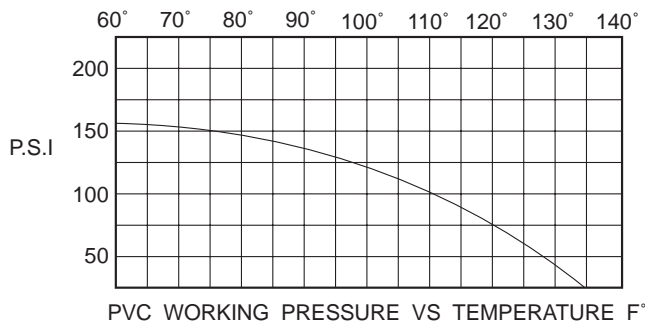


### General Information

This unique system of 2" to 8" turbine meters uses one moving part, a precision-molded helical rotor. Rotation of the rotor is electronically detected and processed. High-quality jewel bearings and polished zirconia ceramic shafts minimize friction while providing long wear life in non-lubricating fluids. The entire rotor assembly can be easily taken out of the meter for field service, without removing the meter from the pipe.

WT-P bodies are fabricated from Schedule 80 PVC fittings. The turbine insert is also machined from one solid piece of PVC, and is held in place by stainless steel screws. Turbine rotors are molded from polypro, with Kynar (PVDF) as an optional material.

An electronic register (identical to the SeaMetrics FT420) can be mounted on the meter to display flow rate, total (resettable or non-resettable) and provide a programmable pulse output. The same unit, in a wall mount or panel mount housing, can be located up to 2,000 feet away. It is not necessary to have any processing electronics on the meter itself unless local reading is desired. Other electronics options (which can again be meter or remote mounted) are the AO45 blind 4-20 mA transmitter, the PD10 divider, and a battery-powered electromechanical totalizer for applications which lack power.



### Specifications

#### Materials

Meter Body	PVC Schedule 80 fittings
Turbine Insert	PVC (Polypro in 2" size)
Turbine Rotor	Polypropylene, PVDF optional
Shafts	Zirconia ceramic
Bearings	Sapphire journal, ruby ball

#### Pressure

150 PSI @ 75° F (10 bar @ 24°C)  
(see chart)

#### Temperature

140° F (60° C) (see chart)

#### Accuracy

±1% FS

#### Flow Range

Gallons Per Minute

	2"	3"	4"	6"	8"
Minimum	2	3	6	12	30
Maximum	150	400	600	1200	3000

Liters Per Minute

	2"	3"	4"	6"	8"
Minimum	8	11	23	46	114
Maximum	568	1514	2271	4542	11355

### Electronic Options Specifications

#### WT100 (Pulse Only)

Power	6-24 VDC
Pulse Type	Current sinking

#### WT101

Power	11-24 VDC, 20 mA max
Rate	8-digit autorange
Total	8-digit, selectable decimal
Memory	Non-volatile (no battery needed)
Pulse Output	0.1 second, open collector
Analog Option	4-20 mA, user-programmed

#### WT102 (AO45 Blind Transmitter)

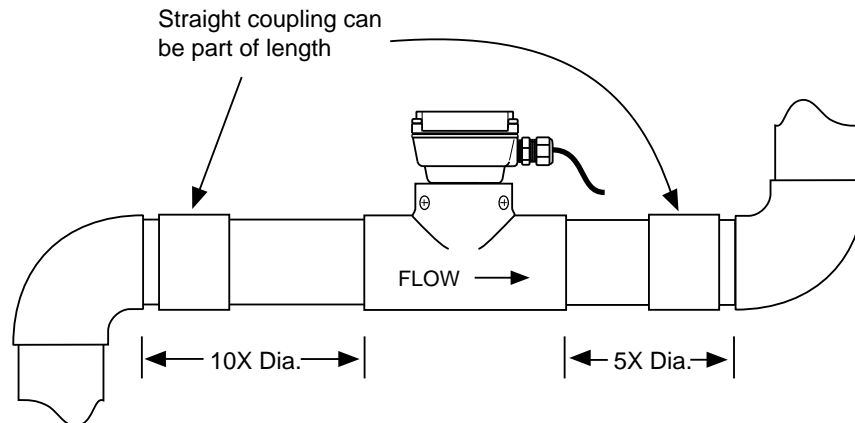
Output	4-20 mA
Loop Power	12 - 36 VDC (isolated)
Accuracy	± 1%
Response Time	3 seconds, 95% FS

