

USB 708 ARINC 708 Interface

*USB Interface
to ARINC 708 / 453*

Features

Up to 4 ARINC 708 Channels
8 Avionics Discrete I/O
IRIG A/B PWM and AM
USB 2.0 Bus Powered
32 MB Data Memory
Small, Portable, and Rugged

Description

The USB 708 series of products are pocket-sized USB adapters that enable computers to interface with ARINC 708 and similar weather radar display databuses. They have extensive functionality for testing weather radar CDUs (Control-Display Units) and T-R (Transmit-Receive) units for monitoring, recording, and playing back data, and for simulating weather radar systems. The ARINC 708 display databus is sometimes referred to as ARINC 453.

Being a USB peripheral, the USB 708 is compatible with virtually all modern PC laptop, desktop, tablet, and netbook computers. Plug and Play and Hot Swap features make it easy to install and move between computers. The USB 708 supports maximum data throughput on all 708 channels and has a large 32 MB built-in memory. With all its capability and versatility, the USB 708 is suitable for a wide range of applications in the lab and in the field.

Hardware

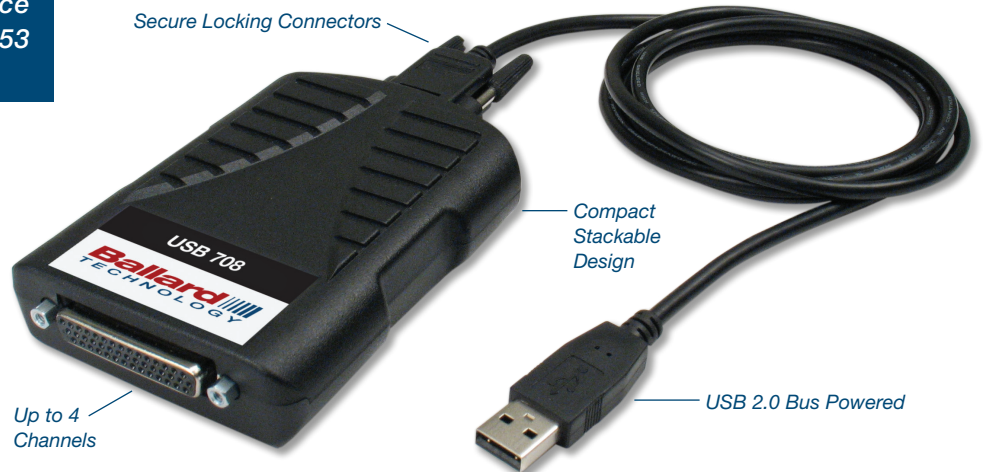
The USB 708 is small, lightweight, and rugged. All power necessary for operation is provided via the single USB port. All models include eight avionics level input/output discretes and IRIG time synchronization/generation. Two LEDs indicate power and bus traffic by default, or they can be controlled by user software.

Models are available either with one receive and one transmit channel (1R1T) or with two receive and two transmit channels (2R2T). They support simultaneous operation on all available channels and provide software-selectable word lengths and pre-sync pulses to support custom protocols that deviate from ARINC 708.

Software

Users can develop their own software applications with the included BTIDriver API. With only a few function calls a program can operate the USB 708 and process messages to and from the databuses. Functions include routines for transmitting, receiving, scheduling, recording, time-tagging, and manipulating data. The USB 708 can use applications developed for other Ballard devices. Code migrates seamlessly from BTIDriver compatible devices.

Alternatively, Ballard's optional CoPilot software provides easy-to-use, interactive tools for databus test, analysis, and simulation. CoPilot simplifies project development and provides added productivity through a virtual weather radar display, flexible monitoring and analysis tools, and a powerful scripting engine.



