

## Defender 510

Volumetric Primary Flow Standard

## Defender 520

Enhanced Volumetric Primary Flow Standard

## Defender 530

Standardized and Volumetric Primary Flow Standard



## Bios Defender 500 Series

Turn the Defender on. Connect it to your pump. Take measurements. It's that simple. Instantly calibrate your gas flow using Quick Start – there is no preparation involved, no messy soap bubble solutions. Defender's many user-selectable options makes customizing your calibrations easy, giving you exactly what you need in the format you prefer. All you have to do is choose between the 510, the 520 or the 530.

		Defender 510	Defender 520	Defender 530
<b>Model and Flow Ranges</b>		510L, 5-500 ccm 510M, 50-5000 ccm 510H, 300-30,000 ccm	520L, 5-500 ccm 520M, 50-5000 ccm 520H, 300-30,000 ccm	530L, 5-500 ccm 530M, 50-5000 ccm 530H, 300-30,000 ccm
<b>Volumetric Accuracy</b>		1%	1%	1%
<b>Standardized Accuracy</b>		N/A	N/A	1.2%
<b>User selectable Measurement Units</b>	Volumetric	mL/min, L/min, cc/min, cf/min	mL/min, L/min, cc/min, cf/min	mL/min, L/min, cc/min, cf/min
	Standardized	N/A	N/A	smL/min, sL/min, scc/min, scf/min
	Temperature	N/A	°C °F	°C °F
	Pressure	N/A	mmHg, PSI, kPa	mmHg, PSI, kPa
<b>Temperature and Pressure Sensor</b>		No	Yes, in flow stream	Yes, in flow stream
	Pressure	N/A	3.5 mmHg (typical) 7.0 mm (max)	3.5 mmHg (typical) 7.0 mm (max)
	Temperature	N/A	0.8° C (typical) 1.3° C (max)	0.8° C (typical) 1.3° C (max)

# Defender 500 Series

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<b>Approximate Time per reading</b>	1-15 seconds
<b>Reading Styles</b> (with averaging function user-selectable from 1 to 100 measurements)	Single (manual), Continuous or Burst
<b>Gas Compatibility</b>	non-corrosive gases, non-condensing, less then 70% humidity
<b>Flow Modes</b>	Pressure or Suction
<b>Measurement Cell Style</b>	Integrated
<b>AC Adapter/Charger</b>	12V DC, > 250ma, 2.5mm center positive
<b>Battery System</b>	6v rechargeable, sealed lead-acid, 6-8 hrs typical operation
<b>Battery Operational Time</b> (5 cycles/min)	3 hours backlight on, 8 hours backlight off
<b>Pressure and Suction Fittings</b>	1/4" ID Hose Barb
<b>Warranty</b>	1 yr (battery 6 mo)
<b>Storage Temperature</b>	0-70° C
<b>Ambient Humidity</b>	0-70%, non-condensing
<b>Operating Pressure</b> (Absolute)	Atmospheric, Maximum 15 PSIG
<b>Display</b>	backlit graphical LCD
<b>Data Port</b> (for PC interface)	Serial - RS-232
<b>Data Cable</b> (for PC interface)	1 meter Defender to PC included
<b>Protective Case</b>	Soft or Pelican case available
<b>Dimensions (H x W x D)</b>	5.5" x 6" x 3" / 140 x 150 x 75 mm
<b>Weight</b>	29 oz / 820 g
<b>RoHS- and CE-compliant</b>	



Mesa's Butler, N.J. manufacturing facility (pictured above) is our NVLAP accredited ISO 17025 laboratory.