MIRION TECHNOLOGIES

**AUTOMATED SAMPLING —
REAL-TIME DECISION-MAKING**

Data Analyst™

Continuous or Triggered Spectroscopic Monitoring Platform

The Data Analyst system is a continuous spectroscopic monitoring solution designed to provide valuable insights to site operators and maintenance personnel. Eliminate the necessity for labor-intensive, risk-prone manual sampling with fully automated nuclide sampling and continuous nuclide monitoring to protect worker safety and make real-time decisions with confidence.

- Reduce worker exposure risk
- Track nuclide activity in real time
- See risk signals and respond sooner

KEY BENEFITS

Automated gamma spectroscopic sampling — Once set up and activated, the Data Analyst system runs autonomously, supporting various triggering methods (continuous, at defined time points, or on-demand) and allowing multiple (1-100 s) simultaneous workflows following easily customizable data collection intervals.

Flexible data collection & storage — Continuously record data such as dose rate, temperature, pressure, location, stack flow rate and sample flow rate from a variety of devices. Store data locally — as well as transmitting live data to real-time monitoring systems.

Continuous nuclide activity monitoring & alerting — Embedded Genie™ software accelerates data processing for real-time monitoring and analysis of nuclide-specific results. Get automated alerts based on pre-set thresholds to detect abnormal conditions — earlier and more reliably.

Centralized dashboard & remote access — Intuitive web-based platform visualizes nuclide activity trends and predicts future conditions. Access this data and get alerts — anytime, anywhere.

FEATURES

- ✔ Integrates standard Genie™ software for detailed spectral analysis
- ✔ Provides nuclide identification and quantification with continuous trend monitoring
- ✔ Allows for simultaneous multi-analysis with variable count times, libraries, and parameters
- ✔ Incorporates ISOCS™ software for precise efficiency calibrations in complex geometries
- ✔ Designed for hands-off operation after initial setup
- ✔ High-capacity storage retains extensive data records for long-term analysis
- ✔ Compatible with Lynx® II DSA, Osprey® Tube Base MCA, and GR1™ spectrometers among others
- ✔ Includes EcoGamma™ monitoring for real-time dose rate assessments
- ✔ Captures data from additional sensors, including temperature and pressure, for comprehensive analysis
- ✔ Offers a web-based GUI for configuration and accessing trend data
- ✔ Facilitates immediate data export to FTP servers for remote access
- ✔ Supports versatile triggering modes for tailored data acquisition
- ✔ Implements nuclide activity alarms for proactive safety management
- ✔ Features adaptable GPIOs for extended operational flexibility

Integrate & Deploy Easily

COMPATIBLE & ADAPTABLE TECHNOLOGY

The Data Analyst platform is purpose-built for compatibility.
It can be used in conjunction with:

- Lynx® II Digital Signal Analyzer with HPGe or scintillation detectors;
- Osprey® Tube Base MCA with scintillation detectors; and,
- The GR1™ family of miniaturized CZT spectrometers.
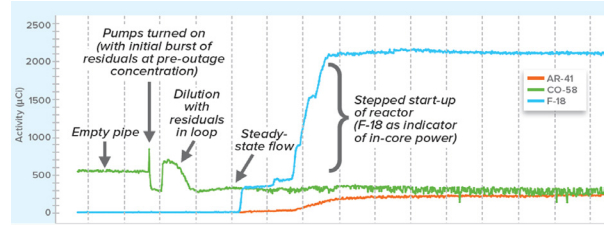
*Example analysis of letdown pipe during outage using the CSM-GR1™ monitor*

Comprehensive Applications

Here are key applications of systems built using the Data Analyst system as a building block to the online spectroscopy engine.
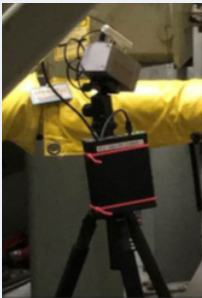
NUCLEAR POWER PLANT IN-SITU MONITORING

