

MT100 M -

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Flow Elements
Calibration
General

Block No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

INSTRUCTIONS: To order an **MT100M**, please fill in each numbered block above by selecting required codes from the corresponding categories below. Use of any "W" or "*" Codes requires prior approval from FCI. For special data, documentation, test reports or required quality reports, refer to FCI's Engineering and Quality Assurance Order Information Sheets (OIS).

Flow Element				
Code	[BLOCK 1]	Number of Mast Flow Element Assemblies		
1 to 4	Specify number of mast probe assemblies			
Code	[BLOCK 2]	Number of Sensor Points per Assembly		
2 to 8	Specify number of points per mast probe assembly			
Code	[BLOCK 3] Flow Element: Temperature Service, Type and Materials of Construction			
A	To 500 °F [260 °C]; 316L stainless steel			
C	To 850 °F [454 °C]; 316L stainless steel			
W	Other, agency approved			
Code	[BLOCK 4]			
0	Block 4 Code is always "0"			
Code	Code	[BLOCKS 5-6] Process Connections		
BLOCK 5	BLOCK 6			
N	0	2" male NPT		
F	Table B	Flange type and rating per Table B		
W	W	Other, agency approved		
Code	Code	Code	Code	[BLOCKS 7-10] Insertion Length
BLOCK 7	BLOCK 8	BLOCK 9	BLOCK 10	
□	□	□	□	Specify length to 0.1 inch; refer to installation drawings to determine length; maximum length 199.9 inches [507 mm]; divide millimeters by 25.4 to convert to inches
Code	[BLOCK 11] Pipe Mounting and Flow Direction			
A	Horizontal, all assemblies with right-to-left flow			
B	Horizontal, all assemblies with left-to-right flow			
C	Horizontal, half of assemblies with right-to-left flow, and half with left-to-right flow			
D	Vertical up			
E	Vertical down			
W	Other, agency approved			

Transmitter and Electronics	
Code	[BLOCK 12] Local Enclosure – Sensors Termination
A	Stainless steel NEMA 4X/IP66 rated; NPT conduit ports
B	Stainless steel NEMA 4X/IP66 rated; metric conduit ports
W	Other, agency approved
Code	[BLOCK 13] Remote Enclosure – Transmitter and Electronics Housing
A	Standard stainless steel rectangular wall-mount box; NEMA 4X/IP66 rated; NPT conduit ports
B	Standard stainless steel rectangular wall-mount box; NEMA 4X/IP66 rated; metric conduit ports
W	Other, agency approved

Code	[BLOCK 14] Interconnecting Cable Length and Type
0	Not required <i>Specify with user supplied cable or if cable ordered as separate line item</i>
A	10 feet [3 meters] PVC jacketed ⁸
B	25 feet [7,6 meters] PVC jacketed ⁸
C	50 feet [15 meters] PVC jacketed ⁸
D	100 feet [30 meters] PVC jacketed ⁸
1	10 feet [3 meters] Teflon jacketed ⁸
2	25 feet [7,6 meters] Teflon jacketed ⁸
3	50 feet [15 meters] Teflon jacketed ⁸
4	100 feet [30 meters] Teflon jacketed ⁸
W	Other, agency approved
Code	[BLOCK 15] Power Supply, Readout, Transmitter
A	24 Vdc power; no display
B	24 Vdc power; with display
F	24 Vdc power; with display; with CEMS protocol
K	24 Vdc power; with display; with QAL1 protocol <i>pending</i>
C	85 Vac to 265 Vac power; no display
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 <i>(pending)</i>
W	Other, agency approved
*	Other, not agency approved

(continued next page)

Table B – Flange [BLOCK 6]		
CS	316L SS	Material/Description
A	2	ANSI 2 inch ¹⁷ 150 lb
B	3	ANSI 3 inch 150 lb
C	4	ANSI 4 inch 150 lb
	6	DIN DN50 ¹⁷ PN16
	7	DIN DN80 PN16
	8	DIN DN100 PN16
	Z	Flat duct flange
W		Other, agency approved

Notes

8. Cable suitable for conduit and some cable gland systems. For other cable gland systems, contact FCI to supply separately. PVC cable maximum temperature 176 °F [80 °C]; Teflon cable maximum temperature 392 °F [200 °C]. Teflon recommended for high temperature service if Block 3, Code C is specified.
17. Minimum inside diameter (I.D.) bore of mating flange and pipe extension = 2.125" [53,97 mm].

(continued from previous page)

Code [BLOCK 16] 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
W	Other, agency approved
*	Other, not agency approved
Code [BLOCK 17]	
E	Always "E"

Calibration^{10, 11, 12}

Code [BLOCK 18] Gas Type Application	
T	Air; flat profile
C	Air equivalency (flue gas, etc.)
W	Other, agency approved ¹³
Code [BLOCK 19] Calibrations, Set-up and Conditions	
0	None
A	Extended temperature compensation
B	Extended range (> 100:1 turndown)
E	Extended temperature compensation and extended range
Code [BLOCKS 20-21] Second Calibration	
0 0	Not required
<input type="checkbox"/> <input type="checkbox"/>	Select from Codes shown in Blocks 18-19

