

TS10A, 1"

Anodized Aluminum, Electronic

- Only two moving parts
- No metal to metal contact in chamber or bearings
- Internal pulser = Gland-less meter design
- Patented 'Wave Form' oval gear design
- Low differential pressure for maximum flow

Specifications

- **Nominal Capacity with standard LV rotors**

To 1500 SSU visc. :	40 GPM	} <i>NTEP</i> 5:1 turn-down <i>Industrial</i> to 30:1 turn-down
To 300 cP viscosity :	150 lpm	
To 300 cP viscosity :	9 m³/h	
- **Pressure Rating**

Meter & Strainer :	400 PSI at 100°F = 28 BAR at 40°C
Air Elim & Valve :	150 PSI at 100°F = 10 BAR at 40°C
- **Temperature Rating**

Design, W Assy. :	-40°F to +257°F = -40°C to +125°C
ATEX listing :	-4°F to +140°F = -20°C to +60°C
Design, F Assy. :	Same, <i>subject to register temperature limits!</i>
- **Viscosity**

With LV & HT rotors :	100% capacity to 1,500 SSU (300 cP).
With HV rotors :	100% capacity to 5,000 SSU (1000 cP), reduced capacity to 1,500,000 SSU (350,000 cP).
- **1" Connections** Bolted companion flanges with NPT or BSP port.
Optional : Bolted welding flanges, anodized aluminum
Bolted welding flanges, carbon steel
Bolted 150# RF ANSI adaptors, carbon steel
- **Materials 100% Non-Ferrous**

Case :	Anodized aluminum
Gears :	PPS with carbon bearings, Teflon™ bearings opt.
Posts :	HC303SS
Seals :	Viton™ standard, Teflon™ optional.
Flanges :	Anodized aluminum std., carbon steel optional.
- **Pulser** : **Hall Effect Quadrature, 5-12 VDC or 24 VDC**
5V reg or 6-12V non-reg; pls consult for 24V DC.
- **K Factor** : Nominal 1728 PPG (456.5 ppl) on 1 cP viscosity,
Opt. with SCL : EL0300-3-13B = 100 PPG (26.5 ppl)
EL0300-3-18B = 10 PPL (37.85 PPG)
See page 2 for frequency & pulse ON data.

TS10AW03 for use with remote electronic register

Depending upon register or controller model, the pulser compartment in flow sensor front cover holds the sensor (pulser), and either:

- A. **TBB** = Terminal Block Board
- B. **SCL** = Scaler/Calibrator/Linearizer

Meter Performance

Linearity Over 5:1 turn-down from max. capacity: ±0.175%
Over 10:1 turn-down from max. capacity: ±0.25%
Over 30:1 turn-down from max. capacity: ±0.5%

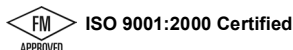
Repeatability 0.05% or better under constant conditions

Approvals Custody Transfer approvals are liquid specific.
W&M approval in the US.

- **Flow Meter** CE mark.
- **Pulser & SCL** *Intrinsically Safe*, UL & cUL listed,
SCL also EEx ia ATEX
when powered through approved barrier.
- **Pulser encl.**  II 2G Ex d IIA T4, -20°C <Ta<+60°C,
ATEX, IEC Ex & IP65

Signals, Registration & Accessories

- **Electronic registers:**
Tuthill electronic flow meters will support most common electronic registers & controllers. In case meter K Factor, pulse width or frequency exceeds receiving instrument capabilities, the SCL scaler is available to ensure signal compatibility. Available through Tuthill:
 - **ELNC** for stationary service
 - **EMR³** for stationary or truck service
 - Assorted non-W&M registers & controllers
- **Signal Conditioners:**
 - **PIA** Amplifier for remote registers (to 2,500' = 750 m)
 - **PAC** Pulse to Analog Converter (no display)
 - **SCL** Scaler, Calibrator and/or Linearizer (see FPP261).
- **Accessories**
 - Inlet strainer for flow meter protection
 - Air eliminator mounted on strainer
 - Backpressure valve for enhanced air elimination
 - Air Check Valve on flow meter outlet side
 - Electronic preset & system security valves (max. 50 cSt viscosity)





TS10A

Average*
K Factor** on
1 cP viscosity.

