

# moisturemeasuring

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**Moisture** measuring systems

**Industrial** components

**Special** solutions

**Sensors**

**Evaluation**

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**ACO**  
**Automation**  
**Components**

# ANALOGUE MOISTURE MEASURING SYSTEM • sensors MMS

**Physical measuring principle:**

High frequency dielectric shift

**Operating voltage:**

24 VDC (9...30 VDC)

**Signal output:**

0/2...10 VDC; 0/4...20 mA  
galvanically isolated

**Protection against:**

wrong polarity, over voltage, short circuit

**Measuring depth into the material:**

up to 150 mm  
(depending on material)

**Moisture measuring range:**

0...100% (free selectable)

**Accuracy:**

+/- 0,1%

**Ambient temperature:**

0... 60° C

**Material temperature:**

> 4° C (no measuring on ice)

**Sensor housing:**

diameter 76 mm, length 70 mm

**Measuring surface:**

ceramic 2 mm, for mixer sensors 10 mm  
circon oxide ceramic ( $ZrO_2Al_2O_3$ ), Teflon

**Installation depth:**

up to 60 mm wall depth;  
Silo sensor: arm length 600 mm

**Housing silo arm:**

stainless steel V4A, polished, galvanized

**Sensor mounting:**

clamping flange or mounting flange (silo)

**Options:**

integrated PT100 temperature probe  
wear out protection probe  
80° C ambient temperature

## Standard sensor MMS-0

for installation in silo walls, at materials chutes, on or under conveyor belts (with **ACO** sensor sleighs), in tubes and screw conveyors.

## Silo sensor MMS-1

for installation inside silos and flow path bins for measuring directly in the material flow.

## Mixer sensor MMS-2

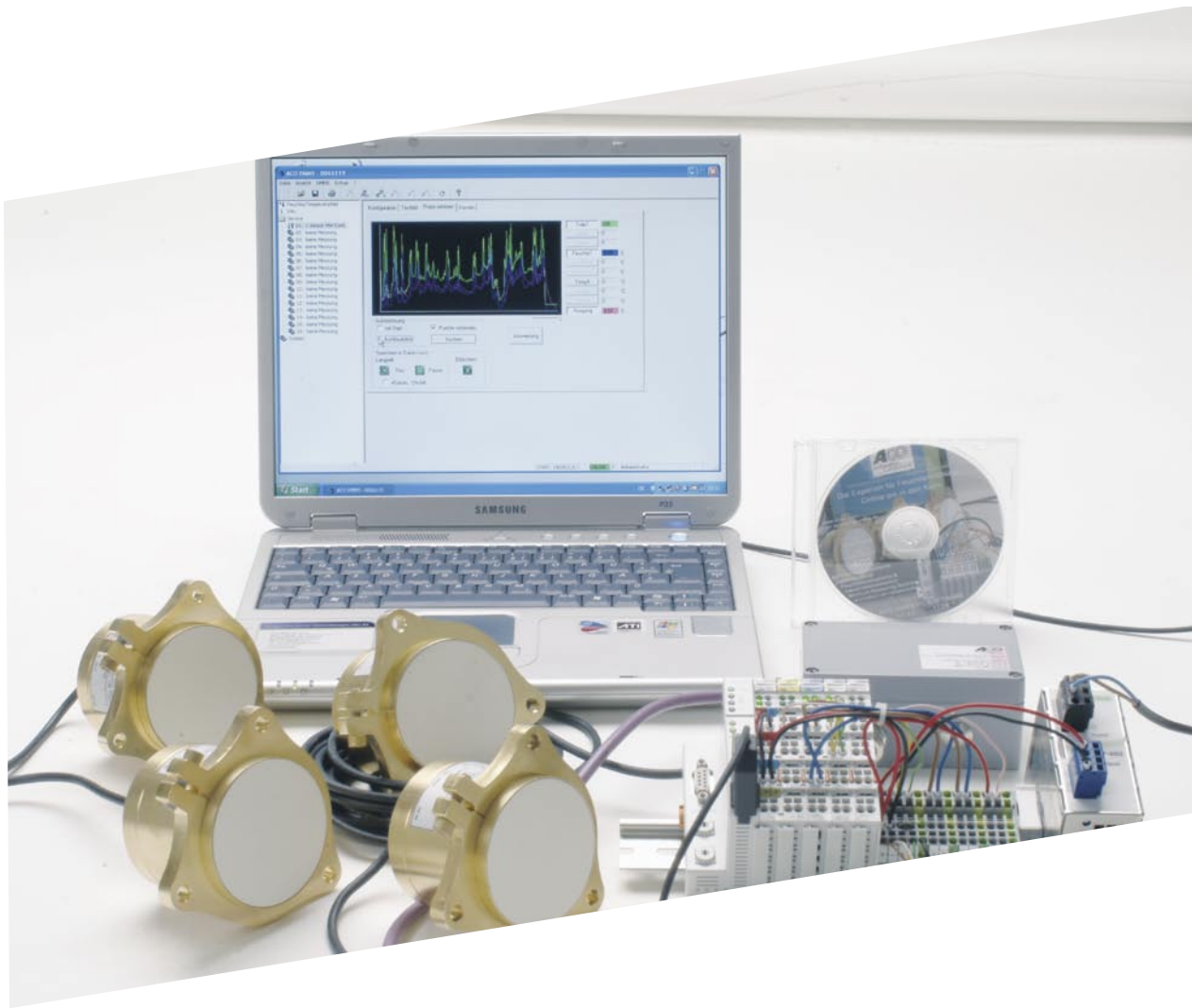
for moisture measuring at installation places with extremely heavy mechanical load on the sensor (e.g. mixers) or for highly abrasive materials (10 mm ceramic disc).

