



**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. The Detect sensor measures vibration velocity in accordance with DIN/ISO 20816 and acceleration up to 5.6 kHz. The acceleration spectrum is divided into  $1/3$  octave frequency bands, and abnormal operating conditions (cavitation, etc.) can be detected as performance deviates from thresholds.

## Detect abnormal operating conditions

Detect sensors can monitor the following operating conditions:

- Imbalance
- Maximum flow exceeded
- Misalignment of pump and drive
- Mechanical friction of rotating components
- Pipeline forces
- Loose mechanical components
- Bearing wear
- Magnetic coupling desynchronization
- Coupling wear
- Resonance frequencies
- Cavitation
- Fluid noise




## Online monitoring

The Detect sensor measures vibration velocity of the RMS and acceleration spectrum every 30 seconds (more than 1,000,000 measurements per year). After comparing this data to pre-defined limit values, the sensor activates an integrated color-coded (green, yellow or red) LED to alert technicians of the asset's current operating conditions. Furthermore, the Detect sensor's error memory stores incidences when boundary values are exceeded.

The 4–20 mA HART® interface transfers data of the Detect sensor to enable online condition monitoring in existing control or process control technologies. This data can also be transferred via wireless standard technology. If the transferred data must also be recorded for further evaluation, it can remain securely stored via the DataUSB trend data memory. Technicians can use Vibrosoft software or an EDD/DTM driver to access the error memory and evaluate it to identify trends.

## Technical data

### Ex-characteristic (optional)

Ex-marking	 II 1G Ex ia IIC T4 Ga
	TÜV 07 ATEX 553845
	<b>IECEx</b> 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
	<b>QPS</b> 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 <sub>a</sub> = -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 ("warm" gray)

### Accessories

Communication	
DataUSB	Trend data memory USB software interface for Vibrosoft
Software	
Windows	Vibrosoft (via DataUSB)
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. Glue adapter (included in delivery)
3. Cooling element to 120°C (248°F) surface temperature
4. Cooling element to 160°C (320°F) surface temperature