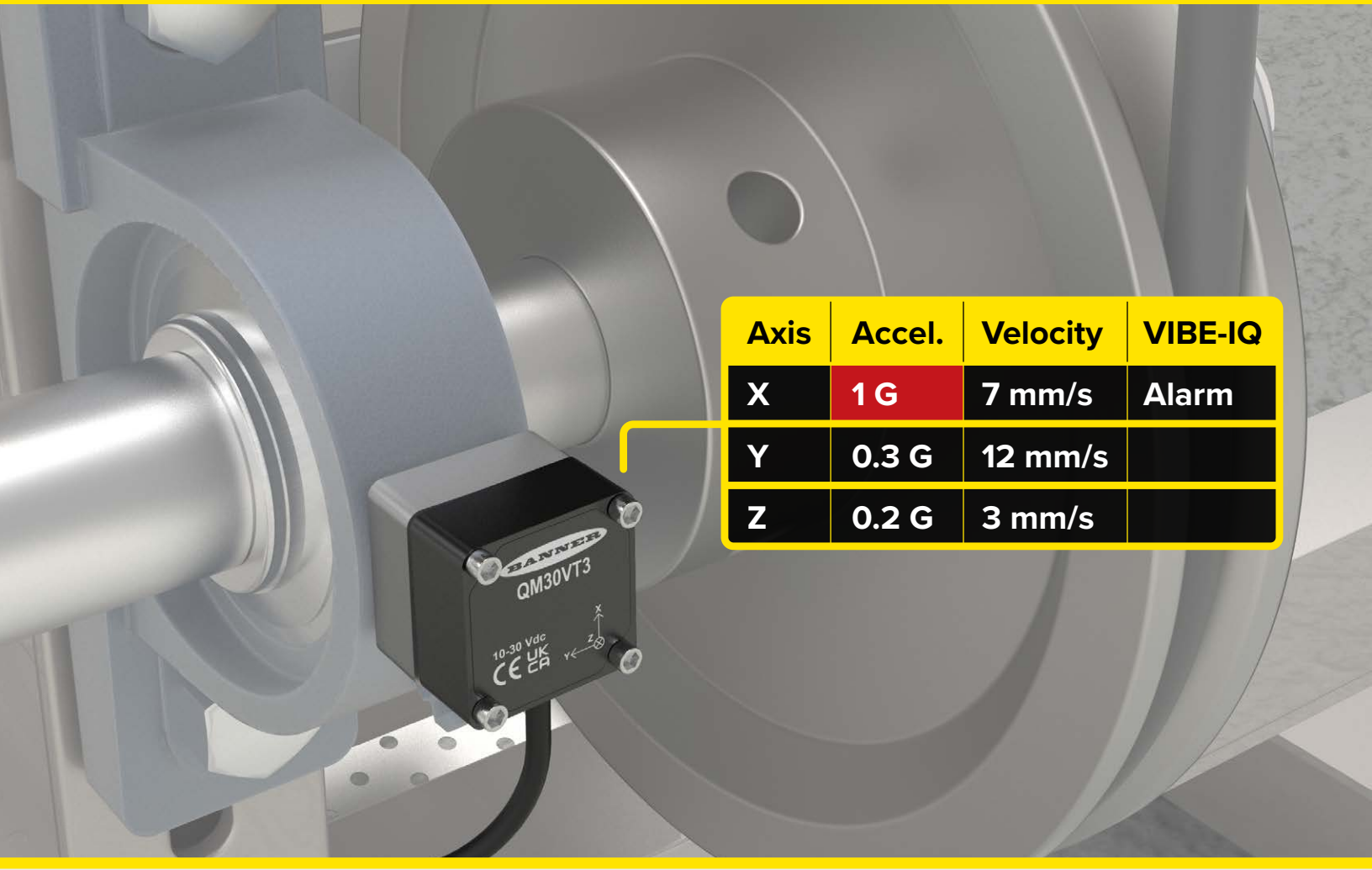
3-Axis Vibration Monitoring



Axis	Accel.	Velocity	VIBE-IQ
X	1 G	7 mm/s	Alarm
Y	0.3 G	12 mm/s	
Z	0.2 G	3 mm/s	

3-Axis Vibration Monitoring Reveals In-Depth Machine Health

- **High-frequency enveloping (HFE):** Also known as demodulation mode, HFE detects early-stage low-amplitude, high-frequency faults like bearing and race wear, which are often masked by dominant low-frequency vibrations
- **Wide frequency range:** Detect more faults, from shaft misalignment in conveyor motors to gear mesh impacts in high-speed gearboxes
- **High-speed sampling:** Higher sample rates capture finer vibration details, improving early fault detection across a wide range of assets
- **Frequency max (FMax):** Balance frequency range and resolution to zoom in on low-frequency faults like pulley drive misalignment or monitor the full range at default resolution
- **Wireless battery-powered radios:** In-depth vibration monitoring combined with the ease and flexibility of wireless connectivity delivers vital machine health insights from anywhere

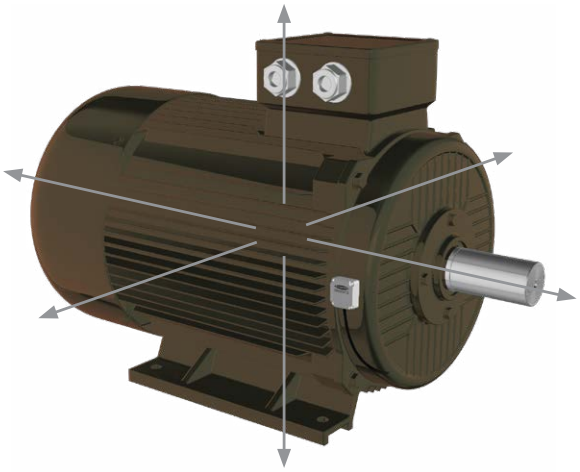
BANNER®

Total Vibration Coverage, Smarter Predictive Maintenance, Flexible Installation

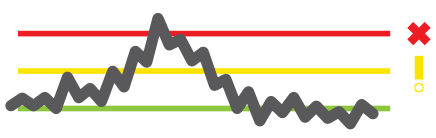
The QM30VT3 High-Performance 3-Axis Vibration Sensor delivers the real-time data and alerts that keep maintenance teams one step ahead of downtime. With ultra-low noise vibration monitoring on all three axes, automated baselines and alerts from onboard VIBE-IQ, and specialized capabilities like High-frequency enveloping (HFE) and adjustable frequency max (FMax), it provides a flexible solution for teams across industries, equipment types, and maintenance applications.

3-Axis for Complete Coverage, Deeper Diagnostics, and Flexible Mounting

Ultra-low noise vibration monitoring on all three axes—X, Y, and Z—ensures a more complete view of machine health and greater installation flexibility compared to two-axis sensors and most three-axis MEMS sensors, which have up to three times more noise on their third axis. The QM30VT3 captures vibration patterns across all three axes that indicate critical early-stage faults that others miss, including shaft misalignment and rotational imbalance. Understanding how the sensor's axes correspond to the machine's axes allows you to mount it in the orientation that fits the application, detecting everything from subtle imbalance to early-stage bearing wear—regardless of orientation or mounting position.

