

FCI MT86/MT91 Upgrade to MT100

Modernize and Future-Proof Your Process

Upgrade your aged FCI Model MT86 and MT91 Multipoint Thermal Flow Meter electronics with all-new, state-of-the-art Model MT100 electronics



1986



2020



FCI MT100 SERIES

Ensure continuous operation of critical air/gas flow processes

Avoid unplanned outages or process disruptions

Use the same flow sensors already installed in your process

Assure uninterrupted data collection and reporting of regulated stack emissions

Save costs by upgrading now

FCI FLUID COMPONENTS
INTERNATIONAL LLC

MT100 Upgrade Kit

- All FCI MT86 / MT91 flow meters can be upgraded
- Upgrade without removing installed flow elements from your process
- Reduce down time, eliminate risk in your process operation
 - Install upgrade kit within hours
- Compatible with your existing power and sensor wiring
- As a stocked spare, a single MT100 electronics transmitter can be configured as a replacement for up to five (5) FCI MT86 or MT91 flow meters

The upgrade kit replaces MT86 or MT91 transmitter/electronics with all new MT100 transmitter/electronics. This solution is made possible because the existing MT86 or MT91 flow elements you have installed do not shift or degrade, even after decades in operation. FCI's MT100 upgrade kit ensures 100% compatibility with your installed flow elements and sensors to save you time and expense, and seamless, continued operation of your air/gas flow metering process. In addition to new, easy to service electronics, the MT100 brings you enhanced, modern new features and functions such as a touchscreen, digital/graphical, color LCD display; extensive electronics and sensor diagnostics; non-corroding, brush-finish stainless steel enclosure; 3-point in-situ calibration self-check; on-board data logger; HART and Modbus RTU I/O standard, with FOUNDATION Fieldbus or PROFIBUS-PA optional; USB to PC interface, and more.

Upgrade kit includes:

- MT100 electronics assembly
- Mounted in new, premium stainless steel, wall-mount enclosure (OIS Block 4, Codes A or B) or with panel-mount adapter plate to install in existing explosion-proof MT86 or MT91 enclosure (OIS Block 4, Codes C and D)
- Calibration matched to your existing MT86 or MT91 flow elements
- Sensor wire markers to facilitate disconnection and reconnection of flow elements
- Connector pins for sensor wires
- USB cable (PC to MT100) and FCI set-up and diagnostics software program
- Conversion instruction manual
- MT100 Operational and Instructional Manual



Ensure uptime for 5 meters with 1 spare kit – replace existing electronics within hours

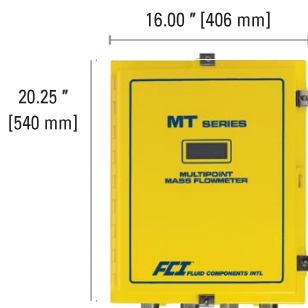
Reduce the risk of down time of your flow measurement in your critical processes by ordering a MT100 upgrade kit electronics as spare electronics for your existing FCI MT86 / MT91 thermal mass flow meters. One MT100 electronics kit can be pre-configured and set-up at FCI for use as the spare electronics for up to five existing MT86 or MT91 thermal mass flow meters.* In the event that one of the existing meters fail, you can replace it quickly with the spare MT100 electronics.

** One MT100 upgrade kit can be set for one type of existing flow meters (MT86/MT86HT / MT91/MT91HT).*

Easy configuration

FCI will supply the MT100 upgrade kit fully configured based on the original calibration and application data linked to the serial numbers of the existing MT86/MT91 flow meters in FCI's extensive database. The MT100 upgrade kit electronics can easily be connected to the complementary FCI configurator software (download from www.FluidComponents.com) through a standard USB connection. User configurable parameters and additional functionality can be configured in the configurator software, such as automatic self-validation and data logging (hourly/daily/weekly).





