Product Owner's Manual

EN

FLOMEC®

TM SERIES®
water meters

TM Series® Electronic Water Flowmeters

3 INCH & 4 INCH METER SIZES
[TM30XXXXXX & TM40XXXXXX MODELS]

09/2023

920861-01 Rev. G

Please save these instructions for future reference. Read carefully before attempting to assemble, install, operate or maintain the product described.

Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage.

Please refer to back cover for information regarding this product's warranty and other important information.

SAVE FOR YOUR RECORDS

Model #: _____

Serial #: _____

Purchase Date: _____

TABLE OF CONTENTS

BEFORE YOU BEGIN

Usage Requirements

- Use TM Series meters with water and other chemicals compatible with wetted components.
- **DO NOT** use to meter fuel or incompatible chemicals.
- TM Series meters are very sensitive to electric noise if operatedwithin 1 to 2 inches of some electric motors or other sources of electronic noise.
- This meter is not legal for trade applications.

UNPACKING / INSPECTION

Inspect

- After unpacking the unit, inspect carefully for any damage that mayhave occurred during transit. Check for loose, missing or damaged parts. Shipping damage claims must be filed with carrier.

- See General Safety Instructions, and all Cautions, Warnings, and Dangers as shown.

GENERAL SAFETY INSTRUCTIONS

IMPORTANT: It is your responsibility to:

- Ensure that all equipment operators have access to adequate instructions concerning safe operating and maintenance procedures.

⚠ WARNING ***Compatibility of this product's material and the process fluid and/or environment should be considered prior to putting intoservice.***

⚠ WARNING ***Product should never be operated outside its published specifications for temperature or pressure. See specifications foryour model.***

⚠ WARNING ***Make sure flow and pressure have been eliminated from processpipe prior to installing or removing product.***

⚠ WARNING ***Always use appropriate thread sealant or flange gaskets whenconnecting product to process piping.***

⚠ CAUTION ***To protect against leakage, seal all pipe threads with an appropriate sealing compound. Make sure the sealing compounddoes not intrude into the flow path.***

⚠ CAUTION ***PTFE thread tape is not recommended for pressures over 30 psi (2 Bars).***

NOTE: *If connecting to new male pipe threads, burrs and curls can adversely affect accuracy. Correct the problem prior to turbineinstallation.*

NOTE: *Do not over tighten the flange bolts. This may cause the gasket to be compressed into the flow stream and may decrease the accuracy of the meter.*

⚠ CAUTION ***Installation near high electromagnetic fields and high current fields is not recommended and may result in inaccurate readings.***

SPECIFICATIONS

	TM30 3 INCH	TM40 4 INCH
Type	Turbine Flowmeter	
Unit of Measure	Gallon or Litre	
Flow Range	40-400 GPM 151-1514 L/min Accuracy: ± 3.0% of Reading 30-600 GPM 113-2271 L/min Accuracy: ± 2.0% Full scale	60-600 GPM 227-2271 L/min Accuracy: ± 3.0% of Reading 40-800 GPM 151-3028 L/min Accuracy: ± 2.0% Full scale
Accuracy w/Computer	+/- 3.0% of Reading (Accuracy can be improved with field calibration)	
Max. Working Pressure	Non-CE Applications: 225 PSIG @ 73°F (15.5 bar @ 23°C) CE Applications: 135 PSIG @ 73°F (9.3 bar @ 23°C)	
Operating Temperature	+32°F to +140°F (0°C to +60°C) - Do not allow fluid to freeze inside meter	
Storage Temperature	-40°F to +158°F (-40°C to +70°C)	
Field Calibration	Yes	
Wetted Components	Housing: PVC | Journal bearings: PEEK | Shaft: Stainless steel Rotor and nose cone: Acetal | Washers: Stainless steel	
Inlet / Outlet Connections		
S - (Spigot)	3 inch Schedule 80	4 inch Schedule 80
N - (NPT)	3 inch NPT	4 inch NPT
A - (ANSI Flange)	3 inch ANSI Flange	4 inch ANSI Flange
D – (DIN Flange)	3 inch DIN Flange	4 inch DIN Flange
Weight		
S - (Spigot)	2.4 lbs. (1.09kg)	3.7 lbs. (1.68kg)
N - (NPT)	3.9 lbs. (1.77kg)	6.1 lbs. (2.77kg)
A - (ANSI Flange)	5.8 lbs. (2.63kg)	9.2 lbs. (4.17kg)
D – (DIN Flange)	6.5 lbs. (2.95kg)	8.8 lbs. (3.99kg)

Weight shown is with computer display. Output modules add 0.30 lbs/0.14 kg

SPECIFICATIONS (continued)

