

TCM 0650 Series

Coriolis Mass Flow Meter and Density Meter for Marine Fuel Consumption Management

- > All in one mass flow and density meter
- > Customized installation length
- > Direct mass flow measurement
- > Real time density measurement for fuel quality control
- > Maintenance free
- > No moving parts
- > Replaces all kind of volume based flow meters
- > Excellent repeatability in order to determine actions for process/engine optimization
- > Recommended 5 year meter recalibration

Accuracy¹⁾:

Basic Accuracy [Mass Flow]:	±0.1 % of flow rate
Mass Flow Repeatability:	±0.05 % of flow rate
Basic Accuracy [Volume Flow]:	±0.15 % of flow rate
Volume Flow Repeatability:	±0.05 % of flow rate
Zero Stability:	±0.01 % of full scale

Density:

Density Range:	up to 2,500 kg/m ³ , 2.5 g/cm ³
Density Accuracy:	Liquids ±1.0 kg/m ³ , ±0.001 g/cm ³
Density Repeatability:	±0.5 kg/m ³ , ±0.0005 g/cm ³

Temperature:

Process Temperature Range:	Standard: -40 °F ... +212 °F (-40 °C ... +100 °C)
	Optional ²⁾ : -76 °F ... +302 °F (-60 °C ... +150 °C) -76 °F ... +392 °F (-60 °C ... +200 °C)
Temperature Accuracy:	±1.8 °F ±0.5 % of reading (±1 °C ±0.5 % of reading)
Temperature Repeatability:	±0.36 °F (±0.2 °C)

Materials of Construction [wetted parts]:

Tubes:	1.4404/AISI 316L
Case:	1.4404/AISI 316L

Typical Specification:

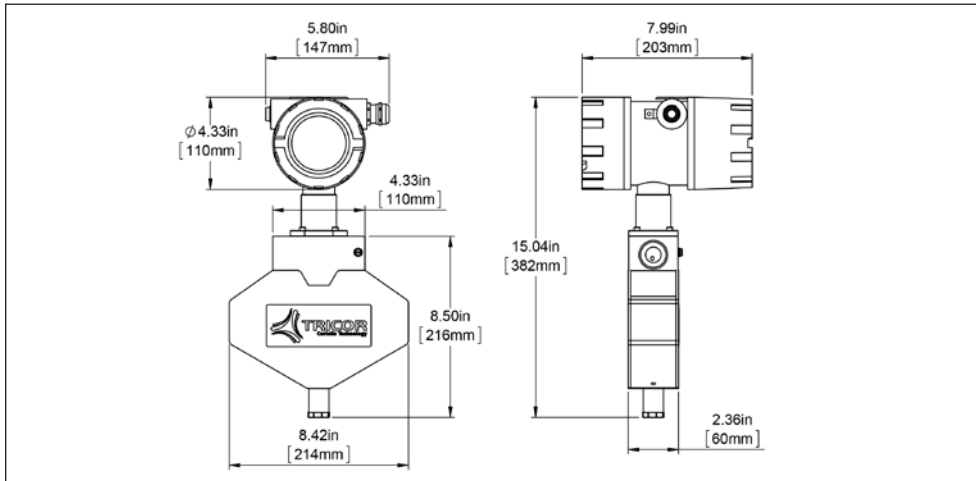
Nominal Meter Size	G1/2" tread
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¹⁾ Stated flow accuracy combines the effects of repeatability, linearity and hysteresis.

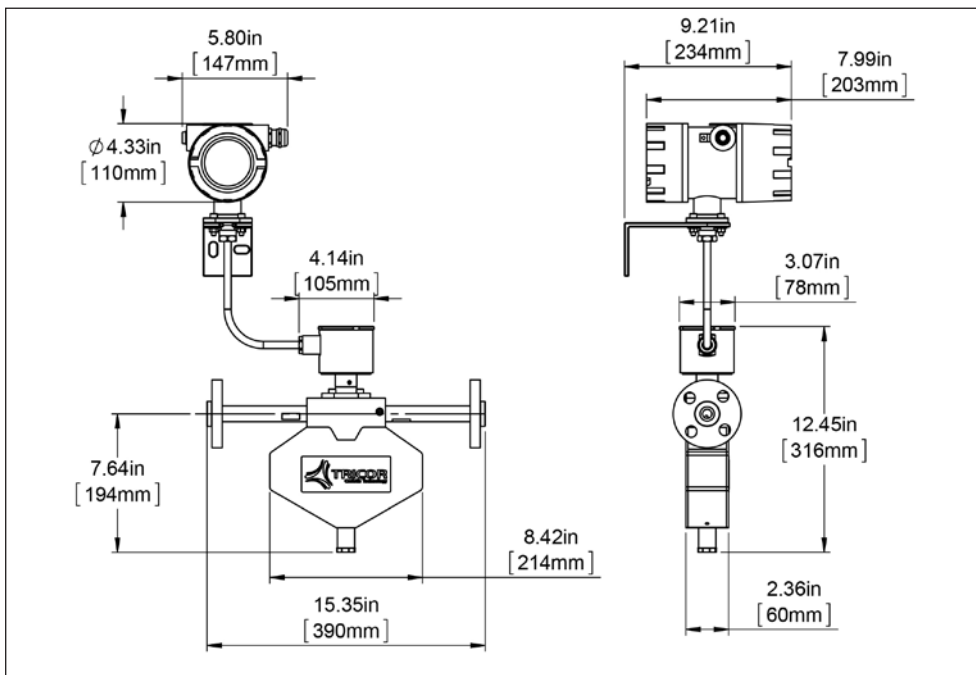
²⁾ Ex-Version compact: -40 °C ... +70 °C, -40 °F ... +158 °F.

