

Turnkey Solution for Water Quality Monitoring

Water Quality

General Description

KISTERS' Water Quality iBox is a **robust fully configured all-in-one turnkey solution** for field deployment of water quality sensors. It combines several **water quality sensors** for measuring nitrate, BOD, DOC, algae (Chl-a), cyanobacteria (Phycocyanin), turbidity, pH, etc. and an iRIS 270 datalogger for **data communications**. The iBox solution is fully customizable and can be equipped with KISTERS' water quality sensors of your choice (see flip side).

Applications

The **low-power** Water Quality iBox is the device of choice for measuring water quality indicators in **unattended areas**. It is suitable for freshwater, groundwater, brackish and seawater, industrial water, rivers, lakes, estuarine and marine waters.

Functions & Features

The iBox is optimized for solar power, allowing **easy off-grid installations**. Connectivity via 3G/4G networks or also satellite, sensor power management, and control of fully automated sensor cleaning are managed by the field-proven iRIS 270 data logger (see flip side).

The combination with TriOS optical water quality sensors allows for unattended long term deployment with **minimal maintenance**. Water quality parameters (e.g. nitrate, BOD, DOC, algae, cyanobacteria, turbidity, pH) are accessible through KISTERS' **HydroTel online** portal and software.

The water quality sensors are submersible to 300 m / 985 feet with SubCon connectors. Cable lengths can be ordered to requirements. Please inquire about further sensors for e.g. PAH (oil-in-water), pH, turbidity, DO, conductivity, etc.

Please turn over for details about the components of the iBox Water Quality.



Components



iBox

Robust weatherproof enclosure (IP66), fully assembled, wired and configured for water quality monitoring applications. Includes iRIS 270 data logger and telemetry, solar panels and charger, 2 x 9 Ah batteries, smart power management and 12/24 V step-up converter to allow stable sensor measurements over long cable lengths and sensor cleaning interface.

The iBox with smart power management and standard battery package allows for up to 2 weeks continuation of measurements (every 10 min) of a NICO/OPUS sensor even without any solar charging. Extended battery packs are available.



iRIS 270 data logger

The iRIS 270 is a smart data logger, telemetry unit and IoT gateway that is compact, cost effective, ruggedized, IP-capable and easily configured. The dual telemetry slots support wireless 4G/3G modem, Iridium satellite, ethernet, and RS232/RS485. The WiFi hotspot enables access to the device wirelessly using KISTERS' free-of-charge iLink software (see right). Low power consumption, solar charging 12 V and up to 50 virtual sensors make the iRIS 270 to ideal heart piece of the iBox.

- Features: digital and analog input/output, Modbus, RS232, RS485, SDI-12
- Communications: dual telemetry slots for 4G/3G modem, Iridium satellite, ethernet, RS232/RS485, Wi-Fi



OPUS sensor

The state-of-the-art spectral sensors for online measurement of nitrogen and carbon compounds. Capable of precise and accurate nitrate measurements in fresh water, brackish water and seawater without drift or recalibration. Remote diagnostics. Single or multiparameter calibrations available.

- Parameters: N-NO₃, N-NO₂, DOC, TOC, BOD, COD, HS-, TSSeq, etc.
- Light source: Xenon flash lamp
- Detector: High-end miniature spectrometer: 256 Channels, 200 to 360 nm, 0.8 nm/pixel resolution
- Pathlengths changeable to suit detection levels from 0.01-100 mg/L N-NO₃
- Housing: stainless steel / titanium



NICO sensor

UV photometer for precise optical measurements of nitrate in fresh water and groundwater. Turbidity, organic matter compensated and temperature stable.

- Parameters: N-NO₃, N-NO₂, DOC, TOC, BOD, COD, HS-, TSSeq, etc.
- Light source: Xenon flash lamp
- Detector: Photodiodes and filters
- Pathlengths changeable to suit detection levels from 0.01-180 mg/L N-NO₃



NanoFlu/ Matrix Flu sensor

Miniaturized fluorometer for highly precise and selective measurement of CDOM/FDOM (colored dissolved organic matter), chlorophyll-a (algae), phycocyanin (cy-

anobacteria), Tryptophan (proxy for fecal indicator bacteria), and dyes.

- NanoFlu: single parameter sensor
- MatrixFlu: 3-parameter sensor (CDOM, algae, cyanobacteria)
- Light source: LED
- Detector: Photo diodes
- Measurement range: 0...200 µg/L / 0...200 ppb



Software

iLink 2012: Used for configuring and downloading data from iRIS dataloggers amongst others. Free to download and use.
HydroTel: Powerful and reliable telemetry system for data acquisition, data processing and comprehensive alarm management.

[Please ask for further details about the components.](#)