

# HUMY 3000

Continuous inline moisture measuring system  
for bulk materials



**HUMY 3000**  
Moisture  
measurement

**MF 3000**  
Mass flow  
measurement

**FS 510M**  
Microwave  
mass flow  
monitoring

**FS 600E**  
Electrostatic  
mass flow  
monitoring

**FS 700E**  
Triboelectric  
dust monitoring

**LC 510M**  
Limit level  
monitoring

## Application and Function

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, e.g. for sugar, tobacco, grain, malt, flour, coal, sand, wood shavings, dried food, fertilizer, powder, pigments and plastic granules.

As installation places conveyor belts, screw conveyors, silos, funnels are particularly suitable. The inline 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 better than 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 1000m.

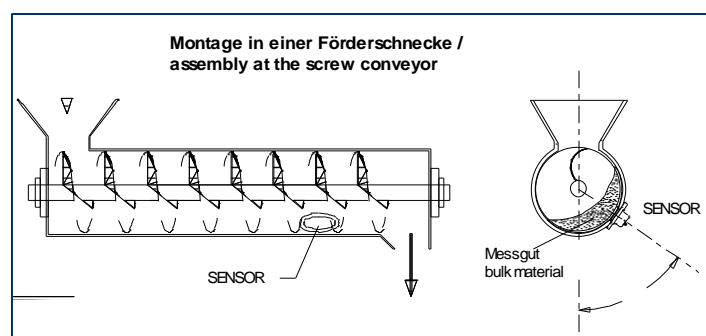
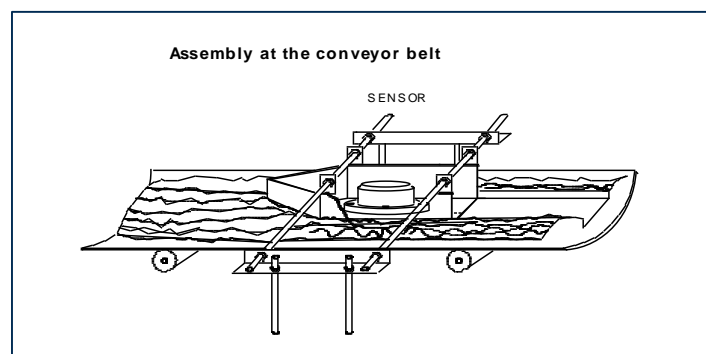
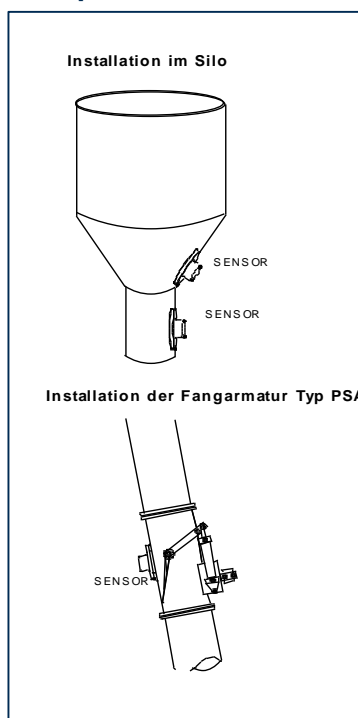
The system supervising itself has an integrated data logger besides an automatic compensation of temperature and ageing drift, digital and alarm exits. On the LC display are represented the measurements analogously and digitally.

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.

## Main Benefits

- ◆ 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% (depends on product)
- ◆ Easy and economic installation
- ◆ Fast and simple calibration
- ◆ Optional ATEX-Version for zone 20 and zone 0 

## Examples for Installations



## Application examples of successfully measured products

### Chemistry, pharmacy

Powders, granules, tablets, pasta, foils, fertilizer, phosphate, salt, potash, washing-powder, Styrofoam, synthetic material, PVC, acryl, pigments

### Food and semi luxury food

Grain, strength, flour, malt, hop, soya, rape seed, corn, lenses rice, pasta, beans, sugar beets, beet mash, beet pulp, confectionery, cereals, snack meal, raw coffee, food means, fish meal, dried food, potato products, -flour, -chips, -flakes, sauce powders, powdered milks, spices, nuts

### Building materials:

Sand/gravel quartz powder-sand, bricks (raw material), ceramic (raw material), plaster

### Recycling:

Bio-, sludge, compost

### Other:

Wood shavings, wood flour, coal, coal dust, tobacco, foundry sand, glass/ceramic

## Applications



**Sand**



**Animal feed**



**Mounting in discharge screw  
(wood-fired power plant)**



**Grain**



**Cereals**



**Coal**

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### Technical Data

#### Measuring Unit - Humy 3000

Construction F:	Field-/wall-mounting housing, B 265 x H 240 x T 250, weight approx. 6.500 g, with sight-door IP65
Construction T:	Desk-housing B 236 x H 132 x T 330mm, weight approx. 4.500g, Option panel housing
Construction E:	19"-plugin 3HE / 42 TE, weight approx. 2.000 g
Construction S:	Panel housing with sight door B270 x H183 x T223, IP 58
Indication:	¼ VGA-LC-Display 100 x 77 mm, 320 x 240 colour-pixel. For analogue and digital measurement representation
Display:	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 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
Digital resolution:	20 Bit for 0-85,0% moisture and 15 - 100% dry substance
Measuring range moisture:	Min. 0.000 – 0.100%, max. 0.0 - 90%, with 1-,2- or 3 digits behind the point
Measuring range temperature:	Span min.: 0-5° C Span max.: 0-120° C
Accuracy:	max. 0.02 % in accordance to material to be measured
Handling:	Foil-keyboard with each 4 pcs. 10-Block + Function keys + Softkeys
Averaging time	0-999 sec.
Memory:	User-memory for storage of parameters of 24 different products.
Data logger:	Storage of historical values up to 10 years. Real time clock for measurement record keeping.
Relay output	Normally opened and normally closed contact for each Min- and Max-alarm relay Contact load: 30VDC or 62.5 VAC
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. load 750 Ω.
Analog input	mA- and PT 100- input
Digital output	2x galvanic isolated, 24 V open-drain (max. 50mA)
Digital input	2x galvanic isolated, active signals (8-36 V)
Interface	RS 232 with connection for Rx, Tx, OV and RS 485
Power supply	230 V AC / 115 V AC or 24 V AC/DC All supplies can be available simultaneously (230 V AC und 24 V AC/DC or 115 V AC und 24 V AC/DC).

### Technical Data

#### Moisture Sensor

FMS 400 K:	Measuring surface POM
FMS 400 C:	Measuring surface ceramic
FMS 400 T:	Measuring surface PTFE
Housing:	Stainl. steel 1.4307
Weight:	Approx. 1.050 g
Protection class:	IP 67 according to EN 60529
Connection cable:	Shielded 4-wires cable, 0.25 up to 0.5 mm <sup>2</sup>
Cable length	max. 1000 m with 0.75 mm <sup>2</sup>
Process-temperature:	-10° to 90° C
Storage temperature:	140°C with cooling
Response Time:	Approx. 1 sec
Power consumption:	0.4 Watt
Signal:	RS 485
Pressure resistance:	Up to 6 bar

#### Forms of construction:



- Cover: Shows system in desk-housing
- Figure at top: Shows system in field housing for on-wall installation
- Figure at bottom: Shows system in 19"-plugin in