

## Digital Moisture Measuring System

# DMMS



Based on long-term practical experiences the moisture measuring sensors are made for the toughest operations and industrial applications. DMMS is especially **suitable for challenging applications**. Up to 16 sensors are able to communicate digitally with a central evaluation unit.

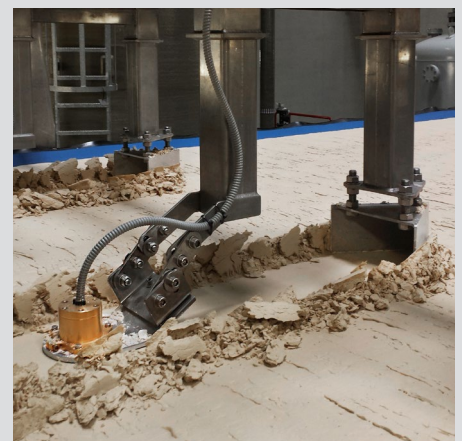
Wiring becomes easy by using bus-technology. That makes it simple to upgrade the measuring points. The bus-system can manage a max. length of 1.200 meter which allows you to cover even spacious estates. The calibration is made on-line within the process, so after the sensor has already been installed.

### Overview of features

- Measuring of material moisture in real-time
- Continuous or batch operation
- Calibration within the process
- Up to 16 sensors per central evaluation unit
- Possibility of several calibration curves per sensor

As a result the influences caused by the assembly situation can be immediately detected and compensated. The kind of measurement can be chosen for each sensor between continuous and batch operation (via start and stop signal). It's also possible to switch the material curves for each sensor (up to 16 different material curves per sensor). The transfer of the measuring values can be done digitally by Profibus DP or by analogue output (e.g. 4...20mA, 0...10V). If the sensor has to be replaced the calibration curves can be completely adopted - there's no additional effort.

In almost every kind of bulk material a precise determination of the moisture can be done, e.g. sand, minerals, clay, grain, food stuff, saw dust, ores, sewage sludge and so on.



## DATA SHEET

### Technical details

#### DMMS sensor

Physical measuring principle	Capacitive (determination with high-frequency leakage field, 16...22 MHz)
Measuring range	Moisture: 0...100 %, Temperature: - 20...120 °C (both ranges adjustable)
Accuracy	+/- 0,1 % moisture (depending on material/sensor installation place)
Mode	Continuous or batch measuring
Ambient / material temperature	4...80 °C
Temperature compensation	of sensor electronic and material
Measuring depth	ca. 150 mm (depending on material/compaction)
Sensor dimensions	Ø = 76 mm / H = 70 mm
Materials housing / wear protection	Stainless steel (1.4301), ceramic (ZrO <sub>2</sub> Al <sub>2</sub> O <sub>3</sub> )
Protection class	IP68
Sensor mounting	Clamp flange (variable installation depth)
Power supply	24 V DC / 0,4 VA (per sensor)
Sensor cable	LiYD11Y 6x0.14 mm <sup>2</sup> , shielded, 6m long

#### DIGISYS evaluation unit

Output	Profibus DP or optional analogue standard signal (e.g. 4...20 mA)
max. number of sensors	16
Sensor communication	Sensor bus RS485
max. cable length	400 m, resp. 1.200 m
Bus cable	2x2x0.25 mm <sup>2</sup> , shielded twisted pair cable
Bus-connection-box	IP66, aluminum housing (voltage supply, bus- connection and addressing for up to 2 sensors)
Requirements for calibration software	WIN 95 / 98 / ME / 2000 / XP / Vista / 7 / 8 / 10 + USB, RS232 or LAN connection

#### Versions / Options

- Certification for explosion-risk area, ex zone 22  
(II 3D Ex tD A22 IP6X T85°C Dc)
- Sensor with extended temperature range, up to 100°C
- Sensor for measurement in silo
- Sensor for measurement mixer
- Sensor housing made of acid proof stainless steel  
(1.4462)
- Digital inputs and outputs

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