ELECTROLYTIC MOISTURE MONITOR
HYGROMETER OEM7

I - SERVICING

Moisture montoring in gaseous samples for concentration between 30 ppb and 5000 ppm(v) H_20.

The hygrometeris realized both as process version for permanent moisture monitoring or as portable version.

II - THE SEVEN BENEFITS OF THE MOISTURE MONITOR HYGROMETER OEM7

1) Reference moisture monitoring

Fundamental measuring principle of hygrometer based on Faraday's law of electrolysis ; does not require calibration.

2) moisture monitoring accuracy

With many moisture monitors typically offering ranges of -80 to -20°C dewpoint (0.5 to 1020 ppm) or -60 to O°C dewpoint (10 to 6000 ppm), how can you obtain accurate measurement in the critical 0-10 ppm(v) range? The OEM7 hygrometer is directly programmable by customer on ranges between 0-50 ppb and 0-5000 ppm(v) or (p).

The moisture monitor measurement unit is programmable as Dew Point Point at referenced pressure or in lb/MMSCFT.

3) Fast response even at low moisture montoring levels

For the portable hygrometer eaturing the close microcell principle, a final reading on moiture monitoring can be established within 10minutes after connection in line, even at sample moisture monitoring levels below 5 ppm(v).

4) Direct on line connection requiring no additional sampling equipment

The integrated sample conditioning/probe holder assembly of Moisture Monitor controls flows and pressures set points automatically. No user adjustment is required for process pressure variations up to 200 bar g..

On block conditioning, minimal surface contact with sample means that equilibrium reading is not established at the expense of response time on moisture monitor .

5) Suitable for wide range of moisture monitoring applications

Even for corrosive gases like chlorine -Specific hygrometer version .

6) Low maintenance of Moisture Monitor

No moisture sensor to be changed.

The Moisture Monitor cell is only constituted by a double platinium (or rhodium) wiring supported by a special glass rod and requires only to be regenerated by the End User according to the procedure specified in the Instructions Manual.

7) Moisture Monitor OEM contact :

Quantity substancial discount available with application to be handled by customer.

