



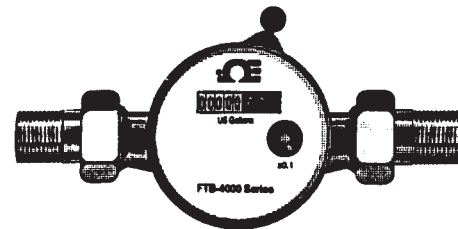
FTB-4000 and FTB-5000 Series Turbine Meters for Water

Operator's Manual:

INSTRUCTION
SHEET

M0504/1218

Shop online at omega.com e-mail: info@omega.com
For latest product manuals: www.omegamanual.info



FTB-4000 Shown

General Description

Specifically designed for water billing applications, **Omega FTB-4000 and FTB-5000 Series Flow meters** are highly accurate and feature tamper-resistant, non-resettable totalizers. The large faces are easy to read and are fully rotatable for simplified mounting. **FTB-4605 and FTB-4607** have no local indication of the flow rate or total.

Optional reed relay scaled pulse outputs allow for remote totalization (6 feet of cable included). For the **FTB-4000 Series**, the pulse output is factory installed and must be requested at the time of order.

The **FTB-5000 Series** units feature field installation of the reed relay or optical pickup pulse outputs. The optical pickup is used for use with flow rate frequency meters to provide remote rate indication (user DC power input required). **FTB-5000** units are supplied standard with one reed relay for remote totalization; a second relay is optional.

All **FTB** flow meters feature built-in strainers and are shipped complete with locking nuts, gaskets and coupling pieces. The units have a built-in flow finder which registers even a small trickle of water passing through the meter.

WARNING

THESE WATER FLOW METERS HAVE PLASTIC INTERNAL PARTS THAT ARE RAPIDLY ATTACKED BY HYDROCARBON FLUIDS, SUCH AS GASOLINE, DIESEL FUEL, KEROSENE, AND SIMILAR MATERIALS. EVEN TRACE AMOUNTS OF THESE MATERIALS IN WATER WILL TEND TO ACCUMULATE IN THE PLASTIC PARTS LEADING TO COMPLETE FAILURE OF THE FLOW METER. NOTE: WATER AND ETHYLENE GLYCOL MIXTURES TYPICALLY PRESENT NO PROBLEM WHEN USED WITH THESE WATER FLOWMETERS.

UNPACKING

Remove the packing list and verify that all equipment has been received. If there are any questions about the shipment, please call the **Omega Customer Service Department**.

Upon receipt of shipment, inspect the container and equipment for any signs of damage. Take particular note of any evidence of rough handling in transit. Immediately report any damage to the shipping agent.

NOTE

The carrier will not honor any claims unless all shipping material is saved for their examination. After examining and removing contents, save packing material and carton in the event reshipment is necessary.

MOUNTING

The **FTB-4000 Series** (only all 1/2" and 3/4") can be mounted either horizontally or vertically.

All **FTB-4000 Series** 1", 1 1/4", 1 1/2" and 2" horizontal only.

FTB-5000X - FTB-5020 horizontal only.

FTB-5020X to FTB-5080 all can be mounted either horizontally or vertically.

