



REDRAVEN™

DETECT SENSOR



The Detect sensor from Flowserve is a cost-effective and easy-to-install vibration monitoring solution for rotating equipment. It is available with “Ex ia” ATEX, IECEx and QPS certifications for use in Zone 0 and Division 1 applications as well as Class 1 Division 1. The Detect sensor measures overall root mean square (RMS) vibration up to 1 kHz in accordance with ISO 20816 and API 610 and acceleration spectrum up to 5.6 kHz. The compressed vibration spectrum is used in the RedRaven portal to identify abnormal operating conditions as performance deviates from thresholds.

Detect sensors can identify the following faulty operating conditions:

- Cavitation*
- Suction recirculation*
- Rotor unbalance
- Pump and motor misalignment
- Excessive pipe strain
- Mechanical looseness
- Dry running condition*
- Internal rubbing
- Rolling element bearing wear
- Mag coupling slip or disengaged*
- Coupling pin wear
- Structural resonance

* Not applicable to vertical pumps


Online monitoring

In addition to compressed Fast Fourier Transform (FFT), Detect measures overall vibration velocity and acceleration every 30 seconds. After comparing this data to auto-calibrated thresholds for vibration severity levels, the sensor activates an integrated color-coded (green, yellow or red) LED to alert technicians of the current operating conditions.

The 4–20 mA HART® interface transfers data to enable online condition monitoring in the RedRaven portal or in existing process control systems. This data can also be transferred wirelessly through the RedRaven Data Transfer Box.

Technical data

Ex-characteristic

Ex-marking	 II 1G Ex ia IIC T4 Ga
	TÜV 07 ATEX 553845
	IECEx Ex ia IIC T4 Ga
	TUN 15.0038
	Class I, Division 1 Groups A, B, C and D, T4; Class I, Zone 0 AEx ia IIC T4 Ga; Ex ia IIC T4 Ga
	QPS LR1560



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Technical data (continued)

Electrical data

Output signal	4-20 mA HART
Display sensor failure	21 mA (>20.5 mA)
Max. signal deviation	1.5%
Min. current consumption	8 mA (4 to 8 mA range is not supported)
Max. current consumption	22 mA
Required voltage at sensor input	11 to 30 V
Max. allowed load impedance	750 Ω if 30 V supply
Connecting wire	Two-wire
Connection 4-20 mA	Internal clamping terminal

Environmental condition

Safety class at EN 60529	IP66
Allowed ambient temperature	T _a = -40°C to 80°C (-40°F to 176°F)

Mechanical condition

Dimension	76 x 40 x 53 mm
Weight	0.12 kg (0.26 lb)
Mounting of sensor	M8 screw
Material of body	PA 6 GF 10 + GB 20, 22% Irgastat® P18, 3% color

Accessories

Communication	
Data Transfer Box	Insight portal predictive analytics
Software	
DCS integration	EDD for Emerson AMS EDD for Siemens SIMATIC PDM DTM driver for FDT frame applications (PACTware, FieldCare, SMART VISION, etc.)

Mounting options

1. Direct via M8 screw
2. Direct via ¼ in.-28 screw
3. Glue adapter (included in delivery)
4. Cooling element to 120°C (248°F) surface temperature
5. Cooling element to 160°C (320°F) surface temperature