ARINC 708

- Supports standard ARINC 708 and custom weather radar databuses
- Receive, Transmit, and Monitor
- Models available: 1R1T and 2R2T
- Direct coupled channels per 708
- Strappable on-board termination
- LEDs indicate bus traffic and errors

Software

- Universal BTIDriver™ API compatible
- Efficient DMA monitoring
- Compatible with other Ballard hardware
- CoPilot® software (optional)

Benefits

- Small, lightweight, and rugged
- Portable, versatile, and durable
- Easy Plug and Play installation
- No external power supply needed
- Powerful protocol engine
- Secure locking connectors
- Free customer support for product life
- 3-year limited warranty standard
- FCC, CE and RoHS compliant

Applications

- Weather radar, CDU, and T-R unit analysis, test, and simulation
- Flightline and AOG support
- In the lab or in the field
- Replace plug-in cards

Ballard TECHNOLOGY

The Avionics Databus Innovators

www.ballardtech.com

USB 708 ARINC 708 Interface

ARINC 708 Features

General

Standard ARINC 708 data
 Syncs – beginning and ending
 1600 bits per word
 64-bit header
 512 3-bit range bins
 Custom data options
 Pre-sync pulses
 Variable word length
 1 to 1856 bits per word
 Configurable bit order
 LSB or MSB first
 Strappable bus termination
 ARINC 453 characteristics

ARINC 708 Receive Channels

Wide frequency tolerance
 Message record includes: data, bit-count,
 time-tag, channel number, detected
 errors
 Error detection and logging
 Sync
 Manchester
 Long word
 Short word

ARINC 708 Transmit Channels

Configurable transmit repetition rate
 Multiple message frames
 Flexible frame triggering
 Playback from file

Sequential Monitor

A sequential record of selected activity
 Record all or selected card activity
 Includes 708 and discrete data, channel,
 errors, and time-tag.
 Filter by channel
 Efficient DMA monitor pipe to host

Other Features

Base Configuration

- Model dependent 708 capability
- USB 2.0 interface
- 8 Avionics Discrete I/O
- IRIG A/B input and output
- 2 LED indicators
- 32 MB on-board memory

708 Channel Details

Internal self-test bus
 Each channel switchable between 2 buses
 Receive and transmit concurrently

Avionics Discrete I/O

8 programmable inputs/outputs
 Can be used as syncs and triggers
 Output: Open/Gnd, 35 VDC, 200 mA (max),
 self monitoring, inductive load protected
 Log transitions to sequential record

Time-tag/IRIG

48-bit hardware time-tag (1 μ s resolution)
 IRIG A or B, AM (input), PWM and PPS
 Generate or synchronize
 Synchronize hardware time-tags

Interrupts/Logging

Poll or use interrupts
 Configurable event log
 Programmable event logging/interrupts from
 messages, schedules, and buffers

Specifications

Component temperature: -40 to + 85 deg C
 Storage temperature: -55 to +100 deg C
 I/O Connector: HD44F D-Sub
 Dim: 3.0 x 4.45 x 0.97 inch
 (76 x 113 x 25 mm)
 Weight: under 5 oz (140 g)
 Power: Single USB Port
 MTBF: 1,500,000 hours

Software

Universal BTIDriver API for C/C++, C#, VB,
 VB.Net, and LabVIEW™
 MS Windows® and Linux® OS drivers
 CoPilot analysis and test software (optional)
Call for latest language and OS support.

Ordering Information

USB Hardware

Includes manuals and software CD

Part No.	Channels
UA1710	1R1T
UA1720	2R2T

nR = number of receive channels
 nT = number of transmit channels

Case color option: Black is standard. Add
 “/FTO” suffix for Flight Test Orange.

CoPilot Systems

To include CoPilot put “CP-” before the Part
 No.
 Example: CP-UA1720

Accessories (Included)

USB cable with screw-locks (5 ft)
 Mating HD44P D-Sub I/O connector
 Manuals and software CD

Complimentary Products

USB ARINC 429 adapters (UA14xx)
 Use to test, analyze, and simulate the
 weather radar control databus.



The Avionics Databus Innovators

Aerospace	Interfaces
Military	Embedded Systems
Commercial	Software

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