The UMB Turbine Meter Sizes 3"-16"

High Performance Turbine Technology with Dual Output Capabilities in a Single Housing

DESCRIPTION

The UMB Turbine Flowmeter is a volumetric flow metering and transmitting device used extensively in the petroleum industry for the accurate measurement of liquid hydrocarbon and other process fluids. The meter's simple configuration assures higher flow rates, extended flow range and sustained performance capability. It is designed for use within the guidelines of API Standards, Chapter 5.3, formerly Standard 2534 (The Measurement of Liquid Hydrocarbons by Turbine Meter Systems) and the test procedures of API Standards, Chapter 4 (Prover Systems).

DESIGN FEATURES

- Output linear with flowrate
- Rangeability of 10 to 1
- Bidirectional flow option available
- Horizontal or vertical installation
- Superior accuracy and repeatability
- High frequency pulse resolution
- Uniform pulse signal output
- Improved serviceability allows easy access to pickoffs and reduces installation costs
- Simple, easy to maintain, field mountable pickoffs require no interruption of conduit lines
- Explosion proof/weather proof housing

PERFORMANCE - Meter

Linearity: ± 0.15%
Repeatability: ± 0.02%

K-FACTOR

Size	K-FACTOR PULSES	
	(BBL)	(M^3)
3"	2,000	12,580
4"	1,000	6,290
6"	1,000	6,290
8"	500	3,145
10"	500	3,145
12"	250	1,572
16"	100	629

NOTE: *See Model Code for meter options configurations and accessories.*

⚠ WARNING

Do not operate this instrument in excess of the specifications listed. Failure to heed this warning could result in serious injury and/or damage to the equipment.

MATERIALS OF CONSTRUCTION

Meter Body (All sizes): Steel, Standard
Optional: Steel flanges / Stainless Steel flowtube, All Stainless Steel
Internal Components:
Standard: Sizes 3" and 4": Stainless Steel
Sizes 6" and larger: Stainless Steel and Aluminum
Optional: All Stainless Steel. Consult factory for other materials.
Bearings: Tungsten Carbide
UMB Housing: Aluminum
Rotor Shroud: Standard 6" and larger (3 & 4" optional when metering products with viscosities of 10 cst and above.)

RATINGS

Pressure: ANSI pressure/temperature rating corresponding to flanges used.
Temperature: -30 to 180°F (-40 to 82°C)
Optional: -30 to 400°F (-40 to 204°C)

EMERSON
Process Management

CONNECTIONS

Mechanical: Standard - 150, 300, and 600 lb. ANSI R.F. flanges
DIN PN16, PN25, PN40, PN64, PN100
(*See Flange Connections Table*)
Optional: 900lb. ANSI available

Electrical: Class I, Division 1, Groups C & D, NEMA 4X UL, cUL and CENELEC EEx d II B T6
Transmission Distance:
Without Pre-amp: 20 ft. (6.1 meters)
With Pre-amp: 3,000 ft. (914 meters)
Belden 88442 or equivalent up to 20 ft.

Pressure Drop: 3 psi (20.7 kPa) at maximum flow rate (based on gasoline - meter only).

