

# Flow Sensor

## FFAF099

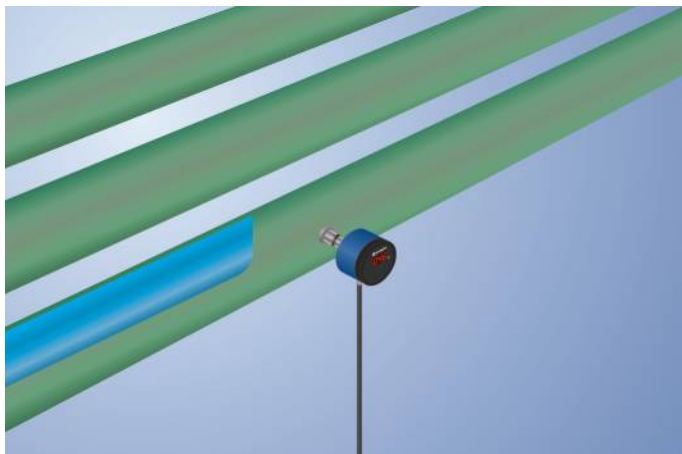
Part Number

UniFlow



- Display can be switched between flow and medium temperature
- Highest precision of its class
- Installation in any position
- Measurement independent of flow direction
- Simple operation via the display
- Temperature of the medium: 0 ... 60° 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                           | 15...100 cm/s |
| Adjustable Range                          | 20...100 cm/s |
| Medium                                    | Oil           |
| 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...60 °C           |
| Ambient temperature                        | -20...70 °C         |
| Mechanical Strength                        | 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 (U <sub>b</sub> = 24 V) | 60 mA         |
| Switching Outputs                           | 1             |
| Analog Output                               | 0...10 V Flow |
| Response Time                               | 4...15 s      |
| Relay Output/Switching Current (24 VDC)     | < 1 A         |
| Current Load Voltage Output                 | < 20 mA       |
| 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; 5-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)           | 766,91 a |
| Diagnostic Coverage (DC)         | 0 %      |
| Service Life TM (EN ISO 13849-1) | 20 a     |

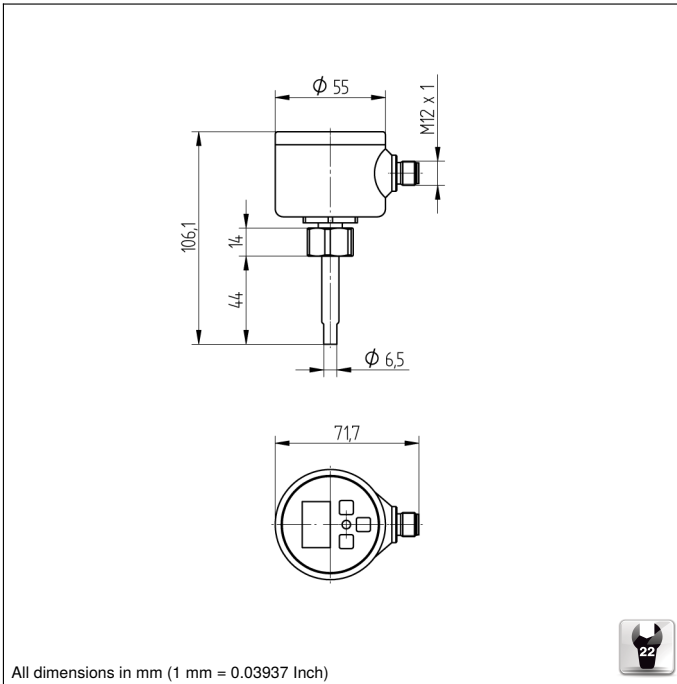
|                        |   |
|------------------------|---|
| Analog output flow     | ● |
| Relay NO/NC switchable | ● |

|                                    |           |
|------------------------------------|-----------|
| Connection Diagram No.             | 1003      |
| Control Panel No.                  | A03       |
| Suitable Connection Technology No. | 35        |
| Suitable Mounting Technology No.   | 900   901 |

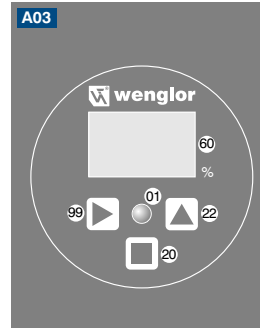
\* Tested by wenglor

### Complementary Products

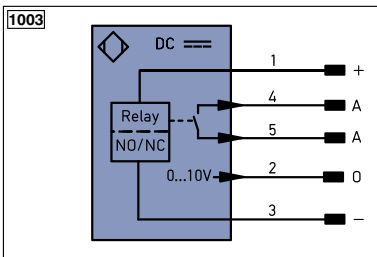
Software



### Ctrl. Panel



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



### Legend

|          |  |         |                              |        |                     |
|----------|--|---------|------------------------------|--------|---------------------|
| +        | Supply Voltage +                           | PT      | Platinum measuring resistor  | ENa    | Encoder A           |
| -        | Supply Voltage 0 V                         | nc      | not connected                | ENb    | Encoder B           |
| ~        | Supply Voltage (AC Voltage)                | U       | Test Input                   | AMIN   | Digital output MIN  |
| A        | Switching Output (NO)                      | U       | Test Input inverted          | AMAX   | Digital output MAX  |
| Ā        | Switching Output (NC)                      | W       | Trigger Input                | AOK    | Digital output OK   |
| V        | Contamination/Error Output (NO)            | O       | Analog Output                | SY In  | Synchronization In  |
| ṽ        | Contamination/Error Output (NC)            | O-      | Ground for the Analog Output | SY OUT | Synchronization OUT |
| E        | Input (analog or digital)                  | BZ      | Block Discharge              | LI     | Brightness output   |
| T        | Teach Input                                | AW      | Valve Output                 | M      | Maintenance         |
| Z        | Time Delay (activation)                    | a       | Valve Control Output +       | rsv    | reserved            |
| S        | Shielding                                  | b       | Valve Control Output 0 V     |        |                     |
| RxD      | Interface Receive Path                     | SY      | Synchronization              |        |                     |
| TxD      | Interface Send Path                        | E+      | Receiver-Line                |        |                     |
| RDY      | Ready                                      | S+      | Emitter-Line                 |        |                     |
| GND      | Ground                                     | ≡       | Grounding                    |        |                     |
| CL       | Clock                                      | SnR     | Switching Distance Reduction |        |                     |
| E/A      | Output/Input programmable                  | Rx +/-  | Ethernet Receive Path        |        |                     |
| IO-Link  | IO-Link                                    | Tx +/-  | Ethernet Send Path           |        |                     |
| PoE      | Power over Ethernet                        | Bus     | Interfaces-Bus A(+)/B(-)     |        |                     |
| IN       | Safety Input                               | La      | Emitted Light disengageable  |        |                     |
| OSSD     | Safety Output                              | Mag     | Magnet activation            |        |                     |
| Signal   | Signal Output                              | RES     | Input confirmation           |        |                     |
| BI-D +/- | Ethernet Gigabit bidirect. data line (A-D) | EDM     | Contactor Monitoring         |        |                     |
| EN0 r542 | Encoder 0-pulse 0-0 (TTL)                  | ENAr542 | Encoder A/Ā (TTL)            |        |                     |
|          |  | ENBr542 | Encoder B/B̄ (TTL)           |        |                     |

### 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 |