Meter Dimensions³⁾:



Compact Version

weight: 7 kg/15.5 lb
with meter mount ex-electronics
meter connection: G1/2" thread



Remote Version

weight: 8.3 kg/18.3 lb
with junction box & remote field mount
meter connection:
standard meter connection according table

Model Code	ANSI B16.5 or DIN EN 1092-1 Form B	Face-to-Face [mm] ⁴⁾	Flange - Ø [mm]	Screws QTY	Hole - Ø (for screws) [mm] or screw dim.
AA	0.5" CL 150 ANSI	390	90	4	16
AB	0.5" CL 300 ANSI	390	95	4	16
AC	0.5" CL 600 ANSI	390	95	4	16
AD	0.5" CL 900 ANSI	390	120	4	22
AE	1.0" CL 150 ANSI	390	110	4	16
AF	1.0" CL 300 ANSI	390	95	4	19
AG	1.0" CL 600 ANSI	390	125	4	19
AH	1.0" CL 900 ANSI	390	150	4	25
DA	DN15 PN40 EN 1092-1 Form B1	390	95	4	M12
DB	DN15 PN100 EN 1092-1 Form B1	390	105	4	M12
DC	DN25 PN40 EN 1092-1 Form B1	390	115	4	M12
DD	DN25 PN100 EN 1092-1 Form B1	390	140	4	M16

³⁾ Drawing of the Meter Dimensions reflects one standard connection, other connections on request (Installation length can vary depending on selected connection).

⁴⁾ Customized face-to face length available.



www.tricorflow.com

N & S AMERICA:

AW-Lake Company
2440 W. Corporate Preserve Dr. #600, Oak Creek WI 53154, USA, Tel.: +1 414 574 4300

SINGAPORE:

TASI Flow Souteast Asia, Representative Office (RO) Singapore
1003 Bukit Merah Central #06-32, Singapore 159836, UEN: T15RF0080G, P: +65 6274 1130

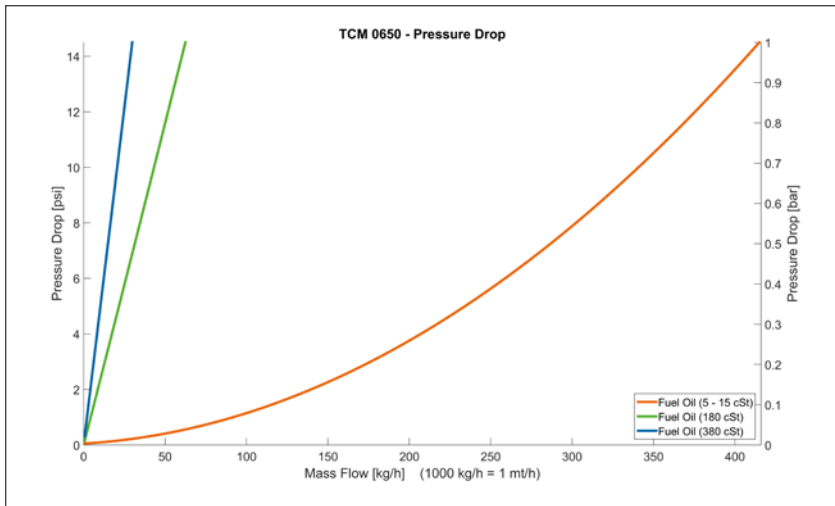
CHINA:

TASI Flow China
Rm. 2429, JinYuan Office Building, No. 36, CN- BeiYuan Road, Beijing 100012, P.R. CHINA, Tel.:+86 10 520 037 38

Rest of the World:

KEM Küppers Elektromechanik GmbH, Liebigstraße 5, 85757 Karlsfeld, Germany, Tel.:+49 8131 59391-0

Pressure Drop:



Range	Fuel Oil		
Viscosity [cSt]	5-15	180	380
Density [kg/m ³]	900	900	900
Flow Rate [mt/h]	0.44	0.06	0.03
Pressure Drop [bar/psi]	1/14.5		

Electronics:

The TCE 8000 transmitter offered with the TRICOR Coriolis Mass Flow Meter is also available with other mounting options.

Panel Mount



Weight: 0.4 kg/0.88 lb

Remote Field Mount



Weight: 3.8 kg/8.3 lb with 3 m cable

Power Supply: 24 V DC \pm 20 % or 90 ... 264 V AC
 Outputs: Analog, Frequency, Pulse, Status
 Interface: RS485 RTU (Modbus), HART[®]

More options on request

Ex Certifications:

ATEX (Ex)	Zone 1: Group IIC or IIB, T2...T4
ATEX (Exn)	Zone 2: II 3G Ex nA IIC T2...T4 Gc
IECEX (Ex)	Zone 1: Group IIC or IIB, T2...T4
cCSAus (Ex1) ⁵⁾	Class 1, Division 1: Group A, B, C, D or C, D, T2...T4
ATEX + IECEX + cCSAus triple approval (Ex3) ^{5) 6)}	Zone 1: Group IIC or IIB, T2...T4 and Class 1, Division 1: Group A, B, C, D or C, D, T2...T4
EAC (TR-CU) ⁵⁾	Group IIC or IIB, T2 ... T4

Product Type Approval:

American Bureau of Shipping	Certificate Number: 14-HS1223473-PDA-DUP
RMRS	Russian Maritime Register of Shipping

Other Type Approvals in process.

⁵⁾ For Ex1, Ex3, EAC (TR-CU) the electronic is only available in aluminum housing.

⁶⁾ Only with remote electronics.