

PRODUCT INFORMATION

Moisture measurement system
Moisture measurement sensors
Installation kits



EXPERTS FOR MOISTURE MEASUREMENT

All materials contain moisture.

Knowing their moisture content is key to optimizing production, storage and quality. ACO sensors provide real-time measurements across a wide range of materials, enabling greater efficiency and control.



www.acoweb.de

Moisture measurement in the field

The installation site plays a critical role in measurement accuracy. It has a direct impact on the quality of the results. Benefit from our years of experience to ensure optimal setup and performance.



Analogue and digital measurement systems for any location of use

The three sensor families DMMS, BMMS and MMS form the core of our products. Many measurements are only possible with a suitable installation kit. We also offer products for laboratory measurement and handheld measuring devices.

Complex case? We specialise in special solutions. Our highly qualified and flexible development team will translate your requirements into practical, application-oriented solutions.

MEASURING PRINCIPLE

All ACO sensors use the capacitive measurement principle. They are mostly used for continuous measurement, as they can determine the residual moisture in real time. The sensor measuring surface is in direct contact with the material, enabling precise measurements.

SENSORS

The ACO sensors are made of high-quality stainless steel and are very robust. They are easy to maintain and universally applicable. This makes them very economical. We offer variants for different applications. An intensive and detailed consultation is also included in the scope of delivery.

OUTPUT SIGNAL

Depending on the ACO moisture measuring sensor and system, digital interfaces such as Profibus DP or Profinet are available in addition to analogue output signals. This means that the sensors are fully compatible with all new and existing plant control systems (PLC).

DMMS Moisture measuring system

The DMMS moisture measuring system by ACO combines great flexibility, easy installation and high comfort.

PROPERTIES

- Up to 16 sensors per evaluation unit
- Temperature range of measuring material: 4...80 °C
- Material switching per sensor (16 material curves)
- Continuous or batch measurement
- Measured value transfer: Profibus DP, optional: Profinet or analogue standard signal (e.g. 4...20mA)

VERSIONS

- Approved for use in potentially explosive atmosphere (ATEX Zone 21 or 22)
- Sensor extended temperature range, up to 100°C
- Sensor for measurement in silos
- Sensor for measurement in mixers
- Sensor housing made of acid-resistant stainless steel



DMMS is particularly **suitable for applications with multiple measuring points**, large-scale production facilities or proven digital connections to plant control systems. Up to 16 sensors communicate digitally with a central evaluation unit. Simple cabling using bus technology allows for easy expansion of the measuring points. The maximum length of the bus system is 1200 m, which means that even very extensive facilities can be covered.

Calibration takes place directly in the process, i.e. after the sensor has been installed. This means that all influences resulting from the installation position are automatically detected and directly compensated for during calibration. For each sensor, it can be selected separately whether it determines the residual moisture continuously or in batch mode. Furthermore, material switching per sensor (up to 16 different characteristic curves) is possible. The measured values are transmitted digitally via Profibus DP, optionally via Profinet or via an analogue standard signal. When replacing a sensor, the calibration settings can be transferred 1:1.

BMMS Moisture measuring sensor

The BMMS sensor combines the advantages of in-process calibration and a very compact design with direct measurement transmission.

It is designed for applications where **multi-part systems are not to be used but precise measurement** results are still required. In-process calibration automatically compensates for installation-related influences. Furthermore, the BMMS sensor requires nothing more than a power supply and a display or control system that waits for its measurement signal.

PROPERTIES

- Temperature range of the measuring material: 4...80°C
- Temperature compensation of the sensor electronics
- Multi-point / polynomial calibration
- Direct measurement value transmission from sensor (4...20mA)
- Integrated signal filter
- Continuous or automatic batch measurement
- Convenient, clear calibration software, BMMScontrol
- Sensor 1:1 interchangeable - no recalibration necessary
- Optional analogue signal (4...20mA) for integrated temperature sensor
- Optional material switching (8 material curves)
- Optional digital interface RS485

VERSIONS

- Sensor for measurement in silos
- Sensor for measurement in mixers
- Sensor housing made of acid-resistant stainless steel



MMS Moisture measuring sensor

The MMS from ACO is a proven and **simple moisture sensor for non-critical applications**.

The moisture sensor has an analogue measuring circuit and uses the capacitive measuring principle to accurately define the material moisture. The measured values are transferred to control systems or controllers via standardised analogue signals. The sensor is calibrated outside the process using rotary potentiometers.



VERSIONS

- Integrated temperature sensor (Pt100)
- Various analogue standard signals: 4-20 mA / 0-20 mA / 0-10 V
- Sensor for measurement in mixers
- Teflon or rubber measuring surface

Sensor installation Simple and precise

‘Even the best sensor is useless if it is installed in the wrong position.’ That is the reason why we attach great importance to achieving optimal solutions for the different installation locations and conditions at and with our customers. With our many years of experience and application-oriented ACO installation kits, e.g. sensor slides or compaction units, we are ideally equipped for this.

