

The Moisture Monitor™

FIFTY YEARS... WORLDWIDE

INDICATING CONTROLLER
MODEL 1601e



FOR CONTINUOUS PROCESS DRYERS

Whether it's paper, textiles, or something else, the MOISTURE MONITOR keeps the moisture in the product on target at delivery.

The new control features fast, step corrections for speed regulation and PID control on dryers.

Then, there is Wet Stop. It reduces speed grossly, if anything goes wrong with the drying process.

Simply call up set points and tolerances by job or style number that you've already entered. Then, everything is automatic.

Use moisture sensing rolls, one or more, or full-span rolls or bars on webs.

Display moisture at left, center, and right, and all three simultaneously.

Use insertion probes on granular materials and finger probes on bulk.

The 1601e has a lot of capacity. So, add sensors for high moisture, sheet density, width, speed, stretch, and shrinkage, plus temperatures and pressures.



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-GENERAL INFORMATION-

It is surprising how much energy is wasted by overdrying. There is also a loss of quality and a big loss in production. Dry is dry. Nothing more can be gained at lower speeds and increased heat.

Thousands of MOISTURE MONITORS all over the world turn these losses into profits while also achieving better product quality.

Sensing rolls, short and full span, conduct minute amounts of electrical energy to accurately monitor the moisture in textiles and paper in both the wet and the dry states. Microwave moisture sensors work in the wet range without physically contacting the web. Microwave sensors are also used on pipes to monitor the concentration of chemicals taken up by the web.

The MOISTURE MONITOR's "**Wet Stop**" is advantageous. It automatically decreases the dryer speed when drying capacity is lost. Loss of heat and loss of squeeze roll pressure are two conditions the "**Wet Stop**" guards against.

Moisture controls on continuous dryers must step surface speeds up and down in increments rather than continuously. This is because of the long length of these dryers and the fact that a change in moisture can only be expected some time after a speed correction has been made.

The 1601e makes these corrections, not at fixed time intervals, but at intervals that are based on length. A proprietary length-based speed control algorithm optimizes moisture control independent of speed and product density. Its high sensitivity to small changes in moisture permits it to make these step changes rapidly.

In much the same way, the MOISTURE MONITOR changes the heat energy applied to the dryer.

Many other products, organic and inorganic, are dried on continuous process machines. Most of these are transported on conveyors. The unique measuring and control system works the same. The advantages are inherent in this well derived controller.

Sensors include insertion probes for granular materials and finger probes for bulk products. Electrically insulated plates are employed inside ducts and chutes.

The 1601e offers up to 24 channels of measurement and control capacity. Other sensors include non-contact microwaves for products in process as well as for fluids in pipes that are applied through immersion and sprays. Safe, low-energy beta gauges are available for on-line density monitoring. Web width, speed, stretch and shrinkage sensors are all low in cost and easy to install. Still others include temperature as well as pneumatic and hydraulic pressure.

-SPECIFICATIONS-

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| Power Requirements | 115/230 volts a-c |
| Weights and Dimensions | 12.0 lb (5.5 kg), 12.5" (318mm) high, 10.9" (277mm) wide, and 6.25" (159mm) deep |
| Sensors | Short to full-span rolls and bars for dry and wet webs, also microwave type for non-contact, insertion probe for granular material and finger probe for bulk |
| Housing | Fiber-glass NEMA-4X with hinged cover for use in wet processing areas |
| Principle of Operation | Electrical conductivity through materials and non-contact microwave transmission and reflection. |
| Moisture Ranges | Dry to full wet saturation in hygroscopic materials and liquids |
| Control | Set points and tolerances in tenth percent steps by style or job number, for use with motorized speed control potentiometers and valves, including programmable step corrections and PID control |
| Display | Liquid Crystal, 4.8 x 3.5" (120 x90mm) |
| Outputs | 0-10 volts and 4-20 mA d-c for recorders, etc., RS-232 for printers and other serial devices, and RS-485 for networking |
| Capacity | Up to 24 channels, measurement and control, other sensors include solids and chemical concentration of liquids, web width to nearest 0.1" (2.5mm), web density to nearest 1.0%, web stretch and shrinkage to nearest 0.1%, temperatures and pressures, and process speed |
| Accuracy | Repeatable within 5% of reading ($\pm 0.3\%$ at 6% moisture content or regain) |



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