



# MCT 360 NIR Transmitter

The First Choice for Near Infrared (NIR) Measurement

**PROCESS SENSORS**  
CORPORATION 

**ima**

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# The Next Generation

N I R T R A N S M I T T E R

## Typical constituents include:

- O-H** for Moisture & Alcohol
- C-H** for Oils, Fats, Adhesives & Plastics
- N-H** or Proteins, Ammonia & Amines

## Typical applications include:

### Wood Products

- Particle board
- Fiberboard
- Hardboard
- Hog Fuels
- Medium Density Fiberboard
- Oriented Strand Board

### Food Products

- Snack Foods
- Pet Foods
- Coffee
- Starches
- Cereals
- Soy Bean & Corn Meals
- Milk Powders
- Cookies & Crackers

### Tobacco Products

- Whole Leaf
- Lamina Strips
- Stems
- Cut
- Reconstituted
- Expanded
- Chewing Tobacco

### Paper Converting

- Moisture & Coatweights
- Re-moisturizing
- Hot Melts
- Extruded Plastics
- Pressure Sensitive Adhesives
- Carbonless Coatings

### Chemicals & Minerals

- Crumb Rubber
- PVC Powders
- Ceramics
- Fertilizers
- PVB Films
- Plastic Chips
- Detergents
- Soaps
- Ores

## A Versatile, High Performance Stand-Alone Transmitter

The MCT360 NIR Transmitter was designed by Process Sensors in response to industry's need for a high quality sensor at an economical price. Its versatile design permits the Transmitter to operate on its own or in a multi-point network.

The Transmitter's stand alone design eliminates the need for a central processor, along with associated interconnecting cables and conduit. Installation and maintenance costs are virtually eliminated. The Transmitter contains all the optics and electronic components to perform the measurements, plus provide analog and digital signals for communication to computers, controllers and PLCs.

## Proven Accuracy and Stability in a Wide Range of Applications

Used in a wide variety of industrial processes, the MCT360 Multi-Constituent NIR Transmitter, a True Stand-Alone Transmitter, provides off-line accuracy under on-line operating conditions. Simultaneous information on important product constituents is instantly available to plant operators and control systems, all from a single MCT360 sensor.

## Advanced Features

Fully committed to technical innovation and product versatility, the MCT360 offers the industry's most useful and advanced features:

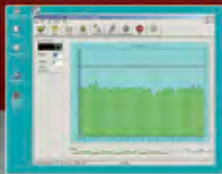
- True Stand-Alone Robust Transmitter Design
- Single High Quality PbS Detector
- Automatic Temperature Control Circuit
- Highest Quality NIR Interference Filters
- Dual Beam Wavelength Compensation
- 5-Year Lamp Warranty
- 2-Year Component Warranty
- Proven, Long-Life Motor
- Multi-Language Operator Interface (English, Spanish, Chinese, Russian, German, French, Portuguese, Italian, Polish, etc.)

MCT360 NIR Transmitter



## Computer Software

Process Sensors Corporation (PSC) Viewer Software is a proprietary Windows-based package. It monitors all MCT360 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.



Moisture and oil in potato chip



Automatic sampler, moisture in chemical powder



Moisture through sight glass

## 360 Transmitter Improvements

- Single board solution
- All surface mount electronics
- Software driven adjustable motor speed
- Supports Profibus, Ethernet, Devicenet, Profinet, Modbus TCP/IP, Modbus RTU, Bluetooth
- Dual Micro Technology
- Dual Gain Filter Processing
- 4 Measurements, including Product Temperature
- Improved A/D converters...increased signal to noise ratio
- Touch Screen Operator Interface

## Near Infrared (NIR) Operating Principle

Several molecular bonds absorb near infrared light at well defined wavelengths. The common bonds are O-H in water, C-H in organics & oils and N-H in proteins. The absorbance level at these specific wavelengths is proportional to the quantity of that constituent in the material.

Narrow band pass filters within the Transmitter create a sequence of light pulses. At least one of these pulses is at the absorbance wavelength specific to the constituent to be measured. The other pulses are created at wavelengths not absorbed by the measured constituent. The pulses illuminate the product and the diffuse reflected light is collected and focused onto a single, temperature controlled detector. The electrical signals generated by the detector are then processed to provide a value that is proportional to the concentration of the measured constituent. The value is then displayed in % or other engineering units.

