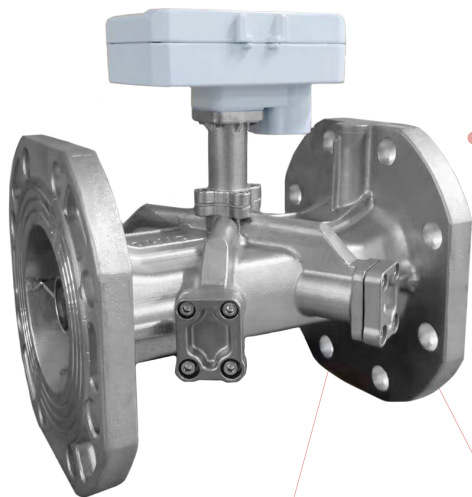


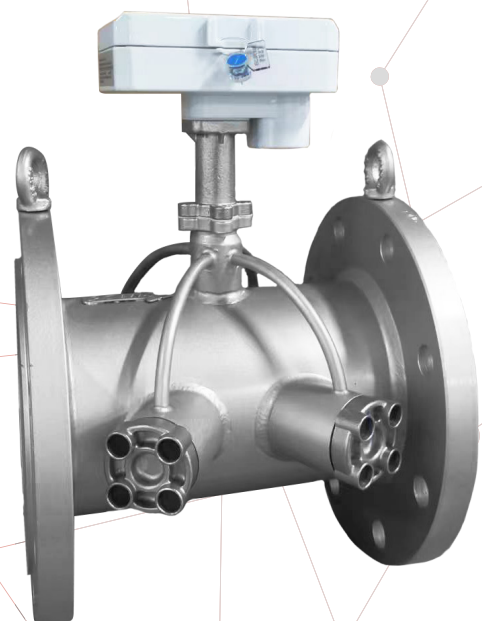
Engelmann **Flow Sensor**

FlowStar U

Ultrasonic flow sensor



DN 50 – DN 100



DN 125 – DN 300



Precise flow measurement with double channel ultrasonic measuring

High quality with stainless steel body & flange for DN 50 to DN 100

Measuring components in aluminum housing

Overview

FLOWSTAR U



The **FlowStar U** impresses with its flexible usability and high temperature range. With a temperature range of 1 – 130 °C, the flow sensor fulfills all requirements. This makes it an ideal solution for a wide range of applications and demanding environments. From DN 50 to DN 300, it is the ideal extension to the compact meters **SensoStar U**.

The **FlowStar U** flow sensor records the flow rate using high-precision ultrasonic measurement technology, guaranteeing you reliable and accurate volume measurement that meets the highest demands. In combination with the **SensoStar C** calculator and the temperature sensors, the thermal energy can be calculated precisely and efficiently. This enables comprehensive and exact energy control and billing.



Features

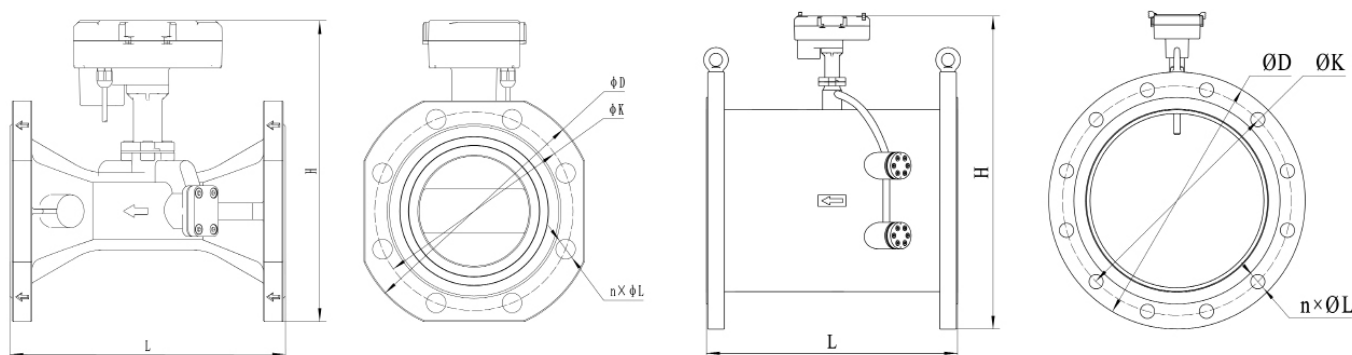
- Sizes: DN 50 to DN 300
- Meters from Qp 15 to Qp 600
- Horizontal / vertical / overhead installation
- Pressure classes PN16/PN25
- Connection cable with 10 m length
- Battery life of up to 12 years