Weights & Measures:
CCA - AV-2264 (Consult factory for specific mod-

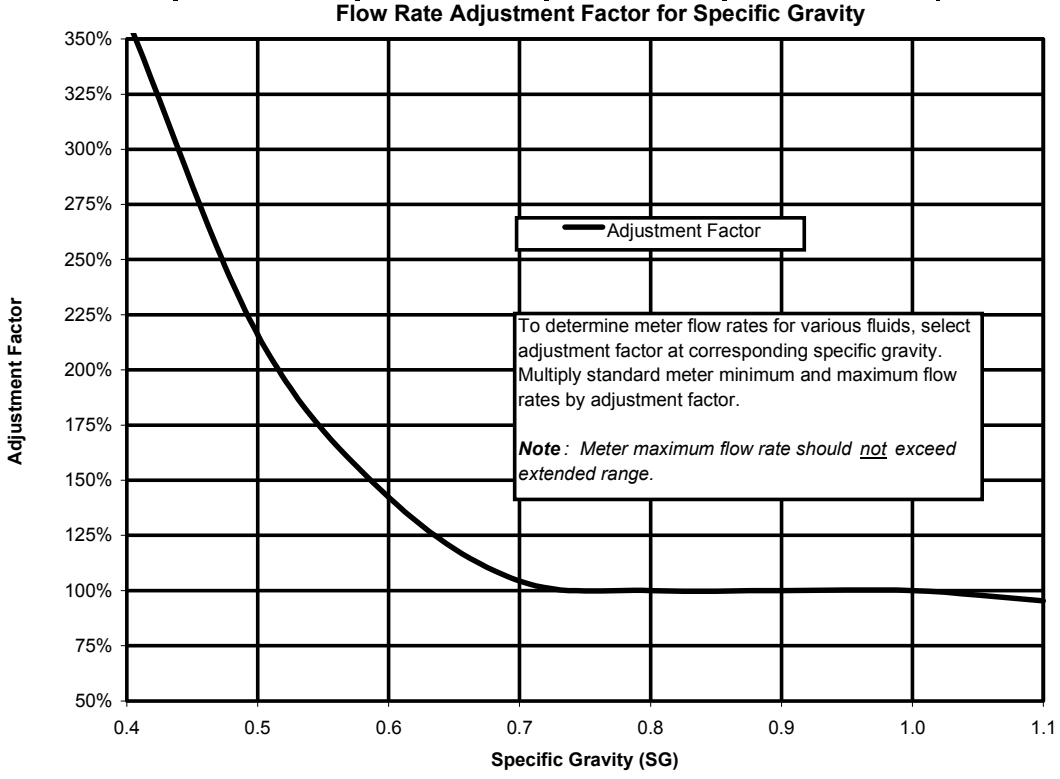
PERFORMANCE - Pre-amplifier

Inputs: Supply voltage: 20 Vdc ± 50%
Signal Type: Sine Wave
Signal Amplitude: 40 mV p-p minimum
Outputs: Powered Pulse Output
Type: Square Wave
Frequency Range: 0 to 5 kHz@ Amplitude: 0 to 5V
Loading: 1 kOhm internal pull-up
Variable Voltage Output
Type: Square Wave
Frequency Range: 0 to 5 kHz @ Amplitude: 0 to Supply Voltage
Loading: 1 kOhm internal pull-up
Open Collector Output
Type: Square Wave
Frequency Range: 0 to 5 kHz
Max. Voltage: 30 Vdc
Max. Current: 125 mA
Max. Power: 0.5 Watts

FLOW RANGE

Products having a specific gravity of 0.7 to 1.0 and a viscosity of 0.3 to 3.0 cst

Size	Standard Flow Range BBL/Hr	Extended Flow Range* BBL/Hr	Standard Flow Range M^3/Hr	Extended Flow Range M^3/Hr	Pressure Loss psi	Pressure Loss kPa
3"	100 - 1,000	1,300	15.9 - 158	206	3	21
4"	185 - 1,850	2,300	29.4 - 294	365	3	21
6"	420 - 4,200	5,400	66.8 - 667	858	3	21
8"	850 - 8,500	9,500	135 - 1,350	1,510	3	21
10"	1,200 - 12,000	15,000	190 - 1,907	2,384	4	28
12"	1,800 - 18,000	22,000	286 - 2,861	3,497	3	21



PICK-OFF SPECIFICATIONS

Type: Reluctance
Resistance: 302 ohms ±26%
Inductance: 65 mH
Output: 40mV p-p min. @ min. flow with pre-amp load