MT86/MT91 electronics in carbon steel enclosure

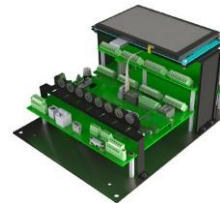


MT100 electronics in stainless steel enclosure

..... OR



MT86/MT91 electronics in EXD enclosure



MT100 electronics



Spec' Comparison of FCI Multipoint Thermal Flow Meters

	MT86, MT91	MT100
# of points	2-8 per bar 8 points/system	2-8 points per bar or up to 8 single-point flow elements
CEMS compliant	MT86: No; MT91: Yes	Yes: 40 CFR 60 and 75; 40 CFR 38.3(c)(1); CEMS option adds daily cal. drift and interference checks per part 75
QAL1 compliant	MT86: No; MT91: Yes (since 2010)	Yes (Available January 2021)
Materials of Construction		
SS	316L SS	316L SS
Hast	Hast C-276 optional	Hast C-276 optional w/ MT100S
Other	Optional Nickel, Chromium Carbide Coating or others on entire probe assembly per special request.	Optional Nickel, Chromium Carbide Coating or others on entire probe assembly per special request.
Construction	Brazed	All-Welded
Performance		
Flow Range	0.25 to 150 SFPS [0.08 to 46 NMPS]	MT100S: 0.25 to 1000 SFPS [0.08 to 305 NMPS] MT100M: 0.25 to 150 SFPS [0.08 to 46 NMDS]
Accuracy	MT86: ±2.0% of rdg, ±0.5% of FS MT91: ±2% of rdg (@ ±30 F/±17 C of calibrated temp. point), ±4% of rdg (@ ±100 F/±55 C of calibrated temp. point)	±1.75% of rdg, 0.5% of FS
Repeatability	±1% of rdg	±0.5% of rdg
Fluid Operating Temp	-50° to 350 F [-45° to 177 C] -50° to 850 F [-45° to 454 C]	-50° to 500 F [-45° to 260 C] -50° to 850 F [-45° to 454 C]
Process Pressure	Up to 50 psig [3.4 bar(g)] design to 500 psig [34 bar(g)]	MT100M: up to 100 psig [6.9 bar(g)] design to 500 psig [34 bar(g)] MT100S: up to 1000 psig [70 bar(g)]
Electronics and Transmitter		
AC Power	MT86: 115V or 230 Vac MT91: 85 to 265Vac	85 to 265Vac
DC Power	24Vdc	24Vdc, ±20%
Electronics Op Temp	MT86: no LCD: -50° to 150 F [-45° to 66 C] LCD operational to 0 F [-18 C] MT91: no LCD: 0° to 140 F [-18° to 60 C] LCD operational to 32 F [0 C]	0° to 150 F [-18° to 65 C] LCD operational to: -4 F [-20 C]
Transmitter Enclosure	Carbon Steel, Painted; NEMA 4, IP66 Opt. NEMA 4X, Ex vtd	Stainless Steel, brush-finished NEMA 4X/IP64
Outputs and Interfaces		
Analog Output	MT86: (1) 4-20mA opt. up to (4) of 10-50mA, 0-5Vdc, 1-5Vdc, 0-10Vdc MT91: (2) 4-20mA (or 1-5Vdc, 0-10Vdc)	(2) 4-20mA (w/HART) (NAMUR NE43 compliant)
Relay Output	optional (2) DPDT, 2A	(2) w/CEMS and QAL1 option
Other Analog	-	Freq/Pulse
Serial Config Port	MT86: None MT91: RS232C	USB
Digital Bus Comms	None	HART (v7) and Modbus 485 included, standard. Foundation Fieldbus (H1) or Profibus-PA optional Registered, Certified Devices and DD files. DTM's available
Display/Readout	(Opt), 4 line x 20 character, LCD	(Opt): Color, Full Graphical, Multi-parameter LCD with touch-type screen. Backlit.
Integral Keypad/Board?	MT86: No MT91: Yes. 20 key, plastic buttons behind front panel	Yes. Touch-type LCD screen
Remote Distance	1000 feet [305 m]	1000 feet [305 m]
On-board memory, recorder?	No	Yes (8Gb micro-SD card) User programmable recording. Can store 40 million readings
Agency Approvals, Certificates and Pedigrees		
FM, FMo/CSA, ATEX, IECEx	None	Yes: FM, FMo, ATEX, IECEx, EAC/TCU, CC-eE (Div. 2/Zone 2) Div 1/Zone 1 with MT100S
Meets IEC EMC and LVD directives, CE marked, RoHS compliant	No	Yes
CRN (Canada)	No (expired)	Yes (w/single-point sensors)
Other Options		
		3-point calibration self-test on each point in system. On demand or auto-timed.
		Multiple, selectable, discrete calibrations
		Ethernet service/diagnostics support port

