



## NuLAB Plus

### Autonomous Nutrient Monitor with built-in water2web

The NuLAB Plus extends the regular NuLAB to include a touchscreen controller and Green Eyes' water2web software. The system provides graphical system setup and control, along with real time data processing, daily email updates and real-time transfer of text and graphical data files to the internet.

Like the NuLAB, the Plus adapts established wet chemical methods for automated, on-site nutrient analyses. Precise volumes of sample, on-board standard and reagents connected to a rotary valve are mixed by a syringe pump and reacted solutions are analyzed in high precision colorimeters. Sample data is calibrated via preserved on-board standards that are analyzed at user specified intervals. Sample and reagent volumes, mixing times and flushing are controlled by text based macros that can be customized to achieve specific analytical goals.



*NuLAB Plus*

Sensitive and specific wet chemistry methods	Individual channels for the analysis of nitrate, ortho-phosphate, ammonium and silicate
Calibration via preserved <b>on-board standard</b>	Excellent reliability and dedicated support
Default or customized chemistry	Biofouling control built in
Field Proven	Reagents and standards available to U.S customers
Built-in touch screen controller with Water2Web integrated system	Real time data processing and graphical generation
Daily Email update of data files and graphics	Real time transfer of data files and graphics to the Internet



## Specifications

### Physical (Three channel unit shown in photo)

- Analyzer: 66 x 64 x 30 (H x W x D, cm)
- Weight: 14 kg plus reagents

### Analytical

- Standard Ranges (detection limit to linear range, micro M)

#### High Sensitivity Detectors

mg/L: N+N 0.003 to 0.70, Nitrite 0.002 to 0.5, Phosphate 0.006 to 0.8, Ammonium 0.004 to 0.3, Silicate 0.008 to 1.7  
micro mol/L: N+N 0.2 to 50, Nitrite 0.15 to 35, Phosphate 0.2 to 25, Ammonium 0.3 to 20, Silicate 0.3 to 60

#### Low Sensitivity Detectors

mg/L: N+N 0.01 to 2.8, Nitrite 0.008 to 2.1, Phosphate 0.025 to 2.0, Ammonium 0.02 to 1.0, Silicate 0.04 to 2.8  
micro mol/L: Nitrate 0.8 - 200, Nitrite 0.6 - 150, Phosphate 1.0 - 75, Ammonium 1.5 to 75, Silicate 1.5 to 100

- Precision (one SD @ midrange of scale): Nitrate 3%, Nitrite 2%, Phosphate 3%, Ammonium 3%, Silicate 3%
- Expanded Ranges: Up to 5 mg/l through auto-dilution
- Accuracy: Based on the accuracy of the preserved on-board standard and sample replicate precision
- Analyses: Typically 1000 per channel, per deployment. Controlled by reagent payload and chemistry
- Analysis Time: N+N 13min, Nitrite 9min, Phosphate 14min, Ammonium 17min, Silicate 16

**Note** Detection limit calculated as 3 x SD of reagent blank; linear range is variable upon detector path length and chemistry. Contact Green Eyes for specific information

### General

- Power: voltage 10 - 15 dc, current per channel (mA) heating max. 820, motors 160-260, controller 350, idle 350
- Communications
  - Controller: Touchscreen, handheld keyboard and mouse combo, WiFi, LAN, USB
  - Analytical channels: RS232 9600,N,8,1
- Not waterproof, field enclosures available upon request

**Please contact Green Eyes to learn more about collecting high quality time-series nutrient data**