#### WT104 (Battery-powered Rate/Totalizer)

Rate/Total	2-Line LCD resettable, with lockout
Battery Life	3 Years
Pulse Output	Open collector 100ms

## Installation

**Piping Conditions.** In general, the standard practice of installing the meter with five diameters of straight pipe upstream and three downstream is recommended. However, it is possible under some circumstances to operate with less, particularly if the meter is equipped with an optional internal flow straightener.



**Flanges.** Flanged PVC Meters with optional flanges should be installed according to the pipe manufacturer's recommendations. A bolt torque of 10-20 ft. lbs. for flanges 1-1/2" and 2", 20-30 ft. lbs. for flanges 3" and 4", and 35-50 ft. lbs. for flanges 6" and 8" is recommended. Tighten the bolts evenly. Either partial or full-face gaskets can be used. Use care to prevent a misaligned gasket from entering the flow stream.

**Position.** The WT Series are all-position meters, and can be operated in a vertical or horizontal position, and with the meter insert in any radial position. A horizontal insert position is preferred if there is a risk of air becoming trapped due to constant low flows. Operating the meter in partially-filled pipe will result in inaccuracies.

**Connections.** Most WT meters require electrical connections. See the connections diagram for the one relevant to your meter.

## Operation

For operating instructions for the various electronic modules, consult the manual for the specific module. This should be included with the meter when purchased.

## Maintenance and Repair

**Recalibration.** If it is necessary to recalibrate the meter for any purpose, this can be done by any SeaMetrics-authorized facility. Call the factory for information.

**Turbine Insert Removal and Installation.** In order to repair any mechanical parts (rotor or shafts) it is nec-

essary to remove the turbine insert. To do this, first remove all pressure from the line. Then remove the screws which hold the insert in place. On the 1-1/2" and 2" meters there are 2; all others have four. Tug gently on the insert until it comes free. A twisting motion can help to loosen the O-ring seal. Reverse the

procedure to reinstall, after coating the o-ring with a lubricant which is plastics-compatible. *Do not over-tighten the screws.* Snug tightening with a hand screwdriver is sufficient.

**Rotor and Shaft Replacement.** Examine the rotor to determine if bearings or shaft are damaged or excessively worn. The rotor should spin smoothly and freely, with no visible wobble. Back and forth play should be very minor, less than 1/64". If it is necessary to replace the rotor or shafts, first back out both shafts with a small blade screwdriver. The rotor will come free as soon as the shaft ends come free of the rotor bearings.

**Sensor Replacement.** This procedure is rarely necessary. However, certain electrical conditions can damage the sensor. To replace it, first remove any electronic module which is in the turbine insert. Remove the three sensor leads from the electronic module terminals (red, black, and white), and remove the threaded plug over the sensor. Finally, remove the sensor by pulling on the sensor leads. A gentle tug should be sufficient. Reverse the process to replace the sensor.

**Electronic Module Repair.** None of the electronics modules have replaceable components. Printed circuit boards must be replaced as complete units. In order to replace an electronic module, loosen the four screws which fasten each unit. Once the screws are loose, the unit will lift free from the insert housing.