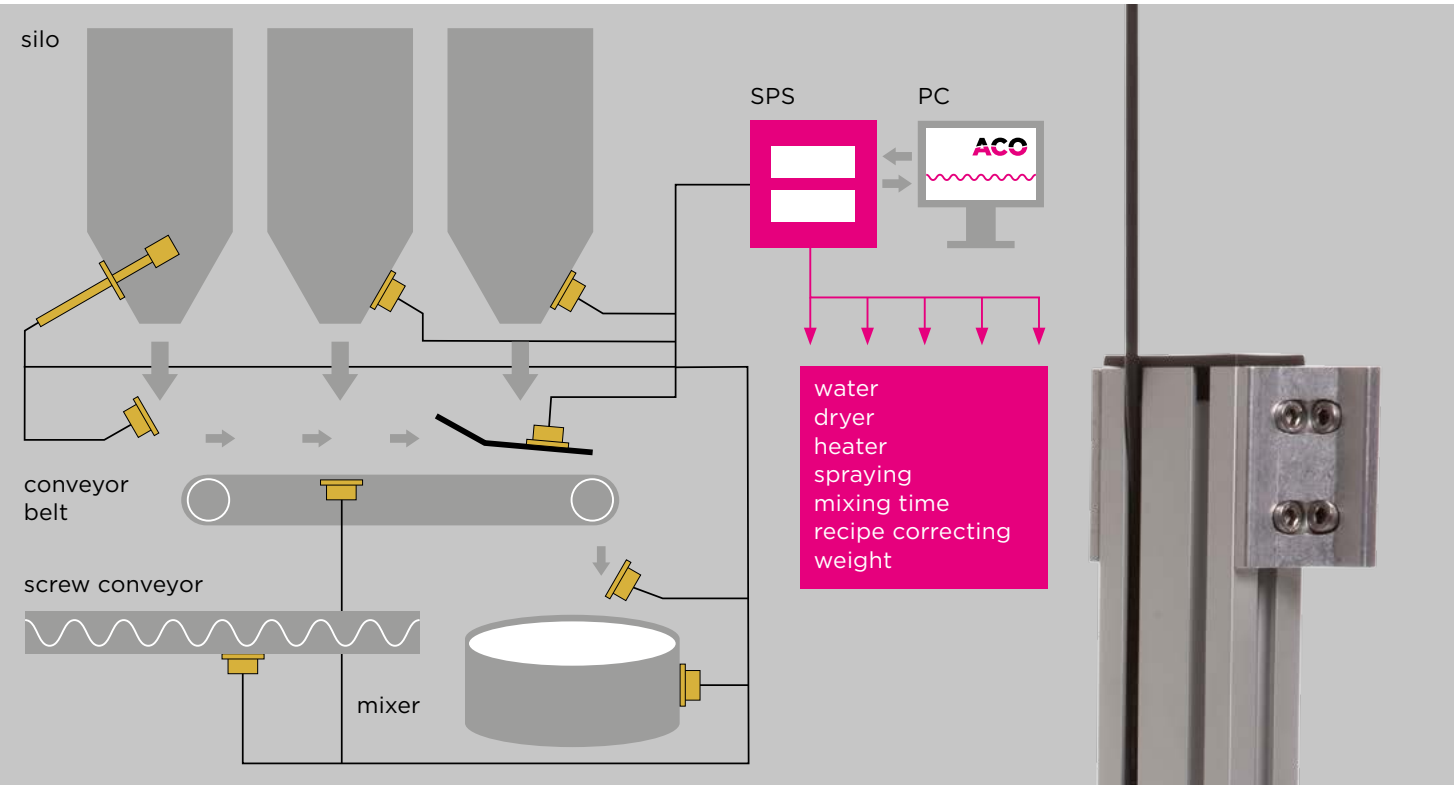


fig.: Feasible mounting positions of moisture measuring sensors



Our universal sensors measure a wide variety of materials and successfully cope with a wide range of operating conditions.

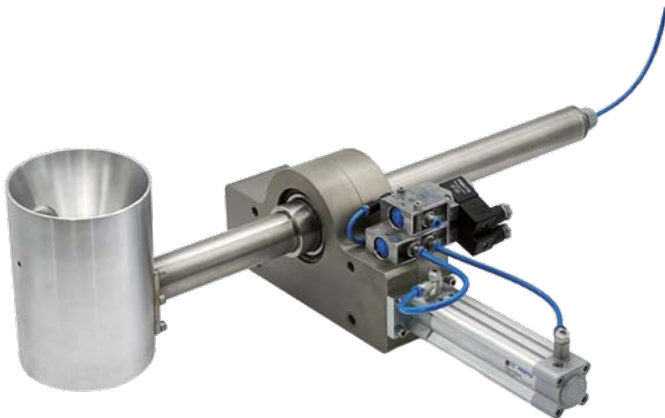


Installation kits The perfect solution

Many measurements are only possible with a suitable installation kit. Our application-oriented installation kits enable the sensor to be implemented effectively.

TFM1 Compaction unit

The TFM1 compaction unit is specially designed for determining the residual moisture content of clay and loam. Its hydraulic cylinder gives the compaction unit sufficient power to perform this task successfully for a long time.



PN1 Sampler

The PN1 sampler is installed in a material chute, e.g. in a drop shaft. Part of the falling material is collected by the sampler's cup. The bottom of this cup is formed by the measuring surface of the integrated ACO moisture measuring sensor.

SFM1_HACK Compaction unit

The compaction unit SFM1_HACK is specially designed to determine the moisture content of even coarse materials in the free fall. The pneumatic cylinder compresses the material and pushes it under constant conditions over the measuring surface of the integrated ACO moisture measuring sensor. The measuring surface is cleaned at the same time.



SFM4 Screw compaction unit

The SFM4 screw compaction unit has to be placed in a free fall situation, e.g. a drop shaft. Part of the material flow from this point is collected by the SFM4 and discharged. This material is conveyed past the integrated ACO moisture measuring sensor under constant and equal conditions (compaction, bulk height, etc.).