Compact and versatile CZT detectors can enable quick setup for in-situ monitoring, suitable for effluent and coolant monitoring among other applications.
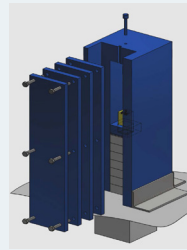
RADIOPHARMACEUTICAL SAMPLE ASSAY AT REACTOR SITES

Freshly activated samples intended for Lu-177 production can be assayed using a heavily shielded, collimated CZT detector to confirm activation levels and purity at reactor irradiation facilities.

PRIMARY COOLANT MONITORING (HPGe)

High-resolution HPGe systems can automate radionuclide monitoring in nuclear power plants, enhancing efficiency and reliability. Dual-chamber analysis can offer precise radionuclide identification.


STACK GAS MONITORING WITH HPGe SYSTEM

High-resolution HPGe systems can analyze stack flows in a shielded chamber, customizable for various monitoring scenarios. Remote health monitoring capabilities can simplify maintenance.
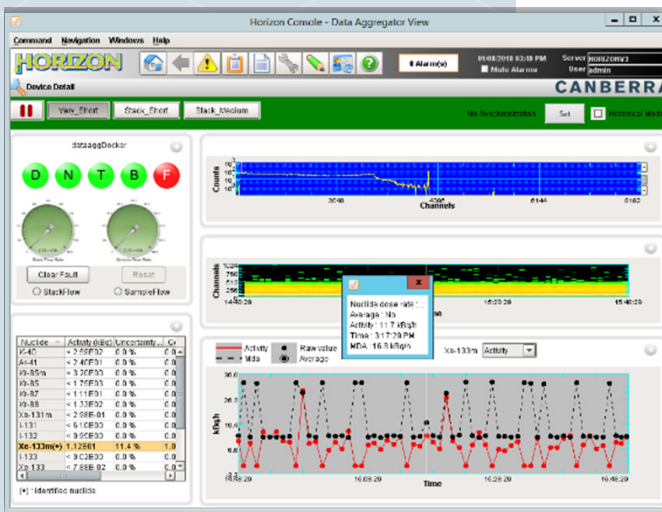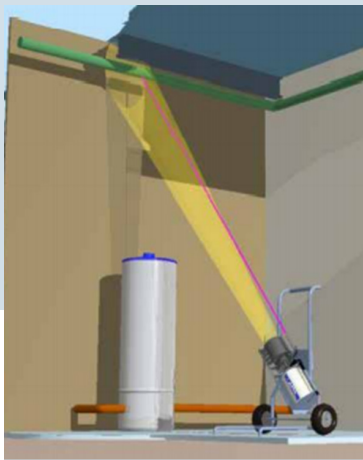

ROBOTIC SPECTROSCOPIC APPLICATIONS

The Data Analyst platform can support continuous or triggered analysis for robotic applications, compatible with HPGe, CZT, and scintillators. This enables dynamic data collection and heat mapping for thorough area surveillance.
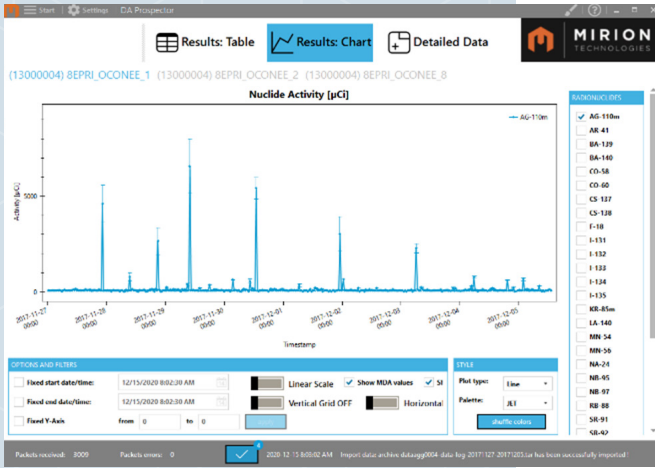
DA-Prospector Data Visualization and Trending