## Electronic Options Specifications

### WT100 (Pulse Only)

**Power** 6-24 VDC  
**Pulse Type** Current sinking

### WT104 (Battery-powered Rate/Totalizer)

**Total** 8 digit LCD  
**Rate** 4 1/2 digit LCD  
**Battery** 3V Lithium, 5 yrs. normal life

### WT 100 with PD 10 Divider

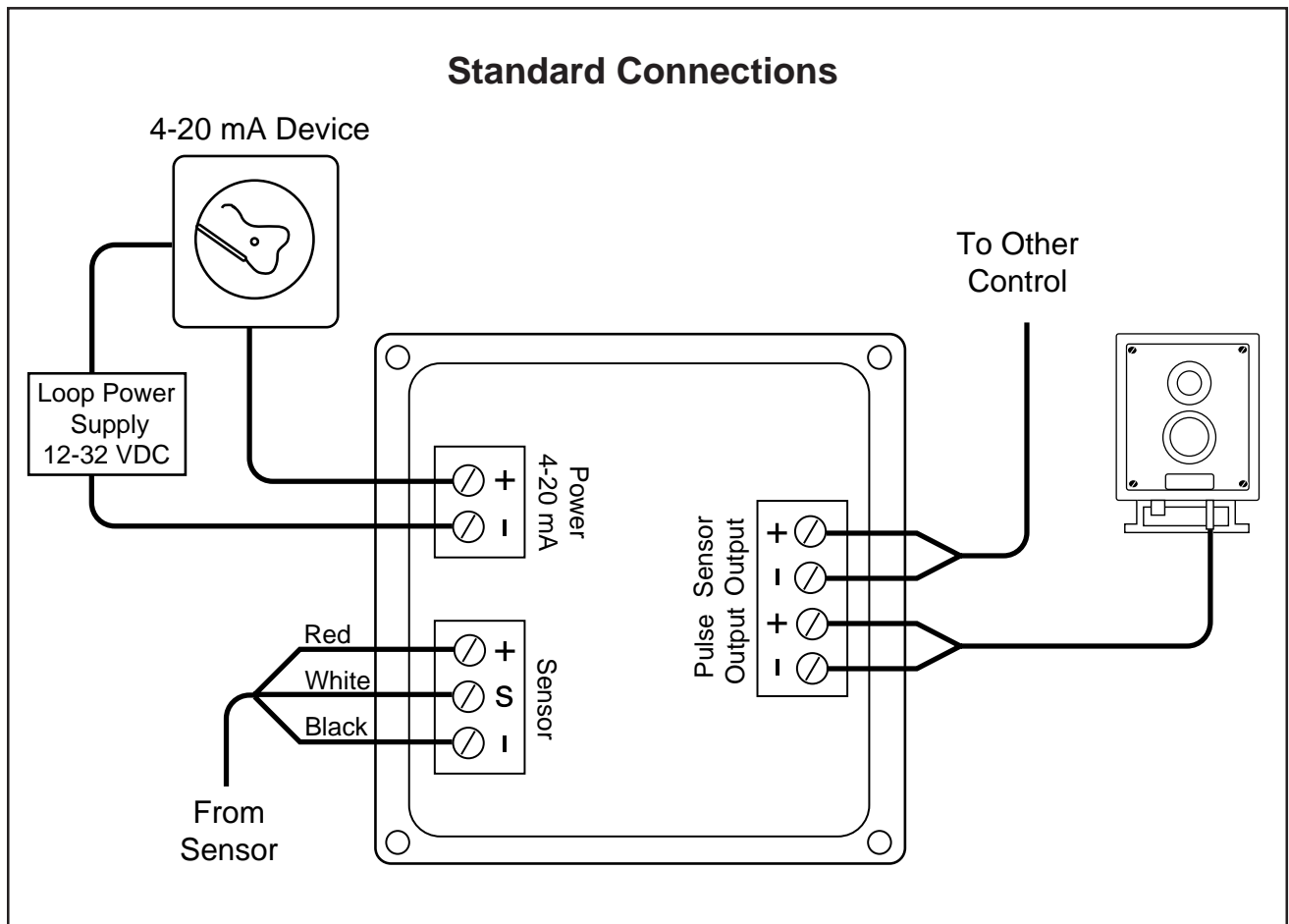
**Power** 12-24 VDC  
**Divider Range** 1-999  
**Output** Current sinking, 20 mA max.

