

TURBINE FLOWMETER

Stand Alone or Complete Systems with Signal Conditioning

FTB-101 Series
\$1765
 Complete System

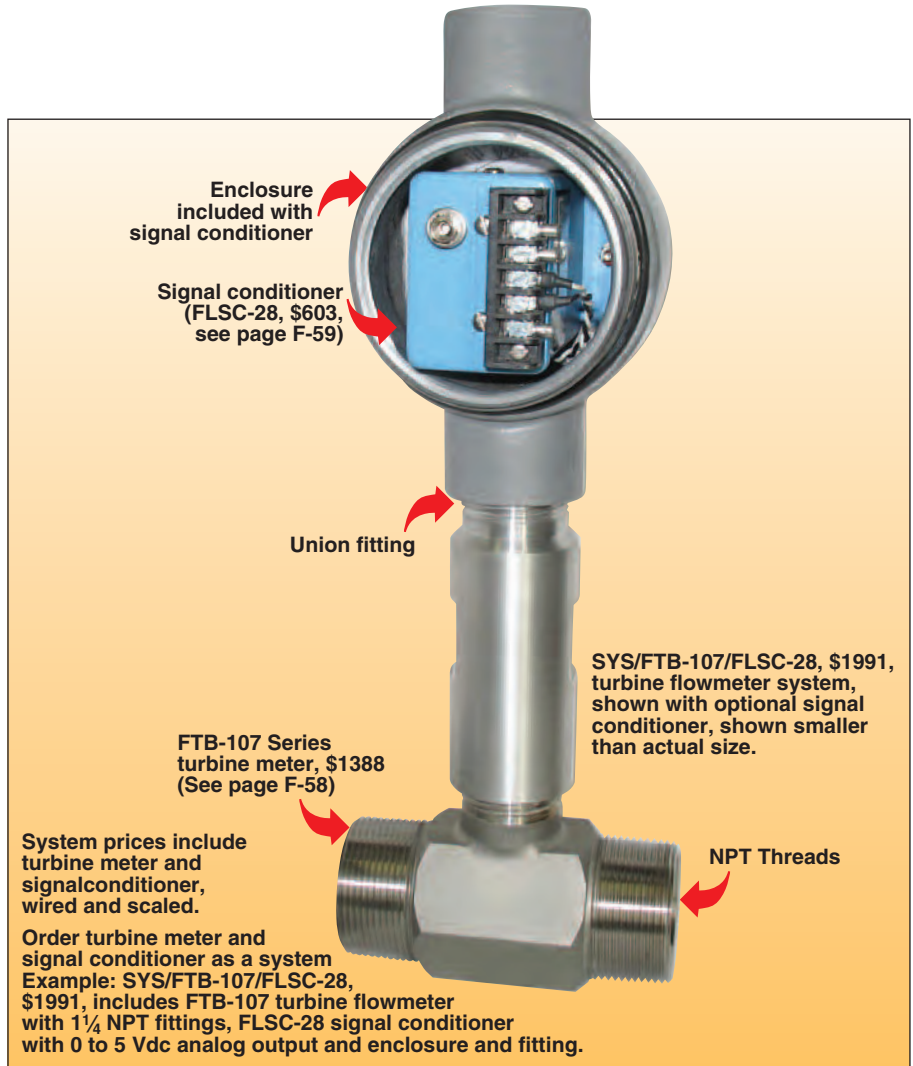


- ✓ ±0.5% of Reading Accuracy
- ✓ Ball Bearing Design for Economy
- ✓ Non-Metallic Bearing Retainers for Long Life
- ✓ Replacement Bearings Field Installable Without Loss of Calibration
- ✓ Disassembles Quickly for Easy Maintenance
- ✓ Deflector Cones Stabilize Low Mass Rotor for Increased Bearing Life
- ✓ 4 to 20 mA, 0 to 5V, and Scaled Frequency Outputs Available

The FTB-100 Series of turbine meters have a shielded ball bearing design for high-accuracy performance ($\pm 0.5\%$ of reading, not full scale) at an economical cost. The non-metallic bearing retainers minimize friction, thereby allowing these meters to be used with clean fluids that have poor lubricating properties (*i.e.*, water). Ball bearings also give the widest linear flow range, particularly in larger turbines. Bearing replacement and clean-up are fast and easy, since all internal parts are easily accessible by removing a single nut.

These turbine flowmeters have a low mass rotor design which allows rapid dynamic response, so they can be used in pulsating flow applications.

Deflector cones eliminate downstream thrust on the rotor and allow hydrodynamic positioning of the rotor between the cones. This provides wider rangeability and longer bearing life than conventional turbine flowmeters. Integral flow-straightening tubes minimize the effects of upstream turbulence.



System prices include turbine meter and signal conditioner, wired and scaled.

Order turbine meter and signal conditioner as a system
 Example: SYS/FTB-107/FLSC-28, \$1991, includes FTB-107 turbine flowmeter with 1¼ NPT fittings, FLSC-28 signal conditioner with 0 to 5 Vdc analog output and enclosure and fitting.