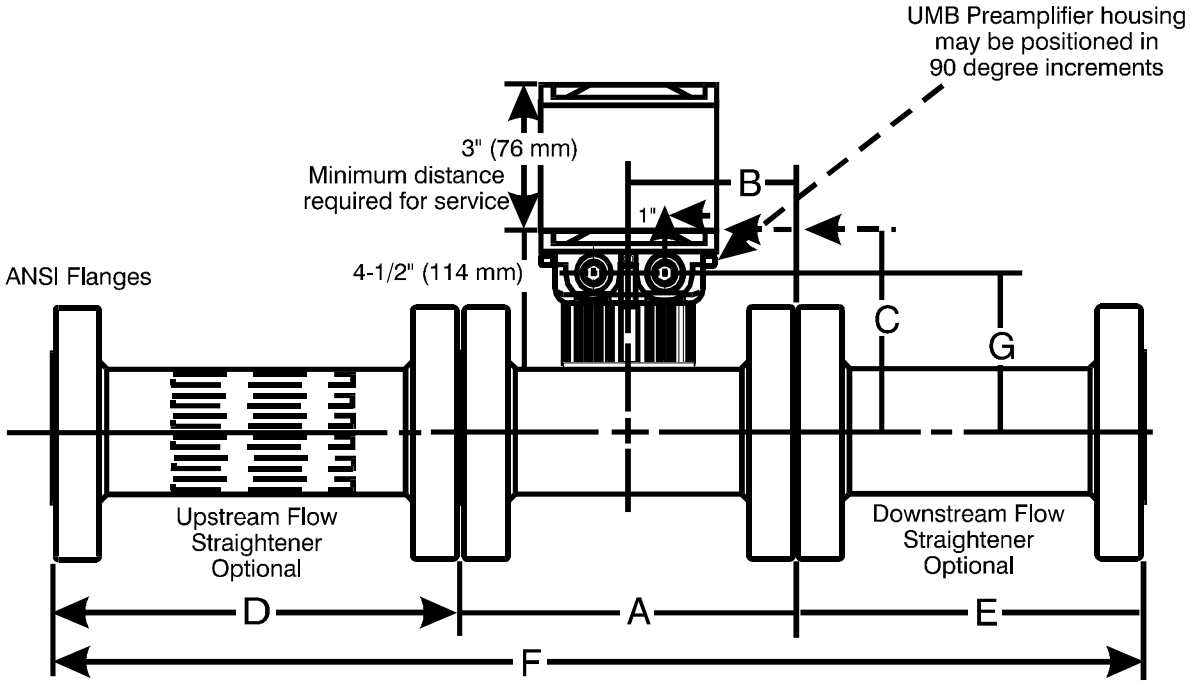
FLANGE CONNECTIONS

MODEL	ANSI Connections	MAXIMUM WORKING PRESSURE @ 100^{0}F		DIN Connections	MAXIMUM WORKING PRESSURE
		Stainless Steel	Carbon Steel		
T03	3", 150 lb. ANSI	275 psi	285 psi	DN 80 PN 40	40 Bar
T03	3", 300 lb. ANSI	720 psi	740 psi	DN 80 PN 64	64 Bar
T03	3", 600 lb. ANSI	1,440 psi	1,480 psi	DN 80 PN 100	100 Bar
T04	4", 150 lb. ANSI	275 psi	285 psi	DN 100 PN 16	16 Bar
T04	4", 300 lb. ANSI	720 psi	740 psi	DN 100 PN 40	40 Bar
				DN 100 PN 64	64 Bar
T04	4", 600 lb. ANSI	1,440 psi	1,480 psi	DN 100 PN 100	100 Bar
T06	6", 150 lb. ANSI	275 psi	285 psi	DN 150 PN 16	16 Bar
T06	6", 300 lb. ANSI	720 psi	740 psi	DN 150 PN 40	40 Bar
				DN 150 PN 64	64 Bar
T06	6", 600 lb. ANSI	1,440 psi	1,480 psi	DN 150 PN 100	100 Bar
T08	8", 150 lb. ANSI	275 psi	285 psi	DN 200 PN 16	16 Bar
				DN 200 PN 25	25 Bar
T08	8", 300 lb. ANSI	720 psi	740 psi	DN 200 PN 40	40 Bar
				DN 200 PN 64	64 Bar
T08	8", 600 lb. ANSI	1,440 psi	1,480 psi	DN 200 PN 100	100 Bar
T010	10", 150 lb. ANSI	275 psi	285 psi	DN 250 PN 16	16 Bar
				DN 250 PN 25	25 Bar
T010	10", 300 lb. ANSI	720 psi	740 psi	DN 250 PN 40	40 Bar
				DN 250 PN 64	64 Bar
T010	10", 600 lb. ANSI	1,440 psi	1,480 psi	DN 250 PN 100	100 Bar
T012	12", 150 lb. ANSI	275 psi	285 psi	DN 300 PN 16	16 Bar
				DN 300 PN 25	25 Bar
T012	12", 300 lb. ANSI	720 psi	740 psi	DN 300 PN 40	40 Bar
				DN 300 PN 64	64 Bar
T012	12", 600 lb. ANSI	1,440 psi	1,480 psi	C/F	C/F
T016	16", 150 lb. ANSI	275 psi	285 psi	DN 400 PN 16	16 Bar
				DN 400 PN 25	25 Bar
T016	16", 300 lb. ANSI	720 psi	740 psi	DN 400 PN 40	40 Bar
				DN 400 PN 64	64 Bar
T016	16", 600 lb. ANSI	1,440 psi	1,480 psi	C/F	C/F

