

# F3.20



High pressure paddlewheel flow sensor



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The FLS F3.20 paddlewheel flow sensor is a device suitable for high-pressure systems and critical temperatures. The F3.20 flow sensor is designed for use with all types of solid-free liquids in accordance with the chemical compatibilities of the materials in contact with the liquids. Made with top quality materials, such as stainless steel for the body and shaft, and Halar® for the paddlewheel, it guarantees high mechanical performance and proverbial reliability. The sensor requires very limited maintenance, which in any case is easy to perform thanks to the 4-screw system and the flat graphite gasket. The F3.20 sensor can be connected to the monitors and directly to a PLC. Stainless steel welding is available on the adapter to install the sensor on pipes of various sizes, from 1 1/2" to 8" (from DN40 to DN200).

## HIGH PRESSURE PADDLEWHEEL FLOW SENSOR

### APPLICATIONS

- Heat exchangers
- Reverse osmosis
- Cooling systems
- HVAC systems (heating, ventilation and air conditioning)
- Water for boiler supply

### MAIN CHARACTERISTICS

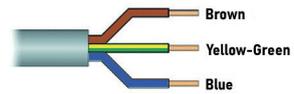
- Operating range from 110 bar (1600 psi) and up to 120 °C (248 °F)
- Wide operating range (0.15 to 8 m/s)
- A single sensor and a single adapter for pipes of various sizes (from 1 1/2" to 8")
- High linearity and repeatability
- Limited and extremely simple maintenance
- Availability of special models for direct connection to PLC

### TECHNICAL DATA

<b>General information</b>	<b>Pipe size range:</b> from DN40 to DN200 (from 0.5 to 8 inches). For more details, refer to the Installation Adapters section
	<b>Flow range:</b> from 0.15 to 8 m/s (0.5-25 ft/s)
	<b>Linearity:</b> ±0.75% of full scale
	<b>Repeatability:</b> ±0.5% of full scale
	<b>Pressure:</b> 110 bar (1600 psi)
	<b>Temperature:</b> 120°C (248°F)
	<b>Minimum Reynolds number required:</b> 4,500
	<b>Protection class:</b> IP68
	<b>Materials in contact with liquids:</b> – Sensor body: AISI 316L stainless steel – Sealing flat graphite gasket – Rotor: ECTFE (Halar®) – Shaft: AISI 316 Stainless Steel
	<b>Specific data for F3.20.H</b>
	<b>Supply current:</b> < 30 mA at 24 VDC
	<b>Output signal:</b> – Square wave: – Frequency: 45 Hz for nominal m/s (13.7 Hz for nominal ft/s) – Output type: NPN Open collector transistor – Output current: max 10 mA
	<b>Cable length:</b> 8 m standard (26,4 ft), max 300 m (990 ft)

<b>Specific data for F3.20.P</b>	<b>Supply voltage:</b> from 12 to 24 VDC ±10% regulated
	<b>Supply current:</b> < 30 mA at 24 VDC
<b>Standards &amp; Approvals</b>	<b>Output signal:</b>
	– Square wave: – Frequency: 45 Hz for nominal m/s (13.7 Hz for nominal ft/s) – Output type: push-pull (for connection to NPN and PNP inputs) – Output current: $I_{max} < 20$ mA
	<b>Cable length:</b> 8 m standard (26.4 ft), max 300 m (990ft)
	Manufactured under ISO 9001 Manufactured under ISO 14001 CE RoHS Compliance EAC

## F3.20.H IP68 SENSOR ELECTRICAL CONNECTIONS



M9.02 SENSOR	
5	GND
6	IN
7	V+

## ELECTRICAL CONNECTIONS TO OTHER FLS MONITORS

	M9.00	M9.50	M9.03 input 1	M9.03 input 2	M9.07	M9.08	M9.10
GND	7	30	30	16	16	16	37
FREQ	8	28	28	14	14	14	36
V+	9	27	27	13	13	13	35

# PRODUCT CODES



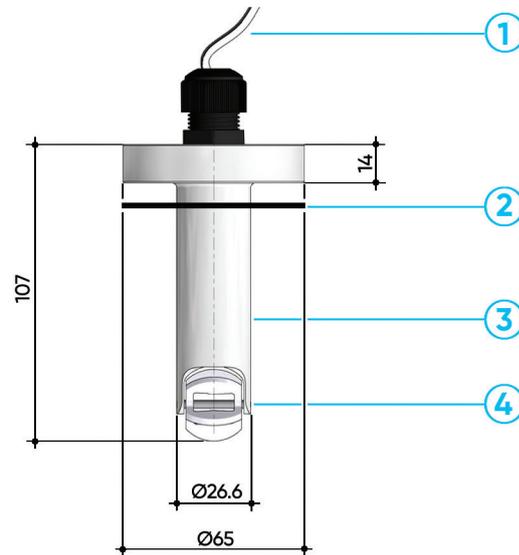
## F3.20.X.01

High Pressure Paddlewheel Flow Sensor

Code	Version	Power supply	Length	Main Wetted Materials	Enclosure	Flow Rate Range	Weight (gr.)
F3.20.H.01	Hall	5- 24 VDC	107 mm	316L SS	IP68	From 0,15 to 8 m/s*	600
F3.20.P.01	Push-Pull	12 - 24 VDC	107 mm	316L SS	IP68	From 0,15 to 8 m/s*	600

\* from 0,15 to 8 m/s = (0,5-25 feet/s)

# TECHNICAL DRAWINGS



**F3.20**

- 1 Electrical cable: standard 8m (26.4ft)
- 2 Flat graphite gasket

- 3 AISI 316L stainless steel sensor body

- 4 ECTFE Halar® open cell rotor and AISI 316L stainless steel shaft