

FLS ULF

Ultra low flow sensors



FLS ULF

The FLS ULF, Ultra Low Flow sensor is a device designed for use with any type of aggressive, solid-free liquid. The sensor can be mounted on flexible or rigid pipes through connections with 1/4" GAS male thread. The paddlewheel sensor produces a frequency output proportional to the speed of the flow that can be transmitted and processed without difficulty. The ULF sensor offers two different flow ranges, starting from 1.5 l/h (0.0066 gpm). The construction materials, POM or ECTFE (Halar®), guarantee particularly high strength and chemical resistance.

ULTRA LOW FLOW SENSORS

APPLICATIONS

- Water treatment
- Chemical industry
- Pharmaceutical industry
- Batching systems
- Laboratory systems

MAIN CHARACTERISTICS

- Parts in contact with liquids in POM or ECTFE (Halar®)
- Two flow rate ranges available:
 - from 1.5 to 100 l/h (0.0066-0.44 gpm)
 - from 6 to 250 l/h (0.0264-1.1 gpm)
- High chemical resistance
- Easy mounting

TECHNICAL DATA

General information	Flow rate range: – Model ULF01: from 1.5 to 100 l/h (0.0066-0.44 gpm) – Model ULF03: from 6 to 250 l/h (0.0264-1.1 gpm)
	Linearity: ±1% of full scale
	Repeatability: ±0,5% of full scale
	Operating temperature: from -10 °C to 80 °C (from 14°F to 176 °F)
	Operating pressure: max 5 bar (70 psi) at 22 °C (72 °F)
	Fluid viscosity: from 1 to 10 cST
	Protection class: IP65
	Materials in contact with liquids (POM model): – Sensor body: POM – O-ring: FKM – Rotor: POM – Shaft: corepoint – Magnets: SmCo ₅
	Materials in contact with liquids (ECTEF model): – Sensor body: ECTFE (Halar®) – O-ring: FKM or KALREZ – [Rotor: ECTFE (Halar®) [(PS:EPT:Shaft: Sapphire) – Bearings: Sapphire
	Connections: 1/4"GAS male thread
	Cable length: standard 2 m (6.5ft)
	Supply voltage: from 5 to 24 VDC ±10% regulated
	Supply current: < 15 mA at 24 VDC
Output signal: Square wave	
Signal type: push-pull (for connection to NPN and PNP inputs)	
K-Factor: – Model ULF01: 8431 pulses/litre (31569 pulses/US gallon), linear range 8 to 100 l/h – Model ULF03: 3394 pulses/litre (12846 pulses/US gallon), linear range 15 to 250 l/h	

Specific data for ULF01.H I and ULF03.H

Specific data for ULF01.R I and ULF03.R

Supply voltage: none

Output signal: Square wave

Output type: Reed contact

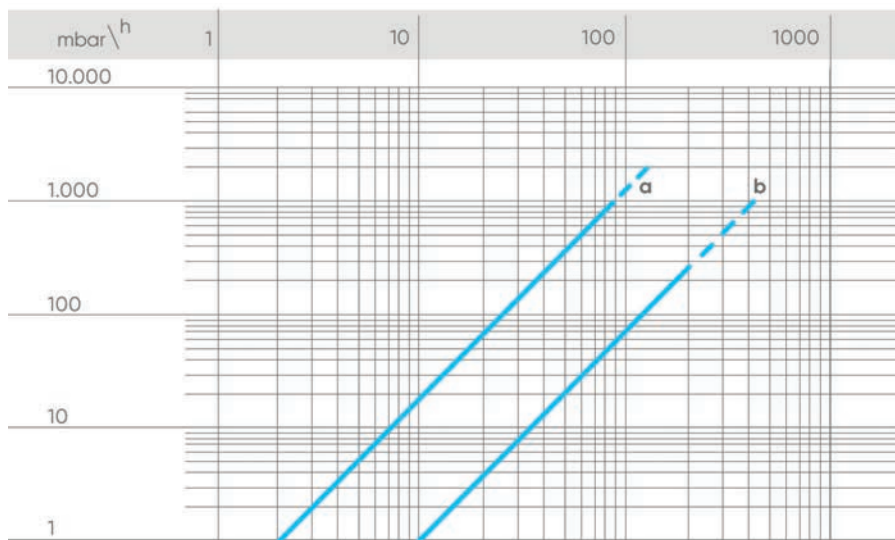
K-Factor:

- Model ULF01: 2108 pulses/litre (7978 pulses/US gallon), linear range 8 to 100 l/h
- Model ULF03: 848 pulses/litre (3210 pulses/US gallon), linear range 15 to 250 l/h

Standards & Approvals

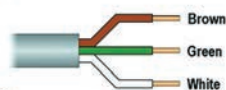
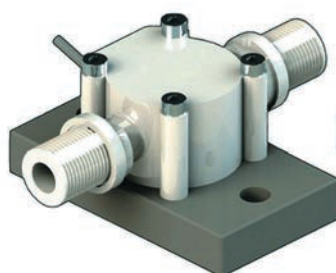
Manufactured under ISO 9001
 Manufactured under ISO 14001
 CE
 RoHS Compliance
 EAC

