

# MFT 4000 MODULAR CALIBRATOR WITH HART® COMMUNICATIONS

**TRANSCAT**

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MFT 4000 is a break-through combination calibrator / HART communicator that truly reduces the time spent on field calibrations. The MFT 4000 Series delivers the versatility of a modular calibrator and the convenience of HART communications in one handheld unit. Users can view up to four measurements simultaneously on the high resolution LCD or compare HART PV and AO values to corresponding values measured by the NIST traceable MFT. Available sensor modules include a variety of differential, gauge, vacuum and absolute pressure as well as temperature. A voltage and current meter is integral to the base unit. All HART field devices can be configured, polled, and trimmed using HART communications. Device Specific commands for supported devices are included with MFT.

## FEATURES & ADVANTAGES

**USER INTERFACE** – 2.6” x 2.6” display, four soft keys (definitions change with mode requirements) and eight hard keys provide user interface. Display is configurable for 1 to 4 simultaneous measurements.

**MODULES** – select from a variety of positive-lock measurement modules for excellent versatility. All modules can be “hot swapped” – remove or install sensor modules at any time (restrictions apply for Intrinsically Safe units).

**FIELD RECERTIFICATION** – sensor modules and integral V / I can be recalibrated for zero, span, & linearity through the base unit.

**MEASUREMENT UNITS** – customary English and Metric System units are selectable

**USER CONVENIENCE** – Auto shut off, Damping, Min/Max value capture, display Hold, sensor Zero, direct Contrast adjustment

**SECURITY LOCKOUT** – MFT 4000 settings can be locked out entirely or by specific feature.

**DIAGNOSTICS** – MFT 4000 self-tests upon power up and upon installation of sensor modules. Advisories are posted on the display.

**FIELD UPDATES** – uses Internet downloads to update and add capability / HART support

**DEDICATED DOF MEMORY** – 32MB flash memory for HART communication files

**ALL-IN-ONE TOOL** – takes the place of multiple handheld instruments, simplifies workload and improves productivity

## MODELS & OPTIONS

**MFT 4000 CALIBRATOR** – Base unit for calibration work with selected NIST traceable sensor modules & integral voltage/current meter.

**MFT 4010 CALIBRATOR with HART®** – Base unit for modules and Device Specific HART communications. Quick Cal displays HART PV and AO along with MFT’s NIST traceable measurements. User can identify needed trim(s) and access the trim function(s) from same display. Smart Trim allows selection of analog or digital trims without navigating through menu trees. Add VMA0055 module to temporarily power transmitter loop.

**MFT 4020 CALIBRATOR/LOOP SUPPLY** – Base unit for use with sensor modules and integral loop supply to power field devices.

**DOCUMENTING** – Documenting memory and firmware for use with Meriam DMS software. Stores up to 200 HART configuration files and over 100 calibration results (as-found & as-left data [up to 21 points each], time/date info, tag). Communicate with PC via DB-9 connector.

**INTRINSIC SAFETY** – Class I, Div I areas per CSA 22.2 & UL 913 by MET Laboratories - MFT 400X & 401X only. ATEX 100a pending.



## SPECIFICATIONS

**BASE UNIT:** 9.00"L x 4.70"W x 3.58"D ABS plastic case with shock absorbing boot, 28 ozs, three bays for measurement modules

**DISPLAY:** 128 x 128 pixel graphic display, 2.6" x 2.6" viewable area, 5-digit resolution

**POWER:** 6 AA alkaline or NiMH batteries; optional 100 – 240 Vac power adapter

**TEMPERATURE SPECIFICATIONS:**

Storage: -40° F to 140° F (-40° C to 60° C)  
 Operating: 23° F to 122° F (-5° C to 50° C)

**CONNECTIONS:** Pressure: 1/8" FNPT, 316ss  
 Electrical: Std. banana jacks (3/4" center) for ±50 mA/Volts, HART & Loop leads  
 Data transfer: DB-9 for RS-232C

**NIST TRACEABLE ACCURACY:**

Pressure: ± 0.025% to ± 0.10% of F.S including all effects of linearity, repeatability, hysteresis and temperature over the range 23° F to 122° F.  
 Current / Voltage: ± 0.025% of F.S. ± 0.001% of Span per ° F (ref. temp. 70° F).

