

PRELIMINARY PRODUCT INFORMATION



QCRB001D PRODUCT FEATURES

- Fluid quality & fluid property measurement by EBE's patented corTEC® sensor technology
- Allow measurement of capacitive and conductive values
- Suitable for special hygienic, rugged or miniature enclosures
- Excellent sensitivity and repeatability even with media of the lowest dielectric constants (even $\epsilon_r < 2$)
- corTEC® sensors offer periodic autocalibration during operation and are immune to almost any interference and artifacts
- Easy communication with I²C, various option on request

Custom Features includes¹

- High electromagnetic compatibility for different industries
- Indication of different states through multi-colour LED's
- Switching point adjustment / teaching capabilities

FLUID QUALITY MEASUREMENT

QCRB sensors from EBE allow in real time both capacitive and conductive (through resistive readings) measurement of gases, liquids, solids and even highly viscous media. This enables detailed analysis of the media and a degree of selectivity of the media usually requiring at least 2 separate measuring instruments. corTEC® capacitive measurement ranges from 0.1pF to 80pF. Therefore detection of media in a relative permittivity (ϵ_r) range of vacuum (=1) through oils and solids (typ. <5) all the way to water (80 and higher) is readily available. The conductance measurement range is from 0,04 to 100mS (10 to 25.000 Ω) which converts to a conductivity range, depending on OEM-housings, to about 0,1mS/cm to 200mS/cm. Other ranges on request.

¹ Incorporating such feature(s) is part of custom specific projects

PRODUCT DESCRIPTION

The QCRB001D standard electronics is designed to allow easy integration in OEM and various industry measurement devices. I²C and other outputs allow for easy communication due to its simplicity and flexibility. The slim design caters to various OEM housing needs, fitting into compact spaces. EBE's corTEC[®] measurement technology can detect a vast range of materials like powders, solids, oils, water based liquids, and high viscosity substances even with the lowest dielectric constants of $\epsilon_r < 2$. The advanced electronics perform automatic calibration during operation, ensuring precise and efficient functionality over long periods of time. The QCRB001D electronics are REACH/RoHS compliant (EU). For UL compliance please contact EBE.

Customizations

EBE customizes sensors according to the specific requirements and characteristics of the customer's application. The corTEC[®]'s measurement technology enables precise adaptation to confined spaces and difficult conditions. EBE's engineers support plug and play integration into custom sensor housings.

Sensor Evaluation Kit – Quick Introduction to Applications

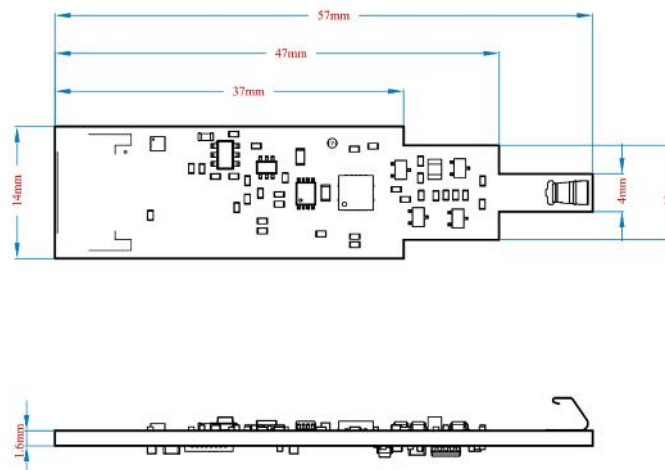
EBE offers sensor evaluation kits for immediate readiness for use. The data is transmitted via adapter box to the PC. This allows customers to test the performance of the sensors in their own applications. The download link for the associated EBE Sensor Control Software can be found at <https://www.ebe.de/download-center/>.

QCRB001D PRODUCT SPECIFICATIONS

DIMENSION	see outline drawing
MEASUREMENT TYPE	corTEC [®]
CAPACITIVE RANGE	0.1 – 80 pF
RESOLUTION CAPACITIVE OUTPUT²	typ. <0.1 pF
CONDUCTANCE / CONDUCTIVITY RANGE²	0,04 – 100 mS / typ. 0,1 – 200 mS/cm
RESOLUTION CONDUCTANCE OUTPUT²	typ. 0,1 mS
ELECTRICAL CONNECTION	soldering pads
POWER SUPPLY	5 VDC, 40 mA max.
OUTPUT	I ² C (switching outputs, IO-Link etc. on request)
OPERATING TEMPERATURE RANGE	-25 °C to +85 °C (extended range on request)
STORAGE TEMPERATURE	-40 °C to +85 °C
HUMIDITY	0- 95% r.H., non-condensing

² Conductivity range (mS/cm) as well as resolution and accuracy of both outputs is influenced by customer housing and application. Conductance/conductivity measures are increasingly inaccurate when getting close to range limits. Sensor directly measures capacitance and resistance with output in digits.

OUTLINE DRAWING



APPLICATION EXAMPLES

Please refer to the Design Guide for integration into housings and further electronics.

QCRB sensors can be used in a variety of fluid property detection applications, e.g.

Concentration measurement: saline solutions with different concentrations will provide all a rather similar capacitive value while EBE's fluid quality sensor will still provide selectivity means through different resistive values (due to different conductivity) which allows determining the differences in concentration.

Air detection in (ultrapure) water: the relative permittivity (ϵ_r) of air is close to 1 while liquid media containing water will always be in a double digit range of ϵ_r . The difference of air to (ultrapure) water is easily detected by capacitive measurements (while both air and ultrapure water are known isolators with very small conductivities of less than $0.1\mu\text{S}/\text{cm}$).

DISCLAIMER

Preliminary Product Information – please refer only to final product specifications

The information contained in this document is for general guidance only. The user is responsible for determining the suitability of the technical information referred to herein for his application. On delivery of the component, EBE is only obliged to implement those properties set out and agreed upon in this technical data sheet. Further properties are not included. No guarantee is given. The component has been designed for installation in our customer's products. Manufacturer of the resulting product and consequent liability according to the Product Liability Act lies with the customer.