Horizon Data Analyst Detail Screen

ISOCS Modeling Software

Available Accessory Software

Additional compatible software supports expanded use cases:

DA-PROSPECTOR SOFTWARE

Offers advanced capabilities for multi-nuclide graphical trending and reporting, simplifying the review and evaluation of extensive archival data. Compatible with archive files from the Data Analyst system.

HORIZON® PLATFORM

A supervisory system that provides visibility and control over a network of radiation monitoring systems, enabling real-time data access from site instruments and supports remote DA-Prospector data visualization and trending operations.

S573 ISOCS CALIBRATION

A common accessory to easily produce accurate quantitative gamma assays of most any sample type, using detector characterizations that combine NIST-traceable source measurements and iterative MCNP modeling.

The 21 different mathematical source shape templates provided make it easy to replicate a wide variety of geometries you would encounter — planar surfaces, rectangular boxes, pipes, barrels, applications, etc. This allows the ISOCS software to quickly mathematically produce accurate efficiency calibrations for your sample geometry without the need for radioactive calibration sources.
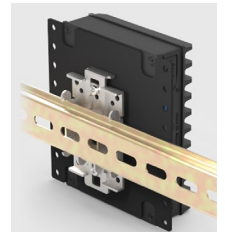
Specifications

PROCESSING PLATFORM

- **High-performance CPU:** Multi-core CPU with 16 GB RAM to produce desktop performance in a very small form factor. It provides the processing power needed for continuous spectral analysis of multiple concurrent workflows with analysis intervals as small as one second.

- **Dust & humidity resistance:** All-metal housing with built-in heatsink provides thermal conductive cooling for failproof fan-less cooling. The metal case has no fan or vents, no spinning blades or filters or tight airways to cause dust accumulation and clogging.

- **Temperature & humidity:** -20 °C to 70 °C (-4 °F to 158 °F), relative humidity to 95% non-condensing

- **Dimensions:** 112 x 84 x 34 mm (4.4 x 3.3 x 1.3 in.) L x W x H

- **Certifications:** CE, UL Listed for USA and Canada (Registration: E510538), MIL-STD 810G (vibration and shock)

- **Networking:** 2x GB Ethernet ports, 1 PoE port, Optional Wireless LAN 802.11 dual antenna adapter

- **I/O:** 2x USB 3.0, 2x USB 2.0, Stereo line in with mic, Stereo line out, RS-232 serial port

- **Display:** 1x mini DP 1.2 rK @ 60 Hz, 1x HDMI 1.4 4K @ 30 Hz

- **Storage:** large capacity local M.2 SATA module for fast and reliable data storage

- **Power:** input voltage DC 7 V – 20 V, or 48 V PoE. Power consumption 5 W – 15 W

INCLUDED ACCESSORIES & SENSORS

- **DA-DIN-Mount –** provides easy tool-free mounting/dismounting of processing platform to standard DIN rail. Can be attached to bottom to leave all sides accessible, or on side to minimize DIN rail footprint.

DIN Rail and VESA Mount

- **DA-VESA-Mount –** fastened to bottom of processing platform and provides standard VESA mounting pattern (100 mm x 100 mm)

- **DA-MET –** Meteorological sensor for temperature, humidity and atmospheric pressure. USB connection to DA processing platform.

- **DA-GPIO –** Compact USB device provides four digital I/O, electrically insulated from the USB bus

- **DA-LED –** Programmable multi-color LED that plugs into a USB port to provide status

- **DA-UPS –** Compact UPS with Li-polymer batteries provides about two hours of runtime during loss of main power. Operating temperature is 0 °C to 40 °C. Used to keep system running when power situation could be unreliable.

