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MKS MASS FLOW METERS

MASS-FLO™ TYPE 0258C MFM
MASS-FLO™ TYPE 1258C MFM WITH CLOSE-COUPLED CONTROL VALVE
MASS-FLO™ TYPE 2258C MFM WITH CLOSE-COUPLED CONTROL VALVE AND POSITIVE SHUT-OFF VALVE



FEATURES AND BENEFITS

- 0.8% of Full Scale accuracy
- Meter settling time: <500 msec.
- Straight, large diameter sensing tube eliminates clogging and contaminant build-up
- Low pressure drop design reduces condensation problems for low vapor pressure materials
- No voltage output fold-over
- Available in 12 Full Scale ranges from 10 sccm to 50 slm

DESCRIPTION

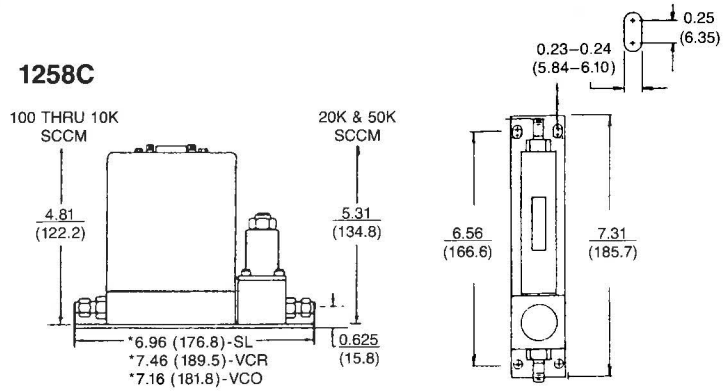
The Type 1258 Mass Flow Meter offers a patented flow sensing technique which measures the power required to maintain a pre-established temperature profile along a straight laminar flow sensing tube. This technique creates a fast time response as well as long-term thermal stability. Because this method is inherently linear, no electronic linearization is required. In addition, a large through-bore sensing tube is used which eliminates clogging and contaminant build-up.

Close coupling of positive shut-off valves downstream (Type 2258) as well as shut-off valves upstream is easily accomplished via the proven MKS coupling technique.

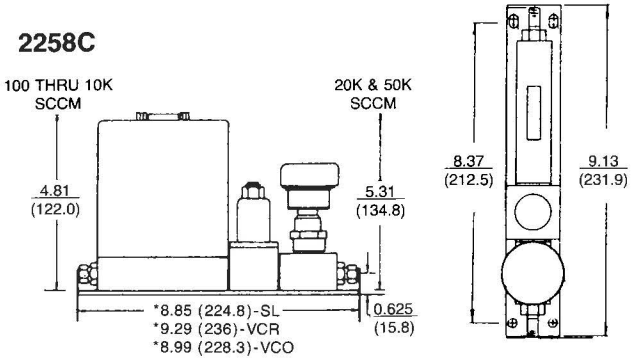
The voltage output of the Type 258 Flow Meter increases linearly (±0.8% of F.S.) to 5.0 VDC at Full Scale. Above Full Scale the output will increase to a maximum of 7.5 Volts and not "fold-over." The flow, therefore, is not double-valued as in other thermal flow meters.

DIMENSIONAL DRAWINGS

1258C



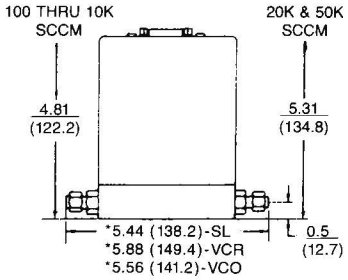
2258C



*VCR/VCO DIM's are from mating face to mating face. Swagelok DIM's are from fitting end to fitting end (less nut). Each fitting has a 0.31 max. tube insertion depth.

Add 0.25 (6.3) for 20,000 and 50,000 sccm units.

0258C



SPECIFICATIONS TYPES 0258/1258/2258

Performance Specifications

Full Scale Ranges	10,20,50,100,200,500,1000,2000,5000, 10000,20000,50000 sccm
Measurement Range	1.5 to 100% of F.S.
Accuracy[1] (including non-linearity)	±0.8% of F.S.
Repeatability	±0.2% of F.S.
Resolution (measurement)	0.1% of F.S.
Temperature Coefficients	
Zero[2]	<0.05% of F.S./°C (500 ppm)
Span	<0.10% of Rdg./°C (1000 ppm)
Operating Temperature Range	15° to 40°C
Warm-Up Time	30 min.
Meter Settling Time	<500 msec.
Maximum Inlet Pressure	150 psig
Pressure Coefficient	0.005% of Rdg./psi
Minimum Pressure Drop	5.0 Torr at atmosphere

Electrical Specifications

Input Voltage/Current Required	
Max. at start-up	±15 VDC @ 250 mA (Type 258) ±15 VDC @ 250 mA (Type 1258)
Typical at steady state	±15 VDC @ 100 mA (Type 258) ±15 VDC @ 160 mA (Type 1258)
Output Signal/Min. Load	0-5 VDC into > 10KΩ
Output Impedance	<1Ω
Connector Type	15-pin, Type "D", RF shielded

Mechanical Specifications

Materials Wetted		
	Standard	316SS, nickel, Viton®
	Optional	Buna-N, Neoprene®, Kalrez®
Leak Integrity		
	External	$\leq 10^{-9}$ scc/sec. He
	Through closed valve[3]	$\leq 10^{-7}$ scc/sec. He (Type 1258 only)
Fittings	**Standard**	¼" Swagelok®
	Optional	Cajon® 4 VCR® (male), Cajon 4 VCO® (male)

FOOTNOTES

[1] Calibration referenced to 760 Torr/0°C (SEMI standard).

[2] Temperature effect on zero is 0.5% of Full Scale/°C (5000 ppm) for 10 and 20 sccm units; 0.1% of Full Scale/°C (1000 ppm) for 50 sccm units.

[3] A separate shut-off valve is required to ensure complete shut-off.

Specifications subject to change without notice.

ORDERING INFORMATION

Type 0258C, 1258C or 2258C

example: 1258C-00010-SV

Type Number

Full Scale Range

10 sccm of N_2	00010
20	00020
50	00050
100	00100
200	00200
500	00500
1000	01000
2000	02000
5000	05000
10000	10000
20000	20000
50000	50000

Fittings

Swagelok ¼" tube	Code S
Cajon 4 VCR (male)	Code R
Cajon 4 VCO (male)	Code G

Seals

Viton	Code V
Neoprene	Code N
Buna-N	Code B
Kalrez	Code K

Note: Interconnecting cables are available at an additional charge. Please consult the current MKS Price List for details.

Viton®, Neoprene®, and Kalrez® are registered trademarks of E.I. DuPont Company, Inc., Wilmington, DE.

Cajon®, VCR®, and VCO® are registered trademarks of Cajon Company, Macedonia, OH.

Swagelok® is a registered trademark of Crawford Fitting Co., Solon, OH.

MKS COMPANION PRODUCTS

- Type 250 Pressure/Flow Controller
- Type 260 Modular Flow Control System
- Type 147 Mass Flow/Pressure Programmer
- Type 246/247 Power Supply/Readouts
- Microcal-F MFC Calibration System
- Califlow® Primary Standard Flow Rate Calibrator
- Mass-Flo™ Types 1159/1160/1161 MFC's (in standard 3" lengths)
- Mass-Flo™ Type 1259 MFC (for general purpose applications)
- Masster-Flo™ Type1359 MFC Transfer Standard

MKS INSTRUMENTS, INC.

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