		FlowRate		Connections	Length	Height	Width	Pressure	Weight	Max.
Model No.	Min.	GPM Cont.	Max	MNPT	(in.)	(in.)	(in.)	Loss (psi)	(lb)	Temp.
FTB-4005	0.15	6.6	13.2	1/2"C	4.33	2.50	2.75	3.60	1.10	122°F
FTB-4007	0.20	11.0	20.0	3/4"C	5.10	2.50	2.75	3.60	1.40	122°F
FTB-4105	0.15	6.6	13.2	1/2"C	4.33	2.50	2.75	3.60	1.10	200°F
FTB-4105P+	0.15	6.6	13.2	1/2"C	4.33	*	2.75	3.60	1.10	200°F
FTB-4107	0.20	11.0	20.0	3/4"C	5.10	2.50	2.75	3.60	1.40	200°F
FTB-4107P+	0.20	11.0	20.0	3/4"C	5.10	*	2.75	3.60	1.40	200°F
FTB-4110	0.50	26.4	52.8	1"C	10.25	4.75	4.00	2.00	5.50	200°F
FTB-4110P+	0.50	26.4	52.8	1"C	10.25	4.75	4.00	2.00	5.50	200°F
FTB-4112	0.50	26.4	52.8	1.25"C	10.25	4.75	4.00	2.00	5.50	200°F
FTB-4112P+	0.50	26.4	52.8	1.25"C	10.25	4.75	4.00	2.00	5.50	200°F
FTB-4115	0.80	44.0	88.0	1.5C	11.80	5.50	5.25	2.00	12.00	200°F
FTB-4115P+	0.80	44.0	88.0	1.5C	11.80	5.50	5.25	2.00	12.00	200°F
FTB-4605	0.15	6.6	13.0	1/2"C	4.33	2.00	2.75	3.60	1.20	190°F
FTB-4607	0.22	11.0	20.0	3/4"C	5.10	2.00	2.75	3.60	1.30	190°F
FTB-5000	0.13	6.6	13.2	1/2"C	4.33	4.50	3.25	2.90	2.20	248°F
FTB-5005	0.22	11.0	22.0	3/4"C	5.10	4.75	3.25	2.90	2.40	248°F
FTB-5010X	0.40	26.4	52.8	1"C	10.25	7.25	4.00	2.90	6.40	248°F
FTB-5015	0.70	43.9	87.2	1.5"C	11.80	8.10	5.25	3.60	11.25	248°F
FTB-5020	0.88	65.8	131.6	2FL	10.63	8.95	FL	2.90	27.50	248°F
FTB-5020X	2.63	65.8	307.0	2FL	7.90	10.90	FL	0.15	31.50	248°F
FTB-5030	3.51	175.4	658.0	3FL	8.90	11.50	FL	0.30	40.10	248°F
FTB-5040	5.26	263.2	790.0	4FL	9.85	12.20	FL	0.40	43.70	248°F
FTB-5060	26.32	657.9	1535.0	6FL	11.80	14.10	FL	0.30	71.60	248°F
FTB-5080	43.86	1096.5	2631.0	8FL	13.75	15.30	FL	0.20	99.20	248°F
			P+ = Pulse Output Models							
			C = Union Coupling connections with NPT threads							
			FL = Flanged interconnection (conforms to ANSI B 16.5-150 lbs.)							
			* Height increases by approximately 2 inches with pulse output							
			Optional reed relay for remote totalization-order model FTB-RR							

SPECIFICATIONS (CONT'D)

ACCURACY:

4600 Series:	From 10% of cont. to max. flow: $\pm 1.5\%$ of reading
	Below 10% of cont. flow: $\pm 2\%$ of reading
4000, 5000 Series:	From 20% of cont. to max. flow: $\pm 1\%$ of reading
	Below 20% of cont. flow: $\pm 3\%$ of reading

MAX. TEMPERATURE:

4000 Series:	122°F (50°C)
4100 Series:	190°F (87.7°C)
4600 Series:	190°F (87.7°C)
5000 Series:	248°F (120°C)

MAX. PRESSURE:

4000, 4600 Series:	150 PSI
5000 Series:	250 PSI

PULSE OUTPUTS:

4100P Series:	Reed relay
5010 - 5020:	1 gal./pulse
5020X - 5040:	1 or 10 gal./pulse
5060 & 5080:	10 gal./pulse
	100 gal./pulse

FTB4600 HIGH RESOLUTION PULSE OUTPUT:

FTB4605:	151.4 pulses/gal.
FTB4607:	75.7 pulses/gal. Requires 6-16 VDC @ 10mA max power; output requires pull-up to positive DC voltage.

(OPTICAL PICKUP (= MIN. INCREMENT):

5010 -5020X:	0.5 gal./pulse
5030 & 5040:	1 gal./pulse
5060 & 5080:	5 gal./pulse

MAX. READING (GAL.):

4000 Series:	100,000,000
5010 - 5040:	10,000,000
5060 - 5080:	100,000,000

HOUSING:

4000, 4100, 5005 - 5015:	Cast brass
5020 - 5080:	Cast iron
4600 Series:	Brass

BEARING:

Ceramic/sapphire

TURBINE:

High temperature thermoplastic/fiberglass (polyimide)

FLOW TRANSFER:

Ceramic magnet

OTHER WETTED PARTS:

