



Datasheet VHF Moisture Sensor

PCE-MWM 230

EN

PCE Instruments UK Ltd.
South Point Business Park
Ensign Way Units 12/13
SO31 4RF Southampton
United Kingdom
Tel: +44 (0) 2380 987 03 0
info@industrial-needs.com
www.pce-instruments.com/english

PCE Americas Inc.
711 Commerce Way Suite 8
FL-33458 Jupiter
United States
Tel: +1 (561) 320-9162
info@pce-americas.com
www.pce-instruments.com/us

Application

A vast majority of materials contain moisture, which can be sometimes not to detect visually. To avoid mistakes in the production and to improve the quality it is necessary to take into consideration



how much moisture any of the materials under control contains. When it goes about liquids and bulk materials the right choice is the dielectric moisture meter PCE-MWM 230. Generally speaking there are a few models of the moisture meter which are meant for measuring of some particular materials and that is why that device a very wide application (mining and petrochemical industry, production of building materials, agriculture). There is no need in calibration in advance, as the principle of the device is based on the direct method of permittivity measurement. The measurements can be carried out not only for homogeneous materials but also for materials with fractions (crushed stone, gravel, ore etc). The device is non-nuclear, which is a big advantage.

For the enterprises dealing with the carbonated concrete rubble the device is irreplaceable. The level of moisture can reach the mark of 8%, almost equal to sand. The general description of the moisture meter structure is the following: an electronic unit and a probe-sensor made of stainless steel.

Product features

As it has been mentioned above the moisture meter is capable of measuring moisture in many materials, both homogeneous and heterogeneous, petrol and fuel, large-granulated bulk materials, agricultural products and crops etc. It is possible due the use of the very high frequency waves. This wavelength range makes the moisture meter a VHF band radio device. Moisture meter covers the whole volume of the material (even when there are big fractions) averaging the result of the measurements

It looks pretty simple-constructed, having a probe and two pins. The device can be mounted even on the wall of the reservoir or tank due to the cylindrical housing with G1 1/2" thread.

It can also be installed on the tube in the hopper as the coupling with thread G1" is directly at the top of the housing. As a result the probe will be over the hopper outlet.

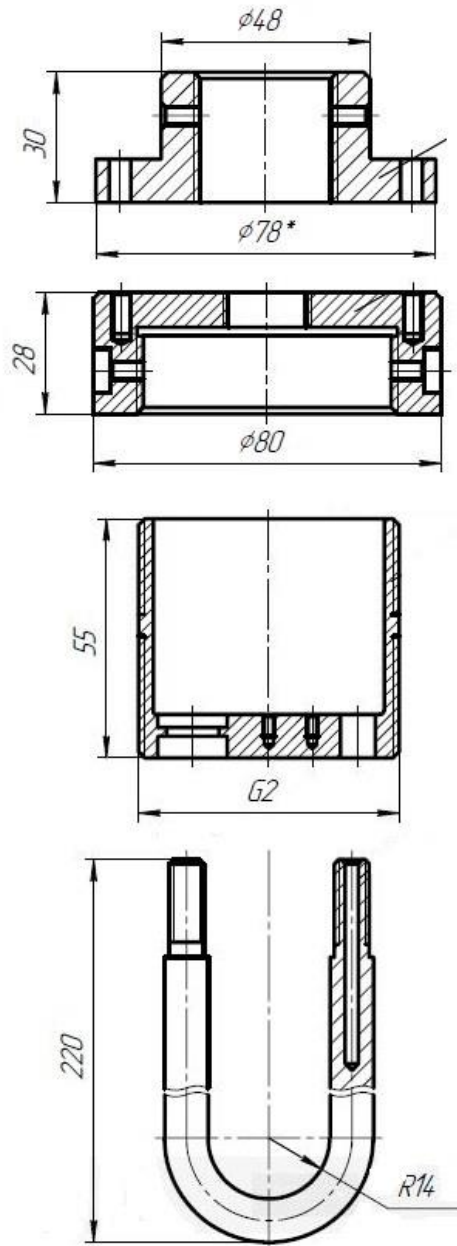
The device is resistant to corrosion (stainless steel and dielectric materials) and can operate in the conditions deviating from the norm, for example, at temperatures of 145°C. The moisture meter probe can be mounted on the walls in the hoppers, in pipelines or on trays in conveyors. Due to pluggable design this version of the moisture meter can also be used for soil moisture control.

Technical specification

Measurement range	0 ... 100 %
Limits of permissible absolute error of the measurements results of the mass fraction of water	$\Delta = 0.02 + 0,025 \cdot W$ (seen Note 1 ↗)
Range of working temperatures	0 ... +90 °C (industrial version) 0 ... +155 °C (extended temperature range) 0 ... +250 °C (drying kilns)
Operation mode continuous	continuous operation
Measurement period	0.3 ... 1.5 s
Voltage supply - Rated / - Allowable	24 (18 ... 36) VDC
Consumption current, not more than	200 mA
Input power	<0,1 W
Warm-up time at start-up	30 min
Output	RS 485 Modbus RTU, 4-20 mA [RS485: max. cable length 1,000 m; 4-20 mA: max. cable length 100 m (max. cable length to SPS unit)]
Input	digital 24 VDC
Dimension of the sensor, length	L 500 ... 1000 mm, Ø 15 ... 30 mm (depending on the variant)
Protection class	IP54
Note 1	
Moisture W [%]	Absolute error ΔW [%]
0 ... 6	0,3
6 ... 8	0,4
8 ... 10	0,5
10 ... 20	1,0
20 ... 50	2,5
50 ... 100	5,0

Technical drawing

PCE-MWM 230



Application picture



1 Ordering code PCE-MWM 230-XXXX-XX-XX

Sensor length

-XXXX Length in mm (max. 1000 mm)

High temperature version (optional)

-LT high temperature resistance upto +115 °C

-HT very high temperature resistance upto +250 °C

Explosion proof (optional)

-EX Electronics in explosion proof housing Ex d II B T5

Ordering example

PCE-MWM 230-0950-LT-EX

- VHF moisture sensor PCE-MWM 230
- Length 950 mm
- high temperature resistance upto +115 °C
- Electronics in explosion proof housing Ex d II B T5