## High temperature sensor MMS-3

for moisture measuring at installation places with very high material temperatures up to 200°C and ambient temperatures up to max. 80°C.



## DIGITAL MOISTURE MEASURING SYSTEM • evaluation and processing device



With the **ACO** evaluation and processing device DIGISYS all preconditions are fulfilled for digital measuring, evaluation and control of material moisture on every step of a production process. Together with the digital sensors DMMS it meets all requirements for precise moisture measuring.

Up to 16 sensors can be connected to the basic element. The modular structure enables any extension.

Parameterisation and calibration are done on a standard PC (Windows) by ACO DMMS software.

On exchange of a sensor no new calibration is necessary. The system is determined for highest operational safety during fully automatic operation as well as on manual operation (changeover at terminal).

For more technical information please ask for our data sheet.

**Automatic operation**

**Channel junction**

**Field bus connection (Profibus DP)**

**Standard signal output**

**Modular structure**

# DIGITAL MOISTURE MEASURING SYSTEM • sensors DMMS

**Physical measuring principle:**

high frequency dielectric shift

**Operating voltage:**

24 VDC (9...30 VDC)

**Protection against:**

wrong polarity, over voltage, short circuit

**Measuring value interface:**

digital: RS485

**Measuring depth into the material:**

up to 150 mm  
(depending on material)

**Temperature measuring range:**

-10° C...90° C  
(integrated temperature probe)

**Moisture measuring range:**

0...100% free selectable

**Accuracy:**

+/- 0,05%  
(under optimum process conditions)

**Operating / Ambient temperature:**

0... 80° C

**Material temperature:**

> 4° C (no measuring on ice)

**Sensor housing:**

Diameter 76 mm, length 70 mm  
mixer sensor 78 mm diameter

**Measuring surface:**

ceramic 2 mm, for mixer sensors 10 mm  
(zircon oxide ceramic ( $ZrO_2Al_2O_3$ )), teflon

**Installation depth:**

up to 60 mm wall depth;  
silo sensor arm length 600 mm

**Housing silo arm:**

stainless steel V4A, polished, galvanized

**Sensor mountig:**

clamping flange or mounting flange (silo)


**Options:**

mixer sensor 10 mm ceramic  
silo sensor 600 mm carrier arm  
100° C increased ambient temperature  
Ex Zone 22 (dust)

## Digital sensor DMMS-0

for installation in silo walls, at materials chutes, on or under conveyor belts (with **ACO** sensor sleighs), in tubes and screw conveyors.

