# Flow Sensor

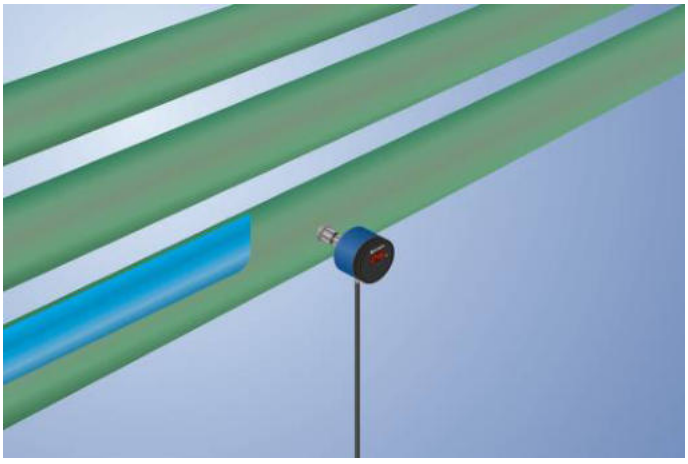
## FFAF224

Part Number

UniFlow


- **Display can be switched between flow and medium temperature**
- **Highest precision of its class**
- **Measurement independent of flow direction**
- **Selectable measuring range**
- **Temperature of the medium: 0 ... 100° C (140° C for 24 hours without current measurement)**

wenglor UniFlow flow sensors measure the flow rate of aqueous and oily media in closed piping systems. UniFlow flow sensors are very easy to operate thanks to the integrated display. The highly visible switching status display enables the rapid localization of affected sensors for maintenance processes.



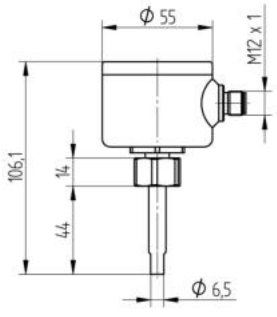
## Technical Data

| | |
|---|---|
| **Sensor-specific data** | |
| Measuring Range | 0,1...10 l/min |
| Adjustable Range | 0,4...10 l/min |
| Medium | Water |
| Measuring error | 2 % |
| Switching Hysteresis | 5 % |
| Temperature gradient | 30 K |
| Response time in case of temperature jump | 10 s |
| **Environmental conditions** | |
| Temperature of medium | 0...100 °C |
| Temperature of the medium, short-term | 140 °C |
| Ambient temperature | -20...70 °C |
| Pressure Resistance | 60 bar |
| EMC | DIN EN 60947-5-9 |
| Shock resistance per DIN IEC 68-2-27 | 30 g / 11 ms |
| Vibration resistance per DIN IEC 60068-2-6 | 20 g (10...2000 Hz) |
| **Electrical Data** | |
| Supply Voltage | 16...32 V DC |
| Current Consumption (Ub = 24 V) | 60 mA |
| Number of Switching Outputs | 1 |
| Analog Output | 4...20 mA Flow / Temp |
| Response Time | 1...5 s |
| Switching Output/Switching Current | < 250 mA |
| Switching Output Voltage Drop | < 2 V |
| Current Output Load Resistance | < 500 Ohm |
| Short Circuit Protection | yes |
| Reverse Polarity Protection | yes |
| Protection Class | III |
| **Mechanical Data** | |
| Setting Method | Menu |
| Housing Material | PBT; PC; FKM |
| Material Control Panel | Polyester |
| Material in contact with media | 1.4435; 1.4404; FKM |
| Degree of Protection | IP67 * |
| Connection | M12 × 1; 4-pin |
| Process Connection | Sealing cone M18 × 1,5 |
| Process Connection Length (PCL) | 64 mm |
| Probe Length (PL) | 44 mm |
| **Safety-relevant Data** | |
| MTTFd (EN ISO 13849-1) | 1194,55 a |
| Analog output switchable to flow or temperature | ● |
| PNP NO/NC switchable | ● |
| Connection Diagram No. | 533 |
| Control Panel No. | A21 |
| Suitable Connection Equipment No. | 2 |
| Suitable Mounting Technology No. | 900 901 |