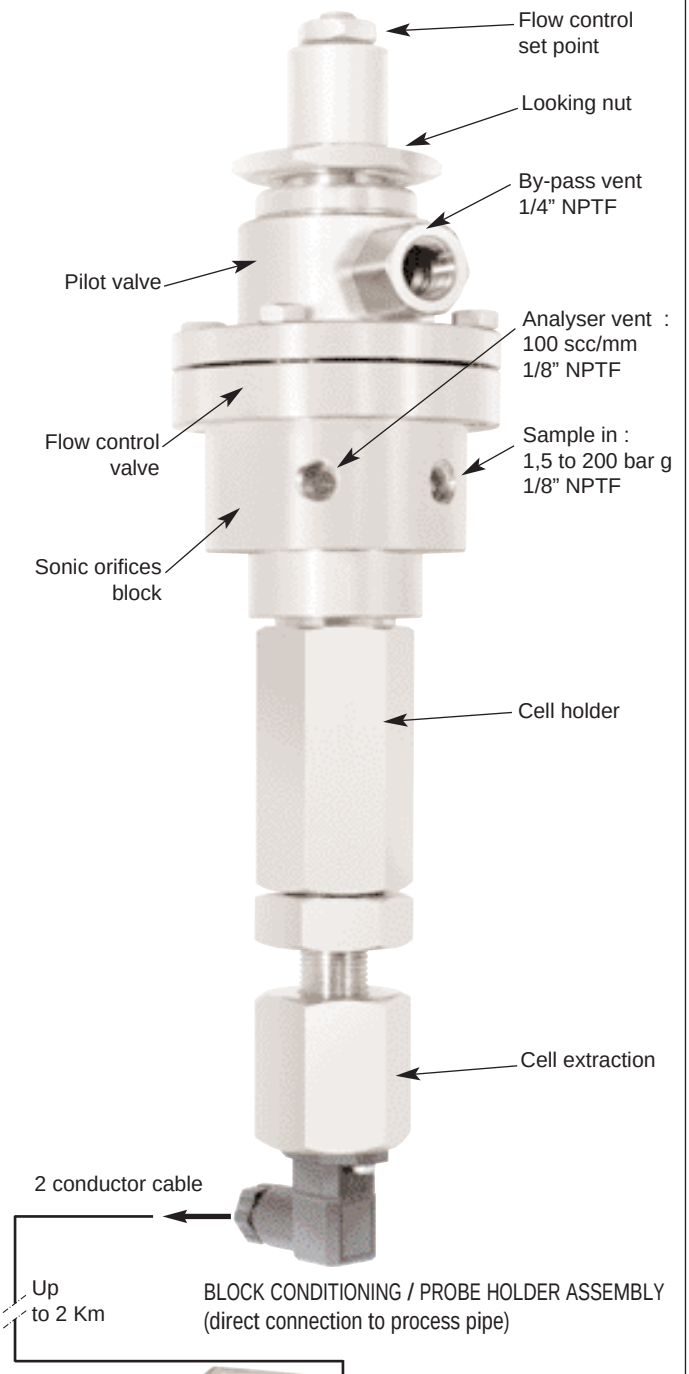
III - MOISTURE MONITOR VERSIONS

OEM 7 Hygrometer stationary or portable.

Moisture Monitor block conditioning wetted parts can be offered in brass nickel plated, S.S 316L ; with VCR fittings for ppb moisture measurements in ultra-pure gases or in Monel 400 for application on chlorine or corrosive gases.

Intrinsic safety option ATEX EExi of the Moisture Monitor avalable

PROCESS MOISTURE MONITOR



BLOCK CONDITIONING / PROBE HOLDER ASSEMBLY
(direct connection to process pipe)

MOISTURE MONITOR PANEL CONTROL UNIT

IV- MOISTURE MONITOR BASIC PRINCIPLE

The gas to be analysed flows through a cell including an electrolytic probe with a double platinium (or rhodium) wiring supported by a special glass rod.

An hygroscopic membrane is realized by a thin film of phosphorous pentoxyde on the probe to trap the water vapor in the gas flowing through the moisture monitor.

A continuous regulated voltage, higher than the water decomposition voltage, is carried between the electrodes. The absorbed water is then dissociated into hydrogen and oxygen gases. At the same time, the phosphorous pentoxyde film is automatically regenerated.

The total current through the hygroscopic P_20_5 film is then directly proportional to the number of water molecules being electrolysed: according to Faraday's Law 96500 Coulombs are necessary for the dissociation of 9 grams of water.

This measurement is achieved by the Moisture Monitor control unit.

Moisture Monitor measurement unit

The Moisture Monitor control unit can be programmed for measurement units in ppb or ppm(v) or (p) ; dew points at referenced pressure (C or F) or in lb/MMSCFT.

V - MOISTURE MONITOR DESCRIPTIVE

1) Hygrometer Analytical section

This part involves the block conditioning/probe holder assembly for direct adaptation of the unit to the process sarnple take-off point through an isolation valve (excluded).

An automatic control of the pressure and flow on by-pass and analyser circuits is operated on this assembly.

No user adjustment is required for process pressure variation between 1.4 to 200 bars g.

For samples with contaminents such as hydrocarbon condensates, glycol, Hg, H_2S etc... a purifier type MGYB can be fitted upstream of the assembly.

The Moisture Monitor conditioning/probe holder assembly is built in brass nickel plated for the standard version and can be supplied as S.S. 316L, with VCR fittings for ppb measurements in ultra-pure gases or in Monel 400 for corrosive gases as the chlorine.

2) Moisture Monitor Control unit

This is a SMART transmitter / read-out connected to the probe by a 2 wires cable and programmable via integrated keyboard.

