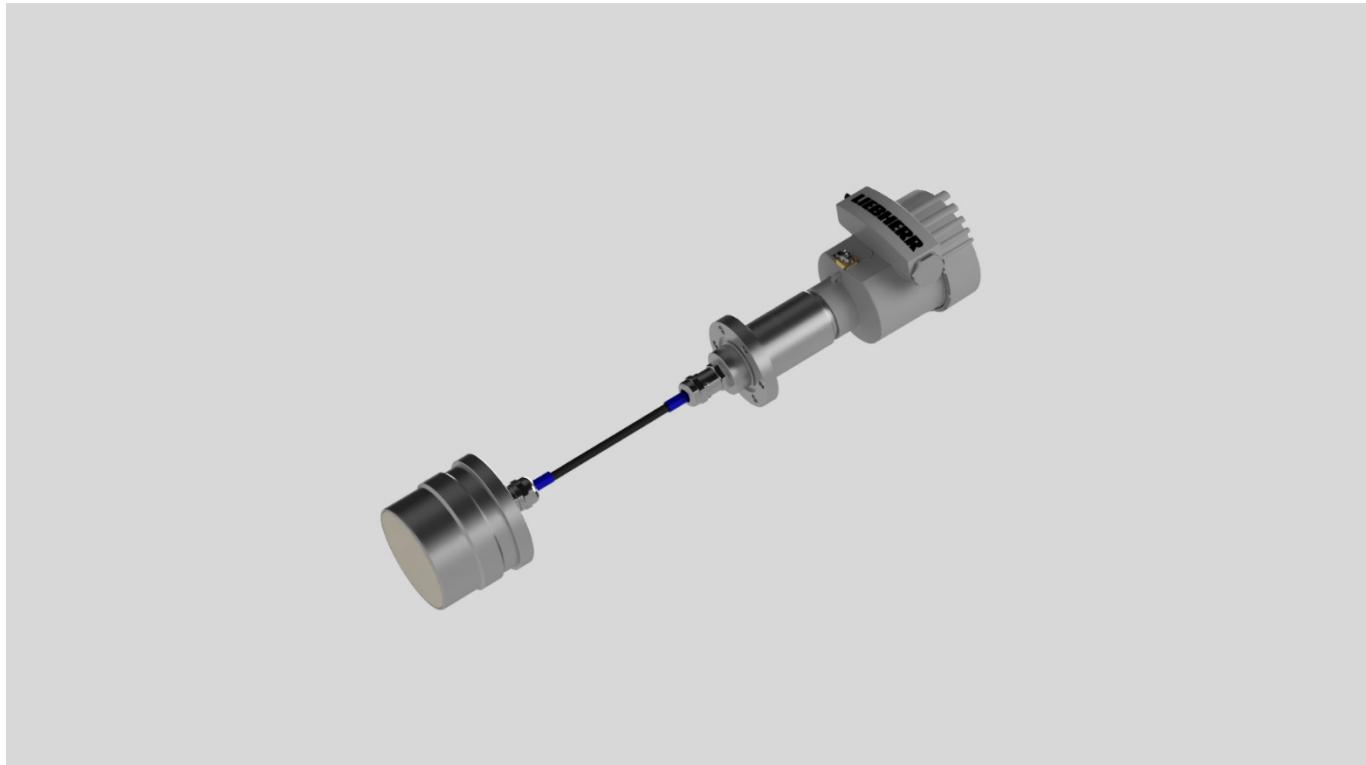


Technical data

Litronic WMS II

planar sensor P78-GD



planar sensor P78-GD

Features

- Evaluation of the complex dielectric in the high frequency stray field.
- Freely scalable measuring range.
- Material curve switching.
- Sensor replacement without recalibration.
- Temperature compensation.
- Integrated microprocessor with mean value calculation.
- Limit value analysis.
- Digital measuring value transmission.
- Medium contacted parts 1.4571 (optional 2.4819) and zirkon oxid ceramic ($ZrO_2Al_2O_5$).
- Electronics integrated in transmitter head.
- Transmitter head multiprotocol: 4-20 mA, HART.
- External display in separate housing (accessories).

