

# Mütec - Medidor de Umidade Humy 3000



## HUMY 3000 IN-LINE MOISTURE METER FOR SOLIDS



**35 years experience and competence**



Development ♦ Production ♦ Sale ♦ Service

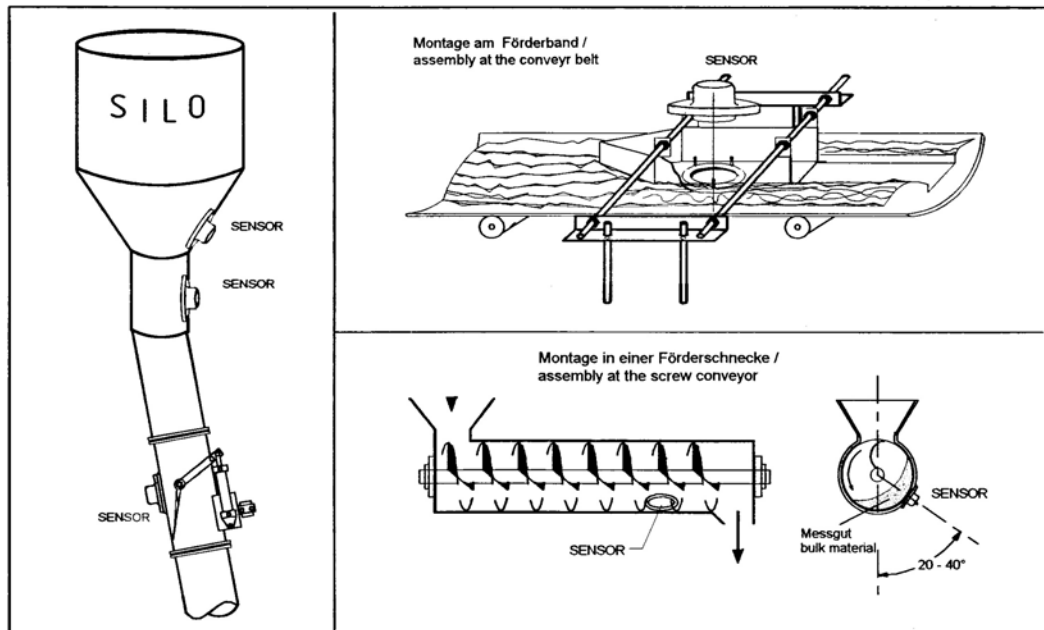
## Application and operation

The moisture in solids is an important parameter which strongly influences the quality of the product and can increase the economic efficiency of a production fundamentally. HUMY 3000 is in many processes, successfully in use among others at sugar, tobacco, grain, malt, flour, coal, sand, wood shavings, dried food, fertilizer, powder, pigments, plastic granules. As installation places conveyor belts, screw conveyors, silos, funnel are particularly suitable. The In-Line moisture measurement is also possible in Batch processes.

At the measuring the relative permittivity and the high-frequency recession of the solid is measured in the high-frequency range. The measurement procedure makes a short and simple calibration as well as a high precision of up to 0.1% possible. The measuring probe transmits the data digitally. This makes the measurement assignment disturbance insensitive and allows a distance of the sensor to the end judging unity up to 1 km. The system supervising himself has an integrated data logger besides an automatic compensation of temperature and ageing drift, digital and alarm exits. On the LC display are represented the measurements analogously and digitally. A simple control and parameter setting of all functions is carried out via soft keys. For product or process changes different product parameters can be stored.

Installationsbeispiele

Examples for installation



## Convincing advantages

- ◆ No samples for the laboratory necessary
- ◆ Saving of energy costs
- ◆ Improvement on the product quality
- ◆ Very short amortization time
- ◆ High selective sensitiveness
- ◆ High measuring speed
- ◆ Precision better than 0.1% ( under consideration of the product)
- ◆ Simple and economical installation
- ◆ Fast and simple calibration
- ◆ High reliability of operation by robust sensor
- ◆ Continuous supervision and record keeping
- ◆ Regulation of the processes about the moisture

## Application examples of successfully measured products

<p><b>Chemistry, pharmacy:</b>          Powders, granules, tablets, pasta, foils          Fertilizer, phosphate, salt, potash          Washing-powder          Styrofoam, synthetic material, PVC, acryl          Pigments</p> <p><b>Food-and semi-luxury items:</b>          Grain, strength, flour, malt, hop          Soya, rape seed          Corn, lenses reis, pasta, beans          Sugar beets, beet mash beet escalopes          Confectionery, Cerealien, snack meal          Raw coffee          Food means, fish meal, dried food          Potato products, -flour, -chips, -flakes          Sauce powders, powdered milks, spices          Nuts</p>	<p><b>Building-materials:</b>          Sand/gravel quartz powder-sand          Bricks (raw material)          Ceramic (raw material)          Plaster</p> <p><b>Recycling:</b>          Bio-, sludge, compost</p> <p><b>Other:</b>          Wood shavings, wood flour          Coal, coaldust          Tobacco          Foundry sand          Glass/ceramic</p>
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**Mill business**  
*Grain fitting*



