



- **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 air samplers using Quick Start – there is no preparation involved, no messy soap bubble solutions. Or, set your Defender to take hands-free, continuous measurements while you quickly set the flow rate on your pumps. 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)



# Bios

Driving a Higher Standard in Flow Measurement<sup>SM</sup>

Defender 500 Series	
<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 than 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>	¼" 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)	15 PSI
<b>Display</b>	backlit graphical LCD
<b>Data Port</b> (for use with Optimizer Software)	Serial - RS-232
<b>Data Cable</b> (for use with Optimizer Software)	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>	



The Bios facility in Butler, N.J., (pictured above) is the only NVLAP accredited ISO 17025 laboratory serving the occupational health and safety industry. With the lowest gas flow measurement uncertainties of any commercial laboratory, Bios provides you with the legal protections and peace of mind valued in today's litigious business environment.



-  **Reliable**  
Over 15 years of Proven DryCal® Technology
-  **Accurate**  
Backed by ISO 17025; NVLAP accredited
-  **Portable**  
Lightweight and impact-resistant
-  **Simple**  
Quick Start operation and no messy soap solutions



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