* Tested by wenglor

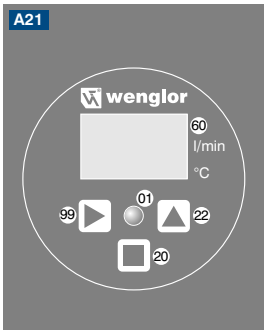
## Complementary Products

| |
|---|
| Software |

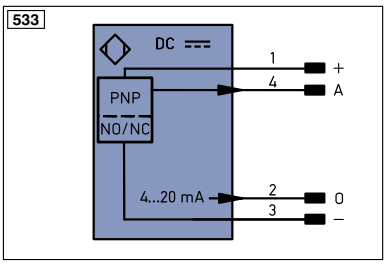



All dimensions in mm (1 mm = 0.03937 Inch)

## Ctrl. Panel




01 = Switching Status Indicator
20 = Enter Button
22 = UP Button
60 = Display
99 = Right button




Legend

| | |
|---|---|
| + | Supply Voltage + |
| – | Supply Voltage 0 V |
| ~ | Supply Voltage (AC Voltage) |
| A | Switching Output (NO) |
| Ā | Switching Output (NC) |
| V | Contamination/Error Output (NO) |
| V̄ | Contamination/Error Output (NC) |
| E | Input (analog or digital) |
| T | Teach Input |
| Z | Time Delay (activation) |
| S | Shielding |
| RxD | Interface Receive Path |
| TxD | Interface Send Path |
| RDY | Ready |
| GND | Ground |
| CL | Clock |
| E/A | Output/Input programmable |
| | IO-Link |
| PoE | Power over Ethernet |
| IN | Safety Input |
| OSSD | Safety Output |
| Signal | Signal Output |
| BI_D+/- | Ethernet Gigabit bidirect. data line (A-D) |
| EN0 RS422 | Encoder 0-pulse 0-0̄ (TTL) |
| PT | Platinum measuring resistor |
| nc | not connected |
| U | Test Input |
| Ū | Test Input inverted |
| W | Trigger Input |
| W– | Ground for the Trigger Input |
| O | Analog Output |
| O– | Ground for the Analog Output |
| BZ | Block Discharge |
| AMV | Valve Output |
| a | Valve Control Output + |
| b | Valve Control Output 0 V |
| SY | Synchronization |
| SY– | Ground for the Synchronization |
| E+ | Receiver-Line |
| S+ | Emitter-Line |
| ⏚ | Grounding |
| SnR | Switching Distance Reduction |
| Rx+/– | Ethernet Receive Path |
| Tx+/– | Ethernet Send Path |
| Bus | Interfaces-Bus A(+)/B(–) |
| La | Emitted Light disengageable |
| Mag | Magnet activation |
| RES | Input confirmation |
| EDM | Contactor Monitoring |
| ENA RS422 | Encoder A/Ā (TTL) |
| ENB RS422 | Encoder B/B̄ (TTL) |
| ENA | Encoder A |
| ENB | Encoder B |
| AMIN | Digital output MIN |
| AMAX | Digital output MAX |
| AOK | Digital output OK |
| SY In | Synchronization In |
| SY OUT | Synchronization OUT |
| OLT | Brightness output |
| M | Maintenance |
| rsv | reserved |

Wire Colors according to DIN IEC 757

| | |
|---|---|
| BK | Black |
| BN | Brown |
| RD | Red |
| OG | Orange |
| YE | Yellow |
| GN | Green |
| BU | Blue |
| VT | Violet |
| GY | Grey |
| WH | White |
| PK | Pink |
| GNYE | Green/Yellow |