

## Smart condition monitoring at a new level

# BCM CONDITION MONITORING SENSORS GENERATION 2

Unplanned downtime and disruptions in the production process can be efficiently avoided with BCM condition monitoring sensors from Balluff. These intelligent sensors provide condition data that you can use to automate costly manual inspections. At the same time, this additional data is an important building block for highly automated and networked production. A standardized IO-Link interface combined with integrated intelligent data pre-processing – the new generation of the popular BCM now sets another milestone in the field of smart IO-Link sensor technology. From condition monitoring of critical components and assemblies through to the detection of critical process states and the detection of relevant process parameters for inline process optimization: With the BCM Generation 2 you solve your condition monitoring applications optimally.

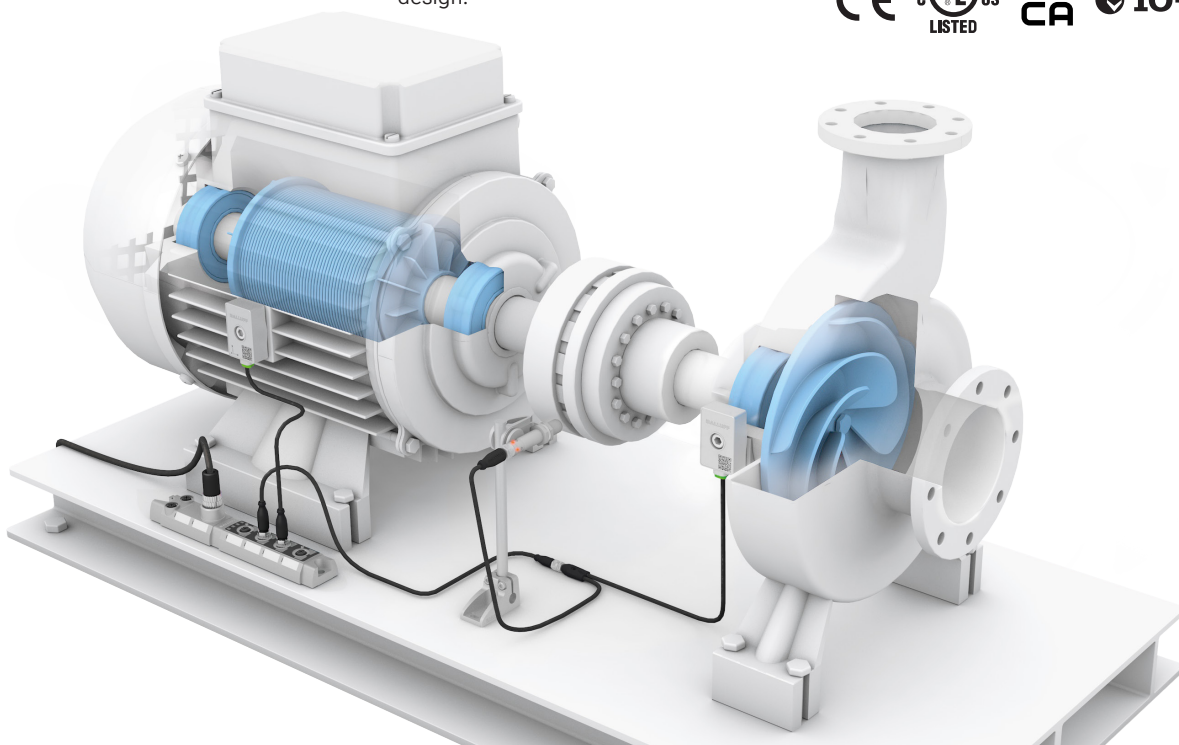
### Upgrade instead of update

The new condition monitoring sensor is more than an iterative further development of the first generation. Rather, it is a completely new platform with different hardware and firmware. The significantly improved measurement performance in combination with more sophisticated algorithms for frequency calculation (FFT) allow the sensor to detect the smallest changes in condition even earlier and more precisely than before. Thanks to the new, convenient mounting design with just one screw, it is also even easier to install. The small, round mounting surface makes it much simpler to set about mounting on curved surfaces. This offers you enormous advantages, especially for retrofit solutions.

In short: Compared to the first generation, the new BCM scores with an even significantly higher performance level, intelligent algorithms and a sophisticated and efficient mounting design.

### Features

- Smart condition monitoring sensor with standardized IO-Link interface
- Multiple measured variables in one device: vibration and temperature
- Very high performance of vibration measurement with a frequency range of up to 6 kHz in three measurement axes
- Early and targeted detection of critical condition changes through integrated frequency analysis
- Simple and efficient installation and retrofitting due to sophisticated mounting design
- Sensor self-monitoring with Balluff Smart Automation and Monitoring System (SAMS)



Avoid unplanned downtimes and disruptions in the production process.

