

# MAS THERMAL MASS FLOWMETERS



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 1000 PSIG (SS)
- Exceptional Versatility
- Remote Display Capability
- Analog Output Standard

S5



## USA

KOBOLD Instruments Inc.  
1801 Parkway View Drive  
USA-Pittsburgh, PA 15205  
☎ +1 412-788-2830  
Fax +1 412-788-4890  
E-mail: info@koboldusa.com



## CANADA

KOBOLD Instruments Canada Inc.  
9A Aviation  
Pointe-Claire, QC H9R 4Z2  
☎ +1 514-428-8090  
Fax +1 514-428-8899  
E-mail: kobold@kobold.ca

Visit KOBOLD Online at  
[www.kobold.com](http://www.kobold.com)

Model:  
MAS



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 $\frac{1}{2}$ " 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.



**Specifications**

- Accuracy:**  $\pm 1.5\%$  full scale @ 15-25° C and 5-60 PSIA
- Repeatability:**  $\pm 0.5\%$  full scale
- Drift Coefficients:**
  - Temperature:** 0.15% FS/°C
  - Pressure:** 0.02% FS/PSI
- Max. Temperature:** 50° C
- Max. Pressure:**
  - Nylon, Aluminum:** 100 PSIG
  - SS:** 500 PSIG
- Wetted Parts:**
  - Nylon:** Nylon®, 316 SS, Viton®
  - Aluminum:** Aluminum, Viton®
  - SS:** 316 SS, Viton®
- Leak Integrity:**
  - Nylon, Aluminum:** 1x10<sup>-4</sup> scc/sec Helium
  - SS:** 1x10<sup>-7</sup> scc/sec Helium
- Input Power:**
  - Standard:** 12 VDC, 100 mA
  - Option "-V2":** 24 VDC, 100 mA
- Output:**
  - Standard:** 0-5 VDC (linear)
  - Option "-A":** 4-20 mA (linear)

**Flowmeter with Nylon Body**

Range Nitrogen SCCM	Maximum Pressure Drop cm H <sub>2</sub> O	Fittings NPT	Model Number	
			With Display	Without Display
0-10	1	1/4"	MAS-1001	MAS-2001
0-20	1	1/4"	MAS-1002	MAS-2002
0-50	1	1/4"	MAS-1003	MAS-2003
0-100	1	1/4"	MAS-1004	MAS-2004
0-200	1	1/4"	MAS-1005	MAS-2005
0-500	1	1/4"	MAS-1006	MAS-2006
<b>SLM</b>				
0-1	1	1/4"	MAS-1007	MAS-2007
0-2	6	1/4"	MAS-1008	MAS-2008
0-5	6	1/4"	MAS-1009	MAS-2009
0-10	6	1/4"	MAS-1010	MAS-2010
0-20	25	1/4"	MAS-1011	MAS-2011
0-30	47	1/4"	MAS-1012	MAS-2012
0-40	88	1/4"	MAS-1013	MAS-2013

**Flowmeter with Aluminum Body**

0-75	6	1/2"	MAS-1115	MAS-2115
0-125	6	1/2"	MAS-1116	MAS-2116
0-175	6	1/2"	MAS-1117	MAS-2117

**Options**

4-20 mA Output	Suffix "-A"
24 VDC Input Power	Suffix "-V2"
Remote Display with 5 foot cable	Suffix "-RD"
$\pm 1\%$ Full Scale Accuracy (SS units only)	Suffix "-S1"
Medium Pressure Calibration (40-150 PSIG)	Suffix "-MP"
High Pressure Calibration (150-500 PSIG)	Suffix "-HP"
Cleaned for Oxygen Service	Suffix "-O2"
Calibrated for hydrogen Service	Suffix "-H2"
KALREZ O-Rings	Suffix "-OR6"

**Flowmeter with Stainless Steel Body**

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

**Fitting Styles**

	1/4"	3/8"	1/2"
Swagelok® Style (Nylon: 1/4" only)	-C1	-C2	-C3

**Accessories**

MAS-5000	110 VAC to 12 VDC Power Supply
----------	--------------------------------