Dimensions

TM Meter Size & Fitting	Length (A)	Height (B)	Width (C)
TM30S Spigot	11.5 in. (292 mm)	5.34 in. (136 mm)	3.5 in. (89 mm)
TM30N NPT	14.7 in. (373 mm)	5.78 in. (147 mm)	4.37 in. (111 mm)
TM30F ANSI Flange	12.0 in. (305 mm)	7.5 in. (190 mm)	7.5 in. (190 mm)
TM30D DIN Flange	12.0 in. (305 mm)	8.0 in. (203 mm)	8.0 in. (203 mm)
TM40S Spigot	13.5 in. (343 mm)	6.34 in. (161 mm)	4.5 in. (114 mm)
TM40N NPT	17.0 in. (432 mm)	6.7 in. (170 mm)	5.87 in. (149 mm)
TM40F ANSI Flange	14.0 in. (356 mm)	9.0 in. (229 mm)	9.0 in. (229 mm)
TM40D DIN Flange	14.0 in. (356 mm)	8.5 in. (216 mm)	8.5 in. (216 mm)

Length guidelines are estimates; actual length can vary up to ± 1/2 in.(13 mm).

Output modules add 0.90 in. (23 mm) to height.

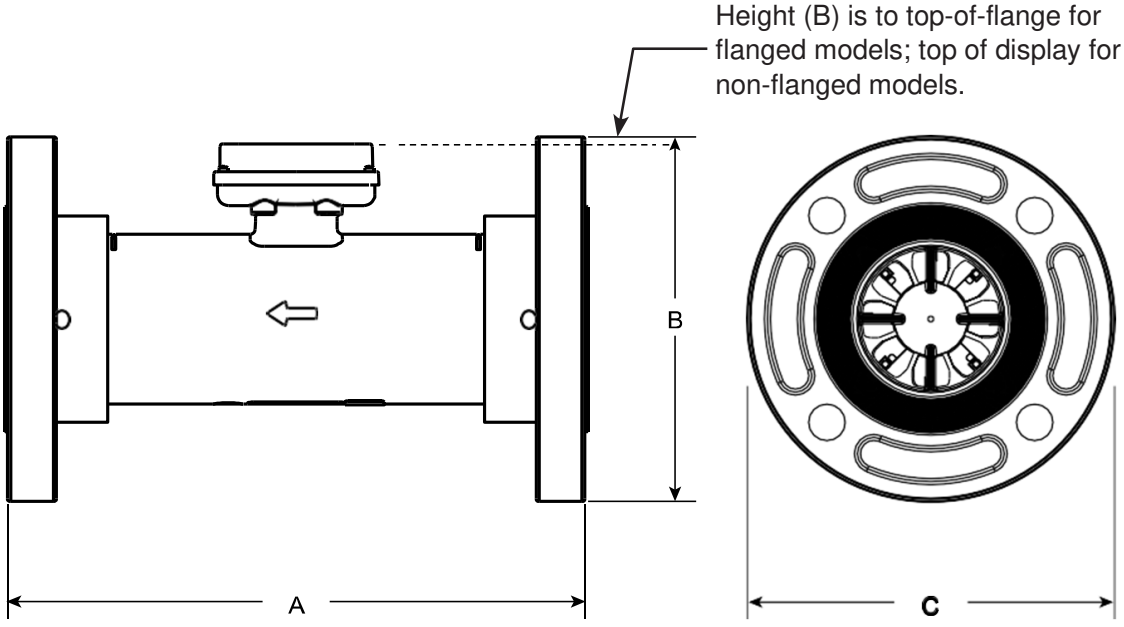

Figure 1

APPROVAL RATINGS

CE UKCA IP65 RoHS 2002/95/EC

WEEE DIRECTIVE

The Waste Electrical and Electronic Equipment (WEEE) directive (2002/96/EC) was approved by the European Parliament and the Council of the European Union in 2003. This symbol indicates that this product contains electrical and electronic equipment that may include batteries, printed circuit boards, liquid crystal displays or other components that may be subject to local disposal regulations at your location. Please understand those regulations and dispose of this product in a responsible manner.

ROHS COMPLIANT (2011/65/EU)

This product is in compliance with the RoHS Directive of the European Parliament and of the Council on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment.

INSTALLATION

TM Series meters are available with either a computer for local electronic display, or three versions of output modules (see PARTS section of this manual) to provide a digital signal to customer interfacing equipment.

TM Series meters with computer display ship pre-configured from the factory in either gallons or litres calibration. The volume unit can be changed to several other options. Refer to the Q9 owner's manual for details on changing or customizing the volume unit.

CONNECTIONS

Install your meter in-line either horizontally or vertically. Installation to metal connections is not recommended. Install as follows:

1. Plan to install turbine with a minimum straight pipe length as follows(see Figure 2):
   - Upstream from the turbine, allow a minimum straight pipe length of (10) times the internal diameter of the turbine.
   - Downstream from the turbine, allow a minimum straight pipe length of (5) times the internal diameter of the turbine.
2. For Spigot (Pipe) end: Use only primer and solvents approved for PVC gluing.
   - **NOTE:** Cutting to Length - The meter housing can be shortened by the customer. Each meter has a "dotted" line feature molded on the top surface of the housing tube. The housing can be cut up to this line without harming any internals. Most glue on fittings will fit without interfering with the computer display area. However, the customer should check all parts before attempting cut.
3. **For NPT fittings:** To achieve a pressure-tight seal up to the rated 225 psi (15.5 bar), the meter must be used with external NPT mating threads and thread sealing compound. For applications with fluid pressure less than 30 psi, it is optional to use 3 to 4 wraps of PTFE thread tape in place of the thread sealing compound. Make sure the thread sealing compound or PTFE tape does not intrude into the flow path.
4. Attach meter with arrow pointed in the direction of fluid flow.
5. For NPT Fittings: Hand tighten the meter at the housing ends. DO NOT use a wrench or similar tool to tighten. This can damage the housing.

