qDAQ

BRIDGEPORT nstruments, LLC
www.bridgeportinstruments.com

Autonomous Intelligent Platform

4 to 8-Channel DAQ for Scintillators

Starting at $6300

4-channel qDAQ system in sealed housing

The qDAQ system has been designed to serve small scintillator detector arrays, combine their data, process them locally, and communicate results or alerts to a central computer. It includes one or two 4-channel qMorpho units and an ARM-9 processor with Ethernet connectivity for autonomous operation.

The electronics are contained in a sealed housing with watertight connectors. The unit is powered via Ethernet or from a 6 V to 30 V battery.

The operating software is open-source and Bridgeport Instruments provides libraries and example codes.

- **Compact, low-power 4 to 8-channel DAQ**
  - qMorpho for coincidence spectroscopy
  - ARM-9 processor for Ethernet connectivity and local data analysis.
  - Interfaces: Ethernet, SPI, RS232, analog, JTAG, hvBase
  - Autonomous operation
  - Open-source software

Features

- Variable system size: 4 qMorpho, system limit
- Ethernet bridge with Power over Ethernet
- Variable-speed ARM-9 RISC processor
- Wide-range DC power input voltage
- Sealed housing

The qDAQ is an extremely versatile platform for multichannel scintillator spectroscopy. It works with any scintillator and tightly integrates with the hvBase to provide software controlled high voltage.

The embedded ARM-9 processor makes this device an autonomous user-programmable instrument.

The combination of the high-performance, low-power qMorpho MCAs and the embedded RISC processor gives developers access to the nuclear raw data in a familiar programming environment (C/C++).

- **MCA**
  - 4 x 2048 channels, 32-bit
  - Coincidence spectroscopy
- **Processor**
  - ARM-9, 32-bit, 150MHz, 8MB RAM, 4MB Flash, NVRAM, RTC
- **Power**
  - 3W to 6W (4-channels)
  - 6.5W to 10W (8-channels)

Applications

- Unattended radiation monitoring
- Small detector arrays
- Compact mobile units
- Autonomous systems
- Solar-powered systems

The compact, rugged design make it ideal for deployment in remote locations. Its low-power consumption simplifies operation from solar power and batteries.

The outgoing qDAQ data streams have auxiliary information embedded such that a receiving computer can tell the origin and content of the data stream (instrument ID, data type, etc).

This supports data aggregation at a central location to which multiple instruments send data at unpredictable times and of varying content types (alerts, status data, analysis results, raw data, etc.)

- **Compact DAQ solution**
  - Reduce cost and complexity for multichannel DAQ
- **Ideal for unattended systems:**
  - Very low power consumption for solar-powered operation
  - Ethernet connectivity