

Coriolis Mass Flow Meter

TME

- Immune to vibration effects
- Immune to pipeline generated stresses
- Rugged housing (cast iron)
- Digital signal processing (DSP)
- Process temperature up to 180°C

Function

The TME Series Mass Flow Meter utilizes the Coriolis principle of operation to measure mass flow. Density and temperature are simultaneously monitored and volumetric flow is additionally calculated with these parameters. The TME Series is available with a direct mounted transmitter or in a remote mounted configuration.

Application

The TME Series can be used to meter nearly all liquid or gaseous media. The TME can be used in many standard applications common to chemical, petrochemical, oil and gas industries. The TME Series is also used for precise dosing as well as in loading and unloading applications. Approvals for service in custody transfer (fiscal metering) applications are also available. The TME is easy to install due to a rugged housing (cast iron). A superior efficient heating is optionally available.





Technical Data

Sensor

End connections: Flanges acc. EN 1092, ANSI B16.5, DIN2512,
Nominal pressure: PN 40, ANSI 150 / 300 lbs
Process temperature: -40°C to +180°C (-40°F to +356°F)
Ambient temperature: -40°C to +60°C (-40°F to +140°F)

Ingress protection: IP 65 (EN60529) (NEMA 4X)

Materials

Flow tubes, splitter, flanges: 1.4404 (316 L) / 1.4571 (316 Ti)
Housing: Cast iron
Explosion protection: Sensor circuits: intrinsically safe
DMT 01 ATEX E 149 X
II 1/2G EEx ia IIC T6–T2,
(Approval for Zone 0 inside flow tubes available)

Transmitter

Power supply: 19 - 36 VDC, 24 VAC +/- 20%,
90 - 265 VAC
Outputs: Galvanically isolated
Current: 2 x 0/4-20 mA
Binary 1: active, potential free 24 V=, max. 200 mA
passive, optocoupler, $U_i=30\text{ V}$, $I_i=200\text{ mA}$, $P_i=3\text{ W}$
Frequency: 1 KHz
Binary 2: passive, optocoupler, $U_i=30\text{ V}$, $I_i=200\text{ mA}$, $P_i=3\text{ W}$
Status: passive, optocoupler, $U_i=30\text{ V}$, $I_i=200\text{ mA}$, $P_i=3\text{ W}$
Input Binary: Counter reset

Accuracy

Liquid: $\pm 0,15\%$ of reading \pm zero point stability
Gas: $\pm 0,5\%$ of reading \pm zero point stability
Density (liquid): $\pm 0,005\text{ g/cm}^3$ with density calibration
 $\pm 0,003\text{ g/cm}^3$ with special density calibration
Volume: $\pm 0,2\%$ of reading \pm zero point stability

Ambient temperature: -20°C to +60°C (-4°F to +140°F)

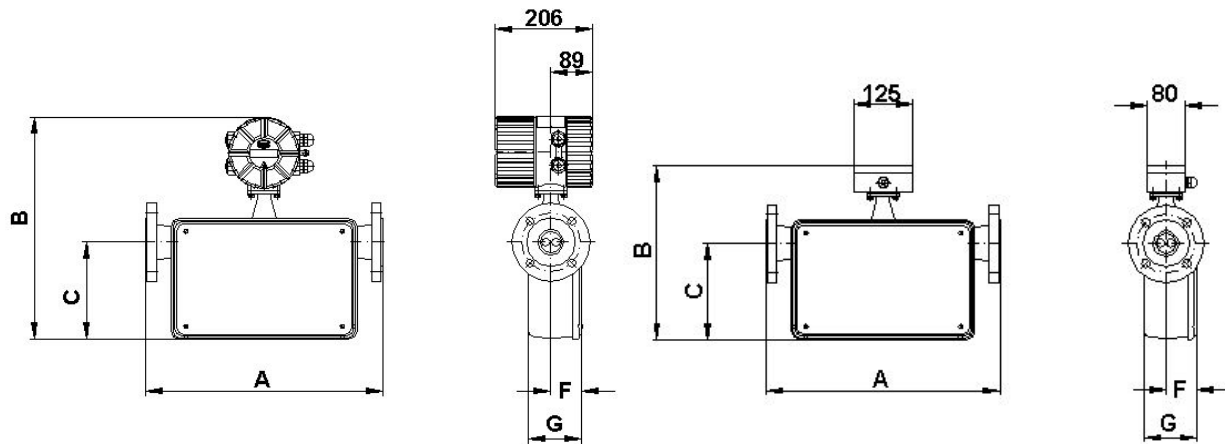
Ingress protection: IP 68 (EN60529) (NEMA 6)

Explosion protection: BVS 05 ATEX E 021 X
Increased safety EEx e (connection area): II (1)2G EEx de [ia] IIC/IIB T6–T3
Explosion proof EEx d (connection area): II (1)2G EEx d [ia] IIC/IIB T6–T3
Intrinsically safe EEx i (signal output): II (1)2G EEx de [ia] IIC/IIB T6–T3, II (1)2G EEx d [ia] IIC/IIB T6–T3

