

AMFLO® SONIC UFA 280

Technical datasheet

Usage

Ultrasonic flowmeter for use in conjunction with computers to measure heat and cold. Main applications include flow measurement in heating, cooling, and building automation. This also includes MI004 approval as a volume sensor for heat measurements.

Features

- Two-track ultrasound measuring principle
- DN 50 - DN 1200
- Medium temperature. Compact device max. 120° C
- Medium temperature. Distinct version DN 50 - 80 max. 150° C
- Medium temperature. Distinct version from DN 100 max. 200° C
- Measuring accuracy $\pm 0.5\%$

Customer benefits

- Wear-free as no moving parts
- Compact or separate version
- Battery or network operation
- Variable installation position



Technical data

| Description | Specification |
|----------------------|---|
| Enclosure | IP 67 according to EN 60529 and DIN 40050 |
| Ambient temperature | 0° C ...60° C (32° F ...140° F) ²⁾ |
| Storage temperature | -35° C ...85° C (-40° F ...185° F) |
| Installation | Max. 5, 10, 20, 30 m (16,4, 33, 65, 90 ft) from sensor |
| Mechanical vibration | 2 g, 1 ...800 Hz sinusoidal in all directions to IEC 68-2-6 |
| Design | Fiber glass reinforced polyamide in light-gray color |
| Power supply | <ul style="list-style-type: none"> • Battery version: replaceable 3,6 V LISOCI (Lithium thionyl chloride) • Battery pack c32 ...33 Ah or 13,5 Ah Individual buffer battery • Mains version: 87 ...265 V AC (50 ...60 Hz) |
| Battery lifetime | 6 years at an operating temperature of max. 60° C (140° F) |
| Display | LCD screen, 8 digits, 2 additional digits, and symbols for additional information. |
| Push button | A control button to toggle between display data. |
| Measuring function | 0,5 Hz battery mode or 20 Hz mains-powered |
| Communication | IrDA interface on the display panel (MODBUS RTU) and optional installation of RS232 or RS485 serial interface modules (MODBUS RTU protocol). |
| Digital output | Two passive open-drain MOS outputs, galvanically isolated A and B. Max. ± 35 V DC, max. 50 mA/ |
| Pulse output A | Default setting: Direct flow pulse output. |
| Pulse output B | Reverse flow pulse output (E21). |
| Analogue output | Option, 4 - 20 mA passive |
| Pulse width | 5, 10, 20, 50, 100, 200, 500 ms |

| Description | Specification |
|---------------------|--|
| Max pulse frequency | 100 Hz |
| Volum units | Preset on order (default value: m ³) |
| Flow units | Preset on order (default value: m ³ /h) |
| Alarm codes | Incorrect measurements on paths 1, 2, internal error, low battery, flow rate exceeded, pulse output frequency exceeded, and data logger warning message. |
| Cable lenght | 30 meters maximum between the transmitter and the measurement transducer. |
| EMC | Parasitic radiation EN 61000-6-4 Resistance to interference EN 61000-6-2 |
| Weight | Transducer : 1,5 kg (3 lb) |

Flow values

The flow values Q_i , Q_p and Q_s are listed on the AMFLO® SONIC UFA 280 system label.

In accordance with type approval requirements, Q_i (Q_{min}) is the minimum flow rate and Q_p (Q_{nom}) is the nominal flow rate. Q_s represents the maximum flow rate. The maximum flow rate limit (Q_{max}) is set as 105% of Q_s and the low flow cutoff (lowest flow rate) is set as 50% of Q_i .

The dynamic measuring range of the AMFLO® SONIC UFA 280 is better than 1:100 or 1:50 in accordance with EN1434, OIML R 75 class 2 and MID.

In order to obtain optimum pulse frequency resolution in the range Q_{min} to Q_s with approx. 100 Hz at Q_s , three flow values may be selected for each nominal bore upon ordering. The order data is therefore also listed as values for Q_p (Q_n). This flow rate lies between Q_i (Q_{min}) and Q_s and represents the normal or typical flow rate in accordance with the type approval.

Approved sensor variants (DK-0200-MI004-005)

| SIZE | DN 50 (2") | DN 65 (2½") | DN 80 (3") | DN 100 (4") | DN 125 (5") | DN 150 (6") | DN 200 (8") |
|---------------------------|---------------|----------------|---------------|----------------|----------------|----------------|----------------|
| "R" Q_p/Q_i | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Q_i [m ³ /h] | 0.3 | 0.5 | 0.8 | 1.2 | 2 | 3 | 5 |
| Q_p [m ³ /h] | 30 | 50 | 80 | 120 | 200 | 300 | 500 |
| Q_s [m ³ /h] | 45 | 72 | 120 | 180 | 280 | 420 | 700 |

| SIZE | DN 250 (10") | DN 300 (12") | DN 350 (14") | DN 400 (16") | DN 500 (20") | DN 600 (24") | DN 700 (28") |
|---------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| "R" Q_p/Q_i | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Q_i [m ³ /h] | 8 | 11.2 | 15 | 19 | 29.5 | 43 | 58 |
| Q_p [m ³ /h] | 800 | 1120 | 1500 | 1900 | 2950 | 4300 | 5800 |
| Q_s [m ³ /h] | 1120 | 1560 | 2100 | 2550 | 4130 | 6020 | 8120 |

| SIZE | DN 400 (16") | DN 500 (20") | DN 600 (24") | DN 700 (28") |
|---------------------------|-----------------|-----------------|-----------------|-----------------|
| "R" Q_p/Q_i | 100 | 100 | 100 | 100 |
| Q_i [m ³ /h] | 76 | 100 | 120 | 180 |
| Q_p [m ³ /h] | 7600 | 1000 | 12000 | 18000 |
| Q_s [m ³ /h] | 10640 | 14000 | 16800 | 25200 |

The tables above define the maximum specifications for flow rate ranges.