**Food industry**  
*Cerealien*



**Food industry**  
*Pommes Frites*



## Applications

**Paper/cellulose**  
*Wood escalope*



**Drying plant construction**  
*Animal food*



**Woodpellets**  
*Installation into screw*



## Technical Data measuring unit

Construction F: Field-/wall-mounting housing, B265 x H240 x T250 weight approx. 6.500 g with sight-door IP 65.  
 Construction T: Desk housing B 236 x H 132 x T 330mm, weight approx. 4.500 g, option panel housing.  
 Construction E: 9"-plugin 3 HE / 42 TE, weight approx 2.000 g  
 Construction S: Panelhousing with sight-door B270 x H183 x T223, IP 58

Indication: ¼ VGA-LC-display 100 x 77 mm, 320 x 240 pixel For analogues and digital measurement representation.

Dipiction: Date, time, kind of product temperature, value of residual, moisture or value of dehydrated substance, Min- and Max-alarm values, analog bar graph indication, dragging pointer, i.e. width of deviation of measuring value with intensified indication of width of deviation of measuring value, digital indication and description of Min-/Max-limit values and the softkeys.

Resolution: 18 bit for 0-85,0% residual moisture respectively 15 - 100% dehydrated substance.

Measuring range moisture: Min. 0,000 - 0,100%, max. 0,0 - 85,0%, with 1-, 2 or 3 digits behind the point.

Measuring range temperature: Span min.: 0-5° C, Span max.: 0-120° C

Accuracy: Max. 0,1% in accordance to material to be measured.

Handling: Foil-keyboard with each 4 pcs. Softkeys  
 Averaging time: 0-999 sec.

Memory: User-memory for storage of parameters of 8 different products. (Option to 100 pce.).

Data logger: Storage of historical values up to 10 years. Real time clock for measurement record keeping.

Relay output:: Nominal opened and nominal closed contact for each Min- and Max-alarm relay.

Contact load: 30 Watt 60VA

Analog output: Measuring value of residual moisture or dehydrated substance 0/4-20 mA (load 750 Ω. measuring value of product temperature 0/4-20 mA, max. Bürde 750 Ω.

Digital output: 2 galvanically separated 24 V-open-drain (I max=100 mA) for pre-alarm points.

Digital input: 2 active 8-36 VDC switch input signals i.e. to block output and/or alarming outputs during break-down of plant.

Computer interface: RS 232 with connection for Rx/D, Tx/D, OV and RS 485

Supply: 230 V AC / 115 V AC or 24 V AC/DC  
 All supplies can be available simultaneously (24 V AC/DC or 115 V A/C and 24 V AC/DC)

## Technical Data moisture sensor

FMS 400 K: Measuring surface plastic  
 FMS 400 C: Measuring surface ceramic  
 Housing: Stainless steel  
 Weight: approx. 1.050 g  
 Protection class: IP67 according to EN60529  
 Connection cable: 4 wires 0,25 up to 2,5 mm<sup>2</sup>  
 Cable length: Max. 1000 m by 0,75 mm<sup>2</sup>.  
 Measuring stuff temperature: 2 - 90° C  
 Storage temperature: -10 bis 90° C  
 Response time: approx. 1 sec  
 Power consumption: 0,4 Watt  
 Signal: RS 485  
 Load pressure: 6 bar

## Forms of construction



- The cover shows the system in deskhousing.
- Above picture shows the system in fieldhousing for on-wall installation.
- The picture under shows the system in 19"-plug-in



Mütec Instruments GmbH  
 Bei den Kämpen 26  
 D-21220 Seevetal-Ramels

Tel.: +49 (0) 4185-80 83-0 Mail: [muetec@muetec.de](mailto:muetec@muetec.de)  
 Fax: +49 (0) 4185-80 83-80 Web: [www.mueteec.de](http://www.mueteec.de)



LeNoX Automação e Tecnologia

Rua Airosa Galvão, 40  
 05002-070 - São Paulo  
 SP - Brasil  
 Tel: (11) 3803-8393  
 Fax: (11) 3875-5923  
[www.lenox-at.com.br](http://www.lenox-at.com.br)