CE-Marking: EMC-Directive 89/336/EEC,
EN 61000-6-3:2001 (emissions residential environments)
EN 61000-6-2:1999 (immunity for industrial environments)
Pressure Equipment Directive 97/23/EC
Explosion Protection Directive 94/9/EC
Communication: HART® (Drivers for Sensor Port, AMS, EDD, PDM)
Profibus-PA (EDD, PDM)
RS 485-Modbus (in progress)

Dimensions

Model	Endconnection	A		B				C	F	G
		mm [inch]	mm [inch]	Integral Mount Transmitter		Remote Mount Transmitter				
				-40°C - 100°C (-40°F to 212°F)	-40°C - 150°C (-40°F to 302°F)	-40°C - 100°C (-40°F to 212°F)	-40°C - 180°C (-40°F to 356°F)			
TME006	DN10 PN40, ANSI ½" 150/300lb	300 [11,8]	363 [14,3]	465 [18,3]	265 [10,4]	367 [14,4]	113 [4,4]	58 [2,3]	105 [4,1]	
TME008	DN10 PN40, ANSI ½" 150/300lb	300 [11,8]	363 [14,3]	465 [18,3]	265 [10,4]	367 [14,4]	113 [4,4]	58 [2,3]	105 [4,1]	
TME010	DN15 PN40, ANSI ¾" 150/300lb	300 [11,8]	363 [14,3]	465 [18,3]	265 [10,4]	367 [14,4]	113 [4,4]	58 [2,3]	105 [4,1]	
TME012	DN15 PN40, ANSI ¾" 150/300lb	300 [11,8]	363 [14,3]	465 [18,3]	265 [10,4]	367 [14,4]	113 [4,4]	58 [2,3]	105 [4,1]	
TME015	DN25 PN40, ANSI 1" 150/300lb	400 [15,7]	430 [16,9]	532 [20,9]	332 [13,1]	434 [17,1]	173 [6,8]	65 [2,6]	113 [4,4]	
TME020	DN25 PN40, ANSI 1" 150/300lb	400 [15,7]	430 [16,9]	532 [20,9]	332 [13,1]	434 [17,1]	173 [6,8]	65 [2,6]	113 [4,4]	
TME025	DN50 PN40, ANSI 2" 150/300lb	500 [19,7]	471 [18,5]	573 [22,6]	373 [14,7]	475 [18,7]	206 [8,1]	65 [2,6]	113 [4,4]	
TME050	DN80 PN40, ANSI 3" 150/300lb	600 [23,6]	557 [21,9]	659 [25,9]	459 [18,1]	561 [22,1]	290 [11,4]	77 [3,0]	137 [5,4]	
TME080	DN80 PN40, ANSI 3" 150/300lb	600 [23,6]	557 [21,9]	659 [25,9]	459 [18,1]	561 [22,1]	290 [11,4]	77 [3,0]	137 [5,4]	



Ranges

Model	Mass flow			Zero point stability (of range)
	Min. measuring range	Max. measuring range	Nominal ($\Delta p=1\text{bar}$)	
TME006	kg/h [lbs/min]	kg/h [lbs/min]	kg/h [lbs/min]	kg/h [lbs/min]
TME006	20 [0,7]	200 [7,3]	96 [3,5]	0,02 [0,001]
TME008	35 [1,3]	350 [12,9]	282 [10,4]	0,035 [0,00]
TME010	120 [4,4]	1.200 [44,1]	1.030 [37,8]	0,12 [0,00]
TME012	200 [7,3]	2.000 [73,5]	1.550 [57,0]	0,2 [0,01]
TME015	300 [11,0]	3.000 [110,2]	3.000 [110,2]	0,3 [0,0]
TME020	600 [22,0]	6.000 [220,5]	5.750 [211,3]	0,6 [0,0]
TME025	2.000 [73,5]	20.000 [734,9]	13.000 [477,7]	2 [0,1]
TME050	4.000 [147,0]	40.000 [1.469,7]	34.000 [1.249,3]	4 [0,1]
TME080	6.000 [220,5]	60.000 [2.204,6]	57.000 [2.094,4]	6 [0,2]

UMC 3 Connections

Designation	Terminal designation	Type of protection		Standard (Not Ex)
		EEx ia	EEx e	
Signal outputs				
Current 1, 0/4 to 20mA with HART®	11 and 12	x		x
	41 and 42		x	
Current 2, 0/4 to 20mA	13 and 14	x		x
	43 and 44		x	
Binary output 1 (passive pulse)	16 and 17	x		x
	46 and 47		x	
Binary output 1 (active pulse)	45 and 48		x	
	15 and 18			x
Binary output 2 (status or second passive pulse output for custody transfer operations)	19 and 20	x		x
	49 and 50		x	
Option Binary output 3 (status output during custody transfer operations)	33 and 34	x		x
	53 and 54		x	
Profibus PA option	39 (A) and 40 (B)	x		
Control unit BE	Shield, -, +	x		x
Alternatives for current output 2				
Binary input	21 and 22	x		x
	51 and 52		x	
Modbus/Profibus DP with RS 485-IS	35 (A) and 36 (B) (in progress)	x		x
Profibus DP	37 (A) and 38 (B) (in progress)		x	

For further information see device description TME_UMC3_GB_XX_en



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