	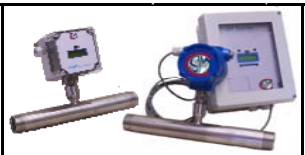					
www.smartmeasurement.com	**Thermal Flow Meter**			**Coriolis Flow Meter**	**Mass flow controllers**	**DP Meters**
Mass Flow	👍	👍	👍	👍	👍	*** 👍
Air/Gases	👍	👍	👍	-	👍	👍
Steam	-	-	-	-	-	👍
Liquids	-	-	-	👍	-	👍
Model/Series	**ATMF80/81/86/87**	**ATMF82/88**	**ATMF9000 series**	**ALCM 00300~ 200000**	**AMF and AMFC**	**Acone**
Line Size Compatibility	6.3 ~ 100 mm (1/4" ~ 4")	⩾ 50mm (2")	⩾ 50mm (2")	15mm~8mm (0.5" ~ 3")	3,6,8(mm) compression fitting	15-3000mm (1/2"~120")
Key Feature	• Directly measure mass flow of gas • Up to four in-dependent switch able flow curves • Available with Infrared communicator for remote access of data	• Directly measure mass flow of gas • Up to four in-dependent switch able flow curves • Measure higher velocity than other thermal mass meter - up to 203 m/s	•Direct massflow gases •insertion and inline • Up stream requirements only 3 diameters • Insertion up to 600mps •Inline up to 20,500NCMH no compeitors (patented)	• Directly measure mass flow of liquid • Suitable for aggressive and contaminated media • Free of dead spots • Individual 8-point-calibration report	• Directly measure mass flow of gas • Single and multi-valves adjustible • fast response : <1.5s • Command/measuring signal	• Dirty gas application • Up stream requirements only 3 diameters • For liquids, gas & steam • Lowest Pressure drop than any DP in the market • *** Using SMC Mass Flow Computer
Measurement						
Flow Rate	◆	◆	◆	◆	◆	◆
Total Flow	◆	◆	◆	◆	◆	◆
Temperature	◆	◆	◆	◆	◆	must include DP transmitter
Density	-	-	-	◆	-	-
Flow Element						
Flow Range	0 ~ 2500 NCMH	0 ~ 203 m/s	0 ~ 20500 NCMH inline 0 ~ 600mps insertion	4.5 ~ 1,200,000 kg/hr	5 sccm up to 200 slpm	Based on Re > 8000
Turndown Ratio	Over 100:1	Over 100:1	Over 100:1		Over 20:1	1:20
Accuracy	±1% of Reading ± 0.2% of Full Scale	±1% of Reading ± 0.2% of Full Scale	±1% of Reading ± 0.2% of Full Scale	±0.15% of Reading	±1% of Reading + (0.5% FS)	+/- 0.5% of reading
Process Temperature	0 ~ +200 ℃	0 ~ +455 ℃	0 ~ +200 ℃	0 ~ +180 ℃ High temp up to 350C	5 to +45°C	-196 to 850 C
Operating Pressure	40 bar	40 bar	40 bar	350 bar	10MPa	up to 420 Mpa
Connection	Threaded, Flanged	Threaded, Flanged, Ball Valve	Threaded, Flanged	npt, flanges,diary,tri-clamp	compression fitting	NPT,Flange,Wafer,Butt weld
Flow element wetted materials	316SS as per DIN 1.4571 (AISI 316 Ti)	316SS as per DIN 1.4571 (AISI 316 Ti)	316SS as per DIN 1.4571 (AISI 316 Ti)	SS as per DIN 1.4571 (AISI 316 Ti)		304L/SS, 306L,CPVC,PTFE Brass,A106B,A335-P11,etc
Transmitter						
outputs (standard)	0-5 VDC & 4-20 mA, Pulse	0-5 VDC & 4-20 mA, Pulse	0-5 VDC & 4-20 mA, Pulse	0-5 VDC & 4-20 mA, Pulse	0-5 VDC & 4-20 mA, Pulse	Third Part DP transmitter
outputs (optional)	RS232, RS485, Hart, Modbus	RS232, RS485, Hart, Modbus	RS232, RS485, Hart, Modbus			Resmount DP transmitter
Integral or Remote Mounting	Integral/Remote	Integral/Remote	Integral/Remote	Integral/Remote	Integral/Remote	Siemens DP ransmitter
Digital Display Option	◆(std)	◆(std)	◆(std)	◆(std)	◆(std)	ETC…. .
