

# FLS ULF

## ULTRA LOW FLOW SENSOR



The FLS compact Ultra Low Flow sensors ULF have been for use with every kind of aggressive and solid-free liquids.

The sensor can be fixed to flexible or rigid pipes via 1/4" GAS threaded process connections. The paddlewheel sensor produces a frequency output proportional to the flow velocity that can be easily transmitted and processed.

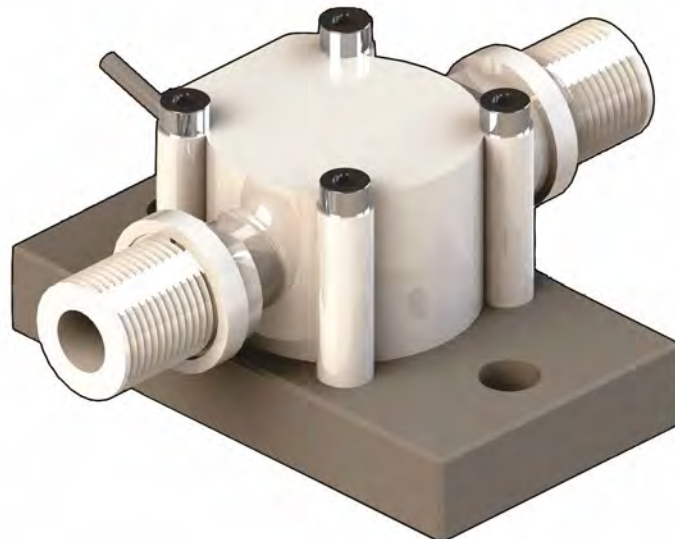
The ULF sensor offers two different flow ranges starting from 1.5 or 6 l/h (0.0066 or 0.0264 gpm). The construction materials, POM or ECTFE (Halar®), provide high strength and chemical resistance.

### APPLICATIONS

- Water treatment
- Chemical industry
- Pharmaceutical industry
- Dosing systems
- Laboratory plants

### MAIN FEATURES

- POM or ECTFE (Halar®) wetted parts
- Two flow ranges available:
  - 1.5 - 100 l/h (0.0066 - 0.44 gpm)
  - 6 - 250 l/h (0.0264 - 1.1 gpm)
- High chemical resistance
- Easy mounting



# TECHNICAL DATA

## General

- Flow Rate Range:
  - ULF01 version: 1.5 to 100 l/h (0.0066 to 0.44 gpm)
  - ULF03 version: 6 to 250 l/h (0.0264 to 1.1 gpm)
- Linearity:  $\pm 1\%$  of full scale
- Repeatability:  $\pm 0.5\%$  of full scale
- Working Temperature:  $-10^{\circ}\text{C}$  to  $80^{\circ}\text{C}$  ( $14^{\circ}\text{F}$  to  $176^{\circ}\text{F}$ )
- Working Pressure: 5 bar (70 psi) max @  $22^{\circ}\text{C}$  ( $72^{\circ}\text{F}$ )
- Viscosity of fluid: 1 to 10 cST
- Enclosure: IP65
- Wetted materials:
  - POM version:  
sensor body: POM  
o-ring: FPM  
rotor: POM  
shaft: corepoint  
magnets:  $\text{SmCo}_5$
  - ECTFE version:  
sensor Body: ECTFE(Halar®)  
o-ring: FPM or KALREZ  
rotor: ECTFE (Halar®)  
shaft: Sapphire  
bearings: Sapphire
- Connections: 1/4" GAS male threaded
- Cable length: 2 m (6.5 ft) standard

## Specific for ULF01.H I and ULF03.H

- Supply voltage: 5 to 24 VDC  $\pm 10\%$ , regulated
- Supply current:  $< 15\text{ mA}$  @ 24 VDC
- Output signal: square wave
- Signal type: Push-Pull (for connection to NPN and PNP inputs)
- K-factor:
  - ULF01 version: 8431 Pulses/Liter (31569 Pulses/U.S. Gallon) in linear range from 8 to 100 l/h
  - ULF03 version: 3394 Pulses/Liter (12846 Pulses/U.S. Gallon) in linear range from 15 to 250 l/h

