

AIR & GAS FLOWMETERS

- Easy to read dial face
- Mount in any orientation
- Rugged, affordable high-pressure design

The readable flowmeter

For many years, customers have benefitted from the familiar and easily readable face of our flowmeters. We use a pointer and dial that can be read in an instant from a distance. By comparison, rotameters have small graduations that are difficult to read. Rotameters also have cylindrical bodies that may be impossible to read from some angles and lighting conditions. Other devices present readings on X-Y charts that require calculations just to get a reading. All of that is eliminated with our easy to read dial face!

We offer dials up to six inches in diameter, so you can always get the right size for your needs.

Any orientation

Because of a spring-loaded sensor, you can mount Orange Research flowmeters horizontally or vertically, simplifying system design. Gravity-based flowmeters, by comparison, must be mounted vertically, often limiting your design options.

High pressure—no problem

Our flowmeters are precision machined from solid blocks of aluminum or stainless steel to reliably and safely handle high line pressures common in many applications. Burst pressures for Orange Research flowmeters far exceed high line pressure ratings. Glass or acrylic rotameters cannot match our pressure capabilities.

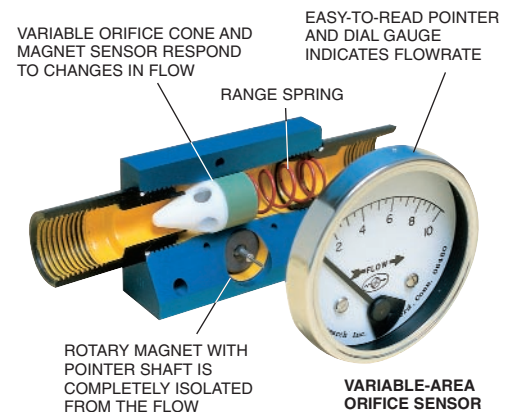


Our air and gas flowmeters measure a wide range of flow rates, from 5 to 100 SCFM. With an accuracy of 5% FS and an affordable price, they are the flowmeter of choice for many applications.

HOW THEY WORK

Two types of flow sensors are employed: variable-area orifice (most applications) and fixed-area orifice (where more sensitive measurement is needed).

The variable-area orifice uses a spring-loaded Delrin® cone. The cone nests within the sharp-edged orifice and is displaced by the air or gas flow. Orifice area increases proportionally with flow. The fixed-area orifice is attached to a diaphragm that is displaced by flow.

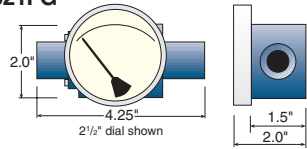
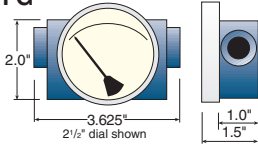
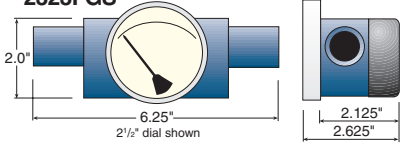




In both cases, the sensor is magnetically coupled to the indicator, which remains isolated from the flow.

Our switch models incorporate a reed switch that is actuated when the sensor magnet moves into close proximity. Reed switches are set at the factory, but can be reset easily in the field over a wide flow range.

Relays are available for higher current applications. Our Hall Effect transmitters offer a variety of outputs for continuous output of process conditions. Refer to our General Catalog for additional details.

Air & Gas Flowmeter Selection Guide

Dimensions		2021FG	2221FG	2323FGS
				
Model		2020 Series	2220 Series	2320 Series
		2021FG gauge, 2021FS switch, 2021FGS gauge-switch, 2023FS switch w/NEMA-4 encl., 2023FGS gauge-switch w/NEMA-4 encl.	2221FG gauge, 2221FS switch, 2221FGS gauge-switch, 2223FS switch w/NEMA-4 encl., 2223FGS gauge-switch w/NEMA-4 encl. 	2321FG gauge, 2321FS switch, 2321FGS gauge-switch, 2323FS switch w/NEMA-4 encl., 2323FGS gauge-switch w/NEMA-4 encl. 
Standard Ranges	SCFM	1.5-5	1.5-10, 2-15, 2-20, 3-25	3-30, 4-40, 5-50, 5-75, 10-100
	SLPS	0.8-2.4	0.75-5, 1-7, 1-9, 2-12	1-14, 2-18, 3-25, 4-36, 6-45
	SLPM	60-140	40-280, 60-560, 70-700	100-850
	Nm ³ /hr	3-8	3-15, 3-25, 3-30, 4-40	5-50, 5-80, 10-90, 15-125, 20-150

NOTES: Standard ranges calibrated on air at 100 PSIG, 70° F. Contact Orange Research for non-standard ranges. Specify system gas, line pressure & temperature. Ask about available transmitter versions.

Air & Gas Flowmeter Specifications

Accuracy:	±5% full scale	Inlet/Outlet ports:	2020 Series 1/4" NPT 2220 Series 1/4" NPT 2320 Series 1/2" NPT
Repeatability:	1% full scale	Max. temperature:	Gauges 200° F Switches 175° F
Pressure drop:	2020 Series 5 PSID 2220 Series 1-4 PSID 2320 Series 2-5 PSID	Std. calibration fluid:	Air@100 PSIG, 70° F
Max. working pressure:	2020 Series 3,000 PSIG 2220 Series 3,000 PSIG (5,000 optional) 2320 Series 3,000 PSIG (5,000 optional)		

How to Order

The numbering system used to specify Orange Research products is designed to assure that you receive the product you want, as you want it. To serve that purpose, the listings (1 - 8) below have been

assembled. Please select one item from each of the eight categories (when applicable) to construct an ordering part number. The ordering part number will include the following:

1 Model No. 2 -Porting 3 Body 4 -Dial diam. 5 Dial case 6 -Switch 7 -Range 8 -Options*

Sample of a completed part number: 2221FGS - 1A - 2.5L - A - 2-15 SCFM - 8B

1. Model No.

2021FG, 2021FS, 2021FGS,
2023 FS, 2023 FGS,
2221FG, 2221FS, 2221FGS,
2223 FS, 2223FGS,
2321FG, 2321FS, 2321FGS,
2323FS, 2323FGS,

2. Porting

1—In-line

3. Body material

A—Anodized aluminum
C—316 stainless steel

4. Dial diameter

(FG, FGS models only)
2.5", 3.5", 4.5", 6"

5. Dial case

(FG, FGS models only)
L—Bezel
F—Drilled flange
B—Machined (n/a 2.5")

6. Typical switches

(FGS and FS models)
A—SPST N.O. (A-A for 2 switches)
B—SPST N.C. (B-B for 2 switches)
C—SPDT (C-C for 2 switches)
R2—relay (115 VAC coil standard)
T1—transmitter

7. Dial Range

(FG, FGS models only)
Choose from selection guide
above—contact Orange Research
for non-standard ranges

8. Options (*must choose 4 or 8)

4—Special calibration
(specify gas, pressure, temp.)
5—Plastic lens
6—Liquid filled dial case
7—Follower pointer
8—Calibration for air
(100 PSIG, 70° F)
Diaphragm and O-Ring seals
(select):
B = Buna-N (std)
E = EPDM
F = Fluorosilicone
V = Viton



140 Cascade Blvd, Milford CT 06460
Tel: 203 877-5657, Fax: 203 783-9546
Toll-Free Telephone: 800 989-5657
e-mail: info@orangeresearch.com
Internet: www.orangeresearch.com