To Order (Specify Model Number)

Turbine Meter System† (See F-58, 59 for Details)	Signal Conditioners				
	FLSC-18B* 4 to 20 mA	FLSC-34* 4 to 20 mA and Unscaled Pulse	FLSC-28* 0 to 5V	FLSC-51* Scaled Square Wave Pulse	FLSC-51B* Scaled Square Wave Pulse
SYS/FTB-101/(*)	\$1765	\$2001	\$1782	\$1765	\$1765
SYS/FTB-102/(*)	1765	2001	1782	1765	1765
SYS/FTB-103/(*)	1765	2001	1782	1765	1765
SYS/FTB-104/(*)	1765	2001	1782	1765	1765
SYS/FTB-105/(*)	1765	2001	1782	1765	1765
SYS/FTB-106/(*)	1890	2126	1907	1890	1890
SYS/FTB-107/(*)	1974	2210	1991	1974	1974
SYS/FTB-108/(*)	2011	2247	2028	2011	2011
SYS/FTB-109/(*)	2266	2502	2283	2266	2266
SYS/FTB-110/(*)	2755	2991	2772	2755	2755
SYS/FTB-111/(*)	2755	2991	2772	2755	2755

† See page F-58 for stand-alone turbine flowmeters.

* Specify model number of desired signal conditioner, see page F-59 for specifications.

Comes complete with operator's manual and 10-point NIST calibration certificate for 1 cSt for water.

Ordering Examples: SYS/FTB-101/FLSC-18B, scaled system includes signal conditioner, enclosure, turbine meter and fitting, \$1765.

SYS/FTB-105/FLSC-28 scaled system includes signal conditioner, enclosure, turbine meter and fitting, \$1782.

Economical Ball Bearing Design with NPT End Fittings



Complete The System

SIGNAL CONDITIONERS
4 to 20 mA and Unscaled Pulse, or 0 to 5 Vdc and Unscaled Pulse, or Scale Pulse Output (See Page F-59)

SELECT 1 OR 2

1
DISPLAY, ALARM, CONTROL DPF60
Pulse Output and Voltage or Current Output (See Page M-21)

2
DISPLAY, TOTALIZE, AND BATCH CONTROL
Scaled Pulse or Current Output DPF701 (See Page M-5)

NIST Calibration for Other Viscosity Liquids*

Meter Size	Viscosity Range	
	0.6 to 99 cSt	100 to 299 cSt
FTB-101 thru 106 ½ thru 1"	\$625	\$1325
FTB-107 thru 109 1¼ thru 2"	645	1385
FTB-110 thru 111 2½ thru 3"	750	1450

* Standard NIST calibration is for water (viscosity = 1 cSt)

FTB-100 Turbine Meters are available with integral signal conditioners which provide scaled and unscaled frequencies, 4 to 20 mA, or 0 to 5 volt outputs. They are shown on page F-59. Units without integral signal conditioners are supplied with mating connector for two-wire hook-up.

SPECIFICATIONS

Accuracy: ±0.5% of reading
Repeatability: ±0.1% of reading
Maximum Temperature Range: -268 to 232°C (-450 to 450°F)
Maximum Intermittent Overrange: 150% of maximum range
Minimum Output Amplitude: 30 mV Peak-to-Peak Unscaled Pulse

Materials of Construction:

Body: 304 stainless steel
Rotor: 17-4 PH steel
Bearings: 440C stainless steel
Silver Solder on ½ NPT units
Minimum straight pipe requirements: 10 pipe diameters upstream, 5 downstream

 MOST POPULAR MODELS HIGHLIGHTED!

To Order (Specify Model Number)

Turbine Meter Only Model No.†	Price	Linear Flow Range for Water LPM (GPM)	MNPT End Fittings	Maximum Operating Pressure (psig)	Maximum Pressure Drop (psid)	Length mm (in)	Nominal K-Factor (Pulses/Gal)	Weight kg (lb)
FTB-101	\$1179	1.32 to 13.2 (0.35 to 3.5)	½	5000	3.0	62 (2.45)	13,000	0.4 (1)
FTB-102	1179	2.84 to 28.4 (0.75 to 7.5)	½	5000	5.0	62 (2.45)	10,000	0.4 (1)
FTB-103	1179	4.73 to 36.0 (1.25 to 9.5)	½	5000	5.2	62 (2.45)	6000	0.4 (1)
FTB-104	1179	6.62 to 61 (1.75 to 16)	¾	5000	3.0	70 (2.75)	4100	0.4 (1)
FTB-105	1179	9.5 to 110 (2.5 to 29)	¾	4250	5.0	83 (3.25)	2200	0.4 (1)
FTB-106	1304	15 to 227 (4 to 60)	1	3850	5.1	89 (3.50)	640	0.9 (2)
FTB-107	1388	23 to 352 (6 to 93)	1¼	3850	4.3	99 (3.88)	410	0.9 (2)
FTB-108	1425	30 to 492 (8 to 130)	1½	3000	3.0	111 (4.38)	230	1.4 (3)
FTB-109	1680	57 to 852 (15 to 225)	2	2500	3.3	121 (4.75)	120	1.8 (4)
FTB-110	2169	95 to 1514 (25 to 400)	2½	2250	4.0	154 (6.06)	62	2.3 (5)
FTB-111	2169	151 to 2460 (40 to 650)	3	2000	4.0	191 (7.50)	55	3.2 (7)

Comes complete with operator's manual and 10-point NIST calibration certificate for water.