Option:

Zone 22 II 3D ExtD A22 IP6x T85°C 6x 



## Digital silo sensor DMMS-1

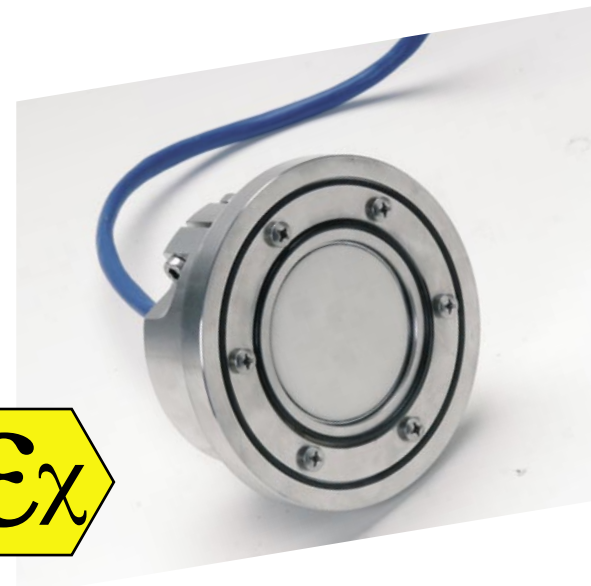
for installation inside silos and flow path bins for measuring directly in the material flow.

## Digital mixer sensor DMMS-2

for moisture measuring at installation places with extremely heavy mechanical load on the sensor (e.g. mixers) or for highly abrasive materials (10 mm ceramic disc).