The following functions can be programmed :

- measuring range : from 0-50 ppb up to 0-5000 ppm(v)
- linearisation for other units : dew points in °C or °F, ppm(weight), lb/MMSCFT
- number of digits on read - out
- analogic output in mA or V
- serial link data's
- double range switchable by decade can be realized (option)
- double threshold moisture alarm
- serial data link RS232C or RS485 or Device Net (option).

VI - HYGROMETER SPECIFICATIONS

- Moisture measuring range : programming from 0-50 ppb to 5000 ppm(v) equivalent value in dew point at referenced pressure
- possibility of decimal switching over two ranges : for instance 0-10 / 0-100 ppm(v) H_20
- resolution : 0.01% of measuring range and for the minimum 1 ppb
- sensitivity : 0.01% of measuring range and for the minimum 1 ppb
- repeatability : 0.01% of measuring range and for the minimum 1 ppb
- double threshold moisture alarm programmable
- read-out : up to 5 digits by LED

Moisture Monitor analogic output :

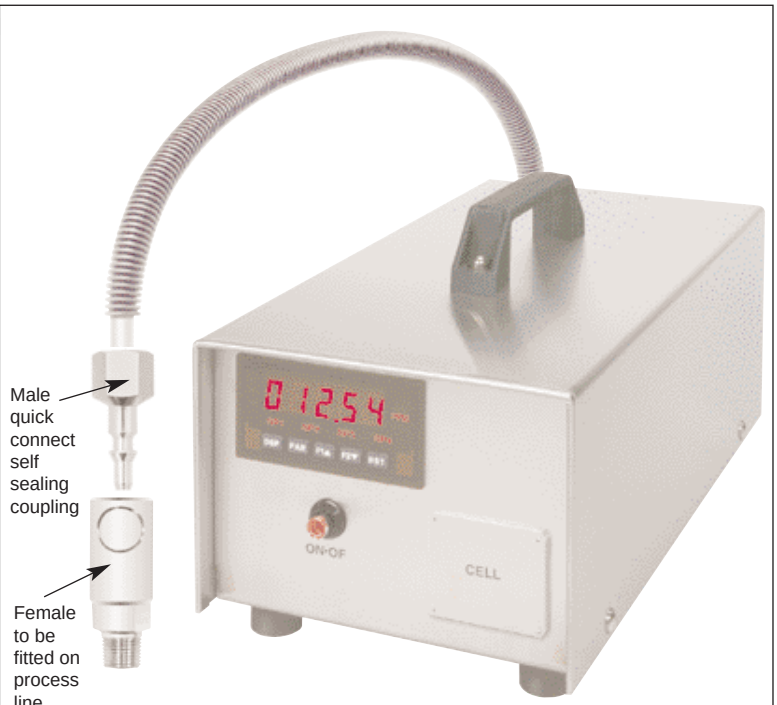
- 4-20 mA or 0-20 mA or 0- 10V (programmable)
- isolated
- accuracy 0.1% of range
- resolution : 12 bits
- impedance maxi. : 500 ohms for output in current
- impedance mini. : 10 ohms for output in volts

Moisture Monitor digital output :

- serial RS232C or RS485 (option) : bi-directionnal loop 200 mA 300 to 2400 bauds

or

- field bus << Device Net >> (option)
- power supply : 85 to 250 VAC - 50/60Hz or 24 VAC or 10 to 30 VDC
- consumption : 100 VA
- battery for portable unit : 4 running hours autonomy
- sensor/control unit interconnection : current loop 2 wires, maximum line impedance : 10 ohms for loop
- sample pressure : 1.5 to 200 bar g.
- sample temperature : -10 to 80°C
- sample analyser flow rate : 100 Scc/mn
- sample by-pass flow rate : Q (sl/h) = inlet pressure (bar g) x 11 e.g. : for 10 bars g inlet pressure ; Q = 110 sl/h.



BATTERY OPERATED
PORTABLE MOISTURE MONITOR

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