

## Flowmeter Selection Guide

### Digital Flowmeters

For those who prefer data acquisition and logging with completely electronic, multifunction devices. For noncorrosive gas streams.

Description	Low Flow mL/min	High Flow mL/min	Accuracy	Flow through design	Gases measured (non-corrosive)	Volumetric <sup>1</sup> or mass <sup>2</sup> flowmeter	RS232 capability	Power supply
FlowTracker 2000 plus Leak Detector	0 <sup>3</sup>	500	±2%	Yes	N <sub>2</sub> , H <sub>2</sub> , He Air, CO <sub>2</sub> , CH <sub>4</sub> , 95% AR/CH <sub>4</sub>	Both	RS232 output	6AA batteries or 110V/220V AC
FlowTracker 1000	0 <sup>3</sup>	500	±2%	Yes	N <sub>2</sub> , H <sub>2</sub> , He Air, CO <sub>2</sub> , CH <sub>4</sub> , 95% AR/CH <sub>4</sub>	Both	RS232 output	6AA batteries or 110V/220V AC
ADM2000	0.5	1000	±3%	No	All	Both	RS232 output	9v battery or 110V/220V AC
ADM1000	0.5	1000	±3%	No	All	Volumetric	none	9v battery
Veri-Flow 500	5	500	±3%	Yes	N <sub>2</sub> , H <sub>2</sub> , He Air, 95% AR/CH <sub>4</sub>	Mass	RS232 input and output	Rechargeable battery or 110V/220V AC

### Digital Bubble Flowmeters

For those who prefer classic bubblemeter technology combined with digital readout. Durable, for all gases, including mildly corrosive and humid gas streams.

Description	Low Flow mL/min	High Flow mL/min	Accuracy	Flow through design	Gases measured (non-corrosive)	Volumetric <sup>1</sup> or mass <sup>2</sup> flowmeter	RS232 capability	Power supply
Optiflow 420	0.1	50	±3%	No	All	Volumetric	none	9v battery
Optiflow 570	0.5	700	±3%	No	All	Volumetric	none	9v battery
Optiflow 650	5	5000	±2%	No	All	Volumetric	none	9v battery

### Digital Liquid Flowmeters

For those who need to verify and set HPLC column flow rates.

Description	Low Flow mL/min	High Flow mL/min	Accuracy	Flow through design	Liquid measured	Volumetric <sup>1</sup> or mass <sup>2</sup> flowmeter	RS232 capability	Power supply
Optiflow 1000	1	30	±2%	No	HPLC Mobile Phases	Volumetric	none	110V/220V AC

*1 Volumetric measurements are accurate and are independent of the gas that is being measured, thus allowing measurements of mixed gases commonly found in chromatography.*

*2 Mass flow measurements are very accurate for specific gases and are not affected by temperature and pressure fluctuations*

*3 FlowTrackers measure flow rates very accurately down to 5mL/min; from 0-5mL/min, the standard deviation increases to approximately ± 5%*

### Volumetric vs. Mass Measurement

Chrom Tech offers two types of volumetric flowmeters—bubble (Optiflow) and acoustic displacement (ADM and FlowTracker series)—and one mass flowmeter (VeriFlow 500). Volumetric measurements rely upon the volume of gas passing through the flow meter but not the composition. Additionally, volumetric flowmeters accurately measure from a mixed or multi-component gas stream. Mass flowmeters are calibrated to specific gas compositions and determine the flow rate for those calibrated gases. Mass measurements are independent of temperature and pressure.

With volumetric flowmeters, no adjustments are needed when switching from one gas stream to a different composition stream. So an analyst can immediately change from measuring nitrogen from a GC detector to helium split rate from an injection port, to methane from an anaerobic digestion vessel. If a mass flowmeter is used, the analyst must change instrument settings and purge the flowmeter of the initial gas before accurate readings can be taken.

