

MCT700 Series In-Line Food-Grade NIR Sensors

CONTINUOUS FOOD QUALITY ASSURANCE SENSORS

Real-Time Analysis of Moisture, Oil/Fat, Color, and Other Parameters for Process and Quality Control

OVERVIEW

The MCT700 Series Food-Grade NIR Sensors (MCT700 Series), comprised of the MCT700, MCT750, and MCT790, offers rapid, continuous analysis for manufacturing operators to monitor incoming raw materials or process control on the production line. The in-line, non-contact sensors accurately measure moisture, oil, color, temperature and other parameters. With this analysis, operators can maintain consistent product quality, increase throughput, and minimize waste.

The applications of the MCT700 Series range from snack foods, baked goods, cereals, ingredients, powders, and other food products. The sensors are capable of a closed loop control of ovens, belt speed, seasoning applicators, and other monitoring. The MCT700 Series can also be easily integrated into existing control systems, adding data to maximize efficiency.

Tens of thousands of MCT Series sensors have been installed at many of the largest food processing plants in the world. They help operators control moisture to within one-tenth of a percent to meet product specs every time.

MOISTURE, FAT, TEMPERATURE, AND NOW COLOR ANALYSIS

Color is a critical quality parameter for all processed foods. With consistent, real-time color analysis combined with moisture, fat, and temperature control, MCT790 users can achieve more comprehensive in-line quality control than with any previous MCT generation.

APPLICATIONS FOR THE MCT700 SERIES

- Potato Chips
- Corn Chips
- Tortillas
- Cookies
- Crackers
- Pretzels
- Extruded Snacks
- Bread Crumbs
- Oil Based Flavorings
- Doughs/Dough Sheets
- Breakfast Cereals
- Popcorn
- Pork Rinds
- Sausage Skins
- Ground Meat
- Rendering Products
- Animal Feed Ingredients
- Flours and Starch
- Milk Powders
- Potato Flakes
- Sugar and Sugar Beets
- Salts
- Coffee, Tea, and Cocoa Powders
- And Many More



MCT700 SERIES FEATURES

- High-speed measurement allows capturing up to 100 readings per second
- Integrated color measurement capabilities for food applications (MCT790 only)
- Simple to operate, integrate and standardize across multiple lines and locations
- Rugged IP67 and IP69K food-grade enclosure options available; IP67- and NEMA 4X-rated 7-inch local display included with all models
- Proprietary temperature-controlled detector ensures measurement stability
- Fully modular with all components easily replaceable in the field
- Customizable measurement area to analyze unique food products
- Simple troubleshooting with advanced on-board diagnostics

MCT700 Series In-Line Food-Grade NIR Sensors



Proven to perform in harsh conditions for industrial applications, the MCT700 Series products are built to last, are simple to install, and are virtually maintenance free for years of reliable, consistent results.



Note: All three food-grade MCT sensors have the same housing and operator interface.

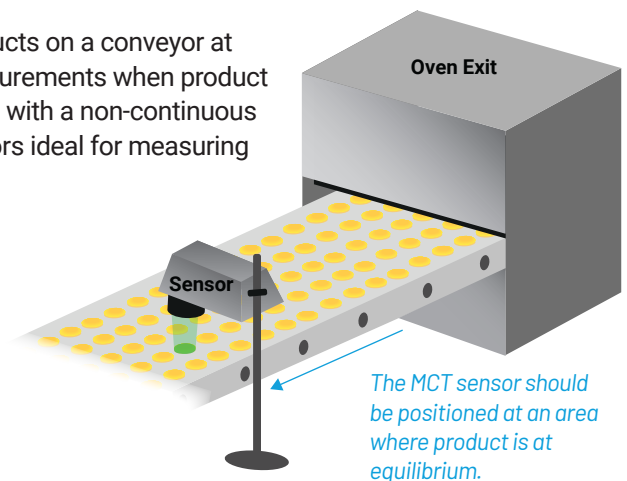
- High-speed measurement capturing up to 100 readings per second.
- Stainless steel housing; IP67 and IP69K options available. IP67-rated user interface enclosure.
- Designed for demanding conditions in food and snack food manufacturing.