Enclosure Protection/Ratings	NEMA 4,Class 1, Div 1, Groups B, C, & D	NEMA 4,Class 1, Div 1, Groups B, C, & D	NEMA 4,Class 1, Div 1, Groups B, C, & D	IP 65-68 NEMA 4,,	NEMA 4,	
Power Supply	115 VAC, 230 VAC, 24 VDC	115 VAC, 230 VAC, 24 VDC	115 VAC, 230 VAC, 24 VDC	24 VDC, 15%	24 VDC, 15%	
Agency Approvals	II 2GD EExd IIC T2 or T3 or T4 Ex ∘ CE	II 2GD EExd IIC T2 or T3 or T4 Ex ∘ CE	II 2GD EExd IIC T2 or T3 or T Ex ∘ CE	II 2GD EExd IIC T2 or T3 or T4 Ex ∘ CE	eqv IEC60079-1:1990 Ex ∘ CE c㎡	II 2 G EEx ia IIC T4, BVS 03 ATEX E 205 Ex CE
Industries & Applications	Biogas (waste water) Exotic gases (semiconductor) Chemical processing gases Pharmaceutical gases Natural gas/Fuel gases Refinery gases Automotive industries Compressed air	Biogas (waste water) combustion Controls Chemical processing gases Stack gases Natural gas/Fuel gases Refinery gases Automotive industries Compressed air	High flow gases combustion Controls Chemical processing gases Limited straight runs Natural gas/Fuel gases Refinery gases Automotive industries Compressed air	Automotive Fuel consumption Hydraulics Petrochemicals Polyurethane Food industry Pharmaceutical Industries Custody Transfer liquids	Semi-conductor gas Flow controller Very low flows cc clean room applications	Dirty gas application Wet gas application Liquids Saturated steam Superheated steam No straight run applications Low pressure drop

						
www.smartmeasurement.com	**Magnetic Meter**	**Ultrasonic Meter**	**PD Meter**	**Turbine Flow Meter**	**Variable Area Flow Meter**	**Vortex Flow meters**
Mass Flow	-	-	-	-	-	-
Air/Gases	-	-	👍 ALBRPD-G	-	👍	👍
Steam	-	-	-	-	👍	👍
Liquids	👍	👍	👍 GPD,BRPD,HPP	👍	👍	👍
Model/Series	**ALMAG**	**ALSONIC**	**ALBRPD,ALGPD & ALHPD**	**ALTM**	**ALVAMT**	**ALVTX**
Line Size Compatibility	6 ~ 2000 mm (1/4" ~ 80")	1/2" ~ 240"(15 ~ 6000 mm)	6 ~ 400 mm (1/4-16")	15 ~ 250 mm (1/2" ~ 10")	6 ~ 200 mm (1/4" ~ 8")	0.5" ~ 24"(15 ~ 700 mm)
Key Feature	• Directly measure low flow of liquid • Larger sizes up to 2000mm	• Portable and fixed • Data Logger • Excellent for flow surveying • Clamp on for unlimted line size	• High pressure flows • Easy to clean • Reverse flows • Low operating noise • Constant K-factor • Low pressure drop	• Easily cleaned • Temperature range from -273 up to +350°C • Fast response time • Low flows designed with sapphire bearings • Pressures up to 4000 barg	• Pressure drop 0.07 ~ 0.7barg for gas & steam application • Ni-MH Battery(3 years) • Consistent overall length • Heating jacket design	Ideal for steam application Simplified setup and diagnostic functions. 4-20 mA and pulse outputs; user selectable.