Technical data planar sensor P78-GD

| | |
|--|--|
| Physical principle | Capacitance determination in the high-frequency stray field |
| Sensor location | Chute, belts, silo outlet, tank, etc |
| Measuring range | 0 bis 100 % moisture content |
| Number of stray fields | 1 |
| Frequency | 22 MHz |
| Capacitance resolution | $100 \cdot 10^{-18}$ F |
| Cycle of up-date | 65,535 ms |
| Sampling rate | $16 \cdot 10^6$ to $25 \cdot 10^6$ |
| Measuring precision maximally | $\pm 0,05$ % with correct material curve |
| Measuring precision measurement of temperature | $\pm 0,5$ °C |
| Measured value transmission – Sensor-display unit | Current loop with 4...20 mA for external display (option) |
| Measured value transmission – Sensor-PLC or central computer | Analog: 4...20 mA aktive at 500 Ohm digital: Hart Modem |
| Valid measurement | 3,75 mA to 21,6 mA (NAMUR) |
| Error display | <3,6 mA to >22 mA (NAMUR) |
| Signal resolution interface | 16 bit |
| Max. length of connection cable | 1000 m (cable type dependent) |
| Connection | 24 V DC, 150 mA |
| Medium temperature | -5 °C* to 80 °C (Standard) |
| Ambient temperature sensor head | 5 °C to 80 °C |
| Ambient temperature transmitter head | 5 °C to 70 °C |
| Storage temperature | -25 °C to 80 °C |
| Pressure | Use with screwing flange: -1 bar to 1 bar Use with welding flange: -1 bar to 80 bar |
| Protection class transmitter head | IP 65 |
| Material housing | 1.4571 (optional 2.4819) |
| Material transmitter head | Die-cast aluminium |
| Housing transmitter head W/H/D | 88 mm / 160 mm / 143 mm |
| Material measuring field/wear protection | Ceramics ZrO ₂ Al ₂ O ₅ |
| Measuring field position | front |
| Sensor diameter | 78 mm |
| Cable length between sensor and transmitter head | 10 m |

Accuracy

The measuring range could be adjusted to the requirements of the user from 0 to 100 % in 1 % steps.
The resolution in crude oil is approx. at 40 parts for 1 % water content.

| Measuring range | Resolution | Accuracy |
|-----------------|------------|------------|
| 0-1 % | 0,025 % | +/- 0,05 % |
| 1-10 % | 0,025 % | +/- 0,10 % |
| 10-65 % | 0,025 % | +/- 0,50 % |
| 65-90 % | 0,025 % | +/- 2,00 % |

Remark

A precondition for exact und reproducible results is a well-mixed emulsion
with a constant consistence.

Certificates

ATEX:

EU-type examination certificate number: EPS 21 ATEX 1 140 X

DIN EN IEC 60079-0:2018, 60079-1:2014, EN 60079-11:2012, EN 60079-26:2015, EN 60079-31:2014

Gas EX-protection:

II 1/2 G Ex db/ia IIC T4 Ga/Gb

Dust EX-protection:

II 1/2 D Ex tb/ia IIIC T135°C Da/Db

IECEx:

Certificate number: IECEx EPS 21.0047X

IEC 60079-0:2017 Edition: 7.0, IEC 60079-1:2014-06 Edition: 7.0, IEC 60079-11:2011 Edition: 6.0

IEC 60079-26:2014-10 Edition: 3.0, IEC 60079-31:2013 Edition: 2

Gas EX-protection:

Ex db/ia IIC T4 Ga/Gb

Dust EX-protection:

Ex tb/ia IIIC T135°C Da/Db

Further remarks

- The welding process connector for integration in pipe must be provided on site, following the specifications of Liebherr.
- For the water in oil measurement, a factory basic calibration will be done
- A precise technical clarification is absolutely necessary
- The Liebherr address, the Liebherr Logo, as the manufacturer / distributor must always be read in full, so it is not allowed to paste or cover it.

Observe special conditions of use

- For the power supply of the sensor use only a power supply for the relevant device category.
- The cable can only be installed movable if the ambient temperature around is between 5 °C and 70 °C.
- If the cable has to be connected within the potentially explosive area, the cable must have a minimum protection class of IP-6x or another accepted type of protection for that area.
- The allowed sensor head ambient temperature in process is between 5 °C to 80 °C.
- The allowed transmitter head ambient temperature in process is between 5 °C to 70 °C.

Litronic WMS PC-SOFTWARE WIO

For commissioning and service of Litronic WMS II sensors.

Features:

- Operation with standard HART modem and PC (MS-Windows 10).
- Parameterization of the sensors.
- Diagnostic function with display of measuring parts, water content, media Temperature.
- Input of media-specific curves (linear or polynomial up to 3rd order) and offset.
- Curve switching measurement and data recording in file (for import into Microsoft Excel).

Default language of the software and the online help is German and English.

Note: Translation into the local languages are possible.

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