PRESSURE DROP



**ULFXX.H
 SENSOR ELECTRICAL
 CONNECTIONS**

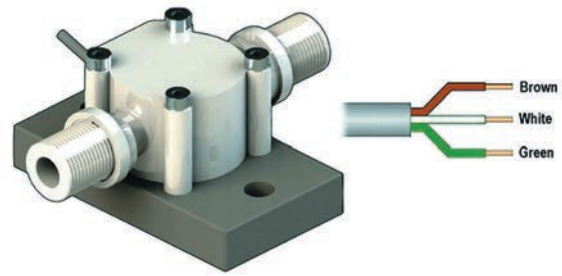
	M9.50	M9.03 input 1	M9.03 input 2	M9.07	M9.08	M9.10
GND	30	30	16	16	16	37
FREQ	28	28	14	14	14	36
V+	27	27	13	13	13	35



M9.02

SENSOR	
5	GND
6	IN
7	V+

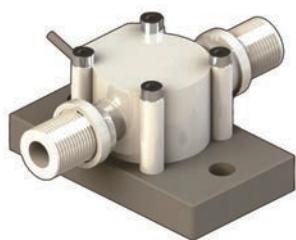
ULFXX.R SENSOR ELECTRICAL CONNECTIONS



M9.20
M9.00

SENSOR	
7	GND
8	IN
9	V+

PRODUCT CODES

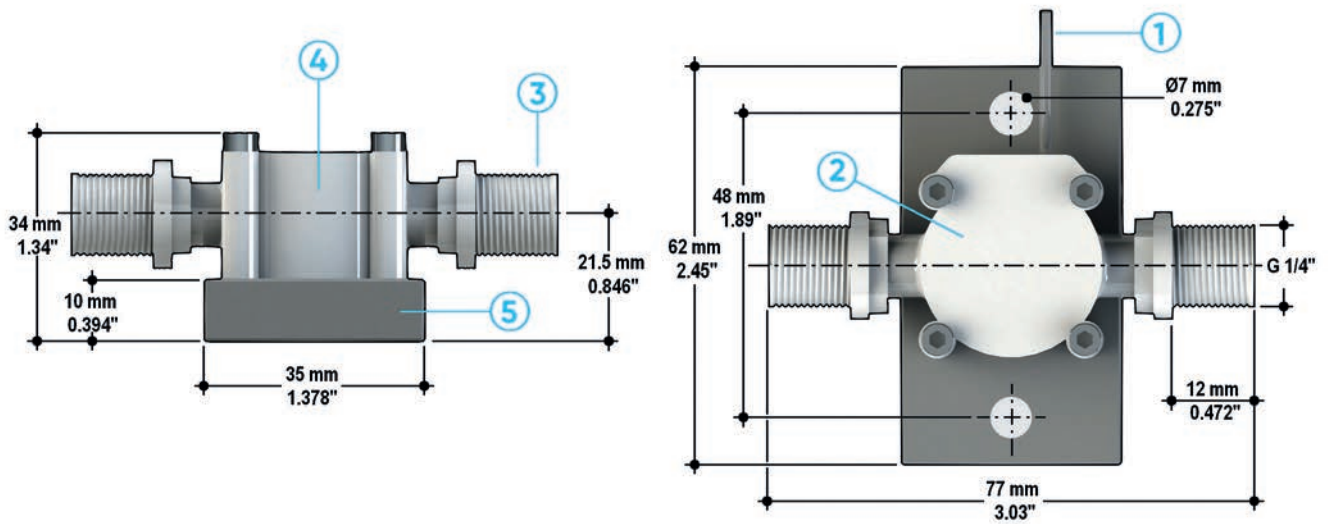


ULFOX.X.X
Ultra Low Flow Sensors

Code	Version	Power supply	Length	Main Wetted Materials	Enclosure	Flow Rate Range	Weight (gr.)
ULF01.H.0	Push-Pull	5 - 24 VDC	77 mm	POM FKM	IP65	From 1,5 to 100 l/h*	170
ULF01.H.2	Push-Pull	5 - 24 VDC	77 mm	ECTFE FKM	IP65	From 1,5 to 100 l/h*	200
ULF01.H.3	Push-Pull	5 - 24 VDC	77 mm	ECTFE KALREZ	IP65	From 1,5 to 100 l/h*	200
ULF01.R.0	Reed	None	77 mm	POM FKM	IP65	From 1,5 to 100 l/h*	170
ULF01.R.2	Reed	None	77 mm	ECTFE FKM	IP65	From 1,5 to 100 l/h*	200
ULF01.R.3	Reed	None	77 mm	ECTFE KALREZ	IP65	From 1,5 to 100 l/h*	200
ULF03.H.0	Push-Pull	5 - 24 VDC	77 mm	POM FKM	IP65	From 6 to 250 l/h**	170
ULF03.H.2	Push-Pull	5 - 24 VDC	77 mm	ECTFE FKM	IP65	From 6 to 250 l/h**	200
ULF03.H.3	Push-Pull	5 - 24 VDC	77 mm	ECTFE KALREZ	IP65	From 6 to 250 l/h**	200
ULF03.R.0	Reed	None	77 mm	POM FKM	IP65	From 6 to 250 l/h**	170
ULF03.R.2	Reed	None	77 mm	ECTFE FKM	IP65	From 6 to 250 l/h**	200
ULF03.R.3	Reed	None	77 mm	ECTFE KALREZ	IP65	From 6 to 250 l/h**	200

* (0,0066-0,44 gpm)
** (0,0264-1,1 gpm)

TECHNICAL DRAWINGS



ULF

- | | | |
|--|--|--|
| <p>1 Electrical cable: standard 2m (6.5ft)</p> <p>2 Fully encapsulated electronics</p> | <p>3 Connection to the process (other models are available on request depending on the body material)</p> | <p>4 Sensor body in POM or ECTFE Halar® (registered trademark of Ausimont-Solvay)</p> <p>5 PP fixing plate</p> |
|--|--|--|