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# MCT360 NIR Transmitter

## SPECIFICATIONS: MCT 360 TRANSMITTER

Measured NIR Constituents:	1, 2 or 3 simultaneously
Moisture Range:	Min. 0.1%, Max. 95%
Coatings Range:	Min. 0.1gr./m, Max. 200 gr./m
Fats/Oils:	Min. 0.1%, Max. 50%

Accuracy: (subject to application and product type)

Moisture Range:	+/- 0.1%
Coatings Range:	+/- 0.1 gr./m
Fats/Oils:	+/- 0.2%

Repeatability:	+/- 0.2%
Transmitter/Product Distance:	6-16 inches (150-400mm)
Calibration Codes:	10 standard, up to 50 on request
Response Time:	1-99 seconds. Three modes available Damping, Integration and Gated.

Power:	90-260VAC 50/60 Hz, 40 watts 24VDC optional
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Outputs:	Four 4-20 mA & 0-10 V (isolated), RS232 & RS485
Weight:	20 lbs. (9 Kg)

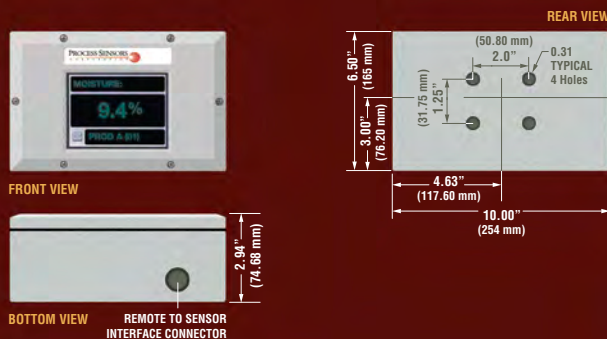
Ambient Temperature:	0-50° C (32-120°F, to 80° C (160°F) with water or air cooling panel.
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Enclosure:	Cast Aluminum, IP65
Window Purge:	Airpurge Diffuser requires 5 psi and 2 l/m

## Operator Interface: Wall or Post Mounting

Display:	Color Touch Screen LCD
Languages:	English, plus one local, user selectable (Spanish, French German, Portuguese, Italian, Polish, Russian, Swedish & Chinese)
Power:	From MCT 360 Transmitter
Cable:	10 ft (3 meters) standard, maximum 100 ft (30 meters)
Keypad:	Access to MCT 360 settings, including calibrations, product codes and diagnostics.
Enclosure:	Cast Aluminum

## DIMENSIONS: Touch Screen Operator Interface



## Options and Accessories:

Enclosure Construction:	Kynar Coated Food Grade Sensors with Sapphire or Polymeric Windows.
Cooling Panels:	Air or Water Cooling Panels for installations above 50°C (120°F)
Product Loss Sensors:	Detection of product presence/absence
Samplers:	Stainless Auto Sampler for gravity or pneumatically conveyed products.

## Maintenance:

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

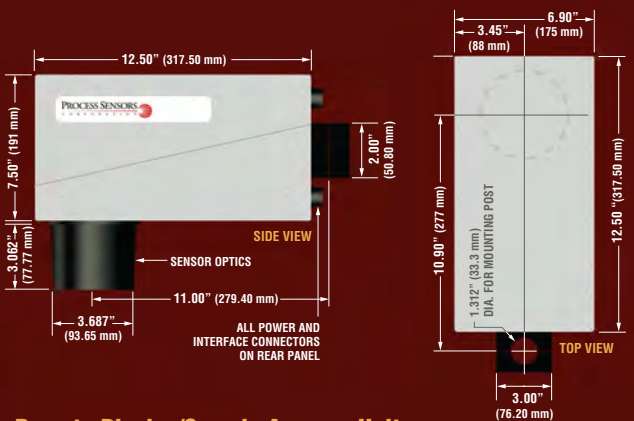
## CE Compliance:

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

## Data Bus & Software Interfaces:

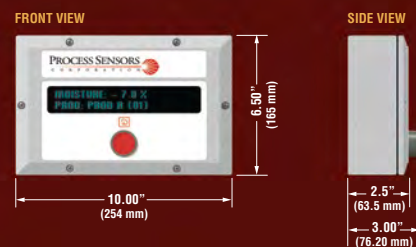
Optional Plug In Interfaces:	Ethernet TCP/IP, DeviceNet, Profibus, Modbus.
Software:	Windows-based stand-alone program or OPC-DDE server

## DIMENSIONS: MCT 360 Transmitter



## Remote Display/Sample Average Unit

Display:	Alpha-Numeric Display
Pushbutton:	Grab Sample Average
Enclosure:	Cast Aluminum



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