

Short description

# Bearing Clearance Monitoring



## Slewing bearings: smart, digital, precise

Because there is no time for downtime, Liebherr developed an integrated wear measurement system for slewing bearings (Bearing Clearance Monitoring, BCM). **Safety, reduced downtime and cost efficiency** are the most important factors here, which you optimise by digitally diagnosing the wear condition of your bearings. Benefit from Liebherr's digitalised measurement and save up to **75 % of the costs per measurement**.



**Safe measurement:** the measuring devices are integrated into the bearing of your application. Therefore the service technicians will not have to mount dial gauges or other measuring devices directly onto the slewing bearing in dangerous areas under the excavator or other machines.



**Fast measurement:** our solution decreases the downtime of your application about 75 % during wear measurement due to the permanent installed measuring devices as well as the ease to use the measurement solution.



**Cost-effective measurement:** Up to 75 % cost savings with digitised measurement system and individual payment models. Whereas with the manual measurement method, downtime and costs increase proportionally with each measurement.

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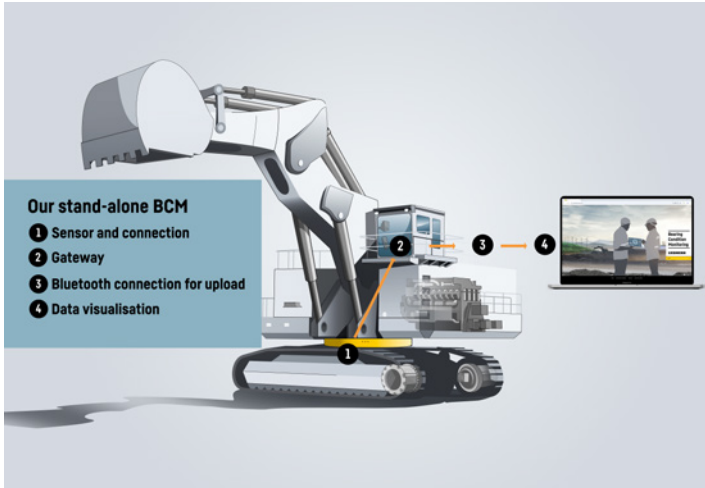
# Short description

# BCM: stand-alone solution

Liebherr developed two solutions to measure the bearing clearance digitally. Our stand-alone solution is a turnkey solution that is self-contained. **Sensors, gateway and data visualisation** come from a **single source**. With the specially developed **web application**, the user is simply guided through the measurement. Past measurements can also be analysed and compared in order to evaluate further measures.

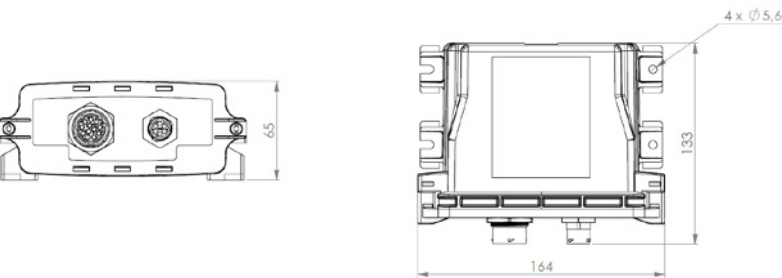
## This is how it works

- 1. The sensor connection box** receives data from the sensors. It supplies the system with power (24 V DC) and is installed in the under or upper carriage.
- 2. Gateway:** All data is stored in the gateway which is mounted in the upper carriage.
- 3. Updates are possible via Bluetooth:** You can manage the wear status of your complete fleet via the same application on your selected device.
- 4. The digital solution** guides users through the measurement process. The data can be demanded and down-loaded through the solution.



## Technical data

### Gateway box



#### Power supply

Supply voltage	16..32 V DC
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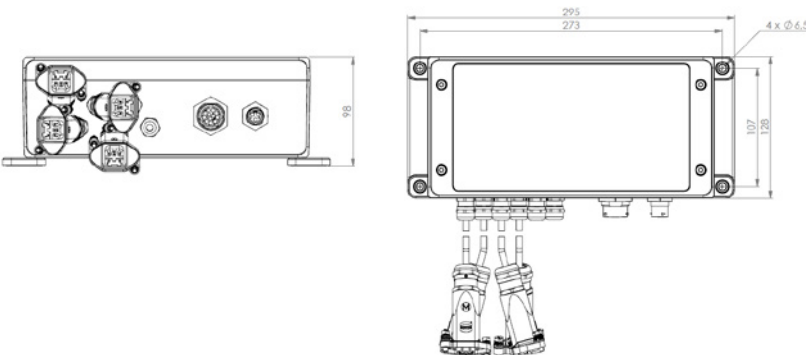
#### Dimensions

Gateway	164 × 133 × 65 mm
Mounting holes	4 × through hole for M5
Weight	0,410 kg

#### Interfaces

Bluetooth	Specifications
Standard	5.0, internal antenna
Data rates	2 Mbps, 1 Mbps, 500 Kbps, 125 Kbps

### Sensor connection box



#### Power supply

Supply voltage	16..36 V DC (connection to machine power supply), internal fuse: 0,5 AT, 5 × 20 mm
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#### Dimensions

Sensor Connection Box	295 × 128 × 98 mm
Mounting holes	4 × Ø 6,5 mm
Weight	4,650 kg

## Short description

# BCM: software integrated solution

The bearing clearance monitoring upgrade with the use of MIB (machine integrated block) allows a seamless integration into **your control system**. All the measurement data taken from the integrated sensors of the slewing bearing go directly into your own control system. This allows an **easy integration into the system landscape** and therefore **no separate devices or measuring equipment** are needed.

## This is how it works

1. The **sensor connection** box receives data from the sensor. It supplies the system with power (24 V DC).
2. We provide a **specially developed and protected code** to translate the measurement data.
3. Your **control system** will then use the code to **visualise the measurement data**.
4. You can use your **own logic and interface** to integrate the measurement data.



## The advantages



**Fully compatible:** seamless integration into the control system of your machine



**Your system:** you can use your own logic and interface to integrate the measurement data with our specifically developed and protected code into your system



**Component reduction:** no additional gateway is required or necessary, leading to less system complexity due to the software integrated BCM



**Reliability:** module protection ensures security, functionality, and integrity. This guarantees a high level of performance and dependability



**Application range:** our software integrated BCM offers versatile application possibilities and seamless integration into various designs



**Know-how:** as an experienced component supplier, we offer a proven solution for accurately measuring wear

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