

# Bühler Condition Monitor BCM-LS

## Continuous condition and liquid level monitor for lubricating and hydraulic oils

Continuously monitoring condition and liquid level of the respective fluid in hydraulic and lubricating systems is essential. Failing to continuously monitor the condition can result in considerable system damage.

The Bühler condition monitoring liquid level sensor (BCM-LS) was designed specifically to continuously monitor the relative humidity, temperature, permittivity, conductivity and liquid level in oil tanks. By continuously monitoring the fluid, sudden and subtle level changes, deterioration or changes in oil quality can be accurately detected and the oil change intervals extended or planned accurately. Maintenance costs can be reduced significantly. This makes the Bühler condition monitoring liquid level sensor an essential part of your condition monitoring system.

The BCM-LS capacitively measures the relative humidity in the medium to ensure reliable information about the saturation level of the oil.

The conductivity and permittivity can be used to obtain substantiated information about oil ageing, replenishment and mixing with other oils or foreign objects. Since conductivity as well as permittivity are greatly affected by the temperature, the actual temperature is always determined as well.

The additional liquid level measurement function makes the BCM-LS an comprehensive multifunctional sensor.

### BCM-LS200

4-20 mA and CAN bus

High pressure resistance of up to 50 bar

Continuously logs relative humidity, temperature, conductivity, permittivity and liquid level

Compact, tough housing also suitable for demanding applications

Easy system connection directly inside the tank

Evaluates and saves actual data

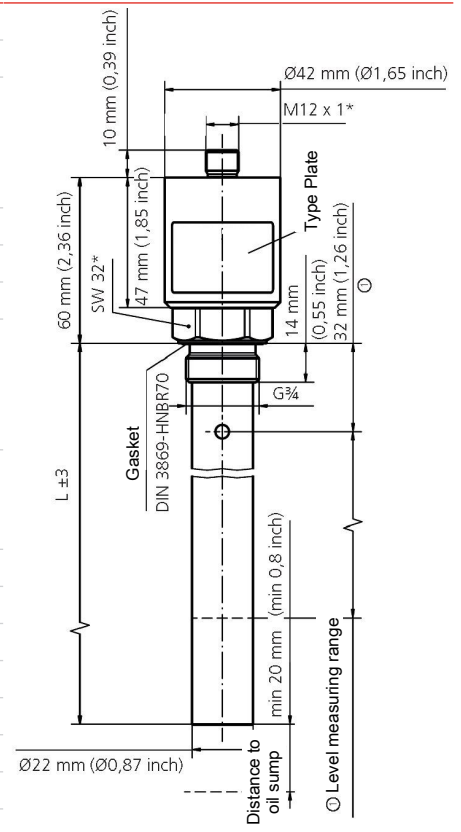
Multifunction sensor




BCM-LS Technical Data

| BCM-LS200-1DC2A/xxx                  | 1DC2A  |
|--------------------------------------|--|
| Version:                             | Compact unit   |
| Process connection:                  | G3/4   |
| Material in contact with media:      | aluminium, HNBR, polyurethane resin, epoxy resin, electroless nickel immersion gold (ENIG), solder, aluminium oxide, glass, gold, silver palladium                   |
| Medium temperature:                  | -20 °C to +85 °C   |
| Ambient temperature:                 | -20 °C to +85 °C   |
| Pressure resistance:                 | 50 bar   |
| Compatible fluids:                   | mineral oils (H, HL, HLP, HLPD, HVLP), synthetic esters (HETG, HEPG, HEES, HEPR), polyalkylene glycol (PAG), zinc- and ash-free oils (ZAF), poly-alpha-olefins (PAO) |
| Weight:                              | 170 g for 200 mm version<br>210 g for 375 mm version<br>250 g for 615 mm version   |
| Operating voltage (U <sub>B</sub> ): | 9 – 33 V DC  |
| Power input:                         | max. 0.2 A   |
| <b>Measuring range</b>               |  |
| Temperature:                         | -20 °C...85 °C   |
| Rel. humidity:                       | 0...100 %  |
| Rel. permittivity:                   | 1...7  |
| Conductivity:                        | 100...800,000 pS/m   |
| Liquid Level                         | 115 mm for 200 mm version<br>288 mm for 375 mm version<br>515 mm for 615 mm version<br>see scale drawing   |
| <b>Measuring accuracy</b>            |  |
| Temperature:                         | ±2 K   |
| Rel. humidity:                       | ±3 %   |
| Rel. permittivity:                   | ±0.015   |
| Conductivity (100...2,000 pS/m):     | ±200 pS/m  |
| Conductivity (2,000...800,000 pS/m): | <±10 %   |
| Liquid Level                         | <±5 %  |
| 1DC output:                          | RS232/CANopen/SAE J1939  |
| 2A output:                           | 2x 4-20 mA (assigned to one measurand or sequential output of all values)  |

Dimensions



**Standard pin assignment**

| Plug connection                        | M12 (base)  |
|--|---|
| Number of pins                         | 8-pin   |
| Voltage                                | max. 33 V DC  |
| IP rating with IP67 cable box attached | IP67  |
| Version                                | 1DC2A   |
| Connection schematic                   |  |
| 1                                      | L+  |
| 2                                      | L-  |
| 3                                      | TxD, CAN low [OUT]  |
| 4                                      | RxD, CAN high [IN]  |
| 5                                      | -   |
| 6                                      | Analog output, 4...20 mA  |
| 7                                      | Analog output, 4...20 mA  |
| 8                                      | Signal earth  |
| Shield                                 | -   |

**BCM-LS model key**
**BCM - LS200 - 1DC2A / xxx**

|                           |  |                |                      |
|---------------------------|--|----------------|----------------------|
| <b>Type designation</b>   |  | <b>Length</b>  |                      |
| BCM                       | Bühler Condition Monitor                   | 200 mm         |                      |
| L                         | Multisensor incl. liquid level measurement | 375 mm         |                      |
| S                         | Sensor                                     | 615 mm         |                      |
| <b>Process connection</b> |  | <b>Outputs</b> |                      |
| 0                         | G3/4"                                      | 1DC2A          | 1x CANopen/2x analog |

| Item no.   | Model               |
|------------|---------------------|
| 1550002200 | BCM-LS200-1DC2A/200 |
| 1550002375 | BCM-LS200-1DC2A/375 |
| 1550002615 | BCM-LS200-1DC2A/615 |

**Accessories BCM-LS**

| Item no.   | Description       |
|------------|-------------------|
| 1590001001 | RS232 data cable  |
| 1590001002 | USB/RS232 adapter |
| 1590001003 | Power supply      |