Ordering Examples: FTB-101, ½ NPT turbine meter with standard NIST calibration for 1 cSt viscosity, \$1179.

FTB-106, 1 NPT turbine meter with NIST calibration for 5 cSt viscosity liquid, \$1304 + 625 = \$1929.

† See page F-57 for complete systems with signal conditioner.

INTEGRAL SIGNAL CONDITIONERS

For Frequency, Voltage, or Current Output

FLSC-18B Series
Starts at

\$586



- ✓ Up to 0.05% Accuracy
- ✓ Choose from Six Output Types
- ✓ CMOS/TTL Compatible
- ✓ Adjustable Low Level Signal Filter for Noise Rejection
- ✓ Explosion-Resistant Heads
- ✓ For FTB-100 and FTB-200 Turbine Flowmeters
- ✓ Integral Signal Conditioners Available for 4 to 20 mA, 0 to 5V, and Factored Pulse Outputs

OMEGA® high accuracy integral signal conditioners are designed for direct mounting onto OMEGA® FTB-100 and 200 Series turbine meters. The input circuitry of the signal conditioners has been designed to receive and condition low level turbine meter signals while rejecting unwanted noise and spurious signals. A signal threshold control is provided which allows the user to set the input sensitivity above the ambient noise level, thereby eliminating any false signal on the output. Signal conditioners are available that can provide 4 to 20 mA, 0 to 5V, and scaled frequency pulse outputs that run on unregulated power supplies. Other units which run off 115 Vac provide both an unscaled pulse output and a 0 to 5V or 4 to 20 mA output. A zero and a span potentiometer allow for simple field adjustment of the analog outputs from the signal conditioners.

SPECIFICATIONS

Accuracy: See "To Order" box

Temperature Range: 0 to 70°C (32 to 158°F)

Pulse Output: TTL/CMOS; open collector for FLSC-51B

Input Frequency: 10-1000 Hz, 28 mV P-P; 1000-2500 Hz, 70 mV P-P. Can be used with any OMEGA® Turbine Meter

FLSC-18B, \$586, shown actual size.



Maximum Input: 120V RMS

Electrical Connections:

Screw terminals

Maximum Lead Length: 305 m (1000') of 24 gage copper wire for pulse or mA; 30 m (100') for 0 to 5V output.

Weight: 2.3 kg (5 lb)

Signal Conditioners	Compatible Meters Model No. (Page)
FLSC-18B, FLSC-34	DPF50 (M-9), DPF60 (M-21)
FLSC-28, FLSC-35B	DPF300 (M-29), DPI8 (M-35)
FLSC-51	DPF70 (M-22), DPF701 (M-5)

Signal Conditioner (Enclosure Mounted) Only **MOST POPULAR MODELS HIGHLIGHTED!**

To Order (Specify Model Number)

Model No.	Price	Output	Input Power	Accuracy
FLSC-18B	\$586	4 to 20 mA	8 to 40 Vdc @30 mA	±0.05% FS
FLSC-34	822	4 to 20 mA with unscaled pulse	115 Vac 50/60 Hz	±0.1% FS
FLSC-28	603	0 to 5V	10 to 40 Vdc @10 mA	±0.5% FS
FLSC-35B	822	0 to 5V with unscaled pulse	115 Vac 50/60 Hz	±0.1% FS
FLSC-51	586	scaled squarewave pulse, 2 ms duration	8 to 35 Vdc @10 mA	±1% FS
FLSC-51B	586	scaled squarewave pulse, 50 ms duration	8 to 35 Vdc @10 mA	±1% FS

Signal conditioners are installed at no charge when purchased with turbine meter.

Note: The use of explosion-proof heads does not imply that complete assembly is either explosion-proof or intrinsically safe. It is the user's responsibility to determine the suitability of materials for a given installation.

Comes complete with operator's manual.

Ordering Examples: SYS/FTB-101/FLSC-18B, turbine and signal conditioner system, \$1765, see page F-57. SYS/FTB-201/FLSC-34, turbine and signal conditioner, \$2001, see page F-60.



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• Data Acquisition

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Displacement Transducers, Dynamic Measurement Force Sensors, Instrumentation for Pressure and Strain Measurements, Load Cells, Pressure Gauges, Pressure Reference Section, Pressure Switches, Pressure Transducers, Proximity Transducers, Regulators, Strain Gages, Torque Transducers, Valves

• Heaters

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