

# HUMY 3000

Continuous inline moisture measuring system for bulk solids



## 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 significantly. HUMY 3000 is successfully in use in many industries, e.g. for sugar, tobacco, grain, malt, flour, coal, sand, wood shavings, dried food, fertilizer, powder, pigments and plastic granules.

The HUMY is commonly installed in conveyor belts, screw conveyors, silos and funnels. The inline moisture measurement is also possible in batch processes.

At the sensor, the relative permittivity and the microwave absorption of the solid is measured in the high-frequency range, giving you an accurate measurement of moisture content.

A quick and easy calibration performed on the measurement probe makes accuracies of 0.1% possible. The measuring probe transmits the data digitally. This makes the measurement values resistant to disturbance and allows the probe to be a distance of 1000m from the controller.

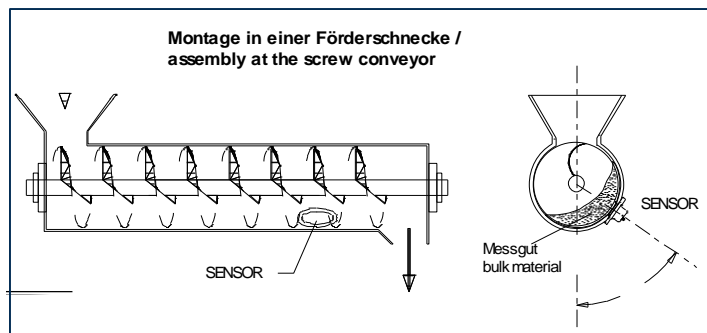
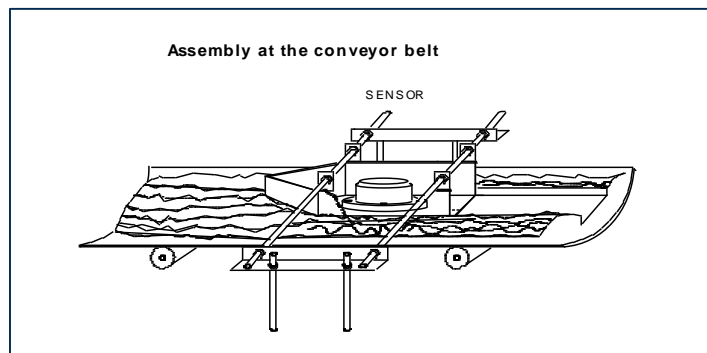
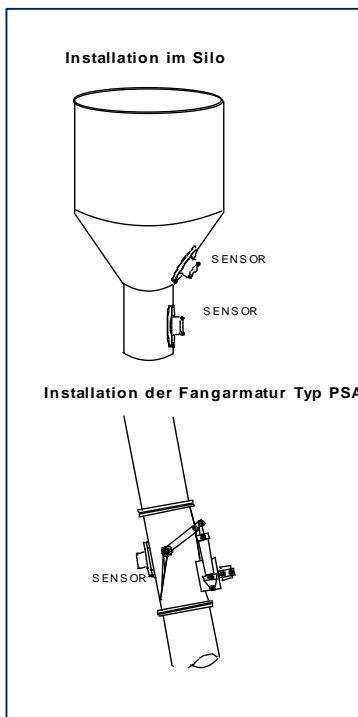
The system controller has an integrated data logger, digital and alarm outputs and can automatically compensate for temperature and ageing drift. On the LCD display, moisture is represented analogously and digitally.

Changing settings and parameters 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 sensitivity
- ◆ High measuring speed
- ◆ Accuracy 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**

<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 food</b> Grain, flour, malt, hop, soya, rape seed, corn, 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</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, flour, coal, coal dust, tobacco, foundry sand, glass/ceramic</p>
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**Applications**



**Sand**



**Animal feed**



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



**Grain**



**Cereals**



**Coal**

## 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 RxD, TxD, 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