



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 Discrete Inputs Module (DIM) serves as a high-density discrete dry contact module providing for 32 independent, highly reliable, and optically isolated inputs for use by the Logic Module. The DIM also performs robust and continuous self-diagnostics to ensure the safety and integrity of each input and module function.



Discrete Inputs Module (DIM)

- High density 32 channel discrete dry-contact inputs with built-in hardware redundancy and line integrity checks for hardware failure detection.
- Independent FPGA for discrete input processing, self-diagnostics, and fail-safe functional behavior.
- 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 input processing, self-diagnostics, and watchdog functions assures safety-critical functionality.
- Galvanic isolation for signal inputs with robust and dedicated communication links to Logic Module for secure data transfer.
- Inherent on-board diversity features eliminate common cause failure vulnerabilities.
- FPGA technology ensures resilience to obsolescence.

20 Years of Proven Innovation for the Global Nuclear Industry



Discrete Inputs Module Technical Specifications

Internal Power Supply For Each Independent Discrete Input	24 VDC / 10 milliamps maximum (Form A “dry” contacts)
Input Channel Isolation	all input channels are galvanic-isolated up to 500 V _{RMS} AC or 707 VDC field-to-Chassis and channel-to-channel
Input Channel Isolation Method	optic relay
Overvoltage Protection	150 VDC continuous (using external protection elements installed in Chassis)
Information Package Exchange Cycle	5 milliseconds
Diagnostic Package Exchange Cycle	5 milliseconds
LVDS Line Speed	100 megabit/second
LVDS Line Protocol	proprietary protocol with integrity checking (CRC), galvanic-isolated Tx / Rx
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 / 0.6 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.