

# MAS MASS FLOWMETER FOR GASES



Flow  
Pressure  
Level  
Temperature  
Measurement  
Monitoring  
Control



- Accuracy:  $\pm 1.5\%$  of Full Scale
- Mass Flow Based Measurement
- Temperature/Pressure Change Insensitive
- Meter Ranges From 0-10 SCCM to 0-500 SLM
- Nylon, Aluminum, or Stainless Steel Construction
- Maximum Meter Pressures to 500 PSIG (SS)
- Exceptional Versatility
- Remote Display Capability
- Analog Output Standard

KOBOLD Electronic Mass Flow Meter		GAS	
MODEL NO.	UNITS	SLM	AIR
MAS-3010	OUTPUT	SERIAL NO. 8544	
RANGE	0-10	0-5 VDC	OPER VOLTAGE
MAX. PRESSURE	500 PSIG	MAX TEMP	50°C
		12 VDC	

U.S. PATENT NO. 4,895,754 AND OTHER PATENTS PENDING



S5

Contact:  
Industrial Process Measurement, Inc.  
3910 Park Avenue, Unit 7  
Edison, NJ 08820  
732-632-6400  
support@instrumentation2000.com  
<http://www.instrumentation2000.com>

Model :  
MAS

**Key Features**

- Accuracy:  $\pm 1.5\%$  of Full Scale
- Mass Flow Based Measurement
- Temperature/Pressure Change Insensitive
- Meter Ranges From 0-10 SCCM to 0-500 SLM
- Nylon, Aluminum or Stainless Steel Construction
- Maximum Meter Pressures to 500 PSIG (SS)
- Exceptional Versatility
- Remote Display Capability
- Analog Output Standard



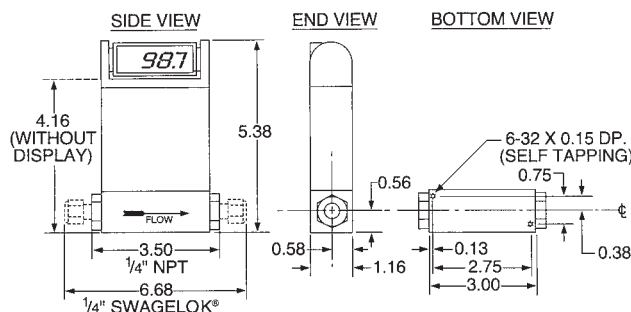
**Description**

KOBOLD's MAS Mass Flowmeter measures gas flow rates in ranges from 0-10 sccm to 0-500 slm. Accuracy is  $\pm 1.5\%$  of full scale over a wide temperature and pressure range. Response time is two seconds to within 2% of final flow. The MAS offers outstanding performance and unsurpassed value.

In contrast to volumetric flow metering devices, the MAS needs no pressure or temperature correction. This makes the unit ideal for a wide variety of gas flow applications including general process control, flow into vacuum systems, leak testing, and flow calibration.

The MAS is available in nylon, aluminum or stainless steel with or without a digital display. If the display is selected, KOBOLD provides a 3 1/2" digit LCD, tiltable over 180° for easy viewing. The remote display option comes standard with 5 feet of cable, but may be ordered with up to 100 feet of cable for remote surface mounting.

**Dimensions**



**KOBOLD MAS Mass Flowmeter**

**Specifications**

<b>Accuracy:</b>	$\pm 1.5\%$ full scale at 15-25° C and 5-60 PSIA
<b>Repeatability:</b>	$\pm 0.5\%$ full scale
<b>Drift Coefficients</b>	
<b>Temperature:</b>	0.15% FS/°C
<b>Pressure:</b>	0.02% FS/PSI
<b>Max. Temperature:</b>	122° F
<b>Max. Pressure</b>	
<b>Nylon, Aluminum:</b>	100 PSIG
<b>SS:</b>	500 PSIG
<b>Wetted Parts</b>	
<b>Nylon:</b>	Nylon, 316 SS, FKM
<b>Aluminum:</b>	Aluminum, FKM
<b>SS:</b>	316 SS, FKM
<b>Leak Integrity</b>	
<b>Nylon, Aluminum:</b>	1x10 <sup>-4</sup> scc/sec Helium
<b>SS:</b>	1x10 <sup>-7</sup> scc/sec Helium
<b>Input Power</b>	
<b>Standard:</b>	12 V <sub>DC</sub> , 100 mA
<b>Option "-V2":</b>	24 V <sub>DC</sub> , 100 mA
<b>Output</b>	
<b>Standard:</b>	0-5 V <sub>DC</sub> (linear)
<b>Option "-A":</b>	4-20 mA (linear)