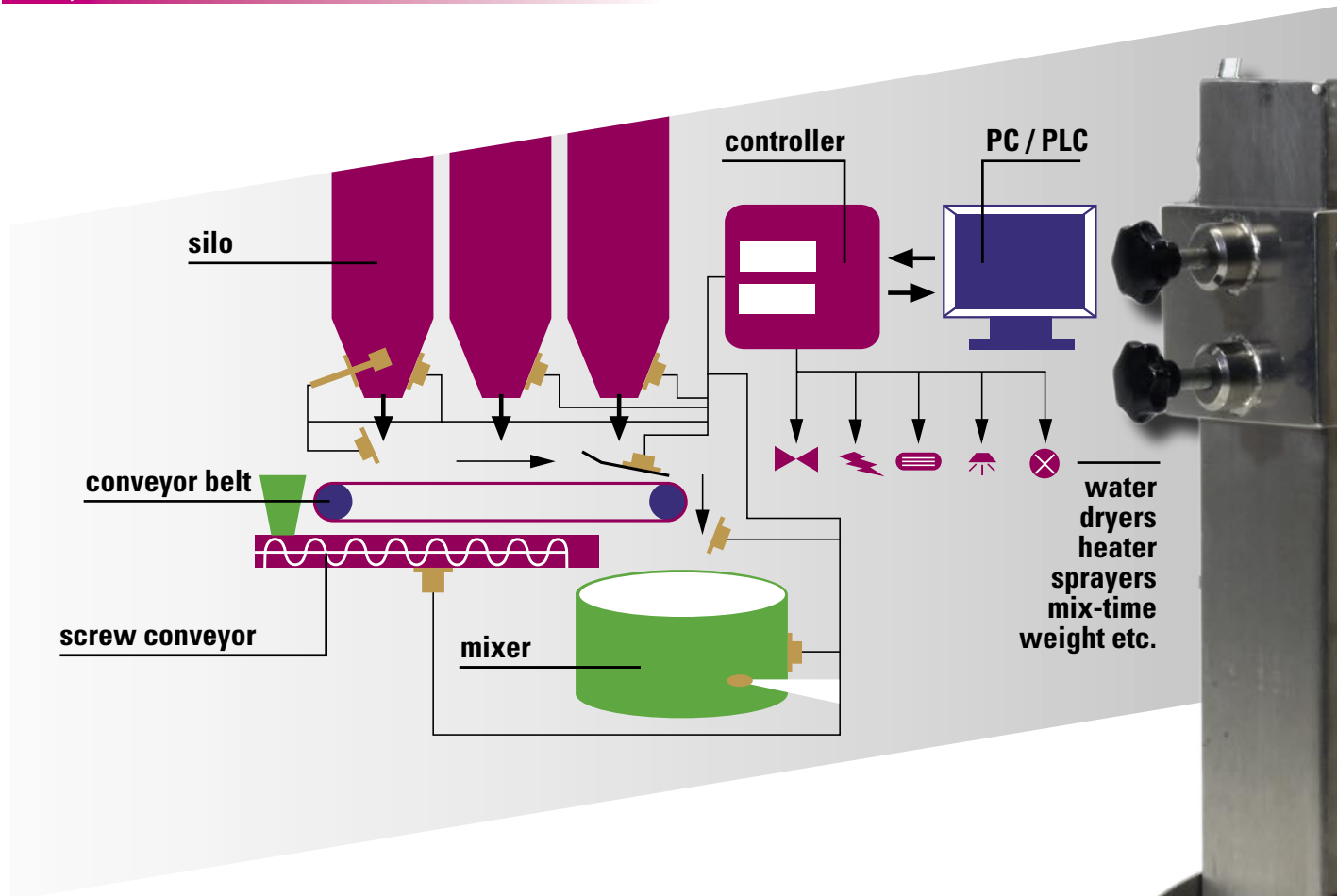
## Planar sensor EX

with approval for  
Ex-Zone 20/21 (dust)  
nach ATEX CE Ex II 1/2D, T 80°C IP6x Eex ia II C  
Ex-Zone 0/1 (gas)  
nach ATEX CE Ex II 1/2G, EEx d ia II C T6



# Sensor installation

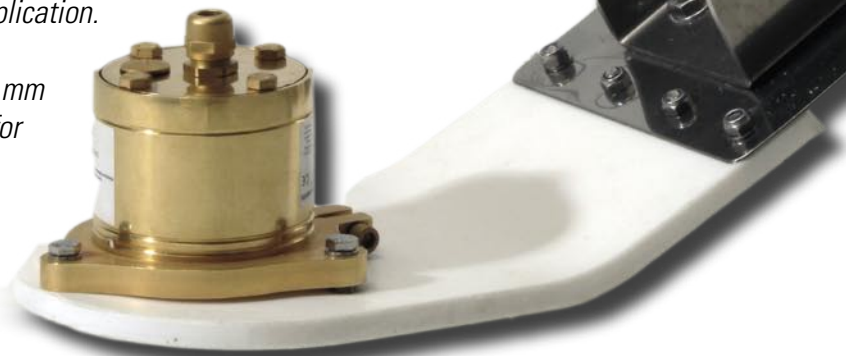
*simple and studied*



Samples for typical installation places of **ACO** moisture sensors are at silo walls, at canted silo outlets, at material chutes, also inside a silo, with a sensor sleigh on or under a conveyor belt, in a screw conveyor, at continuous casting for bricks and tiles, as well as in mixers and before or behind dryers, and many more.

**ACO** presents a solution for nearly every possible installation situation, creating suitable solutions for your application.

For any installation of the **ACO** sensor only a 76 mm diameter hole is needed and three screw holes for 6 mm screw mounting.



# moisture measuring

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*We are  
the experts for moisture measuring.*

*We offer  
creative solutions for all branches.*

*We supply  
tailor-made products of highest quality.*

*The best solution  
is not enough for us!*

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*Feuchtemesssysteme  
und Industriekomponenten*

*Moisture measuring systems  
and industrial components*