SHIPPING WEIGHT AND VOLUME (Approximate)

	150 lb. ANSI				300 lb. ANSI				600 lb. ANSI			
Size	lbs.	Kg.	Cu. Ft.	Cu. Mtr.	lbs.	Kg.	Cu. Ft.	Cu. Mtr.	lbs.	Kg.	Cu. Ft.	Cu. Mtr.
3"	60	27.2	1.13	0.032	65	29.5	1.25	0.035	85	38.6	1.25	0.035
4"	60	27.2	1.53	0.043	80	36.3	1.78	0.05	110	49.9	1.93	0.055
6"	90	40.1	2.3	0.065	135	61.2	2.81	0.08	245	111.1	3.17	0.09
8"	140	63.5	3.52	0.1	215	97.5	3.94	0.112	320	145.2	4.62	0.131
10"	235	106.6	5.5	0.156	320	145.2	6.39	0.181	560	254	7.33	0.208
12"	385	174.6	6.42	0.182	510	231.3	9.32	0.264	750	340.2	10.11	0.286
16"	745	337.9	15.17	0.43	990	449.1	15.75	0.446	1370	621.4	18.33	0.52

DIMENSIONS - (For Certified Dimension Prints - Consult Factory)



	A		B		C		D		E		F		G	
Size	**inches**	**mm**	**inches**	**mm**	**inches**	**mm**	**inches**	**mm**	**inches**	**mm**	**inches**	**mm**	**inches**	**mm**
3"	10	254	5	127	7 3/4	197	30	762	15	381	55	1,397	6 1/2	165
4"	12	305	6	152	8 1/4	209	40	1,016	20	508	72	1,829	7	178
6"	14	356	7	178	9 5/16	236	60	1,524	30	762	104	2,642	8 1/16	205
8"	16	406	8	203	10 5/16	262	80	2,032	40	1,016	136	3,454	9 1/16	231
10"	20	508	10	254	11 3/8	289	100	2,540	50	1,270	170	4,318	10 1/8	258
12"	24	610	12	305	12 3/8	314	120	3,048	60	1,524	204	5,182	11 1/8	283
16"	32	813	16	406	14	356	160	4,064	80	2,032	272	6,909	12 3/4	324

Daniel Division Headquarters - Houston, Texas, USA, Tel: (713) 467-6000, Fax: (713) 827-3880
USA Toll Free 1-888-FLOW-001
Calgary, Alberta, Canada, Tel: (403) 279-1879, Fax: (403) 236-1337
Stirling, Scotland - *UK, Mid-East & Africa,* Tel: +44 1653-638300, Fax: +44 1653-600425
Singapore - *Asia Pacific* Tel: +65- 777-8211, Fax: +65 -770-8001
www.daniel.com
Daniel is a wholly owned subsidiary of Emerson , and a division of Emerson Process Management.