FLUID COMPONENTS INTERNATIONAL LLC
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Order Information Sheet (OIS)

MT100 M

Multipoint Insertion Air/Gas Mass Flow Meter

	Flow Elements																	Calibration				General
MT100 M -				0							-						E	-				-	
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 **MT100 M**, 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 BLOCK 5	Code BLOCK 6	[BLOCKS 5-6] Process Connections
N	0	2" male NPT
F	Table B	Flange type and rating per Table B
W	W	Other, agency approved

Code BLOCK 7	Code BLOCK 8	Code BLOCK 9	Code BLOCK 10	[BLOCKS 7-10] Insertion Length
☐	☐	☐	. ☐	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 *Specify with user supplied cable or if cable ordered as separate line item*
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 *pending*
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 (*pending*)
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
☐ ☐	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.

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Application Data Sheet (ADS)

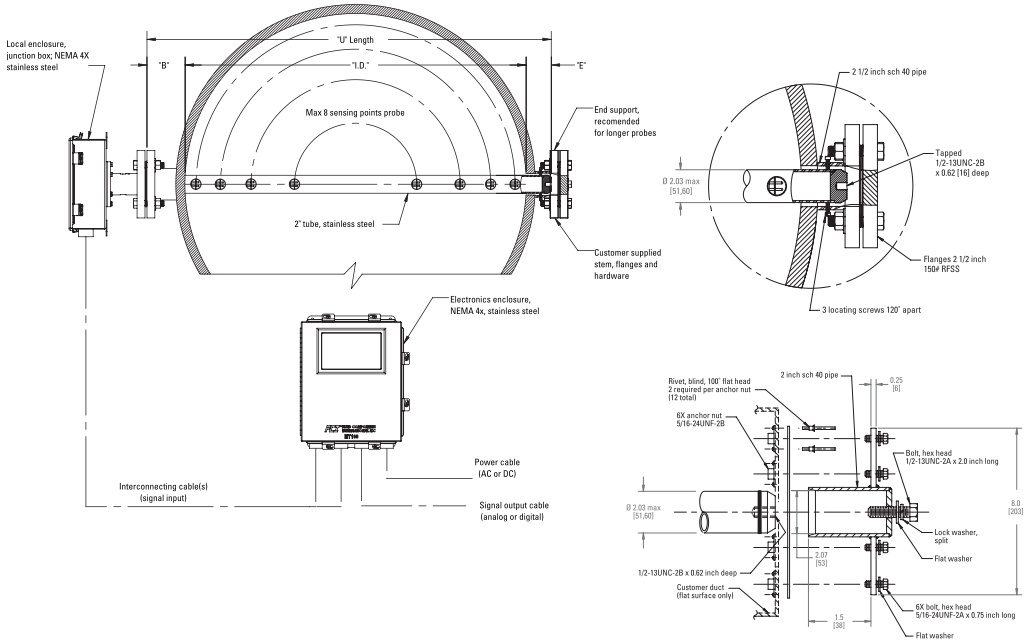
MT100 Series

Insertion Multi-Point Mass Flow Meter

MT100M Sensor Type Installation

U-length = ID + B + E

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

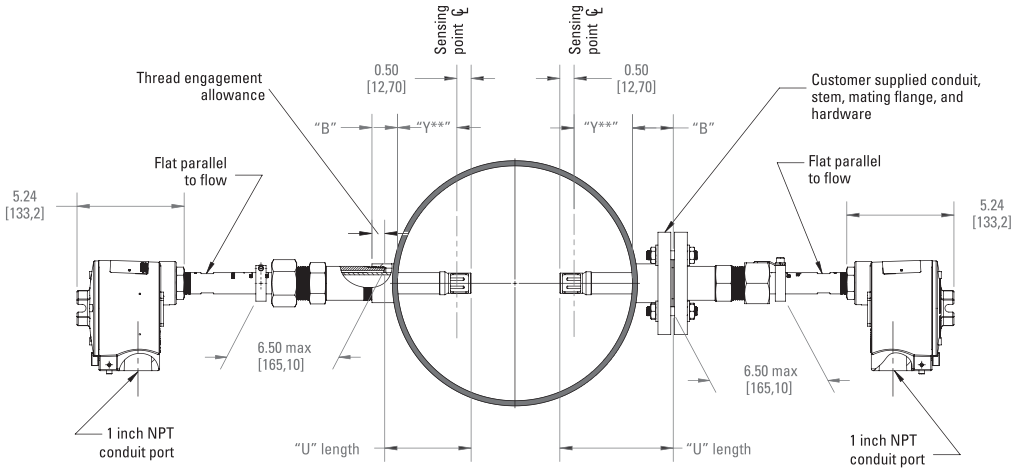


MT100S Sensor Type Installation

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

<u>Fixed flange</u>: U-length = B + Y + 0.5 inch

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



** Y = 14.6% of pipe I.D.

ID = Inside diameter of pipe (or duct)

B = Distance from process connection to pipe inside wall; *if a threaded process connection is used, reduce "B" by the engagement allowance*

*<u>For **MT100M** sensor types only</u>*

E = Additional flow element length to provide for optional end support

Required installation dimensions

ID = _____

B = _____

E = _____

Wall thickness = _____

_____

*<u>For **MT100S** sensor types only</u>*

Y = Distance from inside pipe/duct wall to sensing point

– If round pipe/duct, Y = 0.146 x ID

– If square pipe/duct, consult factory or use FCI's AVAL program to calculate Y

For 36" or larger diameter pipes, 3- or 4-point configurations are recommended; use the same factor for calculating "Y," and space the flow elements evenly around the pipe circumference (120° or 90° apart, respectively)

Customer Information

Customer Name: _____

Address: _____

_____

Contact Name: _____

Phone: _____ Fax: _____

Email: _____

P.O. No.: _____ Customer Order No.: _____

Model Number Ordered

☐ MT100M - | | | 0 | | | | | | | - | | | | | E | - | | | | - | |

☐ MT100S - | | 1 | | 0 | | | 0 | | | | - | | | | | | E | - | | | | - | |

Tag Number

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

☐ Horizontal pipe; all assemblies with right to left flow

☐ Horizontal pipe; all assemblies with left to right flow

☐ Horizontal ; half of assemblies with right to left flow, and half with left to right flow

Vertical Pipe

☐ Vertical pipe; flow up

☐ Vertical pipe; flow down

☐ Other: _____

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:	☐ Flow (default) ☐ Temperature	☐ Temp. (default) ☐ 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** *Choose one only*
HART (included on output 1)	☒	☐
Modbus 485 (included)	☒	☐
FOUNDATION™ Fieldbus H1 (no analog outputs)	☐	☐
PROFIBUS PA (no analog outputs)	☐	☐
Other: _____	☐	☐

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:	_____	_____