MCT 360-T
ON-LINE NIR Transmitter for Continuous, Real-time Measurement and Control in Tobacco Processing

UK Distribution by IMA Ltd: Website: www.ima.co.uk Email: info@ima.co.uk Tel: +44(0)1943 878877

PROCESS SENSORS
CORPORATION
The Next Generation Tobacco Moisture Transmitter

Innovative Cost Effective Design

Utilizing Advanced Near Infrared (NIR) Technology Provides an Extensive Range of Features

Smart Sensor Technology - The MCT360-T is a true stand-alone NIR transmitter. A single, proprietary circuit board drives the measurement along with all analog and digital communication. Includes 4-20 mA, 0-10 volts, RS-232/485 or network interfaces such as Ethernet, Profibus, etc. There is no requirement for any intermediary electronics.

Optical Path Compensation - The MCT360-T's dual beam, single detector configuration monitors the source lamp and all other optical elements, ensuring that the calibration is unaffected by long term component age.

Wide Spectrum Referencing - The MCT360-T incorporates a unique reference filter to monitor the tobacco reflectance properties across the complete near infrared (NIR) spectrum. The filter minimizes the influence of tobacco color, blend or type on the Transmitter's reading.

Measurement Speed - A proven, reliable high speed filter wheel assembly is combined with a state-of-the-art proprietary single detector optical system. This fast sampling technique reduces measurement noise and produces an accurate and repeatable on-line signal.

Product Temperature Monitor - The MCT360-T can be configured to monitor and display tobacco temperature in Fahrenheit or Centigrade. The temperature sensor is contained in the MCT360-T housing. No additional hardware or wiring is required.

MCT360-T Features

- Single board, full surface mount electronics
- On-board temperature control circuit for PbS detector
- Profibus, Ethernet, Devicenet, Profinet, Modbus TCP-IP, Modbus RTU, Wireless
- Dual Micro Technology
- Dual Gain Filter Processing
- Product Temperature Measurement
- Improved A/D converters for improved measurement signal to noise ratio
- Air purge assembly included as standard
- Cooling panel included as standard

Accurate, Reliable and Stable Moisture and Temperature Measurement for All Tobacco Processing Applications

The MCT360-T measures moisture... the most critical variable in tobacco processing... providing... the world's most accurate, reliable and stable moisture measurement for the tobacco industry. It can also be configured to measure product temperature. Delivered pre-calibrated and with a comprehensive 2-year warranty, the MCT360-T is simple to install and may be used at any stage of tobacco processing, with all types of tobacco applications, including:

• Whole Leaf
• Whole Stems
• Cut Stems
• Lamina Strips
• Cut Lamina
• Reconstituted
• CRS
• Expanded
• Cigar Filler
• Chewing
• Pipe Tobacco
• Cased Burley
• DIET
• Snuff
Computer Software

Process Sensors Corporation (PSC) Viewer Software is a proprietary Windows-based package. It monitors all MCT360-T functions and allows an operator to insert set-up parameters, perform or adjust calibrations, select product codes, examine internal diagnostic values and view trends of moisture and temperature.

Frequently Asked Questions

Q: How is the MCT360-T different from its predecessor, the MCT101-T?
A: The primary difference is the implementation of improved circuitry, including full surface mount electronics, superior A/D converters to increase signal to noise ratios, and dual micro technology on the operating board for increased memory and processing speeds.

Q: Is the fundamental measurement produced by the MCT360-T different from the MCT101-T?
A: NO! The measurement technology is the same. Moisture measurement with NIR filter technology is very well understood and documented. The MCT360-T employs the same measurement and reference filters as the MCT101-T. The measurement algorithms and math treatments are the same for both Transmitters.

Q: Do I need to calibrate the MCT360-T?
A: NO, the MCT360-T is delivered from PSC with the calibration stored in the Transmitter's memory. An offset adjustment can be made on the processing line if necessary.

