

# RAR-PXI

## RoHS Compliant, High Density Intelligent ARINC Interface for PXI

### Features

- Up to 16 Rx and 16 Tx ARINC 429 Channels
- High performance, high density interface with large buffers
- Advanced, high-level software API included for Microsoft® Windows® 7, Windows® Vista, Windows® XP (32-bit/64-bit) and LabVIEW Real-Time operating systems
- Complete LabVIEW Instrument Driver for use with LabVIEW for Windows and LabVIEW Real-Time
- Convert ARINC 429 message content to/from Engineering Units
- Graphical configuration file creation and usage for rapid board setup
- Supports maximum data throughput on all channels simultaneously
- 16 bi-directional discretes that handle avionics-level voltages
- Independent, software-programmable bit rates for all channels
- Error injection/detection
- IRIG-B Receiver/Generator optional
- Supports 66 MHz, 32-bit PCI operation
- 3U CompactPCI form factor

### Hardware

Available in a range of configurations to match your needs, the 32 channel RAR-PXI board provides complete, integrated databus functionality for ARINC 429, ARINC 575 and selected 2-wire 32-bit protocols in the CompactPCI form factor. It supports maximum data throughput on all ARINC 429 channels while providing on-board message scheduling, label filtering, multiple buffering options, time-tagging, and error injection/detection. It also supports sixteen avionics-level I/O discretes, an IRIG-B Receiver (AM or DC/TTL), and an IRIG Generator (DC/TTL), with support for either 33 MHz or 66 MHz 32 bit Compact-PCI, PXI, or PXI Express Hybrid chassis slots. Ruggedized configurations with extended operating temperatures are optional.

### Architecture

The RAR-PXI features include independent, software programmable data rates and message parity, and bit error injection and detection. All channels operate independently, with 2 MBytes of on-board RAM providing large transmit and receive data buffers with total flexibility in monitoring and generating ARINC bus traffic. ARINC 429 transmit channels support simultaneous Scheduled and Burst Mode (FIFO) messaging. Each ARINC 429 receive channel provides simultaneous Dedicated and Buffered Mode storage, along with label/SDI filtering. Discretes functioning as inputs support TTL to avionics level voltages, while

discretes functioning as outputs can switch up to 0.5 ampere, with open drain outputs enhancing application flexibility.

### Software

GE Intelligent Platforms' software tools and solutions significantly reduce the time required to integrate support for the ARINC 429 protocol into your application. Included with the RAR-PXI is our flexible, high-level API (Application Programming Interface) with support for Windows 7, Windows Vista, and Windows XP, function panel and API support for LabWindows/CVI, and LabVIEW Instrument Driver support for LabVIEW and LabVIEW Real-Time.

The RAR-PXI LabVIEW Instrument Driver includes complete Virtual Instruments for use with both LabVIEW for Windows and LabVIEW Real-Time environments to provide graphical access to GE's extensive RAR-PXI Application Programming Interface. It also provides a channel configuration and scheduled message definition file generation application for reduced LabVIEW programming and numerous example LabVIEW application VIs demonstrating board initialization, channel configuration, setup and transmission of transmit messages, configuration and display with the various receive buffering modes, and engineering unit conversion of ARINC 429 message content. With RAR-PXI, users can quickly develop PXI-based test and simulation solutions that connect to ARINC 429/575 avionics data buses.



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## Specifications

### ARINC 429 Receive Channels

- Number of channels: Up to 16
- Data rates: 12.5 KHz or 100 KHz or 5 KHz to 150 KHz
- Standard input levels:  $\pm 6.5$  to  $\pm 13$  V (A to B)
- Filtering: Label and label with SDI
- Parity: Detection and reporting
- Error reporting: Message bit count error

### ARINC 429 Transmit Channels

- Number of channels: Up to 16
- Data rates: 12.5 KHz or 100 KHz or 5 KHz to 150 KHz programmable
- Standard output level:  $\pm 10$  V (A to B)
- Parity: Odd, even or none
- Error injection option: Parity, gap, high or low bit count

### Software

- API: Includes high-level API for Windows 7, Windows XP, Windows Vista and LabVIEW Real-Time, 32-bit/64-bit

### Physical/Environmental

- 3U CompactPCI
- Standard operating temperature range: 0°C to +70°C
- Relative humidity: 5 to 90% (non-condensing)
- Optional, ruggedized: Extended operating temperature range (-40°C to +85°C) available

### Bi-Directional Discretes

- Number of avionics-level discretes: 16
- As Input: Supports monitoring of TTL/CMOS/Avionics-level voltages (open/gnd or high/low)
- As Output: Low side switches, each capable of sinking 0.5 Ampere