General data

| | | |
|---|--|---------------------------------|
| Measuring method | ultrasonic; double channel | |
| Accuracy class (MID) | class 2 | |
| Mechanical class (MID) | M2 – EN1434 | |
| Electromagnetic class (MID) | E2 – EN1434 | |
| Protection class | IP68 | |
| Medium | water | |
| Calming section | U3D0 | |
| Approvals | DE-18-MI004-PTB018; CE | |
| Mounting position | any position | |
| Installation | outlet flow / inlet flow; consider configuration of the calculator | |
| Lifetime | years | up to 12 |
| Battery supply | V | 3.6 |
| Temperature measurement range medium | °C | 1 – 130 (150 within 2000 hours) |
| Storage and transport temperature range | °C | -25 – 55 |
| Ambient temperature in the field | °C | 5 – 55 |
| Maximum height of installation point | m | 2000 above mean sea level |

Pulse output according to EN 1434-2

| | | |
|---|----|---------------------|
| Class | | open collector (OC) |
| Cable length | m | 10 |
| Min. pulse length | ms | 50 |
| Volume pulse maximum input voltage | V | 12 DC |
| Volume pulse maximum input current | mA | 10 |



Flow values

| Nominal diameter | mm | DN 50 | DN 65 | DN 80 | DN 100 | DN 125 | DN 150 | DN 200 | DN 250 | DN 300 |
|---------------------------------|-------------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|
| Nominal flow Qp | m ³ /h | 15 | 25 | 40 | 60 | 100 | 150 | 250 | 400 | 600 |
| Low flow threshold value | m ³ /h | 0.01 | 0.02 | 0.03 | 0.05 | 0.08 | 0.1 | 0.2 | 0.3 | 0.4 |
| Minimum flow Qi | m ³ /h | 0.15 | 0.25 | 0.4 | 0.6 | 1 | 1.5 | 2.5 | 4 | 6 |
| Maximum flow Qs | m ³ /h | 30 | 50 | 80 | 120 | 200 | 300 | 500 | 800 | 1200 |
| Pressure drop Qp | bar | 0.04 | 0.06 | 0.09 | 0.11 | 0.07 | 0.06 | 0.04 | 0.04 | 0.04 |
| Pulse value | l/pulse | 25 | 25 | 100 | 100 | 100 | 250 | 250 | 1000 | 1000 |

Max. operation pressure PN16

| Nominal diameter | mm | DN 50 | DN 65 | DN 80 | DN 100 | DN 125 | DN 150 | DN 200 | DN 250 | DN 300 |
|--------------------------------|----|-------|-------|-------|--------|--------|--------|--------|--------|--------|
| Length (L) | mm | 200 | 200 | 225 | 250 | 350 | 350 | 350 | 400 | 450 |
| Diameter (D) | mm | 165 | 185 | 200 | 220 | 250 | 285 | 340 | 405 | 460 |
| Height (H) | mm | 221 | 232 | 253 | 273 | 360 | 390 | 450 | 510 | 565 |
| Hole circle (K) | mm | 125 | 145 | 160 | 180 | 210 | 240 | 295 | 355 | 410 |
| Number screw x diameter | mm | 4x18 | 4x18 | 8x18 | 8x18 | 8x18 | 8x22 | 12x22 | 12x26 | 12x26 |
| Weight | kg | 8.7 | 12.4 | 12.5 | 20.3 | 36.0 | 42.0 | 54.0 | 75.0 | 101.0 |

Max. operation pressure PN25

| Nominal diameter | mm | DN 50 | DN 65 | DN 80 | DN 100 | DN 125 | DN 150 | DN 200 | DN 250 | DN 300 |
|--------------------------------|----|---------|---------|---------|--------|--------|--------|--------|--------|--------|
| Length (L) | mm | 200/270 | 200/300 | 225/300 | 360 | 350 | 350 | 350 | 400 | 450 |
| Diameter (D) | mm | 165 | 185 | 200 | 235 | 270 | 300 | 360 | 425 | 485 |
| Height (H) | mm | 221 | 232 | 253 | 282 | 370 | 400 | 450 | 520 | 575 |
| Hole circle (K) | mm | 125 | 145 | 160 | 190 | 220 | 250 | 310 | 370 | 430 |
| Number screw x diameter | mm | 4x18 | 4x18 | 8x18 | 8x22 | 8x26 | 8x26 | 12x26 | 12x30 | 12x30 |
| Weight | kg | 9.5 | 12.4 | 15.2 | 20.3 | 40.0 | 42.0 | 54.0 | 75.0 | 101.0 |

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