MT100 Transmitter Features

Weather-proof, rugged stainless steel electronics enclosure

- NEMA 4X, IP66 Rated

24 Vdc or 85-265 Vac input power

Extensive choice of outputs to interface with any system

- Dual 4-20 mA
- 0-1 kHz or 0-10 kHz frequency or pulse
- HART
- Modbus
- FOUNDATION Fieldbus
- PROFIBUS
- USB port
- Ethernet
- Dual relays (with CEMS and QAL1 options)



Informational, touch-type color LCD

- Digital readout of flow rate, total flow, temperature, with engineering units
- Analog bar graph of flow rate
- Programmable flow trend graph
- Alarms status
- Sensor diagnostics
- CEMS test pass/fail (optional)
- User writeable field (tag, process name)
- Backlighted

On-board data logger

Calibration self-test

CEMS and QAL1 compliant

Multiple wiring ports isolate sensor, power and output signals to minimize noise and cross-talk

Ordering Guide

026279 -
 Block No. 1 2 3 4 5 6 7

Code	[BLOCK 1] Model Being Converted
A	MT86 to MT100 ¹
B	MT91 to MT100 ¹
Code	[BLOCK 2] Total Number of Sensor Points
1	One (1)
2	Two (2)
3	Three (3)
4	Four (4)
5	Five (5)
6	Six (6)
7	Seven (7)
8	Eight (8)
Code	[BLOCK 3] Temperature Service Rating of MT86/91
S	Standard; to 350 °F [177 °C]
H	High temperature; to 850 °F [454 °C]
Code	[BLOCK 4] Transmitter Enclosure Type
A	Stainless steel, wall-mount, with (4) 1 inch NPT conduit ports
B	Stainless steel, wall-mount, with (4) M25 x 1.2 metric conduit ports
C	Panel mount adapter for installation in existing MT86 explosion-proof enclosure
D	Panel mount adapter for installation in existing MT91 explosion-proof enclosure
*	Other
Code	[BLOCK 5] Input Power and Display/Readout
B	24 Vdc power; with display
F	24 Vdc power; with display; with CEMS protocol
K	24 Vdc power; with display; with QAL1 protocol (pending)
D	85 Vac to 265 Vac power; with display
H	85 Vac to 265 Vac power; with display; with CEMS protocol
M	85 Vac to 265 Vac power; with display; with QAL1 protocol (pending)
*	Other, not agency approved
Code	[BLOCK 6] Transmitter Outputs and Communications
1	(2) 4-20 mA analog outputs, HART and Modbus 485, (1) frequency/pulse output
F	(2) 4-20 mA analog outputs, FOUNDATION™ Fieldbus, (1) frequency/pulse output
p	(2) 4-20 mA analog outputs, PROFIBUS-PA, (1) frequency/pulse output
*	Other
Code	[BLOCK 7] Agency Approvals
0	Not applicable, general purpose, CE marking only

Notes

1. Must provide serial number of MT86 or MT91 with order.



Visit FCI online at www.FluidComponents.com/sales

FCI is ISO 9001 and AS 9100 Certified

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Contact your local FCI representative today to discuss upgrading your MT86/MT91 thermal mass flow meter

Locally represented by: