# Defender

## 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 |
|---|---|---|---|---|
| **Model and Flow Ranges** | | 510L, 5-500 ccm<br>510M, 50-5000 ccm<br>510H, 300-30,000 ccm | 520L, 5-500 ccm<br>520M, 50-5000 ccm<br>520H, 300-30,000 ccm | 530L, 5-500 ccm<br>530M, 50-5000 ccm<br>530H, 300-30,000 ccm |
| **Volumetric Accuracy** | | 1% | 1% | 1% |
| **Standardized Accuracy** | | N/A | N/A | 1.2% |
| **User selectable Measurement Units** | 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 |
| **Temperature and Pressure Sensor** | | No | Yes, in flow stream | Yes, in flow stream |
| **Pressure Accuracy** | | N/A | ± 3.5 mmHg (typical)<br>± 7.0 mm (max) | ± 3.5 mmHg (typical)<br>± 7.0 mm (max) |
| **Temperature Accuracy** | | N/A | ± 0.8° C (typical)<br>± 1.3° C (max) | ± 0.8° C (typical)<br>± 1.3° C (max) |

| Defender 500 Series | |
|---|---|
| **Approximate Time per reading** | 1-15 seconds |
| **Reading Styles** (with averaging function user-selectable from 1 to 100 measurements) | Single (manual), Continuous or Burst |
| **Gas Compatibility** | non-corrosive gases, non-condensing, less then 70% humidity |
| **Flow Modes** | Pressure or Suction |
| **Measurement Cell Style** | Integrated |
| **AC Adapter/Charger** | 12V DC, > 250ma, 2.5mm center positive |
| **Battery System** | 6v rechargeable, sealed lead-acid, 6-8 hrs typical operation |
| **Battery Operational Time** (5 cycles/min) | 3 hours backlight on, 8 hours backlight off |
| **Pressure and Suction Fittings** | ¼" ID Hose Barb |
| **Warranty** | 1 yr (battery 6 mo) |
| **Storage Temperature** | 0-70° C |
| **Ambient Humidity** | 0-70%, non-condensing |
| **Operating Pressure** (Absolute) | Atmospheric, Maximum 15 PSIA |
| **Display** | backlit graphical LCD |
| **Data Port** (for PC intereface) | Serial - RS-232 |
| **Data Cable** (for PC intereface) | 1 meter Defender to PC included |
| **Protective Case** | Pelican case available |
| **Dimensions (H x W x D)** | 5.5" x 6" x 3" / 140 x 150 x 75 mm |
| **Weight** | 29 oz / 820 g |
| **RoHS- and CE-compliant** | |

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

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