | ≤ 5 s   |
| <b>Protection class</b>        | ✓   |
| <b>Connection type</b>         | M12 round connector x 1, 8-pin  |
| <b>Output signal</b>           | 2 x analog output: 4 mA ... 20 mA, 2 x digital input or output (configurable) <sup>2)</sup><br>3) |
| <b>Output load</b>             | 4 mA ... 20 mA, 500 ohms when $U_v > 15$ V, 350 ohms when $U_v > 12$ V                            |
| <b>Lower signal level</b>      | 3.5 mA ... 3.8 mA   |
| <b>Upper signal level</b>      | 20.5 mA ... 21.5 mA   |
| <b>Digital output</b>          | ≤ 100 mA  |
| <b>Impulse output signal</b>   | 50 μs ... 2 s   |
| <b>Impuls/frequency output</b> | 0 kHz ... 10 kHz  |
| <b>Inductive load</b>          | < 1 H   |
| <b>Capacitive load</b>         | < 100 nF<br>< 2.5 nF (IO-Link)  |
| <b>Enclosure rating</b>        | IP67 (according to DIN EN 60529)<br>IP69 (according to DIN EN 60529)                              |
| <b>EMC</b>                     | EN 61326-1, EN 61326-2-3  |
| <b>Limit digital inputs</b>    | HIGH state voltage > 16.0 V, LOW state voltage < 4.0 V  |
| <b>MTTF</b>                    | > 63 years  |

<sup>1)</sup> All connections are reverse polarity protected.  $Q_A$  and  $Q_B$  are short-circuit protected.  $Q_1$  and  $Q_2$  are short-circuit protected.

<sup>2)</sup> Digital output configuration: PNP/NPN/push-pull/open collector.

<sup>3)</sup> Selectable analog output: flow/temperature.

## Mechanics

|                           |   |
|---------------------------|---|
| <b>Process connection</b> | DIN 11851 DN 25                                       |
| <b>Wetted parts</b>       | Stainless steel 1.4404 ( $R_a \leq 0,8 \mu\text{m}$ ) |
| <b>Housing material</b>   | Stainless steel 1,4305                                |
| <b>Housing design</b>     | With viewing window made from PMMA (acrylic glass)    |
| <b>Weight</b>             | Approx. 3 kg  |

## Ambient data

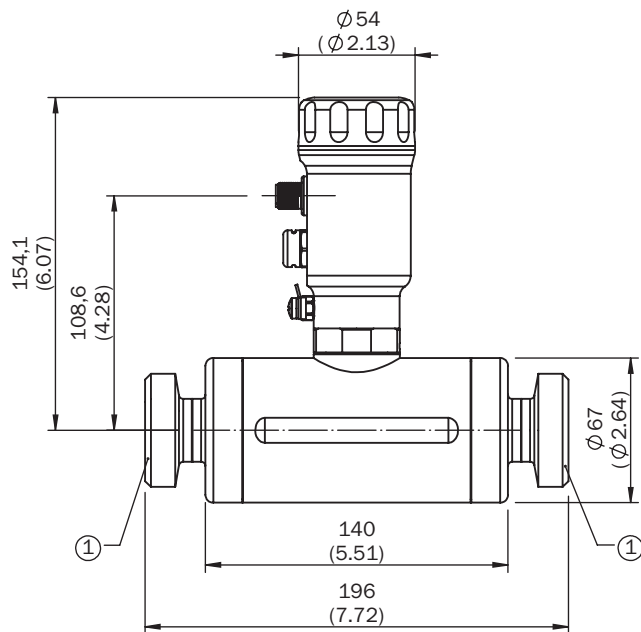
|                                      |                   |
|--------------------------------------|-------------------|
| <b>Ambient operating temperature</b> | 0 °C ... +60 °C   |
| <b>Ambient temperature, storage</b>  | -40 °C ... +80 °C |

## Classifications

|                     |          |
|---------------------|----------|
| <b>ECLASS 5.0</b>   | 27200412 |
| <b>ECLASS 5.1.4</b> | 27200412 |
| <b>ECLASS 6.0</b>   | 27200412 |
| <b>ECLASS 6.2</b>   | 27200412 |
| <b>ECLASS 7.0</b>   | 27200412 |
| <b>ECLASS 8.0</b>   | 27200412 |
| <b>ECLASS 8.1</b>   | 27200412 |
| <b>ECLASS 9.0</b>   | 27200412 |
| <b>ECLASS 10.0</b>  | 27200412 |
| <b>ECLASS 11.0</b>  | 27200412 |