Order Details (Example: MAS-3005AHP)

Flowmeter with Nylon Body				
Range Nitrogen	Max. Press. Drop cm H <sub>2</sub> O	Fittings [NPT]	Model Number	
			With Display	Without Display
0 - 10 SCCM	1	1/4"	MAS-1001	MAS-2001
0 - 20 SCCM	1	1/4"	MAS-1002	MAS-2002
0 - 50 SCCM	1	1/4"	MAS-1003	MAS-2003
0 - 100 SCCM	1	1/4"	MAS-1004	MAS-2004
0 - 200 SCCM	1	1/4"	MAS-1005	MAS-2005
0 - 500 SCCM	1	1/4"	MAS-1006	MAS-2006
0 - 1 SLM	1	1/4"	MAS-1007	MAS-2007
0 - 2 SLM	6	1/4"	MAS-1008	MAS-2008
0 - 5 SLM	6	1/4"	MAS-1009	MAS-2009
0 - 10 SLM	6	1/4"	MAS-1010	MAS-2010
0 - 20 SLM	25	1/4"	MAS-1011	MAS-2011
0 - 30 SLM	47	1/4"	MAS-1012	MAS-2012
0 - 40 SLM	88	1/4"	MAS-1013	MAS-2013
Flowmeter with Aluminum Body				
0 - 75 SLM	6	1/2"	MAS-1115	MAS-2115
0 - 125 SLM	6	1/2"	MAS-1116	MAS-2116
0 - 175 SLM	6	1/2"	MAS-1117	MAS-2117

Flowmeter with Stainless Steel Body					
Range Nitrogen	Max. Press. Drop cm H <sub>2</sub> O	Fittings Swagelok® Style	Body Size	Model Number	
				With Display	Without Display
0 - 10 SCCM	6	1/4"	L	MAS-3001	MAS-4001
0 - 20 SCCM	6	1/4"	L	MAS-3002	MAS-4002
0 - 50 SCCM	6	1/4"	L	MAS-3003	MAS-4003
0 - 100 SCCM	6	1/4"	L	MAS-3004	MAS-4004
0 - 200 SCCM	6	1/4"	L	MAS-3005	MAS-4005
0 - 500 SCCM	6	1/4"	L	MAS-3006	MAS-4006
0 - 1 SLM	6	1/4"	L	MAS-3007	MAS-4007
0 - 2 SLM	6	1/4"	L	MAS-3008	MAS-4008
0 - 5 SLM	6	1/4"	L	MAS-3009	MAS-4009
0 - 10 SLM	105	1/4"	L	MAS-3010	MAS-4010
0 - 15 SLM	105	1/4"	L	MAS-3011	MAS-4011
0 - 20 SLM	40	1/4"	M	MAS-3012	MAS-4012
0 - 30 SLM	60	1/4"	M	MAS-3013	MAS-4013
0 - 50 SLM	80	3/8"	M	MAS-3014	MAS-4014
0 - 100 SLM	105	3/8"	M	MAS-3015	MAS-4015
0 - 100 SLM	6	3/8"	H	MAS-3016	MAS-4016
0 - 200 SLM	6	3/8"	H	MAS-3017	MAS-4017
0 - 300 SLM	140	3/8"	H	MAS-3018	MAS-4018
0 - 400 SLM	140	1/2"	H	MAS-3019	MAS-4019
0 - 500 SLM	140	1/2"	H	MAS-3020	MAS-4020

Accessories	
MAS-5000	110 VAC to 12 VDC Power Supply

Options	
Description	Suffix
4-20 mA Output	- A
24 V <sub>DC</sub> Input Power	- V2
Remote Display with 5 foot cable	- RD
Medium Pressure Calibration (40-100 PSIG) (Nylon® and Aluminum bodies)	- MP
Medium Pressure Calibration (40-100 PSIG) (Stainless Steel body only)	- MP
High Pressure Calibration (100-500 PSIG) (Stainless Steel body only)	- HP
Cleaned for Oxygen Service	- O2
Calibrated for hydrogen Service	- H2
KALREZ® O-Ring	- OR6
Custom range unit	- E
1/4" Fittings Swagelok® Style (Nylon® bodies onl)	- C1
3/8" Fittings Swagelok® Style (Nylon® bodies onl)	- C2