

On-line microwave IDC202 moisture meter

The IDC 202 moisture meter is designed for the continuous moisture measurement of granular and powdered materials on conveyor belts, in hoppers and bunkers. The IDC 202 is suitable for the measurement of a variety of materials, including alumina, aluminum oxide, coal, salts, minerals, sand, and other materials with intermediate to low moisture content (1 to 30%), and is easily incorporated into automatic process control systems.

The device is appropriate for working on conveyor belts and in bins under the condition of high temperatures and dust content, high abrasiveness and aggressiveness of material.

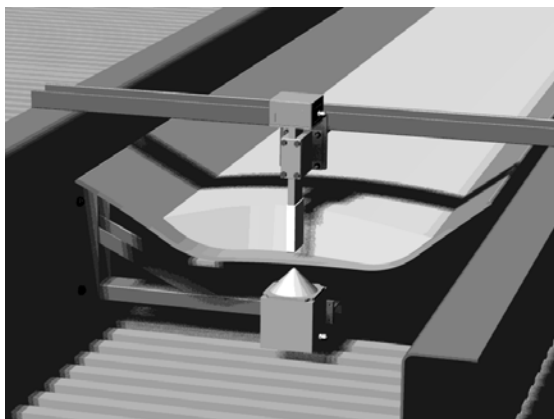
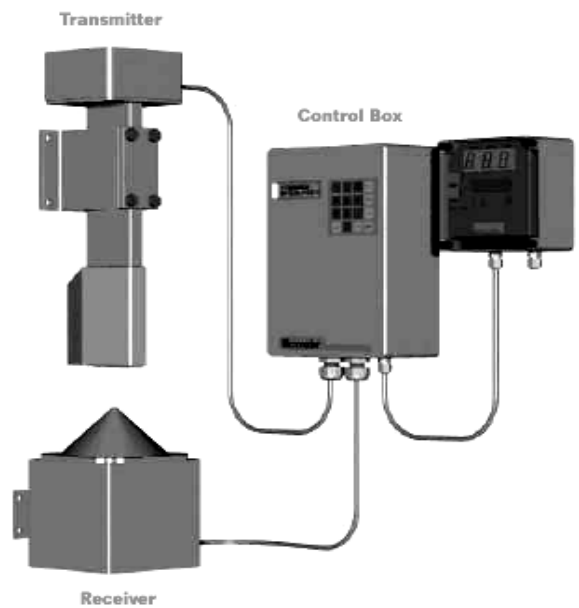
How The Meter Works

The meter is installed with the transmitter and the receiver placed across the material under test. An electromagnetic wave is generated by the transmitter and passed through the material, and the receiver detects the amount of electromagnetic energy absorbed by the water in the material. Despite the complexity of the physical structure of the material, there is usually a simple linear relationship between the moisture content and the amount of energy absorbed (at least in a limited range of moisture content). This relationship may be written in the form: $N=8.7 AWrd$

Where: N microwave attenuation by material, A water absorption, W moisture content of material,

d thickness of material, r density of material. The moisture meter ensures self-acting correction of measuring results at a material temperature variation, has a current output and a serial port RS-485 for data transmission to a computer. The device is produced in two modifications - for one-sided and two-sided installation. The sensors' signal is transmitted to a microprocessor processing unit, where moisture is evaluated. The value of moisture is displayed on a display diagram board of a microprocessor unit and is converted to analogue outputs 4-20 mA and 0-5 V.

Through the channel RS485 moisture, temperature and the sensors' signals can be transmitted to the computer. The complete set of delivery of the device includes the program of storage and displaying of moisture real-time, that allows to enter into the computer, to watch, to store and to print the information on moisture for any span. A moisture measurement accuracy is from 0,15 % up to 1 % depending on a moisture range considering inaccuracies of the sample choice and moisture measuring by a standard method, for example, by oven.



The basic technical characteristics:

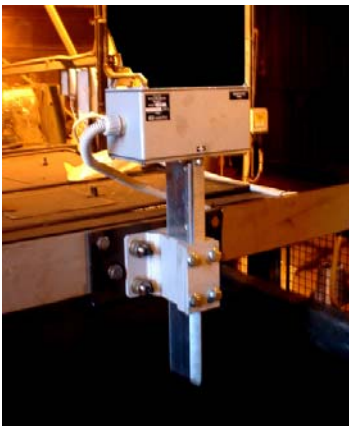
Range of moisture measurement	0,5-3%	Basic measurement inaccuracy.	0,15 %abs.;
Range of moisture measurement	3-15%	Basic measurement inaccuracy.	0,5 % abs.;
Range of moisture measurement.	15-30%	Basic measurement inaccuracy.	1,0 % abs.;
Unitized analogue output (alternative)			(4 ... 20; 0-5; 0-20) mA
Power supply			=24 V or 110 or 220 V / 50 Hz



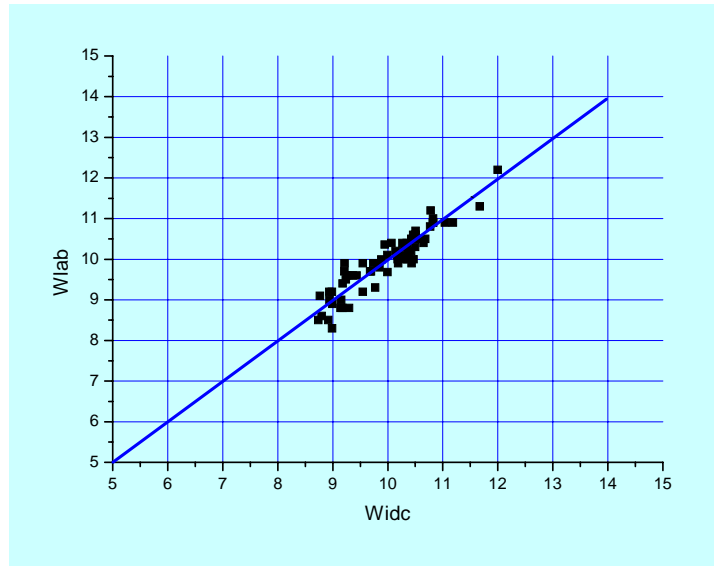
The pictures demonstrate the mounting of the sensors unit and microprocessor unit with an additional unit of indication on one of the factories manufacturing kaolin in England.



At the factory two moisture meters are set. The first one is set on an inlet into a dryer and measures moisture of granulated kaolin in the range of 20-28 %, the second - on an exit from a dryer and measures moisture of ready kaolin in the range of 6-14 %.



The pictures demonstrate the mounting of the sensors unit on one of the factories manufacturing coke in Scunthorpe, England. The moisture meter of coal is set on an inlet into a dryer and measures moisture of coal in the range of 8-16 %.



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