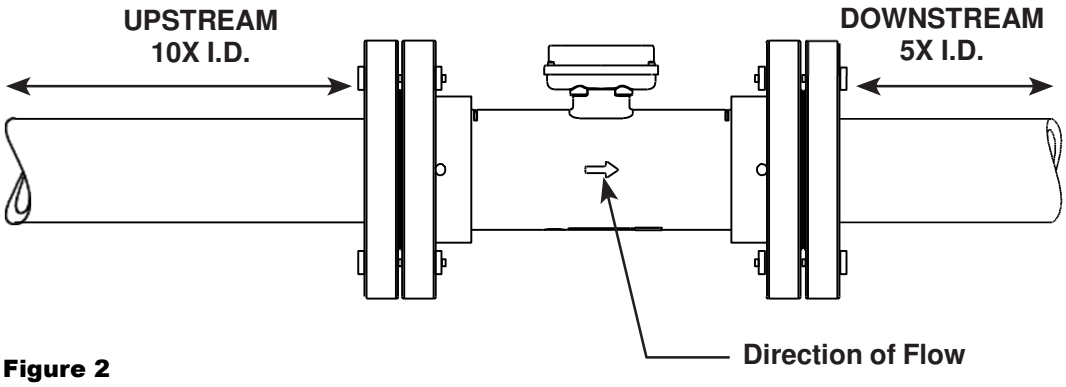

Figure 2

INSTALLATION (continued)

CONNECTIONS (continued)

6. For ANSI or DIN Flange Fittings: Customer to provide:

   - Ring Gaskets or Full-Face Gaskets approved for use with type flange installed (ANSI or DIN) and the fluid being monitored (2 required).
   - 5/8-inch bolts and nuts for ANSI flanges. Four per side for 3-inch meters; eight per side for 4-inch meters.
   - 6 mm bolts and nuts for DIN flanges. Eight per side for 3-inch and 4-inch meters.
   - Torque bolts using a star pattern to 25 ft-lbs (33.8 Nm). Supplied flanges are two-piece Van Stone style and allow the meter to be oriented regardless of the mating flanges position.

   For best results, always verify accuracy before use.

OPERATION / CALIBRATION

VERIFY METER ACCURACY

Before using, check the meter's accuracy and verify calibration.

1. Make sure there is no air in the system by starting the flow until it runs steadily. Then, stop or divert the flow using a valve or nozzle.
2. Meter an exact known volume into an accurate container. For best results, meter with one continuous full stream.
3. Check the volume against the display or recording equipment. If the amount metered is accurate, further calibration is not necessary. If not, refer to the Q9 Owner's Manual (Non-Agency) Field Calibration Section for further instructions (see below).

NOTE: *Make sure you meet the meter's minimum flowrate requirements:*

TM Series Meter Minimum Flowrate	
TM30 – 3 inch	30 GPM (113.6 L/min)
TM40 - 4 inch	40 GPM (151.4 L/min)

You can download the Q9 Owner's Manual (Non-Agency) here:

or visit flomecmeters.com to download owner's manuals and other technical documents.

MAINTENANCE

NOTE: *Proper handling and care will extend the life and service of the meter.*

TURBINE ROTOR

The meter is virtually maintenance-free. However, it is important the rotor moves freely. Keep the meter clean and free of contaminants.

The rotor can be removed for cleaning and inspection. Begin by unscrewing the nose cone from the outlet end of the meter. A 1/4" square socket extension can be used. Remove the lock and flat thrust washers. Rotor can then be removed from shaft.

NOTE: *Notice the rotor orientation during removal. The rotor is not bi-directional.*

Remove debris or deposits using soft brush or small probe. Reassemble in reverse order.

⚠ CAUTION ***Blowing compressed air through the turbine assembly could damage the rotor.***

⚠ CAUTION ***Do not allow liquids to dry inside the turbine.***

⚠ CAUTION ***Handle the rotor carefully. Small scratches or nicks can affect accuracy.***

PARTS / ACCESSORIES FOR TM SERIES METERS

PART NUMBER	DESCRIPTION
12517601	Gasket
125175-11	Computer mount assembly
901002-52	Seal
113435-10	Conditioned Signal Module (GEN 2)
125060-10	Pulse Access/External Power/Scaled Module (GEN 2)
125100-10	4-20mA Module

NOTES

NOTES

NOTES