BigDipper
Chemical Instrument

sMS2100

Moisture Transmitter for Amorphous Materials

____on-line Solid Moisture Measurement Application
__Specially suitable for food and pharmacy industry drying process

Ref:sMS2100IntE
Version:2002-10-07

Ideal for Process Monitoring and Quality Control in the Industrial Production
Non-contact Moisture Detect Technology

WaterActivity Test, and converted into moisture content with temperature and Pressure compensation under process conditions

___IEEE1451.2 STIM Compatible, 1451.1 NCAP and Modbus Network support. Analog and Digital Signals Output. Remote Setup and Operate.

- ■ *Continuous analysis. Direct measurement in simple way*
- ■ *Accurate and reliable, rugged design, low-maintenance*
- ■ *Quickly response, <15 sec at typical cases*
- ■ *Self diagnostic, professional intelligent, Menu-driven digital user interface*
- ■ *Auto diagnostic and alarm*
- ■ *Data log of measurements for day/month/year*
- ■ *One-year warranty*

MS2100 is a fast, reliable and accurate on-line detection technology for moisture of Solids, based on new capacity sensors.

Low limit moisture on-line test has been always troubles in some crisis industry process. Both of on-line and laboratory analyzers are expensive, and time costing in the past time.

It was hoped to replace some process instruments at certain cases, to save lots of equipment investment and maintenance cost. What is most important is it's easy way to test directly and real time response, and also excellent accuracy. Speed is very important in modern chemical process.

The system measure *Water Activity, Dew-point, AH, Water activity, Water content/moisture, and temperature as well.* With T-BD5xMD STIM, all these parameters can be displayed at field, and could be read by NCAP controller or computer in remote area. The analog signal output port of the transmitter could be set to output any one of these parameters

T001-BD5xCD+IMS2100p

Why Measure Moisture &Water Activity?

Water activity is actually a new metrology point of view for moisture content.

Human beings as well as animals all like to live in certain Water Activity environment. Humans are best suited to and feel most comfortable at certain Water Activity and temperatures; excessively high or low Water Activity or temperatures cause discomfort.

As most materials are hygroscopic, their water content always tries to reach equilibrium with the surrounding relative Water Activity. Thus each material has its own ideal storage Water Activity which should be maintained. Too dry or too humid conditions could ruin the material.

In many production processes, the measurement and adjustment of Water Activity is extremely important for sustaining the high quality of products and the correct level of energy consumption. The right Water Activity makes it possible to optimize energy consumption and improve end product quality as well as product yield.

At low Water Activity cases, static electricity increases. This can be crucial in the chemical industry where dry powdery material is handled, to avert environ explosions caused by static electricity in extreme cases.

Water Activity always plays important role in industrial corrosion, either from environment or pipeline. Keeping certain Water Activity is the most popular industry project.

Features

- ● Not necessary to calibrate
- ● High accuracy
- ● Fast response
- ● Stable, low drift performance
- ● Chemically resistant

Applications

Specially designed for moisture measurement of irregular shaped materials and incompact materials, such as botanic, floral, floristic, vegetable, vegetal; biologic, biomaterial; creatural, zoic, animal, beastie, creature, fowl, poultry; corny, frumentaceous, aquicolous, hydrophytic, aquatic, hydrophyte, water plant,tobacco, foliage, cotton, and any mixture of powder, granular, grain state of particles.

Chemistry, pharmacy: Powders, granules, tablets, pasta, foils Fertilizer, phosphate, salt, potash Washing-powder Styrofoam, synthetic material, PVC, acryl Pigments

Food-and semi-luxury items: 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

Building-materials:
Sand/gravel quartz powder-sand Bricks (raw material) Ceramic (raw material) Plaster

Recycling: Bio-, sludge, compost

Other: Wood shavings, wood flour Coal, coaldust Tobacco Foundry sand Glass/ceramic

- Dry process monitoring
- Chemical process measurement
- Food and pharmacy Industrial controls

Electronic Function of STIM Transducer

- BD5 CPU based STIM, perfect design with complete instrument functions
- Auto temperature compensation. And pressure compensation could be attached by order.
- Linear analog signal output, 0/4 to 20 mA select. default status is 0 to 20 mA for activity. Moisture and Separation point output is selective for users.
- RS232 serial port always available
- RS485 with STIMcom or Modbus protocol attached to BD5xB upper configuration. BD5s has simple SCom data communication ability.
- Power supply: DC 9 to 24 V; consumption <100 mW at Max.
- Intrinsic safe design

For more details, please refer to : BD4&5IntE

Technical specifications

- Measurement range:
   Water Activity: 0...1 a_w;
   Moisture(for solids and/or liquids in ERH method): 100ppm to 100%(related to samples);
- Accuracy: ±2% of reading
- Operating temperature:
   MS2123N: -40 to 85 °C(-40 to 185°F); MS2123-1100:-40...+100 °C; MS2110:-40...+180/300 °C;
- Working Pressure: N:<0.3 Mpa; p:<1.0 Mpa
- Sensor Interchangeability: ±5% RH, 0-60% RH; ±8% @ 90% RH typical
- Linearity: ±0.5% typical
- Hysteresis ±1.2% of reading, span maximum
- Repeatability ±2% of reading or 0.5%RH,whichever great.
- Response Time: 15 sec in slowly moving air at 25 °C
- Stability: ±1% of reading /typical at 0.50 aw in 5 years

Environment Requirements:

T001-BD5xMx+sMS2100N

	T-BD5CMD	T-BD5MM	T-BD5IB
Environal Temperature	-10 to 60 ℃	-30 to 70 ℃	-40 to 85 ℃
Environal WaterActivity:	10-90%	0-100%(non-condensing)	0-100%

* if with LCD, the environ property is limited to -10 to 60 ℃, 10-90%

Transducer Safety:

Safety: Ia, intrinsic designed. Could be used at Class 1,Group A/B/C/D; Class II, Group E/F/G;
Package: NEMA 7, NEMA 8, NEMA 9，NEMA 6/6p，IP67
*If in hazardous zone, LCD and Keypad can not be attached on transducer.

MS2100 series STIM Transducer

T001-BD5CM-D+sMS2123T/F

Fixed under the surface of the sample or inserted into cavity of lose samples

- Sampling temperature: -40 to 85°C
- Sampling pressure: <0.3Mpa
- Insertion length: 40- 200mm
- Installation connect: ZG1" or 1"NPT
- 2x16 LCD Display
- 5x4 Keypad attached
- 0/4 to 20mA output(Water activity/ apparent moisture saturation, or absolute moisture)
- RS232/485 communication, STIMcom or Modbus support
- Normal rectification and special model user calibration. Full STIM instrumental function.