



# R15-USB

## RoHS Dual port MIL-STD-1553 USB adapter

### Features

- In Multi-function mode operates simultaneously as a Bus Controller, with up to 31 Remote Terminals and Bus Monitor
- In Dual-function mode operates simultaneously as either a Bus Monitor and Bus Controller, or a Bus Monitor with up to 31 Remote terminals.
- High-level API for Microsoft® Windows® 7 (32 and 64 bit), Vista and XP included.
- IRIG-B Receiver (AM or DC/TTL) and Generator (DC/TTL) standard
- 64 bit nanosecond resolution time tagging (virtually unlimited time stamping)
- Complete message programmability and flexible message generation
- I/O triggering and error injection/detection
- 8 Bi-directional Avionics discretes
- Optional conformal coating
- Optional rugged, transformer coupled no relays
- RoHS compliant to EU directive 2002/95/EC

GE Intelligent Platforms R15-USB is the latest generation of performance and flexibility for MIL-STD-1553A/B Notice II using a high speed USB 2.0 interface with one or two dual-redundant MIL-STD-1553A/B Notice II/IV channels. Available in -40°C to +75°C temperatures (with relays) and ruggedized (without relays).

The R15-USB includes advanced API (Application Programming Interface) software that reduces application development time.

GE's R15-USB's standard features include: IRIG-B signal Receiver (AM or DC/TTL) / Generator (DC/TTL), software selectable transformer or direct coupling, 2 Mbytes of RAM, 64-bit nanosecond message timetagging, input and output triggers for each 1553 channel, extensive BC & RT link-list structures, error injection and detection, 8 bi-directional avionics level discretes, automatic and manual RT Status Bit and Mode Code responses, along with advanced BC functionality.

The R15-USB Bus Monitor provides unparalleled error detection and 100% monitoring of fully loaded buses.

### Multi-function Interfaces

R15-USB multi-function interfaces are easily configured to operate with simultaneous Bus Controller, up to 31 Remote Terminals and Bus Monitor functionality.

### Dual-function Interfaces

Dual-function R15-USB interfaces have all the features and functionality of the multi-function versions, with either Bus Monitor and Bus Controller or Bus monitor and up to 31 Remote terminals.

### Software

GE Intelligent Platforms provides our advanced 1553 API in source code, along with support for Microsoft® Windows® 7 (32 and 64 bit), Vista, XP and other operating systems.



R15-USB provides lockable USB series B and DB-15 ports for secure connections.



# R15-USB RoHS Dual port MIL-STD-1553 USB adapter

## Specifications

### Physical

- USB Interface Box (4.3" x 5.0" x 1.4" inches)
- 10.5 ounces

### Environmental

- Standard operating temperature range: -40°C to +75°C with 600ft/min air flow
- Rugged (without relays)
- Storage temperature -50°C to +100°C
- Relative humidity with relays: up to 85% (non-condensing)
- Relative humidity without relays: up to 95% (non-condensing)
- Optional conformal coating configurations

### Software Support

- API - High-level libraries with source code included for Microsoft® Windows®, 7 (32 and 64 bit), Vista and XP
- GUI - Optional BusTools/1553 GUI Bus Analysis, Simulation & Data Logging software
- Standard with IRIG-B Receiver (AM or DC/TTL) and Generator (DC/TTL)

### Connections

- Software selectable transformer or direct coupling via relays
- 8 Bi-directional Avionics level discretes