Q: Is the MCT360-T affected by changes in the processing environment?
A: NO, the MCT360-T is not affected by ambient light, changes in humidity or temperature fluctuations.

Q: Can I install the MCT360-T at any stage of tobacco processing?
A: YES, the MCT360-T measures linearity up to 50% moisture making it suitable for all leaf and primary processing applications.

Q: How often do I need to re-calibrate the MCT360-T?
A: Due to the exceptional long-term stability of the MCT360-T, no re-calibration is required. Calibration Check Standards allow a rapid check of the Transmitter’s stability whenever needed.

Q: Are all MCT360-T Transmitters identical?
A: YES, all MCT360-T transmitters are matched to have the same sensitivity to moisture in tobacco.

Q: Can the MCT360-T be serviced by a user’s maintenance staff?
A: YES, the MCT360-T is totally modular and any component can be changed in 5 minutes with no effect on the measurement calibration.

Q: Is the Transmitter available in languages other than English?
A: Yes, indeed. For example: Spanish, French, German, Portuguese, Italian, Polish, Russian, Chinese and more.

For Multi-Component Capability: Moisture • Nicotine • Sugars

MCT360-TX
- True Stand-Alone Transmitter
- Multiple Constituent Transmitter
- Moisture
- Temperature
- Nicotine (upon request)
- Sugars (upon request)

MCT600-TX
- Bench-top Off-Line Tester
- Simple, Push Button Operation
- 10-Second Analysis Time
- Rotating Sample Bowl Minimizes Sampling Error
- Moisture
- Nicotine (upon request)
- Sugars (upon request)
**SPECIFICATIONS: MCT 360-T Transmitter**

- **Measurement Range**: 0-60%
- **Measurement Accuracy**: +/- 0.1% to 0.5% depending on tobacco type
- **Repeatability**: +/- 0.15%
- **Transmitter/Product Distance**: 8-18 inches (200-450mm)
- **Calibration Codes**: 100
- **Response Time**: 1,000 milliseconds. Three modes available: Damping, Integration, and Gated.
- **Power**: 90-260VAC 50/60 Hz, 40 watts
  
  - 24VDC optional
- **Outputs**: 4-20 mA, 0-10 V (isolated), RS232 & RS485
- **Weight**: 21 lbs. (10 Kg)
- **Ambient Temperature**: 0-50˚C (32-120˚F) with water or air cooling up to 80˚C (160˚F).
- **Enclosure**: IP65, Cast Aluminum
- **Window Purge**: Airpurge Diffuser requires 5 psi and 2 l/min
- **Options**: Alarm relay output; relay closure for alarm condition

**DIMENSIONS: MCT 360-T Transmitter**

- **Height**: 11.00” (279 mm)
- **Width**: 7.50” (191 mm)
- **Depth**: 11.00” (279 mm)

**OPERATOR INTERFACE:** Wall or Post Mounting

- **Display**: Color Touch Screen LCD or Alphanumeric Vacuum Fluorescent with readout in % moisture and temperature
- **Languages**: User selectable (Spanish, French, German, Portuguese, Italian, Polish, Russian, Chinese, etc.)
- **Power**: From MCT 360-T Transmitter
- **Cable**: 10 ft. (3 meters) standard, longer on request
- **Keypad**: Access to MCT 360-T settings, including calibrations, product codes and diagnostics
- **Enclosure**: Cast Aluminum

**Maintenance:**

- **Warranty**: 24 months for all parts and labor.
- **Routine**: None required.
- **Calibration**: Pre-calibrated, no recalibration needed.
- **Calibration Verification**: Calibration Check Standards

**CE Compliance:**

- **EMC directives EN50081-1 & EN50082-2, EN61010-1 Low Voltage directive.**

**Data Bus & Software Interfaces:**

- **Optional Plug In Interfaces**: Ethernet TCP/IP, DeviceNet, Profinet, Modbus.
- **Software**: Windows-based stand-alone program or OPC-DDE server

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[www.processsensors.com](http://www.processsensors.com)