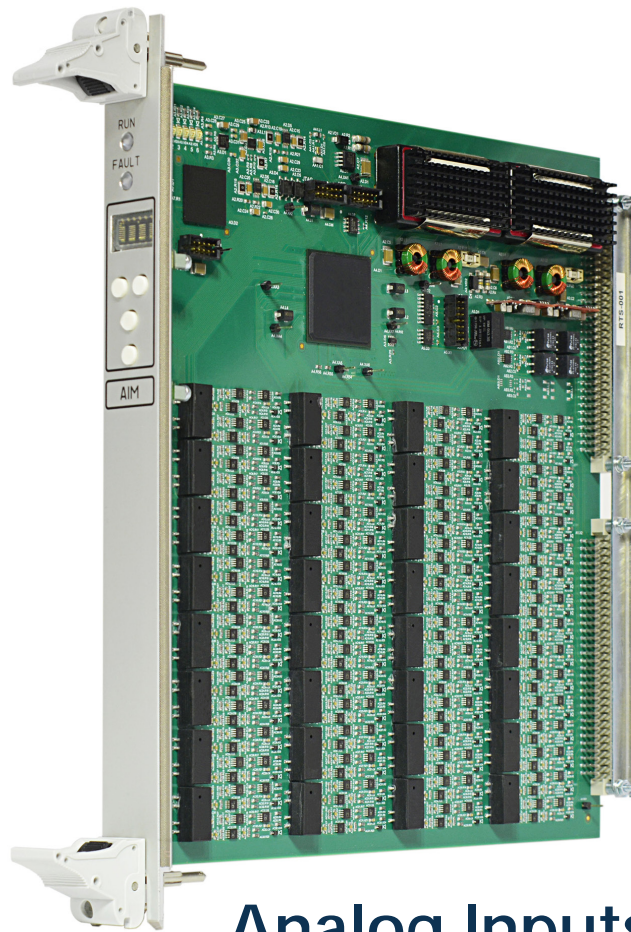




Radics delivers a digital I&C platform that is robust, flexible, and scalable. It provides state-of-the-art functions, services, and safeguards for both safety and safety-related applications in the nuclear industry. The RadICS product line consists of a Logic Module, basic input/output modules, and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

The Analog Inputs Module (AIM) serves as a high-density analog field sensor acquisition module. It provides for 32 independent, highly reliable, and galvanically isolated inputs with built-in filtering and calibration to be used by the Logic Module. The AIM also performs robust and continuous self-diagnostics to ensure the safety and integrity of each input and module function.



Analog Inputs Module (AIM)

- 32 channel analog inputs with built-in hardware redundancy and self-diagnostics for highly reliable operation, filtering, calibration, and random hardware failure detection. All channels are galvanically-isolated between each other and from the rest part of the module.
- Independent FPGA for analog 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 assure safety-critical functionality.
- Robust point-to-point communication links to Logic Module with proprietary data transmission protocol for secure data transfer.
- Inherent on-board diversity features eliminate common cause failure vulnerabilities.
- FPGA technology ensures resilience to I&C obsolescence.

20 Years of Proven Innovation for the Global Nuclear Industry



Analog Inputs Module Technical Specifications

Input Analog Signal Range	0 to +5.1 V (0 to 20 milliamps using external 250 ohm resistor installed in connection/junction box) Differential input impedance: not less than 1 megohm
A/D Conversion Resolution	18 bits / 400 kilo samples per second (kSPS)
Common Mode Rejection Ratio	> 86 dB
Overall Accuracy	0.04% of full scale for 0 to +5.1 V (at 25 °C) 0.04% of full scale for 4 to 20 milliamps using external resistor with 0.05% tolerance (25 °C)
Input Channel Isolation	all input channels are galvanic-isolated up to 500 V _{RMS} AC or 500 VDC field-to-Chassis and channel-to-channel
Overvoltage Protection	±60 VAC/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 / Maximum consumption: 0.85A(±0.15A) (32 inputs used; 5V input value at each input)
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	4.4 to 60 °C (40 to 140 °F)
Operating Humidity	10 to 90% relative humidity, non-condensing

Radics LLC
29 Akademika Tamma Street,
Kropyvnytskyi 25009, Ukraine
radics@radics.tech
www.radics.tech

RadICS Platform is the only FPGA-based I&C platform with a SIL 3 certification in a single channel configuration. The Platform is reviewed and approved by U.S. NRC. Radics LLC provides engineering, testing and commercial grade dedication services for nuclear power clients on international markets to meet local nuclear regulatory requirements and ensure safety and reliability at nuclear power genera on sites.