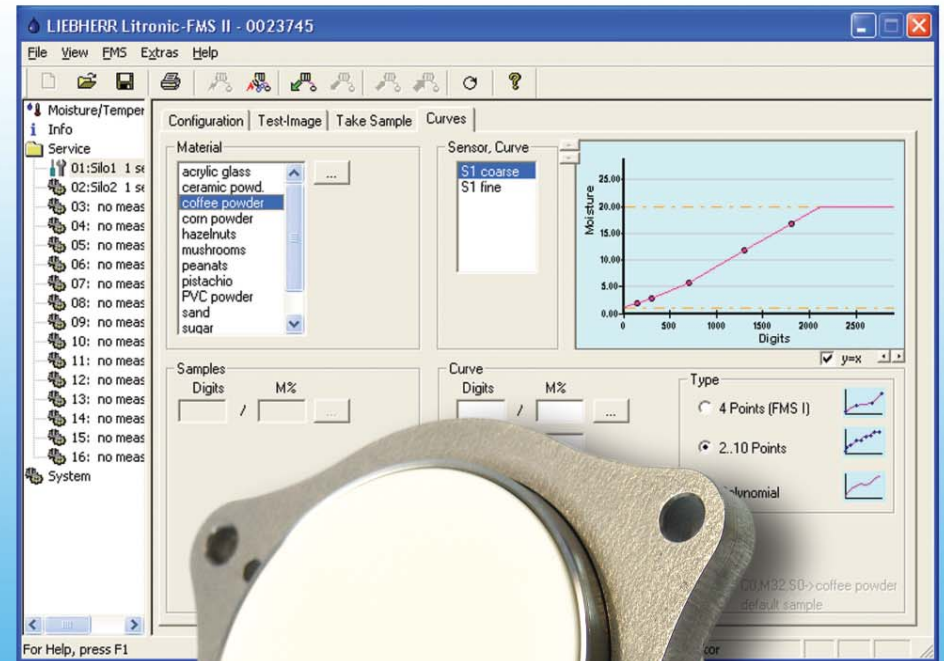


# Litronic-FMS II<sup>®</sup>

## Reliable Moisture Measuring System.



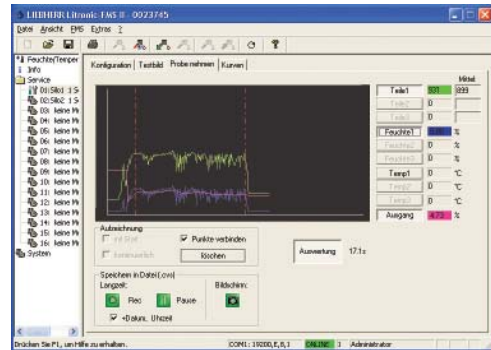
# LIEBHERR

# System Overview.

An autonomous stand-alone-system with a world of possibilities. Highest quality and best results during process are guaranteed by the exact material moisture measurement. The Litronic-FMS II will meet your requirements in every case. A easy-to-use PC software enables a fast and exact calibration.

Features: Modular design, adjustable measuring range, 3 sensitivity levels, channel bundling, material curve change over, sensor replacement without re-calibration, material temperature measuring, zirconium oxide wear protection, suitable for batch and continuous processes.

— = standard — = option



✓  
Parameterisation and visualisation via Litronic-FMS II PC-software

✓  
Parameterisation and visualisation via Litronic-FMS II indication and parameterisation module



Parameterisation via pocket PC



✓ RS232/Ethernet

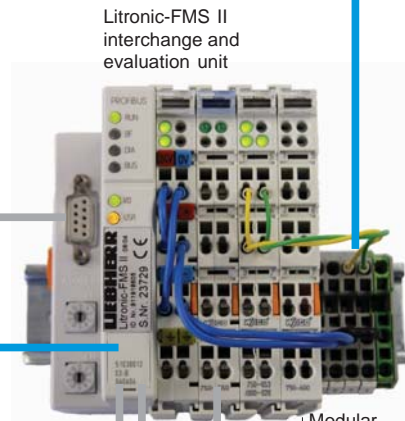


Litronic-FMS II Planar Sensor



Up to 16 sensors

Sensor bus RS 485



Litronic-FMS II interchange and evaluation unit

✓ PROFIBUS DP  
Measurement value transfer material curve change over

RS 232

Modular expandable →

✓ Analogue output  
0-10 V 12 bit or  
0/4-20 mA 12 bit

✓ Digital inputs for start/stop control and material curve change over.