	MEASURED PARAMETERS				ENCLOSURE RATING
	Color	Moisture	Fat (Oil)	Temperature	
MCT790	✓	✓	✓	✓ (optional)	IP69K (Sapphire sensor window)
MCT750		✓	✓	✓ (optional)	IP69K (Sapphire sensor window)
MCT700		✓	✓	✓ (optional)	IP67 (Kel-F sensor window)

HIGH-SPEED GATING ANALYSIS

The MCT700 Series sensors allows for the analysis of segmented products on a conveyor at full-line speeds. Through this process, the sensor will only provide measurements when product is under the sensor, thereby making the system suitable for applications with a non-continuous product flow. High-speed gating capabilities make the food-grade sensors ideal for measuring moisture and fat content in high-throughput food operations, including:

- Cookies/Biscuits
- Snack Cakes
- Candy Bars/Granola Bars
- Individually Packed Noodles
- Freeze-Dried Portioned Products



OTHER COMMON INSTALLATIONS

Belt Conveyor Installations: MCT700 Series sensors are mounted 200-450 mm (8-18 in) above the conveyor, ideally with continuous product.

Augers & Screw Conveyors: Installing the MCT700 Series on top of Augers and Screw conveyors allows for a measurement of the flow of material being conveyed by the flights of a screw. The KPM NIR Sensors are installed offset to the side of the central shaft while the influence of the flights passing the unit are eliminated by the instrument's software.

Bins and Chutes: Sapphire Sight Glass Windows can be used for continuous flow of products against the window.

Traversing Analysis: The optional food-grade Guardian-HD traversing frame allows for analyzing products across a full belt width, including move & park scanning.



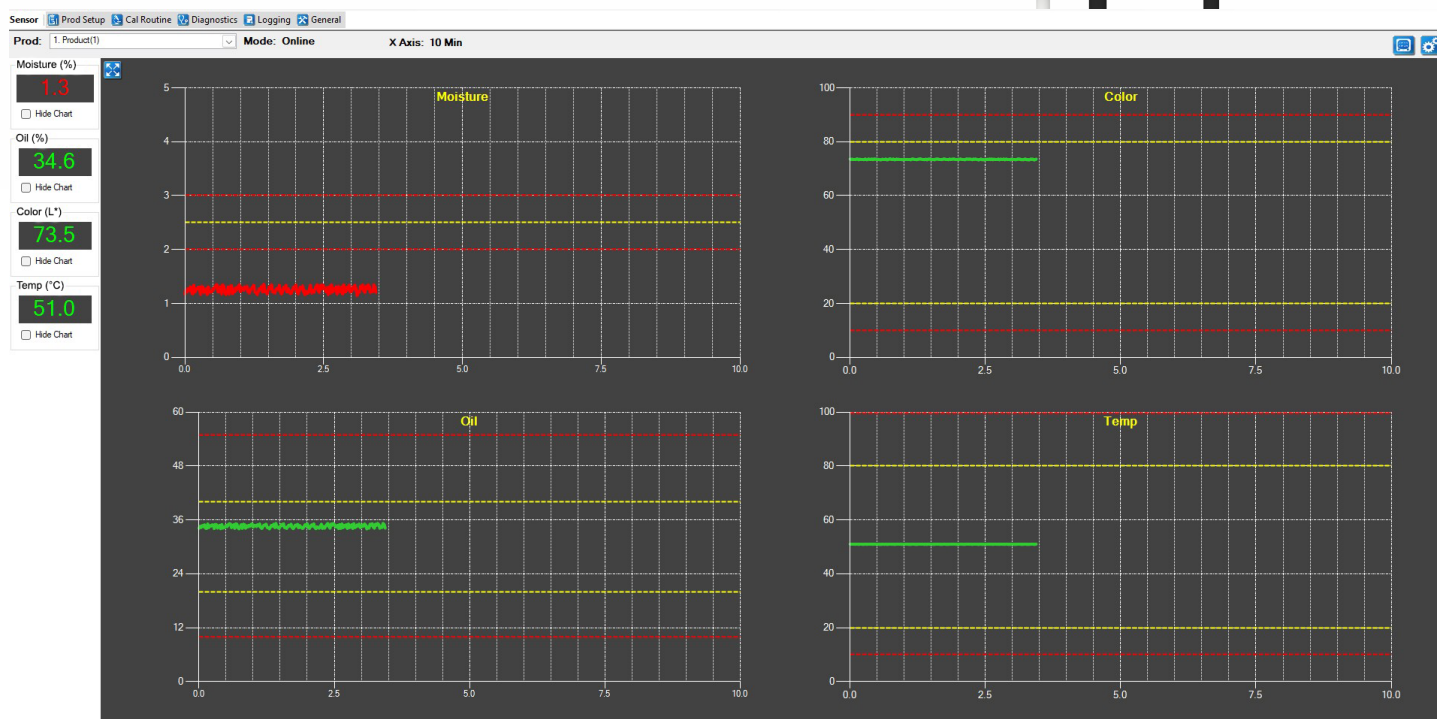
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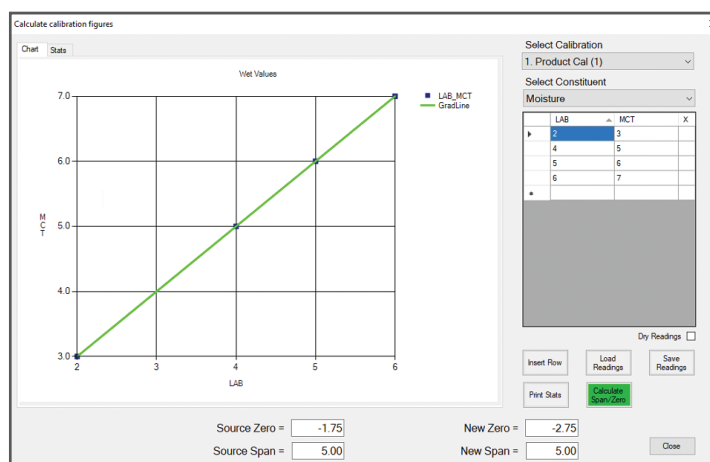
SensorVu™