CONDITION MONITORING SENSORS



		BCM0003	BCM0004
Function modules		<ul style="list-style-type: none"> <li>■ Vibration time domain analytics</li> <li>■ Vibration frequency domain analytics</li> <li>■ RPM input</li> <li>■ Contact temperature</li> </ul>	<ul style="list-style-type: none"> <li>■ Vibration time domain analytics</li> <li>■ Contact temperature</li> </ul>
Vibration	Measuring range	-16...16 g	-16...16 g
	Measuring axes	3	3
	Frequency range	2...4500 Hz (±10 %) 2...6000 Hz (3 dB)	2...4500 Hz (±10 %) 2...6000 Hz (3 dB)
	Evaluation time domain	<ul style="list-style-type: none"> <li>■ RMS</li> <li>■ Peak</li> <li>■ Crest factor</li> <li>■ Skewness</li> <li>■ Kurtosis</li> </ul>	<ul style="list-style-type: none"> <li>■ RMS</li> <li>■ Peak</li> <li>■ Crest factor</li> </ul>
	Evaluation frequency domain	<ul style="list-style-type: none"> <li>■ Amplitude spectrum (FFT)</li> <li>■ Envelope spectrum (FFT)</li> </ul>	
Interface		IO-Link 1.1.3, COM3 (230.4 kBaud)	IO-Link 1.1.3, COM3 (230.4 kBaud)
Operating mode		IO-Link mode, SIO mode	IO-Link mode, SIO mode
Ambient temperature		-40...+80 °C	-40...+80 °C
IP rating		IP67, IP68, IP69K	IP67, IP68, IP69K
Housing material		Stainless steel 1.4404	Stainless steel 1.4404
Dimensions		34 × 22 × 12 mm	34 × 22 × 12 mm
Connection		1.5 m PUR cable with M12 male, 4-pole	1.5 m PUR cable with M12 male, 4-pole
Secondary features		<ul style="list-style-type: none"> <li>■ Identification</li> <li>■ Device discovery</li> <li>■ Switching counter</li> <li>■ Operating hours counter</li> <li>■ Boot cycle counter</li> <li>■ Voltage and current monitoring</li> <li>■ Pin assignment</li> <li>■ Internal temperature monitoring</li> </ul>	<ul style="list-style-type: none"> <li>■ Identification</li> <li>■ Device discovery</li> <li>■ Switching counter</li> <li>■ Operating hours counter</li> <li>■ Boot cycle counter</li> <li>■ Voltage and current monitoring</li> <li>■ Pin assignment</li> <li>■ Internal temperature monitoring</li> </ul>

MOUNTING ACCESSORIES



SCREW-IN ADAPTER	BAM049N	BAM049P	BAM049R	BAM049T
Use	Screw mounting in M6 thread	Screw mounting in M8 thread	Screw mounting in M10 thread	Screw mounting in M12 thread



MAGNETIC HOLDER	BAM049U
Use	Magnetic mounting on flat surfaces



ADHESIVE ADAPTER	BAM049J	BAM049K	BAM049L	BAM049M
Use	Adhesive mounting on flat surfaces	Adhesive mounting on small cooling fins	Adhesive mounting on medium-sized cooling fins	Adhesive mounting on large cooling fins

INDUSTRIAL NETWORKING



	BAV002N	BNI00H7
Use	Condition Monitoring Toolkit (CMTK) for integration into existing IT systems or for setting up an independent condition monitoring system by connecting several devices	IO-Link network module for Ethernet IP for connection to a machine PLC or for extending the condition monitoring toolkit
Start-up support	The BCM Assistant can be installed as an optional app from software version 2.1	BCM Assistant via the Balluff Engineering Tool (BET)

SENSORS FOR  
RPM INPUT

	BES05KR	BOS01NF	BOS02EM	BOS02F8
Use	Depending on the application, a binary sensor can be used to measure the rotational speed at the drive shaft. When selecting a sensor, it must be considered that one rotation can generate several pulses. It is important to ensure that the sampling rate is sufficiently high.			
Measuring principle	Inductive sensor	Diffuse sensor, laser red light	Contrast sensor	Diffuse sensor, LED blue light
Target	All metals	Material-independent	Material-independent	Material-independent
Range	≤ 8 mm	≤ 250 mm	≤ 250 mm	≤ 200 mm
Measuring rate	2000 Hz	1000 Hz	4000 Hz	700 Hz

CONNECTIVITY FOR  
RPM INPUT

	BCC0K6M	BCC0K6N	BCC0K6P	BCC0K6R
Use	The binary switching signal, which corresponds to the current rotational speed, can be transmitted directly to the condition monitoring sensor via Y-connector.			
Connection 1	M12 male, straight, 3-pin, A-coded	M12 male, straight, 3-pin, A-coded	M12 male, straight, 3-pin, A-coded	M12 male, straight, 3-pin, A-coded
Connection 2	M12 female, straight, 5-pin, A-coded	M12 female, straight, 5-pin, A-coded	M12 female, straight, 5-pin, A-coded	M12 female, straight, 5-pin, A-coded
Connection 3	M12 female, straight, 5-pin, A-coded	M12 female, straight, 5-pin, A-coded	M12 female, straight, 5-pin, A-coded	M12 female, straight, 5-pin, A-coded
Cable	0.3 m and 0.6 m, PUR black, drag chain compatible	0.3 m and 1 m, PUR black, drag chain compatible	0.6 m and 1 m, PUR black, drag chain compatible	1 m and 2 m, PUR black, drag chain compatible