Raw signal 1728 PPG => Freq.
456.5 PPL Pulse

Using 100 PPG scaler => Freq.
Pulse

Using 10 PPL scaler => Freq.
Pulse

When operating at							of capacity
25%	50%	60%	70%	80%	90%	100%	
288	576	691	806	922	1037	1152	Hz
1.74	0.87	0.72	0.62	0.54	0.48	0.43	ms ON
16.7	33.3	40.0	46.7	53.3	60.0	66.7	Hz
1.3							ms ON
6.3	12.5	15.0	17.5	20.0	22.5	25.0	Hz
2.5							ms ON

* Can vary by +/-0.5% ** At 0.5 cP (LPG), K Factor is abt 2% higher. Over 100 cP viscosity, K Factor is abt 1.5% low er.

'Component' P/Nos.:

W?? = Flow sensor for use with remote register/controller.
F?? = Flow meter with register mounting flange & register.

Model No.	Assy. No.	Ident. for options shown (incl. only if non-std.)													
TS10A	WF	ID of Accessories	X	X	Press. Rating	Rotors	X	X	Seals						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Pos. in P/No.

C = 150 PSI (10 BAR)
E = 350 PSI (24 BAR)
F = 400 PSI (28 BAR)

B = LV, PPS/carbon
L = HT, PPS/carbon
I = HV, PPS/carbon
C = LV, PPS/Teflon
M = HT, PPS/Teflon
J = HV, PPS/Teflon

A = Viton
B = Teflon

Highlighted = Standard

Companion flange kit is shown as a separate item.
Register is shown separately (1 or more components).
Solenoid valve is shown as a separate item.

'Package' P/Nos.:

W?? = Flow sensor for use with remote register/controller.
F?? = Flow meter with register mounting flange & register.

Model No.	Assy. No.	Ident. for options shown (incl. only if non-std.)												
TS10A	WF	ID of register (ELNC/EMR ³) & Accessories.	Flanges	Rotors, Brgs. & Seals	Regist. Identifier	EMR3 Listing	EMR3 front panel	Misc. options						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	Pos. in P/No.

A = NPT companion flanges
B = BSP companion flanges
C = other
D = NPT if electr. valve incl.
E = BSP if electr. valve incl.

X = LV/carb, Viton
T = HT/carb, Viton
V = HV/carb, Viton
B = LV/carb, Teflon
H = HV/Tefl, Teflon
F = LV/Tefl, Viton

2 = EMR3 & IB
1 = EMR3
0 = TBB only
5 = TBB/amplifier
6 = Quadr. Filter
S = 100 PPG SCL

U = UL/cUL
A = ATEX

E = English
S = Spanish
F = French
C = Quebec
S = 3-way Sol. Vlv kit

Highlighted = Standard

Control valves are shown as a separate item.



Tuthill Transfer Systems,
P.O.Box 400,
Tickfaw, LA 70466, USA

Phone: 985-542-5200
888-578-3258
Fax: 985-542-7394
E-mail: FPPWebInquiries@tuthill.com

International offices:

Europe, Middle East & Africa
Mexico
Caribbean/Central America
Northern South America
Argentina, Chile & Brazil
Australia/Pacific Rim
China

Phone

+44 (115) 932-5226
+52 (81) 8355-5535
+1 (305) 740-3381
+57 (1) 633-6494
+54 (11) 4866-5641
+61 (3) 9720-6533
+86 (21) 5385-3369

Fax

+44 (115) 932-2526
+52 (81) 8355-5534
+1 (305) 740-9328
+57 (1) 757-2616
+54 (11) 4866-5641
+61 (3) 9720-6880
+86 (21) 5385-3365

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