Stainless steel, polypropylene, EPDM O-ring

NEW MODEL

INSTALLATION INSTRUCTIONS Of Hall Effect Flow Meter

FLOW METER INSTALLATION

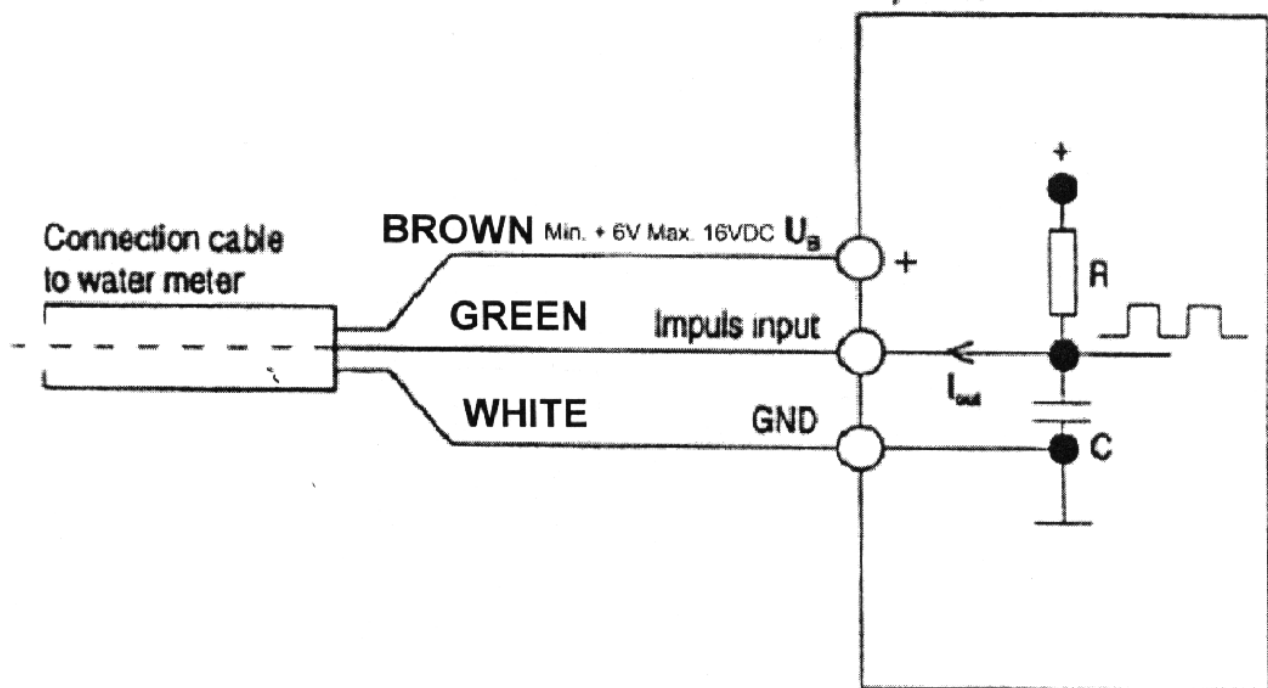
1. Make sure that the inside of the pipes are totally clean.
2. Install Water Meter with union connection.
3. Make sure flow direction of water corresponds with flow indicator arrow on flow meter housing.

ELECTRICAL CONNECTION TO HALL EFFECT

1. Make wiring connection as indicated on diagram below.
2. Please note: $3,5\text{ V} < U_g < 20\text{ V}$ $I_{\text{out max.}} = 20\text{ mA}$
3. The pull-up-resistor R should be a min. of 1 k ohms. On installation without C a value of 10 k ohms is recommended. In case of clicking disturbances due to the contactor (e.g. radiowave receivers being in the area) a wiring with $C = 4,7\text{ nF}$ and $R \geq 1\text{ k ohms}$ should be used.

Electrical Connection Diagram

Impulse Counter





omega.com info@omega.com

Servicing North America:

U.S.A. Headquarters:

Omega Engineering, Inc.
Toll-Free: 1-800-826-6342 (USA & Canada only)
Customer Service: 1-800-622-2378 (USA & Canada only)
Engineering Service: 1-800-872-9436 (USA & Canada only)
Tel: (203) 359-1660 Fax: (203) 359-7700
e-mail: info@omega.com

For Other Locations Visit omega.com/worldwide

The information contained in this document is believed to be correct, but OMEGA accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product. If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

RETURN REQUESTS / INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering. OMEGA is a trademark of OMEGA ENGINEERING, INC.

© Copyright 2018 OMEGA ENGINEERING, INC. All rights reserved. This document may not be copied, photocopied, reproduced, translated, or reduced to any electronic medium or machine-readable form, in whole or in part, without the prior written consent of OMEGA ENGINEERING, INC.