Other dynamic ranges are allowed when "R" is 50, 25, or 10.

Pulse values

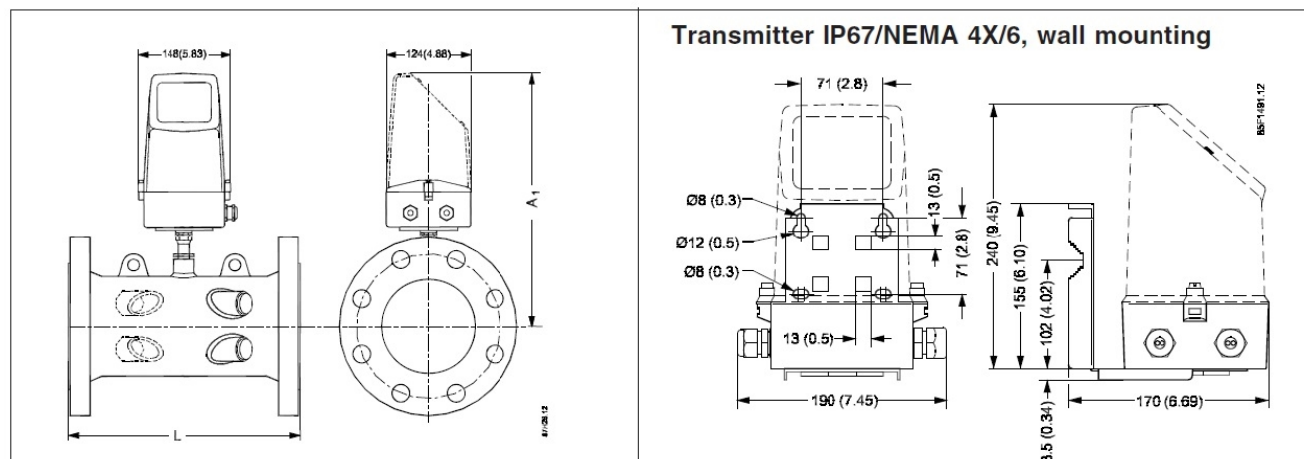
DN 50 - 100 = 1 Liter

DN 125 - 300 = 10 Liters

DN 350 - 500 = 50 Liters

DN 600 - 1200 = 100 Liters

Dimensional drawings



Sensor mass

| Size | PN 16 | | PN 25 | | PN 40 | | Material | A1 | Lift hug |
|------|----------|--------|----------|--------|---------|--------|----------|------|----------|
| | L | Weight | L | Weight | L | Weight | | | |
| DN | mm | kg | mm | kg | mm | kg | mm | | |
| 50 | - | - | - | - | 300+0-2 | 10 | Bronze | 350 | No |
| 65 | - | - | - | - | 300+0-2 | 15 | Bronze | 360 | No |
| 80 | - | - | - | - | 350+0-3 | 18 | Bronze | 370 | No |
| 100 | 350+0-2 | 15 | - | - | 350+0-3 | 18 | Steel | 375 | No |
| 125 | 350+0-2 | 18 | - | - | 350+0-3 | 24 | Steel | 380 | No |
| 150 | 500+0-3 | 28 | - | - | 500+0-3 | 34 | Steel | 390 | Yes |
| 200 | 500+0-3 | 38 | 500+0-3 | 47 | 500+0-3 | 55 | Steel | 414 | Yes |
| 250 | 600+0-3 | 60 | 600+0-3 | 76 | 600+0-3 | 91 | Steel | 440 | Yes |
| 300 | 500+0-3 | 66 | 500+0-3 | 81 | - | - | Steel | 466 | Yes |
| 350 | 550+0-3 | 94 | 550+0-3 | 121 | - | - | Steel | 495 | Yes |
| 400 | 600+0-3 | 124 | 600+0-3 | 153 | - | - | Steel | 507 | Yes |
| 500 | 625+0-3 | 190 | 625+0-3 | 244 | - | - | Steel | 558 | Yes |
| 600 | 750+0-3 | 303 | 750+0-3 | 365 | - | - | Steel | 609 | Yes |
| 700 | 875+0-3 | 361 | 875+0-3 | 552 | - | - | Steel | 660 | Yes |
| 800 | 1000+0-3 | 494 | 1000+0-3 | 770 | - | - | Steel | 710 | Yes |
| 900 | 1230+/-6 | 475 | 1300+/-6 | 835 | - | - | Steel | 810 | Yes |
| 1000 | 1300+/-6 | 594 | 1370+/-6 | 1078 | - | - | Steel | 910 | Yes |
| 1200 | 1370+/-6 | 732 | - | - | - | - | Steel | 1110 | Yes |

Note:

- Weight of electronics 1.5 kg (3.3 lb).
- For flange values - refer to EN 1092-1 standard.
- - Not available.