



TECHNICAL SPECIFICATIONS

bDAS Components: PROBES

INTRODUCTION

bDAS, or BrightSpec Digital Acquisition System, is a general purposes **digital acquisition system** or instrument for performing multiple radiation counting measurements in a synchronized and centralized way. bDAS is particularly suitable for performing accurate measurements of methods or studies involving the use of radiotracers in natural environments or industrial processes.

Radiotracers are widely used in many fields and applications:

- for the measurement of the flow rate of liquids, gases, and solids in many industrial systems.
- throughout oil refineries worldwide. Radioactive tracers have been used to a great extent in enhancing oil production in oil fields.
- for troubleshooting inspection and process analysis in chemical and petrochemical plants; where continuous operations and technical complexity make the use of radiotracer techniques very competitive and largely applied.
- in minerals processing plants
- in life-sciences, as nuclear medicine.
- for efficiency testing of wastewater treatment installations.



Just to site a few.

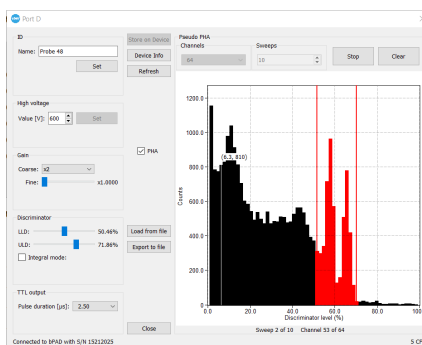
An important part of the bDAS is the detection probe.

The bDAS probes are rugged, sub-sea-grade, stainless steel encapsulation which provides water-tightness and antishock protection to the radiation detector and electronics. The stainless steel envelope is 1.5 mm thick on the part around the scintillator crystal.

The probe's envelope encapsulates the scintillation detector, the photomultiplier and the electronic counting system or digital Single Channel Analyzer (SCA, bPAD).

The SCA bPAD provides everything needed for counting events occurring into a pre-defined energy window. The bPAD also includes the HV Bias power supply for the scintillator detector. The bDAS is a fully digital SCA and therefore very easy to setup using its software.

The rugged envelope is water sealed (sub-sea grade) and has a single connector on the top plate for the cable connection to the bDAS control system. The probe is connected by a single multi-core cable of sub-sea grade and standardly 50 meters long with matching connectors on each end. Cables can be conveniently chained to meet the desire total distance between probe location and control case. Each probe its delivered with its cable rolling mechanism or drum for easy deployment and transportation.



bDAS



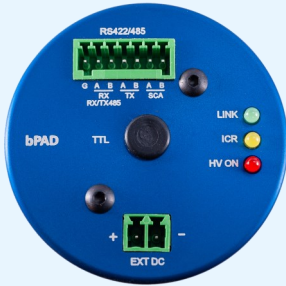
FEATURES

- Rugged, industrial-grade, water-tight, 1.5 mm thick stainless-steel (SS-316) probe
- Encapsulates the radiation detector (38 x 58 mm scintillator crystal and photomultiplier) and the Single Channel Analyzer (bPAD)
- Includes extra padding and anti-shock mechanisms for detector and electronics protection
- Single sub-sea-grade connector for cable connection
- RS422/485 communications
- Standardly provided with 50-meter long, sub-sea-grade data cable rolled into a cable drum for easy transportation and deployment
- Compact size of 100 mm (D, external rings) x 330 mm (H, with no connector). Approx. 4 kg weight.
- Two stainless steel rings for probe maneuver and fixation
- Two sealing stages for easy servicing.

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is a dynamic technological and engineering company with novel designs and innovative solutions in the field of nuclear electronics and software development for radiation detection.



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bDAS probe components

- ◆ 38 mm (1.5 inc.) diameter x 58 mm (2 inch) thick scintillator detector with internal anti-shock protection. Typically, NaI(Tl) crystal is used but other scintillator materials can be used as well.
 - ◆ Typical NaI(Tl) energy resolution < 7.5 % at ^{137}Cs
- ◆ Standard photomultiplier (PMT) of 51 mm diameter and 0.64 mm internal magnetic shield.
- ◆ Tube base, digital Single channel analyzer (SCA), model BrightSpec bPAD-422
- ◆ Sub-sea grade single connector with locking mechanism
- ◆ Probe padding and anti-shock mechanism
- ◆ 50 meters long (standardly), multi-core, sub-sea grade cable with matching connectors. Cable provided onto a rolling mechanism.

High Voltage Power Supply

- ◆ Miniature HV power supply embedded in the device assembly
- ◆ Voltage: 0 to +1 500 Volts in 4096 steps

Data communication

- ◆ RS422/485.
- ◆ SCA pulse via RS422

Physical

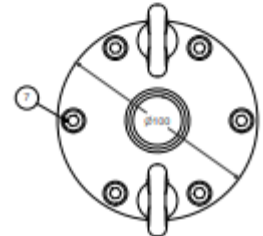
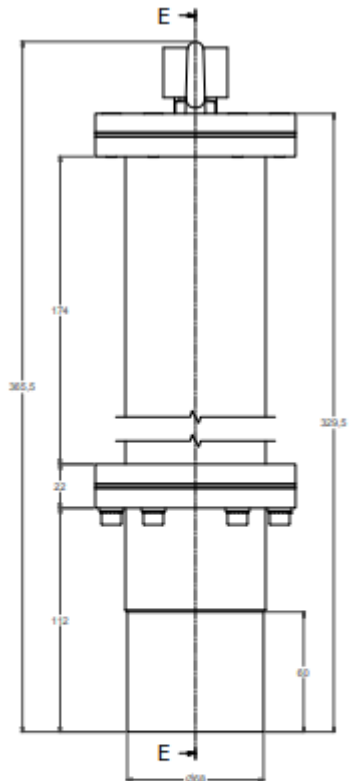
- ◆ Size: Height 330 mm, with no connector and Diameter 100 mm (external rings)
- ◆ Weight: Approximately 4 kg
- ◆ Thickness: 1.5 mm SS-316 stainless steel thickness on the part around the detector crystal
- ◆ Cable length: (standardly) 50 meters with matching connectors on each end. Cables can be chained.

Other

- ◆ The probes have two O-rings on the top plate for maneuvers and fixation
- ◆ Recommended to operate with BrightSpec Digital Acquisition System (bDAS)

Certifications

- ◆ The device is CE compliant



CE
CERTIFIED