



Liquid MS2123 series

Trace Moisture Transmitter for liquid

The economical technology to measure trace moisture on-line

Ref:IMS2123IntE
Version:2002-01-08

Ideal for Quality Control in the Industrial System

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 sample way**
- **Multi-parameters test: water activity, water content/moisture, separation point, and temperature as well.**
- **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 system for water in organic liquids, oil, etc.

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, water content/moisture, separation point (equal to dew point in air moisture), and temperature as well. With T-BD5xMD STIM, all these parameters can be displayed at field, and could be read by NCAP controller in remote area. The analog signal output port of the transmitter could be set to output one of these parameters, such as water activity, moisture or separation point by user selection.

Water Activity is a relative parameter for moisture. In some application, it is more obvious than traditional absolute terminology, for it is directly meaning the possibility to happen of water separation. Water formation is often critic accident for processes.

Separation Point is one concept determined by our institute. Thought it is not so concerned as Dew Point, but also convenient for some applications. For it is more easy to compare the separation point with the sample temperature, so that to estimate the risk of the system by operators.

As to application for transformer oil, water activity measurement offers several advantages compared to the traditionally measured variable, parts per million (ppm). Water activity indicates directly whether there is risk for free water formation. The measurement is 97% independent of the oil type, aging, and compensated by temperature algebra.

Usage

- water activity for organic liquids
- Separation point alarm
- Trace water content/moisture analysis

Features

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

- Chemically resistant

Applications

- Transformer Oil
- Machine oil or lubricants
- Other organic liquids
- Moisture leak detection

Note: For more chemicals application rather than oils, please contact our engineer for verification.

Electronic Function of STIM Transducer

- BD5 CPU based STIM, perfect design with complete instrument functions
- Auto temperature compensation
- 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 ;
Water Content: 0...200/550 ppm (20°C, relative to temperature, Toluene);
- Accuracy:
Upon 30 °C: <+/-2% among 0-100ppm; <+/-5% among 100-200ppm, <10% over 200-500ppm;
Among -30 to 0 °C: < (10-0.267T)%R;
- Repeatability: <5% of reading while $a_w=0-0.03 a_w$, 25 °C
- Response Time: 15 sec typical at 25 °C, Max<60s;
- Sampling temperature:
MS2123N: -40 to 85°C;
MS2123p:-40 to 85/100°C;
- Working Pressure: N:<0.3 Mpa; p:<1.0 Mpa;
- Sensor Interchangeability: ±5% of reading;
- Recovery time after 100 hours of condensation: 10s;
- Hysteresis ±1.5% of reading;
- Long term stability: ±0.5%FS 1year;

Environment Requirements:

Environ Humidity:

Operating:0 to 100% RH, non-condensing

Storage:0 to 90% RH, non-condensing

Environ Temperature Range:

N: Operating -40 °C to 85 °C (-40 °F to 185 °F)

N: Storage -51 °C to 125 °C (-60 °F to 257 °F)

T001-BD5xMx+IMS2100N

	T-BD5CMD	T-BD5MM	T-BD5IB
Environ Temperature	-10 to 60 °C	-30 to 70 °C	-40 to 85 °C
Environ Humidity:	10-90%	0-100% (non-condensing)	0-100%

* if with LCD, the environ is -10 to 60 °C, 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

MS2123 series Instruments

T001-BD5CMD+IMS2123N Insertion Moisture Transducer

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.



T001-BD5CMD+IMS2123p Insertion Moisture Transducer

Sampling temperature: -40 to 85°C; -40 to 180°C; -40 to 300°C;
Sampling pressure: <1.0 Mpa
Insertion length: 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.



Spare Sensors and Accessories

MS2123M12T85	Spare sensor for HMS2123N probe replacement
MS2123pM12T85	Spare sensor for HMS2123N probe replacement, with pressure connector
MS2123M12T100	Spare sensor for HMS2123N probe replacement
MS2123pM12T100	Spare sensor for HMS2123N probe replacement, with pressure connector
Standard's Kit	1 box each EA35 (35 %RH) and EA80 (80%RH) humidity calibration standards
FixFit NPT 1"	For fixing to pipe or temporary device. Also needed for AW2123N-Cap

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