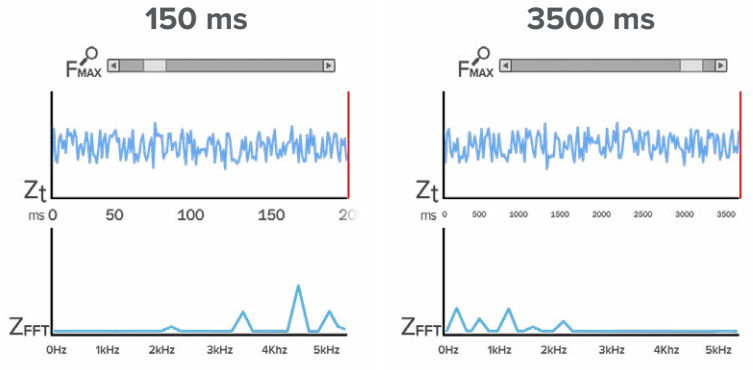


VIBE-IQ® Takes the Complexity out of Vibration Monitoring



Built-in VIBE-IQ vibration monitoring software runs directly on the wired sensor, using machine learning to establish baselines, set warning and alarm thresholds, and detect changes in vibration across all three axes. By continuously monitoring assets like motors and gearboxes, it provides early fault detection without requiring specialized manual setup or external processing, simplifying predictive maintenance and making it accessible to teams at every level of experience.

Advanced Features



The QM30VT3 offers advanced tools like adjustable FMax and mode HFE for applications requiring in-depth vibration analysis. Adjusting FMax lets users tailor the frequency range and sample length to machine speed and fault characteristics. Higher FMax captures a broad frequency range, using shorter sample times and default resolution suitable for detecting faults in high-speed assets. Lower FMax values provide progressively finer sample resolution and longer sampling times for detecting faults in very slowly rotating equipment. HFE isolates high-frequency signals by filtering out low frequencies, making it easier to detect early-stage faults like bearing wear and lubrication issues. Combining HFE with a lower FMax setting extends sampling time and improves resolution while isolating high frequencies, which is critical for detecting weak high-frequency fault signatures in slow-speed assets otherwise masked by dominant low-frequency vibrations.

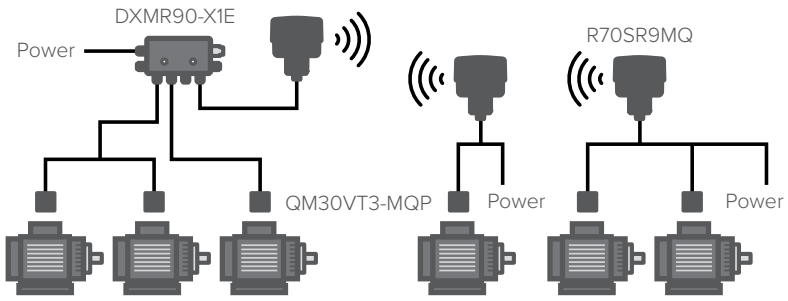
If you're interested in learning more about the QM30VT3's advanced features, contact a Banner representative.

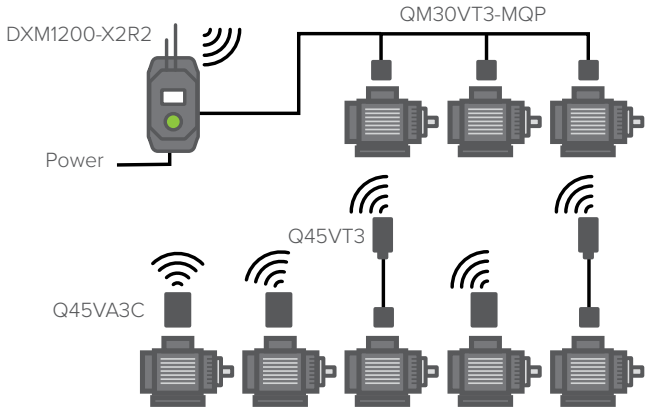
Banner Can Scale to Any Predictive Maintenance Application

Banner's plug-and-play condition monitoring systems can use line power, battery power, or a combination of both to meet installation needs.

Line-Powered Example

A DXMR90-X1E controller collects data from multiple QM30VT3 vibration sensors. Three are connected directly to the controller for power and data. The others are connected to R70 radio nodes and power supplies, with the R70s sending data wirelessly to an R70 connected to the controller.





Battery-Powered Example

Multiple QM30VT3 sensors are battery-powered; three are integrated with a wireless data radio in a single housing (Q45VA3C), while two are connected to separate wireless data radios (Q45VT3). Data is sent via radio to a DXM1200-X2R2 controller, to which sensors are also directly connected.

