

# DPA Pro

## DEEP-SEA PROBE ANALYZER FOR COASTAL BUOY AND FLOATING PLATFORM INSTALLATION

**DPA** (Deep-sea Probe Analyzer) is the state of the art "in-situ" probe analyzer, which can measure automatically up to four chemical compounds in surface and sea water.

This innovative "Pro" design allows an easy installation in coastal buoys or floating platforms.

**DPA Pro** allows as standard to detect at trace concentration levels the main four nutrients compounds:

- **ammonia** ( $\text{NH}_3\text{-N}$ )
- **orthophosphate** ( $\text{PO}_4\text{-P}$ ).
- **nitrate + nitrite** ( $\text{NO}_3\text{+NO}_2$ )
- **nitrite** ( $\text{NO}_2\text{-N}$ ).

The **DPA Pro** probe automatically manages well-proved and used in most all the laboratories worldwide spectrophotometric wet chemistries and an advanced fluorimetric method for ammonia measurement.

Many other analytical methods are available on request, including **silicates**, iron and other **metals**.

**DPA Pro** is the most advanced analytical probe ever designed due to:

- the 5 ml **micro Loop Flow Reactor** ( $\mu\text{LFR}$ ) enabling a very low consumption of reagents and calibrants
- the exclusive multibeam compact, optic fibers based, colorimetric detector, coupled with a state of the art fluorimeter
- the new compact design layout, which allow an easy integration in coastal buoys and floating water monitoring platforms
- the reliable external reagents canister, which allows an easy field substitution of reagents and calibration solutions.

Results are directly provided in concentration units; all measured values are stored with date, time and sample O.D.; the same data are remotely available through a serial communication port, which allows the complete probe configuration and remote control using the external Windows® based NPA-DPA control panel software.

### Standard analytical methods and measuring ranges

- Ammonia: fluorimetric OPA, 0-200  $\mu\text{g/L}$  as N
- Nitrate+nitrite: colorimetric UV reduction + NED-SAA, 0-500  $\mu\text{g/L}$  as N
- Nitrite: colorimetric NED-SAA, 0-200  $\mu\text{g/L}$  as N
- Orthophosphate: colorimetric molybdenum-blue, 0-500  $\mu\text{g/L}$  as P.

Other measuring ranges are available on request.



## Reagents handling and built-in calibration feature

Reagents sealed bags are placed inside the external reagents canister and they are refrigerated directly by surrounding water; the bags are connected to the internal analytical reactor with an exclusive fast hydraulic 10 lines multiconnector.

Reagents' consumption is limited to about 100-200 microliters of each reagent for single analysis.

Auto-calibration is performed using concentrated standard solutions, contained in the external reagents canister.



### Technical data

**Measured parameters:** 4

Standard:  $\text{NH}_3$ ,  $\text{NO}_3+\text{NO}_2$ ,  $\text{NO}_2$ ,  $\text{PO}_4$

**Detectors:**

- multi-beam fiber optic colorimeter with silicon detector
- Fluorimetric: excitation 370 nm, emission 420 ÷ 470 nm, 1 cm

**Type of analysis:** sequential batch

**Analysis interval:** programmable

**Measuring time:** 30 minutes for a full four parameters cycle

**Number of parameters:** up to 4

**Maximum in-situ depth:** -30 m

**Body material:** PVC

**Operating temperature:** 4°-40 °C

**Hydraulic connections:** std. 3.2x1.6 mm

**Waste:** directly discharged in water; toxic waste bag available inside the cylinder.

**Reagent expiring:** min. 4-10 weeks depending on the method

**Reagent cooling:** by surrounding water.

**Autonomy:** up to two months, depending on measurement interval time

**Hardware:** industrial PC-104 CPU, externally programmable by serial communication port.

**Data output :** RS232 serial port

**Programming functions:** provided by the external NPA/DPA control panel software.

**External connections:** 6-pole submersible cable for serial data communication and 12 Vdc power supply.

**Power supply:** 12 Vdc, provided through the main connecting cable.

**Power absorption:** 4W in stand by, 10 W during analysis.

**Weight in air:** 10 Kg, for each cylinder

**Dimensions:** 140 mm diameter x 785 mm height (each cylinder)

**Environmental requirements:**

The probe should be operated with ambient temperature ranging from 4 °C to 40 °C.

A temperature near 0 °C freezes the reagents and the calibrant; a temperature over 35 °C will reduce the reagents stability and life.

**Standard package includes:**

- analytical and electronic unit
- reagents canister including reagents bags
- 5 m submersible cable
- NPA-DPA control panel software
- start-up kit.

**Optional accessories:**

- Extra reagent canister
- Additional cable length
- Customized frame for field installation.