### WT101

**Power** 12-32 VDC, 1.5 mA  
 (current loop powered)  
**Rate** 8-digit autorange  
**Total** 8-digit, selectable decimal  
 Reset standard, non-reset option  
**Memory** Nonvolatile  
 (no battery needed)  
**Pulse Output** 0.1 second, open collector  
**Pulse Range** 0.1-200,000 gallons per pulse  
**Analog Output** 4-20 mA, user-programmed span, two-wire

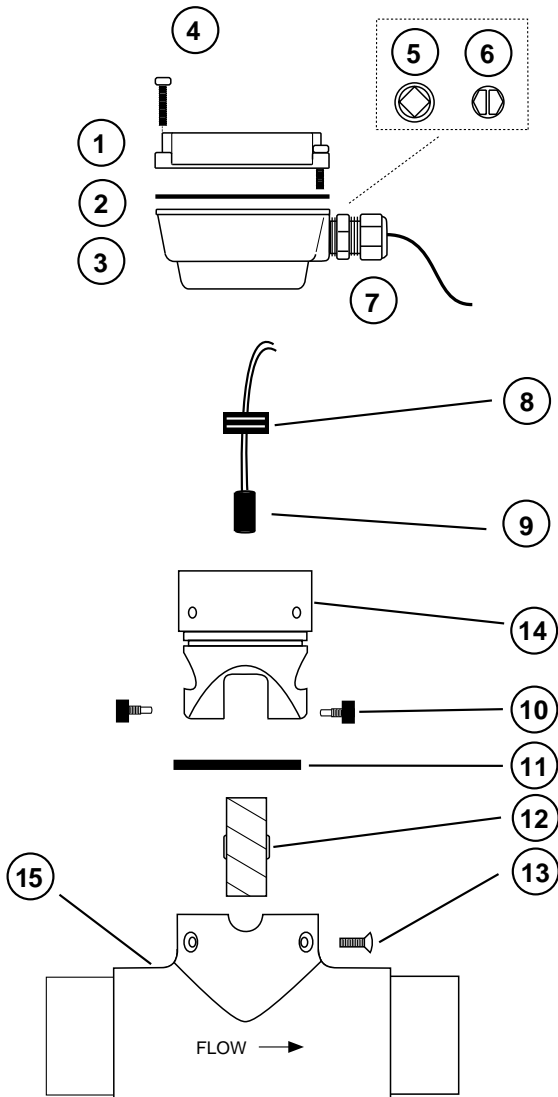
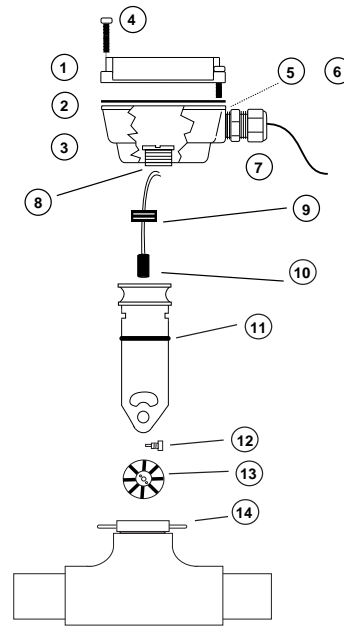
### WT 102 (AO45 Blind Transmitter)

**Output** 4-20 mA  
**Loop Power** 12 - 36 VDC (isolated)  
**Accuracy**  $\pm 1\%$   
**Response Time** 3 sec., 95% FS



## WT(P) Meter Assembly

WT(P) Parts - 2"		
1-6	Housing (see chart below)	
7	Strain relief	7655
8	Housing retaining screw	25146
9	Sensor retaining screw	25321
10	Sensor	26310
11	O-ring	25081
12	Shaft screw	16710
13	Turbine rotor	25947
14	U-clip	15527



WT(P) Parts - 3"-6"		
1	Upper blind housing	26181
1	PD10 divider module	11090
1	FT420 rate/total display module	25374
1	AO45 4-20 mA transmitter module	11250
1	FT415 rate/total display module	26457
2	Gasket	26165
3	Lower housing	29930
4	Housing screw	29938
5	Plug, steel	26073
6	Plug, plastic	26079
7	Strain relief	7620
8	Sensor retainer	25321
9	Sensor	26310
10	Turbine shaft (2)	16710
11	Insert O-ring	16426
12	Turbine rotor polypro	167550
12	Turbine rotor (PVDF)	25962
13	Insert screw (4)	7689
14	Insert 3"	16830
14	Insert 4"-6"	16850
15	Meter body	

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