### Multi-function Operational Modes

- Simultaneous BC

### Dual-function Operational Modes

- BM and 31 RTs, or BM and BC

### Power (2 channels at 75% duty cycle)

- Will operate with USB power
- External +5V power input provided

### On-board Shared RAM

- 2 Mbyte

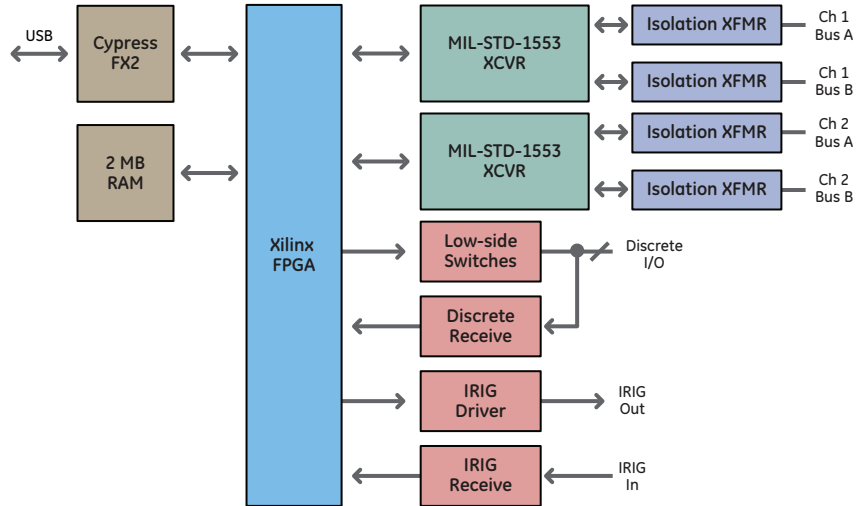
### Optional Configurations

- 1 or 2 Dual or Multi-function channels
- Optional conformal coating
- Optional Transformer or Direct coupling
- Contact factory for Custom requirements

### Bus Controller

- Programmable control over:
  - Major and minor frame content and timing
  - Inter-message gap times
  - Response time-out and late response
- Modify messages, data or setup on the fly
- Insert aperiodic messages into a running BC list
- Conditional message sequencing based on real-time message data or status
- Selectable interrupt generation and status messages on full range of system conditions or all detected errors
- Synchronize BC operation to external time source
- 64bit nanosecond resolution time tagging on BC, RT and BM
- Virtually unlimited time stamping

## Block Diagram



### Programmable full error detection/injection available on BC and RT and full detection available on BM (on a per word basis)

- Invalid word
- Bit count error
- High word
- Low word
- Inverted sync
- Manchester
- Late response
- Early response
- No response
- Incorrect RT address
- Parity error

### Bus Monitor

- Capture 100% fully loaded bus traffic with:
  - Time-tagging
  - Error status
  - Word status
  - Message status

- Extensive filtering and triggering options
  - By individual RT/subaddress
  - Transmit, receive or broadcast mode codes
  - Internal or external triggering
  - Trigger output on user specified data
- Real-time bus playback with RT edit mode

### Remote Terminal

- Multiple RT simulation (up to 31 RTs)
- Modify data, status words or setup while card is running
- Programmable message content (linked message buffers)
- Selectable interrupts upon multiple conditions
- RT Map Monitoring

## Ordering Information

### R15-USB - 1D

MIL-STD-1553 Dual-Function, Single dual-redundant channel, USB interface box, 8 Bi-directional discretes, Relay coupled, Variable voltage with IRIG-B Rec/Gen

### R15-USB - 1M

MIL-STD-1553 Multi-Function, Single dual-redundant channel, USB interface box, 8 Bi-directional discretes, Relay coupled, Variable voltage with IRIG-B Rec/Gen

### R15-USB - 2D

MIL-STD-1553 Dual-Function, Two dual-redundant channel, USB interface box, 8 Bi-directional discretes, Relay coupled, Variable voltage with IRIG-B Rec/Gen

### R15-USB - 2M

MIL-STD-1553 Multi-Function, Two dual-redundant channel, USB interface box, 8 Bi-directional discretes, Relay coupled, Variable voltage with IRIG-B Rec/Gen

### Ordering Options

K Suffix = Conformal Coating  
R Suffix = No Relays

### Optional Software

BT-1553 - MIL-STD-1553 Bus analysis and data logging software for Windows (Multi-Function boards only)  
LV-1553 - Lab/View Support for MIL-STD-1553

## GE Intelligent Platforms Contact Information

Americas: 1 877 429 1553

Global regional phone numbers are listed by location on our web site at

[defense.ge-ip.com/avionics-contacts](http://defense.ge-ip.com/avionics-contacts)

[www.defense.ge-ip.com](http://www.defense.ge-ip.com)



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