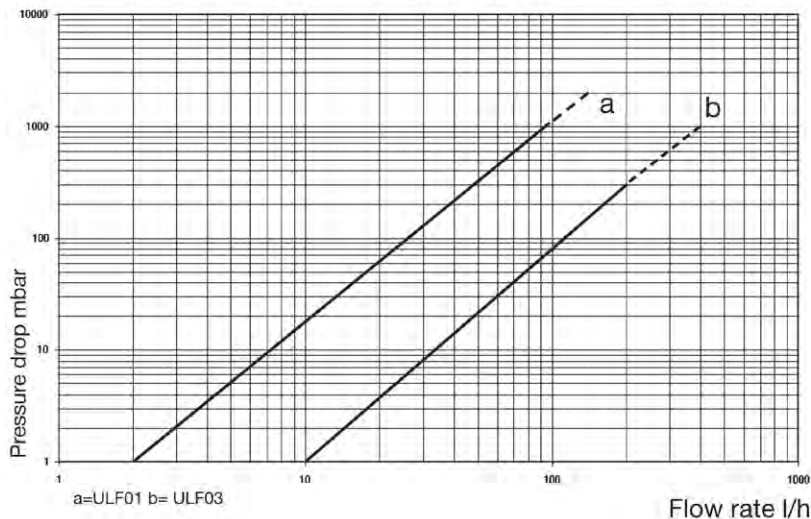
## Specific for ULF01.R I and ULF03.R

- Supply voltage: none
- Output signal: square wave
- Output type: Reed Contact
- K-factor:
  - ULF01 version: 2108 Pulses/Liter (7978 Pulses/U.S. Gallon) in linear range from 8 to 100 l/h
  - ULF03 version: 848 Pulses/Liter (3210 Pulses/U.S. Gallon) in linear range from 15 to 250 l/h

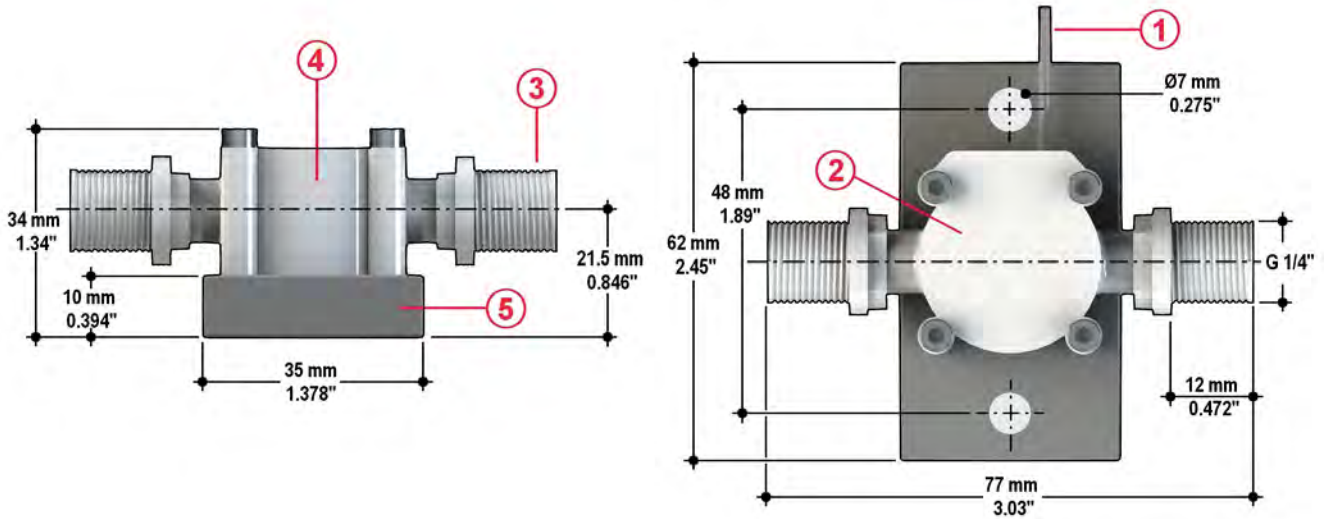
## Standards & Approvals

- Manufactured under ISO 9001
- Manufactured under ISO 14001
- CE
- RoHS Compliant
- EAC