General

Code [BLOCK 22] Agency Approvals	
0	General purpose, CE marking
1	FM, Div 2, CE marking
2	FMc, Div 2, CE marking
3	ATEX, Zone 2, CE marking ¹⁶
4	IECEX, Zone 2, CE marking ¹⁶
5	EAC/TR CU, Zone 2, CE marking
9	CCoE (India), Zone 2, CE marking

Notes

10. FCI standard conditions are 14.7 psia [1,01 bar(a)] and 70°F [21,1°C].
11. Calibration codes must be selected using FCI's proprietary AVAL application evaluation software.
12. Transmitter setup, changes to factory supplied standard settings, verification or modification to calibration parameters or diagnostics requires external source communication with the transmitter.
13. Customer specified calibration must not exceed temperature and pressure limitations of the MT100 Series product specifications.
16. ATEX/IECEX rated requires cable glands or conduit fittings which meet or exceed the installation area's required rating. When rated cable glands, armored cables and non-armored cable supplied are user supplied or ordered separately, enter Code 0 in Block 14.

MT100M Sensor Type Installation

U-length = ID + B + E

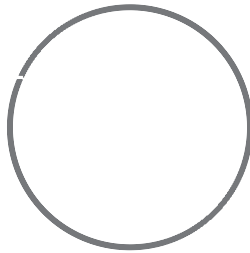
Convert to inches and enter in MT100M OIS Boxes 7-10

MT100S Sensor Type Installation

Threaded connection: U-length = (B - thread engagement) + Y + 0.5 inch

Fixed flange: U-length = B + Y + 0.5 inch

Convert to inches and enter in MT100S OIS Boxes 8-10



Customer Information

Customer Name: _____ Address: _____ _____ Contact Name: _____ Phone: _____ Fax: _____ Email: _____	P.O. No.: _____ Customer Order No.: _____ Model Number Ordered <input type="checkbox"/> MT100M - [] [] [] 0 [] [] [] [] [] [] - [] [] [] [] E - [] [] [] [] - [] [] [] [] <input type="checkbox"/> MT100S - [] [] 1 [] [] 0 [] [] [] [] [] [] - [] [] [] [] E - [] [] [] [] - [] [] [] [] Tag Number _____
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Process Details

If more than one (1) calibration is required, provide *Process Details* for each calibration – attach additional sheet(s) as needed.

Application Description
Describe type of application (*example: stack, boiler air feed, HVAC duct, etc.*): _____

Process Media
Include gas name and percent composition by volume (moles) or weight (mass). Please attach a gas composition list or fill in composition below. Total composition must add up to 100%.

Gas Components: % Volume (moles) % Weight (mass)

_____	_____	%
_____	_____	%
_____	_____	%
_____	_____	%
_____	_____	%
_____	_____	%

Process Conditions

	Normal	Minimum	Maximum	Engineering Units
Flow Rate:	_____	_____	_____	_____
Temperature:	_____	_____	_____	_____
Pressure:	_____	_____	_____	_____

Required Dimensions (*Include units of measure – inches, mm, etc.*)

1. Pipe Size: _____ or Duct Size: _____

 a) Outside Diameter: _____ Height: _____

 b) Inside Diameter: _____ Width: _____

2. Piping:
Wall thickness: _____

Cross section geometry: Round Square Rectangle

Material: _____

3. Length of mounting adapter/coupling from outside pipe surface: _____

4. Length of straight-run available: _____

5. Describe nearest upstream and downstream disturbance:

 a) Upstream: _____

 b) Downstream: _____

Other notes about installation:

Instrument Details

Flow Element Mounting/Flow Direction

Horizontal Pipe <input type="checkbox"/> Horizontal pipe; all assemblies with right to left flow <input type="checkbox"/> Horizontal pipe; all assemblies with left to right flow <input type="checkbox"/> Horizontal ; half of assemblies with right to left flow, and half with left to right flow	Vertical Pipe <input type="checkbox"/> Vertical pipe; flow up <input type="checkbox"/> Vertical pipe; flow down <input type="checkbox"/> Other: _____
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Transmitter Setup
Input Power: 115 Vac 230 Vac 24 Vdc

CEMS Protocol

Analog Signal Outputs	Output 1 4-20 mA	Output 2 4-20 mA
Parameter:	<input type="checkbox"/> Flow (default) <input type="checkbox"/> Temperature	<input type="checkbox"/> Temp. (default) <input type="checkbox"/> Flow
Eng. Units:	_____	_____
Zero Value:	4 mA = _____	4 mA = _____
Full Scale:	20 mA = _____	20 mA = _____

Signal Output 3 **Frequency/Pulse Output:** 0-1 kHz (default) 0-10 kHz

Set as:

1 pulse per flow engineering unit

Full scale frequency output proportional to full scale flow rate

Other: _____

Bus Communications I/O

	Include	Active <i>Choose one only</i>
HART (included on output 1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Modbus 485 (included)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
FOUNDATION™ Fieldbus H1 (no analog outputs)	<input type="checkbox"/>	<input type="checkbox"/>
PROFIBUS PA (no analog outputs)	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>

Standard Temperature and Pressure

70 °F and 14.7 psia [21,1 °C and 1,013 bar(a)] is the factory calibration default for standard temperature and pressure unless otherwise indicated below.

0 °C and 1013,25 mBar (a)

Temperature
Pressure

Other: _____