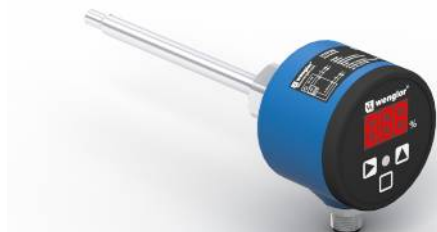


# Flow Sensor

## FFAF181

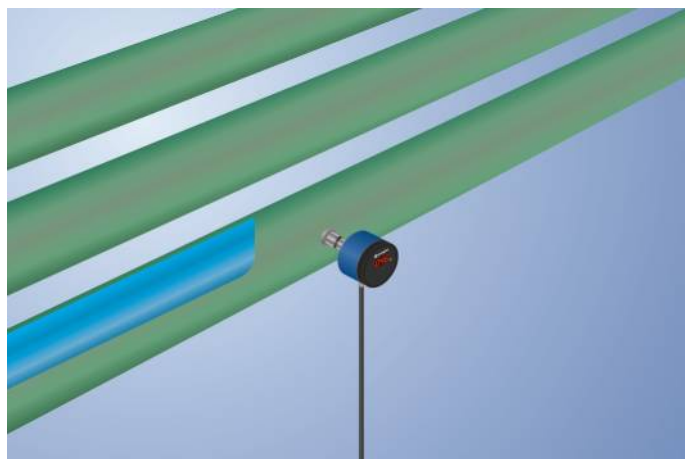
Part Number

UniFlow



- 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 |
| Setting Range                             | 20...100 cm/s |
| Medium                                    | Oil           |
| Measuring error (total)                   | 2 %           |
| MTTFd (EN ISO 13849-1)                    | 1341,35 a     |
| 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         |
| 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 (U <sub>b</sub> = 24 V) | 60 mA        |
| Number of Switching Outputs                 | 2            |
| Switching Output A1                         | Flow         |
| Switching Output A2                         | Flow         |
| Response Time                               | 4...15 s     |
| Switching Output/Switching Current          | < 250 mA     |
| Switching Output Voltage Drop               | < 2 V        |
| 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) | 124 mm                 |
| Probe Length (PL)               | 103,5 mm               |

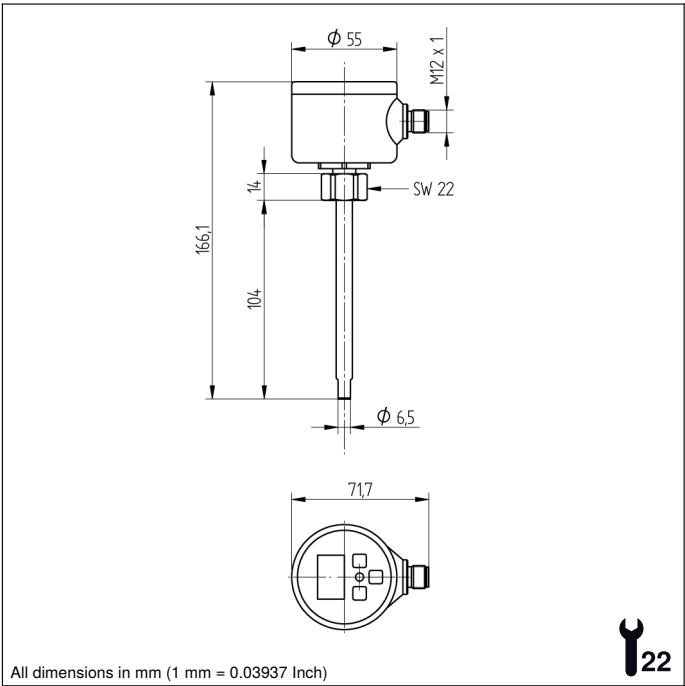
PNP NO

|                                   |             |
|-----------------------------------|-------------|
| Connection Diagram No.            | 536         |
| Control Panel No.                 | A03         |
| Suitable Connection Equipment No. | 2           |
| Suitable Mounting Technology No.  | 900 901 902 |

\* Certified by wenglor

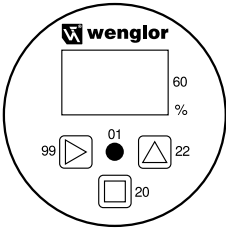
### Complementary Products

Software

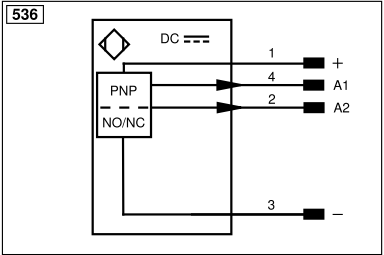


All dimensions in mm (1 mm = 0.03937 Inch)

## Ctrl. Panel



01 = Switching Status Indicator  
20 = Enter key  
22 = Up key  
60 = display  
99 = Right button



| Legend    |                                            |           |                                |                                        |                     |
|-----------|--------------------------------------------|-----------|--------------------------------|----------------------------------------|---------------------|
| +         | Supply Voltage +                           | nc        | Not connected                  | ENBRS422                               | Encoder B/B (TTL)   |
| -         | Supply Voltage 0 V                         | U         | Test Input                     | ENA                                    | Encoder A           |
| ~         | Supply Voltage (AC Voltage)                | Ü         | Test Input inverted            | ENb                                    | Encoder B           |
| A         | Switching Output (NO)                      | W         | Trigger Input                  | AMIN                                   | Digital output MIN  |
| Ä         | Switching Output (NC)                      | W-        | Ground for the Trigger Input   | AMAX                                   | Digital output MAX  |
| V         | Contamination/Error Output (NO)            | O         | Analog Output                  | AOK                                    | Digital output OK   |
| Ÿ         | Contamination/Error Output (NC)            | O-        | Ground for the Analog Output   | SY In                                  | Synchronization In  |
| E         | Input (analog or digital)                  | BZ        | Block Discharge                | SY OUT                                 | Synchronization OUT |
| T         | Teach Input                                | Amv       | Valve Output                   | OLt                                    | Brightness output   |
| Z         | Time Delay (activation)                    | a         | Valve Control Output +         | M                                      | Maintenance         |
| S         | Shielding                                  | b         | Valve Control Output 0 V       | rsv                                    | Reserved            |
| RxD       | Interface Receive Path                     | SY        | Synchronization                | Wire Colors according to DIN IEC 60757 |                     |
| TxD       | Interface Send Path                        | SY-       | Ground for the Synchronization | BK                                     | Black               |
| RDY       | Ready                                      | E+        | Receiver-Line                  | BN                                     | Brown               |
| GND       | Ground                                     | S+        | Emitter-Line                   | RD                                     | Red                 |
| CL        | Clock                                      | ±         | Grounding                      | OG                                     | Orange              |
| E/A       | Output/Input programmable                  | SnR       | Switching Distance Reduction   | YE                                     | Yellow              |
| IO-Link   | IO-Link                                    | Rx+/-     | Ethernet Receive Path          | GN                                     | Green               |
| PoE       | Power over Ethernet                        | Tx+/-     | Ethernet Send Path             | BU                                     | Blue                |
| IN        | Safety Input                               | Bus       | Interfaces-Bus A(+)/B(-)       | VT                                     | Violet              |
| OSSD      | Safety Output                              | La        | Emitted Light disengageable    | GY                                     | Grey                |
| Signal    | Signal Output                              | Mag       | Magnet activation              | WH                                     | White               |
| BL_D+/-   | Ethernet Gigabit bidirect. data line (A-D) | RES       | Input confirmation             | PK                                     | Pink                |
| ENo RS422 | Encoder 0-pulse 0/Ü (TTL)                  | EDM       | Contact Monitoring             | GNYE                                   | Green/Yellow        |
| PT        | Platinum measuring resistor                | ENARIS422 | Encoder A/A (TTL)              |                                        |                     |