## Pressure Drop



# DIMENSIONS

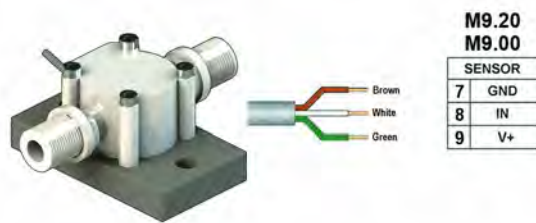
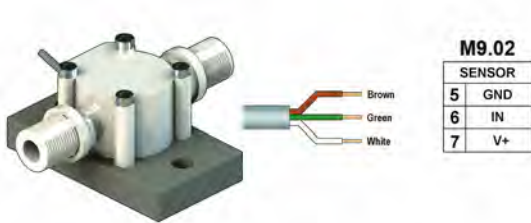


- 1 Electrical cable: 2 m. (6.5 ft) standard
- 2 Completely encapsulated electronics
- 3 Connection (other versions available on request according to body material)
- 4 POM or ECTFE Halar® (registered trademark of Ausimont-Solvay) sensor body
- 5 PP fixing plate

# WIRING CONNECTIONS

ULFXX.H Sensor wiring connection

ULFXX.R Sensor wiring connection



Wiring connections of ULFXX.H to the other monitors

	M9.50	M9.03	M9.07	M9.08	M9.10
GND	30	30	16	16	37
IN	28	28	14	14	36
V+	27	27	13	13	35

## ORDERING DATA

ULFOX.X.X Ultra Low Flow Sensors							
Part No.	Version	Power supply	Length	Main wetted materials	Enclosure	Flow Rate Range	Weight (gr.)
ULF01.H.0	Hall	5 - 24 VDC	77mm	POM / FPM	IP65	1.5 to 100 l/h (0.0066 to 0.44 gpm)	170
ULF01.H.2	Hall	5 - 24 VDC	77mm	ECTFE / FPM	IP65	1.5 to 100 l/h (0.0066 to 0.44 gpm)	200
ULF01.H.3	Hall	5 - 24 VDC	77mm	ECTFE / KALREZ	IP65	1.5 to 100 l/h (0.0066 to 0.44 gpm)	200
ULF01.R.0	Reed	None	77mm	POM / FPM	IP65	1.5 to 100 l/h (0.0066 to 0.44 gpm)	170
ULF01.R.2	Reed	None	77mm	ECTFE / FPM	IP65	1.5 to 100 l/h (0.0066 to 0.44 gpm)	200
ULF01.R.3	Reed	None	77mm	ECTFE / KALREZ	IP65	1.5 to 100 l/h (0.0066 to 0.44 gpm)	200
ULF03.H.0	Hall	5 - 24 VDC	77mm	POM / FPM	IP65	6 to 250 l/h (0.0264 to 1.1 gpm)	170
ULF03.H.2	Hall	5 - 24 VDC	77mm	ECTFE / FPM	IP65	6 to 250 l/h (0.0264 to 1.1 gpm)	200
ULF03.H.3	Hall	5 - 24 VDC	77mm	ECTFE / KALREZ	IP65	6 to 250 l/h (0.0264 to 1.1 gpm)	200
ULF03.R.0	Reed	None	77mm	POM / FPM	IP65	6 to 250 l/h (0.0264 to 1.1 gpm)	170
ULF03.R.2	Reed	None	77mm	ECTFE / FPM	IP65	6 to 250 l/h (0.0264 to 1.1 gpm)	200
ULF03.R.3	Reed	None	77mm	ECTFE / KALREZ	IP65	6 to 250 l/h (0.0264 to 1.1 gpm)	200

IN LINE FLOW SENSORS