Digital outputs for limit signal.

Ethernet

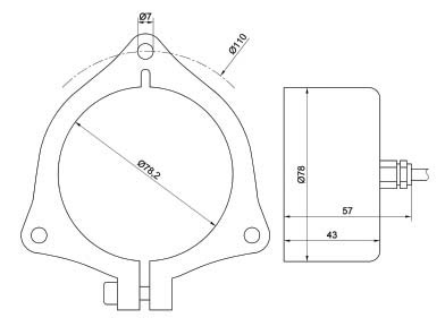
## Technical Data Sensor:

Physical principle:  
Capacity determination with high-frequency-leakage field frequency 0.02 GHz.  
Sensor locations: Silo discharge, outside silo on material chute, on conveyor belt with sliding shoe, pipe, screw conveyor.

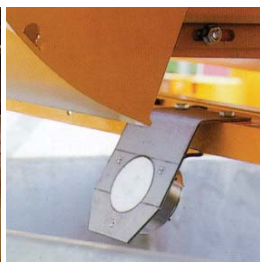
Measuring range: 0% - 100% M  
Capacity resolution: 10-1ff  
Cycle of up-date: 32.64 ms  
Sampling rate:  $16 \times 10^6 - 25 \times 10^6$   
Measuring precision max.:  $\pm 0.05\% M 1.)$   
Measured value transm. digital: RS485, multiprocessor protocol

Max. number of sensors: 16 at bus  
Max. cable length: 1.2 km  
Measuring range of temp.: -10°C - 90°C  
Working - ambient temp.: 5°C - 72°C  
Working temp. electronics: -20°C - 80°C  
Protection class: IP68  
Wearing protection:  $ZrO_2 Al_2O_3$   
Material shell / flange: V4A (1.4404)  
Weight without cable: 500 g

1.) Representative according to the batch or the period of continuous operation with the corresponding evaluator Litronic-FMS II, depending on ideal material, flowability and calibration according to the rules.



Litronic-FMS II Planar Sensor installed in a material chute.



Litronic-FMS II Planar Sensor installed directly under a silo outlet.



Litronic-FMS II Planar Sensor for glass manufacturing.



Litronic-FMS II Planar Sensor for seed manufacturing installed in a dryer.



Litronic-FMS II Planar Sensor installed in a sliding shoe on a conveyor belt.



Litronic-FMS II Planar Sensor installed in a sliding shoe for quartz sand.



Interchange and evaluation unit and indication and parameterisation module installed in a housing made of stainless steel.

# Material List.

<b>Food and Luxury Food</b>	almonds beans biscuits butter candy cereals cheese coffee beans/-powder cocoa beans/-powder flakes flavouring flour french fries fruit mixings fruit powder	gingerbread hazelnuts herb hops (vine) lactoprotein/-powder lentils maize products malt products marzipan mushrooms pasta / pasta dough peanuts peas pistachio	potatocrisps/starc h potato proteins rape rice rusk salt seasoning soya spices sugar sunflower kernels sweets tobacco yeast
<b>Chemical and Pharmaceutical Products</b>	acetate acrylic glass granule acrylic glass pearls amino acid ascorbic acid asperin pills asperin powder barium carbonat beta-carotin powder	colour materials colour pigments fertilizer herbicide lactose lime hydroxide minerals PVC granules PVC-powder	Saccarose silica/-acid softener strontium-carbon synthetic materials synthetic granules washing powder
<b>Further Products</b>	building materials ceramic mass ceramic powder charcoal granule clay coke/powder	dry brown coal foundry sand iron ore recycling glass raw material (for cement production)	seed sawdust sand thermal insulation materials wooden chips wooden pellets  <b>and much more...</b>

Liebherr offers Litronic WMS water-content-measurement ( Ex - design) for oils, emulsion and dusts.

## 50 years of worldwide experience.

The range of measuring systems has been developed from the experience of the mixing technology. To guarantee a constant high quality and best results of produced concrete a reliable moisture measurement is most essential. This perfected and advanced system is used today world-wide for innumerable different materials. Liebherr-Mischtechnik GmbH is one of more than 90 companies of the international Liebherr group.



### Liebherr-Mischtechnik GmbH

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