

DEDICATED DATA ACQUISITION SOLUTIONS

I&C diagnostic and monitoring system

Framatome solutions for data acquisition and monitoring of plant systems provide operators with fast, precise and reliable data.

Challenge

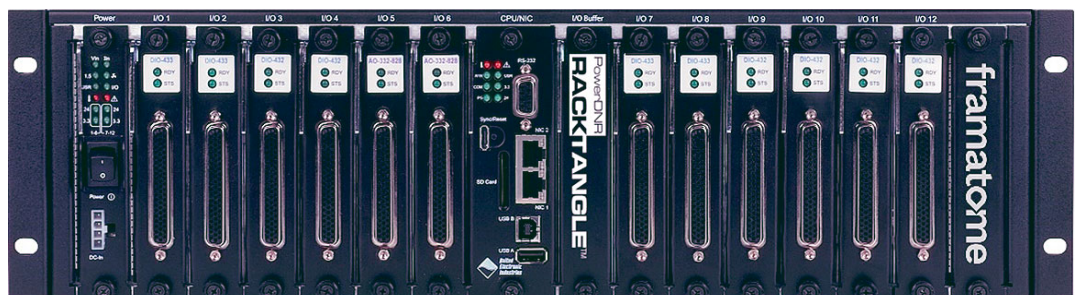
Within power plant control and monitoring systems, a vast amount of critical data is produced and communicated. On-line or periodic acquisition of data from such systems, either produced by sensors or actuators on the process systems or from internal signals of the Instrumentation and Control (I&C) systems, is necessary for efficient plant operations.

Currently, some applications may be performed by inadequate or obsolete equipment. In some cases, these applications are custom built for this purpose and already are or may soon become obsolete. Operators may also need to add data acquisition to the plant operations for additional analysis capabilities to support more optimal plant performance.

Solution

Framatome now offers a new solution for dedicated monitoring with Data Acquisition (DAQ) applications. This solution helps reduce downtime and increase system availability by providing modern, best-in-class data acquisition for plant root cause analysis and system monitoring.

Framatome DAQ solutions employ robust, scalable and high performing equipment that enables the delivery of customized and adaptable data acquisition to meet greater numbers of customer needs. Such acquired data can be merged with existing plant process computer data to compliment the existing data for enhanced plant operation diagnostics. Additionally, the acquired data can be used for a wider variety of specialist applications which include, as an example, plant transient and/or aging analysis.



Pictured: above – FlatRACK chassis; bottom left – Cube chassis; bottom right – RACKtangle chassis

Customer benefits

- Installation of additional monitoring capability of existing I&C systems can help enhance diagnostic capabilities, thereby reducing plant down time.
- When the deployment of highly flexible and scalable DAQ equipment is combined with effective plant operation and maintenance strategies, operators can benefit from improved operations with optimized maintenance and periodic testing activities.
- DAQ systems employ high-performing onboard processors and I/O modules with onboard FPGAs, supporting a wide variety of signal types (and ranges).
- Scalable software (application program and Graphical User Interface) provides robust user features addressing wide ranging needs.
- Offered as standard advanced equipment diagnostic features, it helps increase equipment availability.
- Robust, state-of-the-art cybersecurity features improve equipment reliability.
- Provides various onboard and network data storage/transmitting options for data post-processing and analysis.
- Long-term system operation is backed by long-term product support.

Technical information

General specifications of DAQ system* (Cube, RACKtangle or flatRACK):

- External power supply voltages in the range of: 24VDC / 110 VAC @ 60 Hz / 240 VAC @ 50 Hz
- 130,000 hrs ≤ MTBF ≥ 540,000 hrs (module type specific)
- Supports the following types of signal** measurements:
 - Analog current input in the range of 0 / 4 to 20 mA (accuracy: ±12 µA @ 18-Bit resolution)
 - Analog voltage input in the range of 0 to 10 Vdc (accuracy: ±0,5 mV @ 24-Bit resolution)
 - Analog Resistive Temperature Device (RTD) measurement (Pt100) (accuracy: ±0.2°C (for 3, 4 wire) @ 24-Bit resolution)
 - Analog Resistive measurements (range of 0 to 40 kΩ, accuracy: ±1% of reading @ 24-Bit resolution)
 - Digital 0 / 24 VDC input/output

General environmental specifications of DAQ system:

- Temperature range of +15 to 35°C;
- Humidity range of +20 to +80% RH (non-condensing)
- Operational shock and vibration: 30 g (acc. IEC 60068-2-27) and 5 g (between 10 – 500 Hz) (acc. IEC 60068-2-6)

* General chassis specification – final solution specification may vary dependent on final chassis configuration

** Over 60 signal types supported, more information available on request

References

Dedicated solutions already delivered to power plants in:

- United Kingdom
- Switzerland

Your performance
is **our** everyday **commitment**

Data Acquisition applications

Framatome DAQ solutions address a variety of needs:

- Dedicated DAQ offers robust options to address cybersecurity threats.
- Choose from more than 60 standardized I/Os that are scalable, and highly adaptable to a large variety of specifications.
- Optional development capability is available in case a specific I/O module type is currently not supported.
- Offered in different types of mechanical housings (Cube, RACKtangle and flatRACK) which are supported by one common software interface.
- Scalable solution allows for the deployment of distributed DAQ systems across the power plant, providing a wide variety of measuring applications in support of diagnostic, recurrent maintenance as well as periodic testing applications.

Typical applications include the replacement of existing standalone DAQ applications, or the addition of capabilities for optimized plant performance.

Choose Framatome dedicated DAQ solutions to profit from our advanced technology and extensive know-how as a leading NSSS I&C equipment supplier.

Key figures

- **60+** standardized I/Os supported
- **3** chassis options to choose from, scalable from one to many I/O-modules
- **2** chassis operating modes available (Embedded or Hosted).
- Framatome has more than **60** years of experience as a solutions integrator in the design, operation and maintenance of nuclear power plants.
- **2,100** I&C professionals at **20** sites in **10** countries

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