Radics delivers digital I&C Platform RadICS that is robust, flexible, and scalable. The Company 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 specialized modules, all housed in a seismically qualified chassis.

PLM (Priority Logic Module) is designed to be used as a terminal control element from several command sources (multichannel systems and control panels) to control actuators as “Motor”, “Gate Valve”, and “Valve” (electromagnetic or pneumatic with electrical control) and others in I&C systems based on RadICS hardware.

PLM is made as a full-size standard RadICS Platform module which is designed for installation in a specialized RadICS chassis (with power connectors).

Priority Logic Module - PLM

- Control signal receive from different priority levels (most priority first): systems control signals (RPS, ESFAS or other), manual switches from Main and Emergency Control Rooms, front panel buttons
- All safety-critical functions are implemented using hard code on FPGA.
- Input line with neutral position control for eliminating wrong commands
- Voting logic select using hardware jumpers: "2oo4", "2oo 3", "2oo2" or "1oo2"
- Actuating device select using hardware jumpers: motor, valve, gate valve.
- Independent FPGA for self-diagnostic, power control, diagnostic data transfer.
- BYPASS feature for providing safe testing means
- Actuator control using feedback inputs and current sensing.
- Digital self-diagnostic provides complete information about all internal units to operator PC via RadICS Platform tools

radICS Priority logic module – PLM

Actuator Control Outputs	3x 250 VAC/VDC up to 3A each (ON, STOP, OFF circuits)
Discrete Outputs	3x 10ma current outputs for external LED indication (“OPEN/STOP/CLOSE”)
Discrete Inputs	12 isolated groups 4 circuits each (ON, STOP, OFF, NEUTRAL)
Discrete Inputs	“Dry contacts” up to 7ma wetting current
Galvanic Isolation	all input and output channels are galvanic-isolated up to 500 VAC or 500 VDC channel-to-channel, channel-to-chassis
LVDS Line	100 Mbit/sec proprietary protocol with integrity checking (CRC), galvanic- isolated Tx / Rx for diagnostic data transfer
Diagnostic Package Exchange Cycle	5 milliseconds
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: 0.77A(±0.15A) (32 inputs used; all inputs closed)
Indications	2 status LED indicators “RUN/FAULT” 3 actuator commands LED indicators “ON/STOP/OFF” 3 actuator position LED indicators “OPEN/STOP/CLOSE” 4 voting mode LED indicators “2oo4/2oo3/2oo2/1oo2” “BYPASS” indicator “MAN” for manual control indicator
Operating Temperature	4.4 to 60 °C (40 to 140 °F)
Operating Humidity	10 to 90% relative humidity, non-condensing

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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 generation sites.

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