Measurement						
Flow Rate	◆	◆	◆	◆	◆	◆
Total Flow	◆	◆	◆	◆	◆	◆
Temperature	-	-	-	-	-	-
Density	-	-	-	-	-	-
Flow Element						
Flow Range	0.01 ~ +/- 12 m/s.	0.01 ~ +/- 32 m/s.	0.005 ~ 1000 LPM(GPD&HPD) 55 ~ 27,000 LPM (BRPD)	0.03 ~ 500 LPM	Liquids 0.01 ~ 3,333 LPM Gases 0.03 ~ 4000 M3/Hr	Steam - 6.4 to 267,000 Kg/Hr Gas - 3 to 180,000 M3/Hr
Turndown Ratio			20:1		20:01	Liquid - 6 to 5900 LPM
Accuracy	± 0.2% ,± 0.5% Reading	±0.5% of reading	±0.25% (GPD,HPD) ±0.1% (BRPD)	±0.15%	+/- 1% of reading	liquid +/- 0.7% Rdg gas/steam+/- 1.0% Rdg
Viscosity			5 ~ 1,000,000 cSt	0 ~ 60 cSt	15m ~ 20 mm - < 30 CP	wafer, flange or insertion
Process Temperature	180 ℃	-20 ~ +50 ℃	0 ~ +250 ℃	-275 ~ +350 ℃	-80 ~ +200 ℃ (Standard)	-20 ~ +350 Dec. C(Optional)
Operating Pressure	350 Bar	No need to monitor pressure	1600 Bar**(HPD)**,64 Bar (**BRPD**)	4000 bar	40 bar	64 Kg/cm2(Max.)
Connection	PTFE, FEP, Polyurethane, Neoprene	Clam-On sensors	threads, flanges, etc… bores for SAE flanges 1¼	BASF flanges,(ANSI and DIN), tri-clamp,ermeto threads, NPT	JIS , DIN and ANSI available	JIS , DIN and ANSI available
Wetted materials	Liner - 316 SS, Has and B/C, Ti, Ta, Platinum	No wetted material needed	SS per DIN 1.4305/AISI 303 1.4571/AISI 316 Ti	Body: 1.4305, (316 Ti) Wheel: 1.4122,(1.4460)		Stainless Steel 304 Stainless Steel 316
Transmitter						
outputs (standard)	4-20 mA & Scale pulse	4-20 mA or 0-20 mA Pulse Output, RS-232	8-30 VDC & 4-20 mA, Pulse RS485/232, MODBUS	8-30 VDC & 4-20 mA, Pulse	4-20 mA and Scale pulse Key pad for setup	4-20 mA (2 wire) RS485, HART, MODBUS
outputs (optional)						
Integral or Remote Mounting	Integral/Remote	Integral/Remote	Integral/Remote	Integral/Remote	Integral	Integral/Remote
Digital Display Option	◆	◆	◆	◆	◆	◆
Enclosure Protection/Ratings	IP65 / IP67 / IP68 / Ex proof	IP65 / IP67	IP 65, aluminum AlMgSiPb	IP 65, aluminum AlMgSiPb	IP 65 aluminum	IP 65 aluminum
Power Supply	90-260 Vac, 50/60 Hz	90 ~ 260Vac 50/60 Hz	14-30 VDC	14-30 VDC	11 ~ 36VDC(2 wire 4-20 mA)	11 ~ 36 VDC(2 wire 4-20 mA)
Agency Approvals	CE	CE	Ex II 2 G EEx ia IIC T4, BVS 03 ATEX E 205 CE	Ex II 2 G EEx ia IIC T4, BVS 03 ATEX E 205 CE	Eex ia IIC T5 Ex d IIB T6 CE	Explosion Proof, Exd IIB T4 Intrinsically Safe, Exib IIC T4
Industries and Applications	Liquid Slurries Water & Wastewater Corrosive Liquids Chemical Processing Cellulose/cosmetics Food & Beverage Cement, lime Pharmaceuticals Fertilizer	Portable flow monitoring Food and beverage Water and wastewater Refined and Crude oils Bi-directional flow Ultra pure fluid Alcohol / acid Oil Derivatives Batch control	Polyurethane & polymers Isocyanate Sealing materials Petrochemical products Fats Light,heavy or crude oils Glues, Paints Abrasive fluids Coating wax	Fuel oil Solvents Di water Pharmaceuticals Liquefied gas Food Industry Automotive Refineries High pressure (4000 barg)	Leak Detection Pump Seal Automotive Sampling Systems Analyzers Refrigeration Blanketing Systems Temperature Controls Water Filtration	Dirty gas application Wet gas application Liquids Saturated steam Superheated steam