**PRESSURE MODULE LIMITS / MEDIAS:**

GI / AI modules: 2X range / 316ss compatible  
 DN modules: 2X range when pressurized on high side only, 150 PSI when applied simultaneously to high and low sides / dry gases only

**MODULES:** 2.3"L x 1.3"W x 2.6"D, 8.3 ozs or less. Positive-lock with spring latch. Depress latch to release. Electrical connections are PC board contacts to spring loaded receivers on base unit. Dummy modules protect any empty bay(s).

## ORDERING INFORMATION

**BASE UNIT MODEL No & DESCRIPTION:**

MFT 400X Calibrator–base unit for modules  
 MFT 401X HART Communicator/Calibrator  
 MFT 402X Loop Supply/Calibrator

**BASE UNIT OPTIONS** (replace "X" w/ code)

- 0 No additional base unit options
- 1 Documentation (includes DB-9 on base)
- 2 Intrinsic Safety (MFT 4002 or 4012 only)
- 3 Documentation & Intrinsic Safety

**SENSOR MODULES**

Acc.	Module	Pressure range / type	
±.10%	FDN0010	0-10" H <sub>2</sub> O Differential	
	FDN0020	0-20" H <sub>2</sub> O Differential	
	xDN0100	0-100" H <sub>2</sub> O Differential	
	xDN0200	0-200" H <sub>2</sub> O Differential	
±.025%	xDN0400	0-400" H <sub>2</sub> O Differential	
	xDN2000	0-2000" H <sub>2</sub> O Differential	
OR	xGI0020	0-20 PSI Gauge	
	xGI0200	0-200 PSI Gauge	
±.025%	xGI0500	0-500 PSI Gauge	
±.004%	xGI1000	0-1000 PSI Gauge	
FS / °F	xGI1500	0-1500 PSI Gauge	
	xGI2000	0-2000 PSI Gauge	
	xAI2000	0-2000 mm Hg Absolute	
	xAI0900	0-900 mm Hg Absolute	
	xAI5200	0-100 PSI Absolute	
	±.05%	GGI3000	0-3000 PSI Gauge
		RTD1000	RTD meas. module
TIO0110		T/C meas & sim module	
RIO4000		RTD meas & sim module	
VMA0055		V/mA meas & sim module	

where x = D for ±0.025% FS with full temp comp  
 E for ±0.025% FS ±0.004% FS per °F

**ACCESSORIES**

Sensor Modules – see previous list  
 Protection module for open sensor bays  
 AC Power adapter, 100 - 240 Vac for US plug, International plug kit  
 250 ohm shunt adaptor for HART® communication on low resistance loops (included with MFT 401X)  
 Test lead kit (included with each MFT 402X)  
 HART® lead kit (one included with each MFT 401X)  
 Pressure pump w/ variator, 145 PSI  
 Vac. pump w/ variator, -600 mm Hg  
 Low & High pressure fittings / tubing kits  
 Pt 100Ω RTDs, connectors & user cables  
 T/C wire kits & mini-connectors  
 Soft carrying case with shoulder strap carries base unit, modules, pump, lead kits and fittings/tubing  
 Hard carrying case with handle – foam insert for base unit with 3 installed modules/fittings, 4 additional modules, lead kits, hand pump, RTD probe, fittings  
 Kits – Consult factory for details

**COMPANION PRODUCTS**



Device Management System (DMS): full management database, history, reports, on-line ready, use with MFT/MFC  
 MFC 4100 HART communicator: a more reliable, more useful and more available HART handheld communicator

