

iFLUX



HydroMetrics™

Nitrate GW50 Groundwater Optical Nitrate Sensor

Introduction

Many countries around the world are in the process of adopting nitrate caps via land discharge allowances to manage nitrate losses into freshwater bodies and groundwater drinking supplies from agricultural production. One area that remains unclear is how nitrate losses will be reliably measured to monitor and enforce these limits. Current approaches are principally based on modelling, rather than direct measurement of nitrate losses, as options such as regular physical sampling or real-time sensors are too expensive to be scalable. To address this, Lincoln Agritech has developed a low-cost sensor capable of measuring the concentration of nitrates in groundwater via monitoring wells.

Why choose the GW50 Nitrate Sensors

- A fit for purpose Nitrate Sensor at a cost effective price point that enables feasible deployment across multiple sites.
- Long term deployment reliability the sensor utilises optical sensor technology to extend the service interval when compared to other lower cost technologies such as Ion Selective Electrodes, which often suffer from significant calibration drift. This makes the HydroMetrics optical sensor more suitable for long term unattended deployment.
- Version to suit your application:
 - GW50 - standard for clean ground water applications – suitable for portable applications - spot sampling
 - GW50PC – water jet pump clean (PC) for light contamination
 - GW50FC – Flow Cell where water is pumped to the sensor installed on the surface
- Easy groundwater deployment to continuously measure nitrate - nitrogen concentrations.
- Build up a better overview by continuously monitoring and reporting data into online platforms, allowing users to build a fuller picture of what is happening in the environment.
- Self cleaning capability reducing ongoing maintenance in pump clean version.
- Can be deployed in low ionic strength groundwater meaning organic carbon or chloride interferences are minimal.
- Designed to allow installation in 50 mm wells. These are often able to be installed by low cost direct push technologies, reducing the overall installation cost.
- Long term deployment with low power consumption (solar power installation possible).



Technical Specification

Measurement technology (light source)	Xenon flash
Measurement principle	UV Absorbance
Measurement cell	8 mm
Parameter	NO ₃ -N
Measurement range	0 – 50 mg/L (without measurement cell alteration)
Measurement accuracy	+/- 5% +0.1 mg N/L whichever is greater (against standards)
Turbidity compensation	Yes
Data logger	~ 16 GB internal storage
Measurement interval	≥ 1 min
Housing material	316 stainless steel
Dimensions (ø x L)	42.2 mm x 455 mm / pump clean Version 48mm (+/- 0.5mm) x 660mm
Weight	3.44 kg (including 10m of cable) GW50
Interface	SDI-12 / RS-232 / Modbus RTU (RS485)
Power consumption	< 100 mW (GW50 1Hr measurement period), power increases with more frequent measurement periods and pump clean deployments
Power supply	11.5 – 15.5 V
Warranty	1 year
Max pressure	2.0 bar as standard – 3.0 bar on request

Specifications are subject to change without notification.

For more information, contact:

Goedele Verreydt
Founder & Technical Director
+32 3 443 05 31
info@ifluxsampling.com
Website: ifluxsampling.com