- **DA-GPS –** USB connected multi-band GPS receiver for use in mobile applications. USB cable is two meters and receiver is waterproof. Horizontal position accuracy: autonomous 2.5 m, 2 m SBAS. Heading accuracy 0.5 degrees.

- **DA-WIFI –** Optional Wireless LAN 802.11 dual antenna adapter. Used to add WiFi to a DA model without it. Requires internal assembly and reconfiguration.

ORDERING INFORMATION

MODEL	NAME	DESCRIPTION
DA-PRO	Data Analyst Solution	**Includes:** • Fully customized solution • 1 CPU platform with ISO and DIN rail mounts • 1 Data Analyst embedded software license • 1 Sensor for temperature, pressure, humidity (in case with USB cable) • 1 GPIO device for triggered input or outputs (in case with USB cable) • 1 USB programmable multi-color LED light indicator • Factory integration and configuration with compatible detector (with energy and FWHM calibration if unit is shipped with a detector) • For ISOCS modeling and efficiency calibration for detector, use DA-CAL-CONFIG
DA-PRO-WIFI	Data Analyst Solution with WiFi	**Includes:** • Fully customized solution • 1 CPU platform with ISO and DIN rail mounts • Integrated WiFi 802.11ac + BT • 1 Data Analyst embedded software license • 1 Sensor for temperature, pressure, humidity (in case with USB cable) • 1 GPIO device for triggered input or outputs (in case with USB cable) • 1 USB programmable multi-color LED light indicator • Factory integration and configuration with compatible detector (with energy and FWHM calibration if unit is shipped with a detector) • For ISOCS modeling and efficiency calibration for detector, use DA-CAL-CONFIG

DA-CAL-CONFIG	Data Analyst Calibration & Configuration	**Includes:**
		• Working with end user to get key requirements about the initial use of a DA system for setup and configuration
		• Generation of two ISOCS models and efficiency calibrations based upon the detector used
		  • One for point source on axis (for calibrations)
		  • One for a measurement geometry defined by end user for a typical application.
		• The ISOCS files created will be delivered so users can update the model if needed.
		• Data Analyst configuration for up to three workflows, with analysis settings and a starting nuclide library
		• Electronic versions of the setup files with installation instructions

DA-Prospector	Data Analyst Prospector	• Viewer of data from DA historical archives • Advanced visual plotting and display of nuclide results

OPTIONS

MODEL	NAME	DESCRIPTION
DA-CPU	Data Analyst Industrial CPU Platform	**Includes:** • 1 CPU platform with DA software installed • Does not include software license
DA-CPU-WIFI	Data Analyst Industrial CPU Platform with WiFi	**Includes:** • 1 CPU platform with WiFi and DA software installed • Does not include software license
DA-DIN-Mount	DA DIN Rail Mount	Mounting kit to attach DA to standard DIN rail
DA-VESA-Mount	VESA Mount Kit	Mounting plate with VESA
DA-MET	Data Analyst Met Sensor	USB temperature sensor for use with DA to record ambient temperature with detector analysis results. Includes 6 ft USB cable.
DA-GPIO	Data Analyst GPIO	USB GPIO module which provides four digital I/O for use with the Data Analyst system to receive input triggers or provide output triggers. Includes 1 ft USB cable.
DA-LED	Data Analyst LED Indicators	USB programmable multi-color LED status lights for use with Data Analyst system
DA-UPS	Data Analyst UPS	Compact 12 V UPS for Data Analyst system to provide about two hours of runtime
DA-GPS	Data Analyst GPS	• Waterproof GPS Receiver with USB Interface • Horizontal position accuracy: autonomous 2.5 m, 2 m SBAS
DA-WIFI	Data Analyst WiFi Kit	WiFi card with new side plate for CPU box with antenna connections for 802.11ac WiFi. Two screw-on antennas included. Can be added to DA-PRO later if ordered without WiFi

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