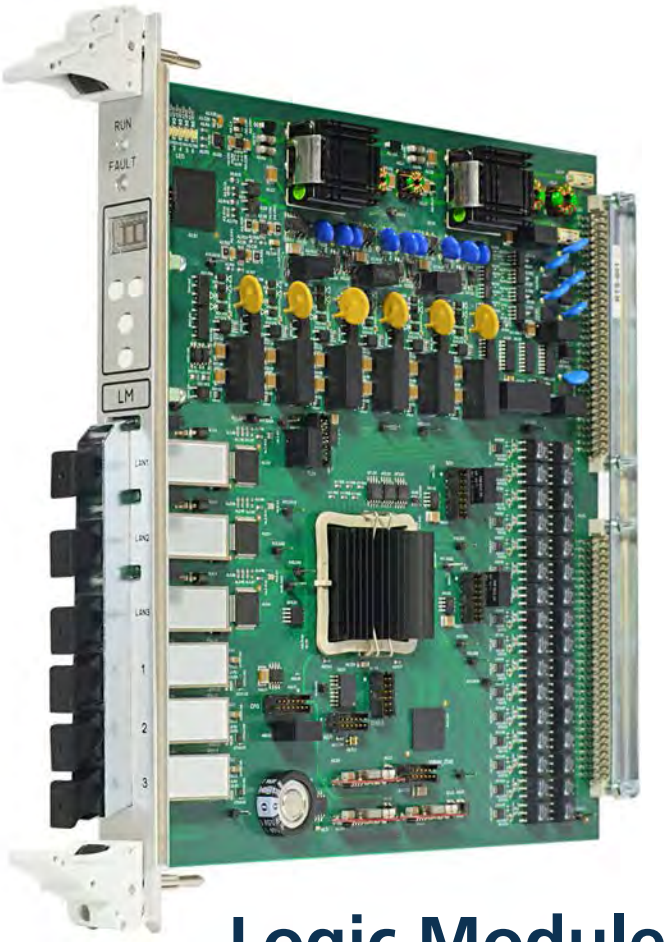
radiy

Radiy delivers a digital I&C platform that is robust, flexible, and scalable. It provides state-of-the-art functions, services, and safeguards for both safety and non-safety applications in the nuclear industry. The RadICS product line consists of a Logic Module, basic input/output modules, and specialty modules all housed in a seismically qualified chassis.

The Logic Module serves as the brain for the entire platform. In addition to executing the application logics, the Logic Module communicates with all other modules installed in the chassis, performs and monitors self-diagnostics, and controls communications with external chassis and systems.



Logic Module (LM)

- Fast and deterministic performance using modern FPGA technology. Response times as low as 5 milliseconds!
- IEC 61508 SIL 3 certification in single and multiple channel configurations.
- Robust self-diagnostics ensure higher reliability and early fault detection with safety-focused fault management.
- Segregation of application logic, self-diagnostics, and watchdog functions assures safety-critical functionality.
- Galvanic isolation for inputs and outputs with robust error checking for digital communications independence.
- Inherent on-board diversity features eliminate common cause failure vulnerabilities.
- FPGA technology and design strategies eliminate cyber security threat vectors common in microprocessor-based systems.
- FPGA technology ensures resilience to obsolescence.

20 Years of Proven Innovation for the Global Nuclear Industry

Logic Module Technical Specifications

FPGA Capacity	capacity to handle > 500 application blocks
Memory	8 megabit (FPGA internal) 4*2 megabit (4 external EEPROMs) 2 megabit (external SSRAM)
Discrete Inputs	24 VDC, 10 milliamps maximum, Form A "dry" contact with galvanic isolation between inputs (2 available, 1 reserved)
Discrete Inputs Overvoltage Protection	up to 150 VDC continuous
Access Key Signal Input	discrete signal (24 VDC, 0 to 10 milliamps) receiver with optic-isolation
Discrete Outputs	"dry" contact: up to 48 V, 0.2 amp (AC/DC), galvanic-isolated by optic-relays (6 fast discrete outputs)
Discrete Outputs Overvoltage Protection	up to +60 VDC/VAC continuous
Application Logic Processing Cycle	up to 2.5 milliseconds for application logic up to 2.5 milliseconds for input/output signals/data processing
Diagnostic Data Exchange Cycle	up to 5 milliseconds
Ethernet / Protocol	100 BASE-FX IP/UDP
LVDS Line Speed	100 megabit/second
LVDS Line Protocol	proprietary protocol with integrity checking (CRC), galvanic-isolated Tx / Rx
Fiber Optical Lines Speed	100 megabit/second
Self-Diagnostic Functions	diverse watchdog unit, checksum analysis, active diagnostics with internal fault detection, hardware error detection, functionally diverse continuous self-diagnostic tests, power supply fault detection
Power Supply / Consumption	2 independent inputs – 24 (18 – 36) VDC / 0.8 amp
Indications	2 status LED indicators (RUN/FAULT) 4-character dot matrix symbol-indicator for providing current operational mode, service information, and error codes
Operating Temperature	0 to 60 °C (32 to 140 °F)
Operating Humidity	5 to 90% relative humidity, non-condensing

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For more than 20 years Radiy has provided advanced instrumentation and control (I&C) solutions for nuclear power plant modernization and new build projects in the global market. Radiy's main I&C product, the RadICS I&C Platform, was developed specifically for use in nuclear power plants. It is the only FPGA-based I&C platform with a SIL 3 certification in a single channel configuration. Radics, a wholly owned LLC, provides delivery services for the RadICS I&C Platform for international markets to meet local regulatory requirements. Radiy also offers industrial control systems, electrical equipment, and reverse engineering services.

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