3-Axis Monitoring

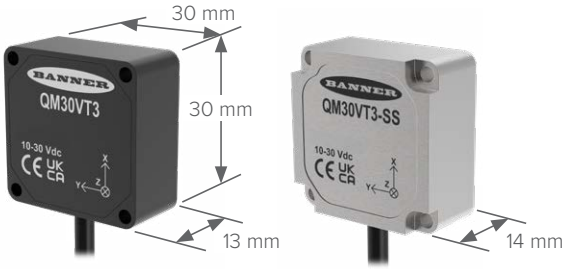
QM30VT3 Line-Powered	Housing	Connection	Models
Vibration and temperature via RS-485 Modbus	Aluminum	150 mm cable with 5-pin M12 male QD	**QM30VT3-MQP**
	316L Stainless Steel		**QM30VT3-SS-MQP**
Vibration and temperature via IO-Link	Aluminum		**QM30VT3-KQP**
	316L Stainless Steel		**QM30VT3-SS-KQP**

Q45VA3C All-In-One Battery Powered	Radio Frequency	Power Supply	Models
All-in-One Vibration and temperature	900 MHz ISM band	C cell lithium battery (sold separately)	**DX80DR9MQ45VA3C NB**
	2.4 GHz ISM band		**DX80DR2MQ45VA3C NB**

Q45VT3 Battery Powered	Radio Frequency	Power Supply	Models
Wireless Multihop Modbus Radio	900 MHz ISM band	D cell lithium battery (sold separately)	**DX80DR9MQ45VT3-5QD NB***
	2.4 GHz ISM band		**DX80DR2MQ45VT3-5QD NB***

*Requires QM30VT3-MQP or QM30VT3-SS-MQP (sold separately)

Specifications



Aluminium **Stainless Steel**

Supply Voltage	10 to 30 V DC
Vibration Sensor	Sensor type: MEMS Number of axis: 3 Measurement range: ±16 G Accuracy: ±5% Frequency range: 6 to 5300 Hz Number of samples: 4096 per axis Sample duration: 0.3 (default) to 4.9 s
Temperature Sensor	Range: –40 to +105 °C (–40 to +221 °F) Accuracy: ±3 °C (±5.4 °F) Resolution: ±1 °C (±1.8 °F)
Environmental Rating	Aluminium: IP67 Stainless steel: IP69K
Certifications	CE

Accessories

DXMR90-X1E
Wired Industrial Controller

R70SR9MQ
Cable-Replacement Radio for RS-485 Modbus Networks

DXM1200-X2R2
900MHz Wireless IIoT Gateway

add DXM1200-X2R4
2.4 GHz Wireless IIoT Gateway

4-Pin M12 Double-Ended
Straight connector models

BC-M12F4-M12M4-22-2
2 m (6.5')
BC-M12F4-M12M4-22-5
5 m (16.4')
BC-M12F4-M12M4-22-10
10 m (32.8')

PSD-24-4
Desktop power supply, 3.9 A, 24 V DC

PSW-24-1
Wall plug power supply, 100–240 V AC 50/60 Hz input, 24 V DC output

BWA-BATT-013
3.6 V C cell lithium replacement battery

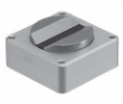
BWA-BATT-011
3.6 V D cell lithium replacement battery

BWA-UCT-900
RS-485 to USB Programming Cable

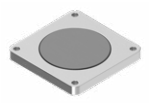
Brackets

BWA-QM30-FTAL
QM30 included flat surface tape mount

BWA-QM30-CEAL
QM30 curved surface epoxy mount



BWA-QM30-CMAL
QM30 curved surface magnet mount



BWA-QM30-FMSS
QM30 flat surface magnet mount

BWA-QM30-FSALR
QM30 flat surface screw mount
BWA-QM30-FSSSR
Stainless steel

BWA-Q45VAC-CMSS
Q45 curved surface magnet mount

BWA-Q45VAC-FESS
Q45 flat surface epoxy mount

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