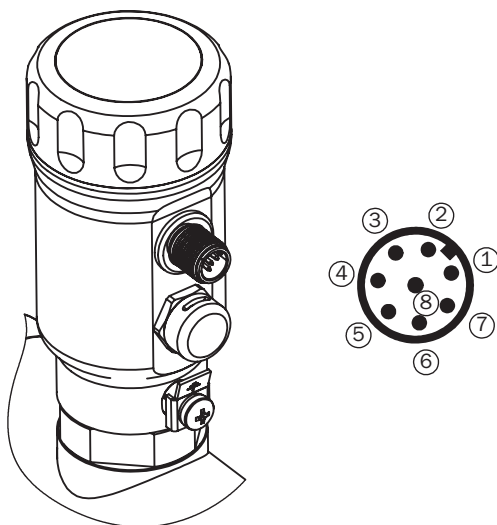
|                       |          |
|-----------------------|----------|
| <b>ECLASS 12.0</b>    | 27200412 |
| <b>ETIM 5.0</b>       | EC002580 |
| <b>ETIM 6.0</b>       | EC002580 |
| <b>ETIM 7.0</b>       | EC002580 |
| <b>ETIM 8.0</b>       | EC002580 |
| <b>UNSPSC 16.0901</b> | 41112501 |

### Dimensional drawing process connection



Dimensions in mm (inch)



### Connection type



- ① L<sup>+</sup>: Supply voltage
- ② Q2: Switching output/input 2, PNP/NPN/push-pull/open collector/frequency/pulse output
- ③ M: Ground, reference potential for current output
- ④ C/Q1: Switching output/input 1, PNP/NPN/push-pull/open collector/IO-Link communication
- ⑤ No function
- ⑥ No function
- ⑦ Q<sub>A</sub>: analog current output 4 mA ... 20 mA
- ⑧ Q<sub>B</sub>: analog current output 4 mA ... 20 mA


### Recommended accessories

Other models and accessories → [www.sick.com/DOSIC](http://www.sick.com/DOSIC)

|  | Brief description   | Type                           | part no. |
|--|---|--------------------------------|----------|
| device protection and care   |   |                                |          |
|   | <ul style="list-style-type: none"> <li>• <b>Description:</b> Cover closed, material 1.4305</li> </ul> | Cover closed                   | 2067269  |
| network devices  |   |                                |          |
|  |   | IOLA2US-01101 (SiLink2 Master) | 1061790  |

|   | Brief description   | Type               | part no. |
|---|---|--------------------|----------|
| connectors and cables   |   |                    |          |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 2 m, 8-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>   | YF2A28-020VA6XLEAX | 2096243  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 5 m, 8-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>   | YF2A28-050VA6XLEAX | 2096244  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 2 m, 8-wire, PUR, halogen-free</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>  | YF2A18-020UA5XLEAX | 2095652  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 5 m, 8-wire, PUR, halogen-free</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>  | YF2A18-050UA5XLEAX | 2095653  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 10 m, 8-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>  | YF2A28-100VA6XLEAX | 2096245  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 10 m, 8-wire, PUR, halogen-free</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul> | YF2A18-100UA5XLEAX | 2095654  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 2 m, 8-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>   | YG2A28-020VA6XLEAX | 2096218  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 2 m, 8-wire, PUR, halogen-free</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>    | YG2A18-020UA5XLEAX | 2095779  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 5 m, 8-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>   | YG2A28-050VA6XLEAX | 2096219  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 5 m, 8-wire, PUR, halogen-free</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>    | YG2A18-050UA5XLEAX | 2095780  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 10 m, 8-wire, PUR, halogen-free</li> </ul>  | YG2A18-100UA5XLEAX | 2095781  |

|   | Brief description  | Type               | part no. |
|---|--|--------------------|----------|
|    | <ul style="list-style-type: none"> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 0.5 m, 8-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul> | YG2A28-C50VA6XLEAX | 2145694  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 3 m, 8-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>  | YF2A28-030VA6XLEAX | 2145695  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 0.6 m, 8-wire, PUR, halogen-free</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>   | YG2A18-C60UA5XLEAX | 2145381  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 1 m, 8-wire, PUR, halogen-free</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>   | YG2A18-010UA5XLEAX | 2145382  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 3 m, 8-wire, PUR, halogen-free</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>   | YG2A18-030UA5XLEAX | 2145383  |
|   | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 0.6 m, 8-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>  | YG2A28-C60VA6XLEAX | 2145388  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 1 m, 8-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>  | YG2A28-010VA6XLEAX | 2145389  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 10 m, 8-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>   | YG2A28-100VA6XLEAX | 2145391  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 3 m, 8-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>  | YG2A28-030VA6XLEAX | 2145390  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 0.6 m, 8-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>  | YF2A28-C60VA6XLEAX | 2145385  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 1 m, 8-wire, PVC</li> </ul>  | YF2A28-010VA6XLEAX | 2145386  |

|   | Brief description   | Type               | part no. |
|---|---|--------------------|----------|
|  | <ul style="list-style-type: none"> <li>• <b>Application:</b> Uncontaminated zones, Zones with chemicals</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Connection type head A:</b> Female connector, M12, 8-pin, angled, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 15 m, 8-wire, PUR, halogen-free</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul> | YG2A18-150UA5XLEAX | 2149335  |

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)