PROPRIETARY SOFTWARE PLATFORM

The MCT700 Series uses SensorVu™ Windows® - based PC software, allowing operators to insert set-up parameters, perform or adjust calibrations, select product codes, examine internal diagnostic values and remotely view moisture and temperature trends. SensorVu™ can also connect to multiple KPM In-line NIR Sensors in a single location for multi-system monitoring.

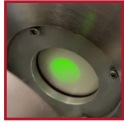


Trend screen with logging capability displays process reading changes in real time.



Simple, graphical calibration routine for quick setup of new products.

ACCESSORIES



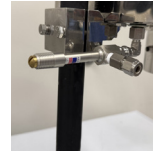
Sapphire Sight Window
(51 mm dia.)
Part# 240-150A

Enables look-in analysis of products in chutes.



Snorkel Sampler
Part# 250-000A

Designed to measure free falling powders/granules in chutes.



Air Cooling
Part# 240-010A-700

Vortex cooler attached to the sensor for high-temp applications.



Cal Check Standard
Part# 230-000A-S

Used to verify sensor stability over time and transfer calibrations between sensors.

ORDERING INFORMATION

Part Number	Description
700-100-SSA-FBX	MCT700 Sensor assembly with display. Stainless steel housing.
750-100-SSA-FBX	MCT750 Sensor assembly with display. Stainless steel housing.
790-100-SSA-FBX	MCT790 Sensor assembly with display. Stainless steel housing.

FOOD-GRADE SENSOR SPECIFICATIONS (MCT700, MCT750, & MCT790)

	MCT700	MCT750	MCT790
Sensor enclosure & rating	IP67 rated stainless steel	IP69K rated stainless steel	IP69K rated stainless steel
Constituents measured	Moisture, oil (fat), and temperature (optional)	Moisture, oil (fat), and temperature (optional)	Color, moisture, oil (fat), and temperature (optional)
Sensor window	Kel-F	Sapphire	Sapphire
Sensor weight	17 kg (37 lbs)		
Ambient operating temperature	0-60 °C (32-140 °F) with water or air cooling up to 80 °C (160 °F)		
Reading speed	Up to 100 readings/second		
Guardian-HD compatible?	Yes		
High-speed gating available?	Yes		
Advanced features	Lamp life monitoring, motor life monitoring, vibration alarm, window contamination monitoring		
Total product calibrations	200		
Operator interface	7 in (178 mm) touch screen (IP67)		
Communication options	USB, Ethernet TCP/IP, Ethernet IP, EtherCAT, ProfiNet, ProfiBus, Modbus TCP, Modbus RTU DeviceNet, OPC-DDE Server		
Moisture accuracy	+/- 0.1%		
Fats/oils accuracy	+/- 0.2%		
Wet basis moisture range	Min. 0.1% Max. 90%		
Fats/oils range	Min. 0.1% Max 50%		
Transmitter/product distance	200-450 mm (8-18 in)		
Power inputs	110 to 240 V (50 - 60 Hz) standard. 24 VDC optional.		
Outputs	4-20mA, 0-10V (isolated)		
Languages	English and 10+ selectable languages		
Cable	5 m (16.7 ft) standard; other lengths available		
ATEX22 available?	Optional		
Compliance	CE Certified (FCC CFR 47: Part 15: B: 2015, Industry Canada Interference-Causing Equipment Standard ICES-003: 2021)		
Warranty	Two years limited warranty		

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