### Optional Configurations

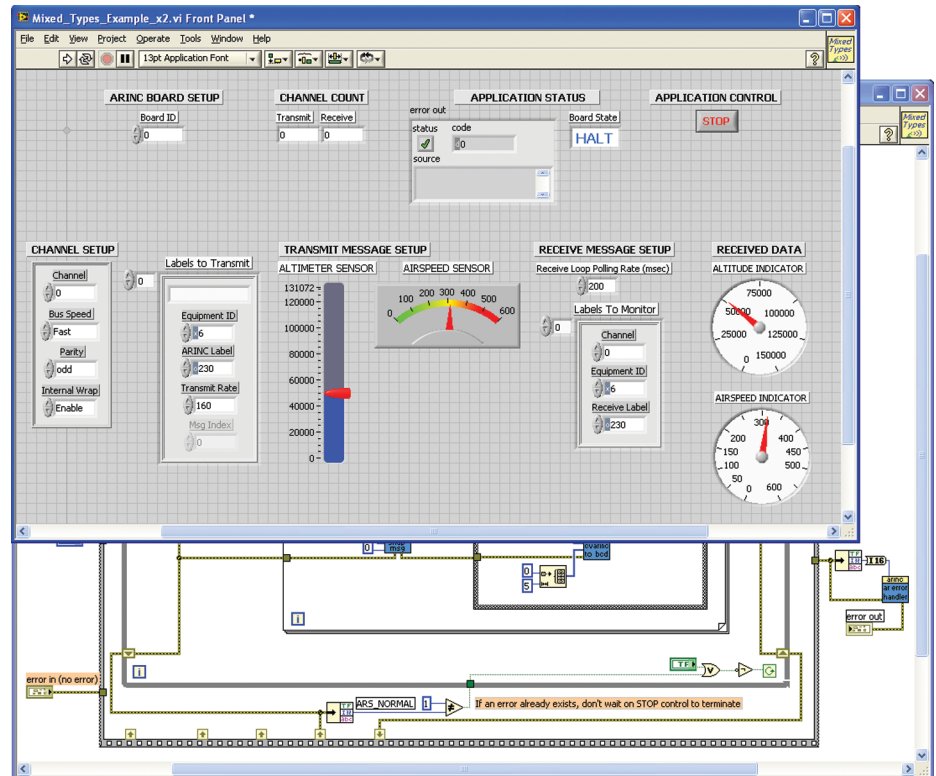
- Optional ruggedized -40°C to +85°C operating temperature range
- Optional conformal coating
- Optional IRIG-B Receiver (AM or DC/TTL) and Generator (DC/TTL)

### Power (typical)

- +3.3 VDC: 500 mA
- +5 VDC: 50 mA
- +12 VDC: 100 mA (no loads)
- -12 VDC: 100 mA (no loads)

### PCI Signaling Voltage Compatibility

- Universal Signaling (3.3 V or 5 V)
- 66/33 MHz PCI bus operation



## Ordering Information

### RAR-PXI-22

ARINC 429 PXI Compatible Card with 2Rx, 2Tx Channels and 16 discretes

### RAR-PXI-44

ARINC 429 PXI Compatible Card with 4Rx, 4Tx Channels and 16 discretes

### RAR-PXI-88

ARINC 429 PXI Compatible Card with 8Rx, 8Tx Channels and 16 discretes

### RAR-PXI-1608

ARINC 429 PXI Compatible Card with 16Rx, 8Tx Channels and 16 discretes

### RAR-PXI-0816

ARINC 429 PXI Compatible Card with 8Rx, 16Tx Channels and 16 discretes

### RAR-PXI-1616

ARINC 429 PXI Compatible Card with 16Rx, 16Tx Channels and 16 discretes

### -R suffix

Ruggedized and extended temp

### -K suffix

Conformal coated (may be added to other configurations except -C)

### -W suffix

IRIG-B synchronization In/Out (DC or AM/TTL)

## About GE Intelligent Platforms

GE Intelligent Platforms is a General Electric (NYSE: GE) company, headquartered in Charlottesville, VA and part of GE Energy Management. The company's Military/Aerospace business, headquartered in Huntsville, AL, and Towcester, England, provides one of the industry's broadest ranges of high performance, rugged, SWaP-optimized embedded computing platforms. Backed by programs that provide responsive customer support and minimize long term cost of ownership for multi-year programs, GE's solutions are designed to help customers minimize program risk and cost, and to speed time-to-market. For more information, visit [defense.ge-ip.com](http://defense.ge-ip.com).

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