



TBOLT-MA4™

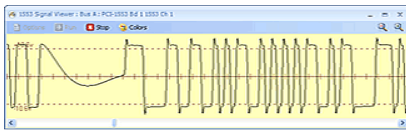
Multi-Channel 1553 and ARINC Connectivity with Real-Time Thunderbolt™ Technology

Full Featured, Native Thunderbolt Appliance



Very Small
~110x88x17mm

O-Scope A/D Signal Capture Included on First Channel of 1553 and First 2 Channels of ARINC

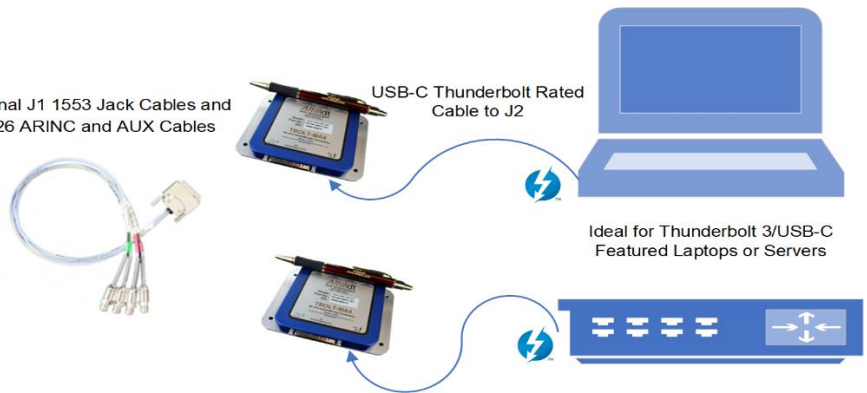


- **Two Independent, Dual Redundant 1553 Busses**
 - Dual or Full Function Modes
- **And/Or**
- **Eight ARINC-429/717 Channels**
 - 4 RX/TX & 4 RX; First 2 Channels Share 717
- **USB-C Connector – Must Use Thunderbolt 3 Rated Cable** (not USB). End Point Device with No USB-C Feed Through.
- **Supports Full Real-Time Control the Same as a PCI Express Card in a Server!** Much Better than Non Real-Time USB or Carrier Based Solutions.
 - Full Hardware Interrupt Handler Support.
- **AltaAPI SDK Provides Easy Integration** – Use the exact same code as other Alta PCIe devices with DEVID change!
 - **Windows 10 Only**

- 2 Meter J2 USB-C Thunderbolt 3 Rated Cable Provided
- 1553, ARINC and Auxiliary (Aux) Signals via **J1** Honda Connector.
- **Optional J1 Cables:**
 - 1553 Jacks Only
 - 1553 Jacks with DB26 for ARINC and Aux
 - DB26 Only for ARINC and Aux
 - Aux Signals Include Avionics Discretives (2), Triggers, TTL and IRIG RX Clock

Optional J1 1553 Jack Cables and DB26 ARINC and AUX Cables

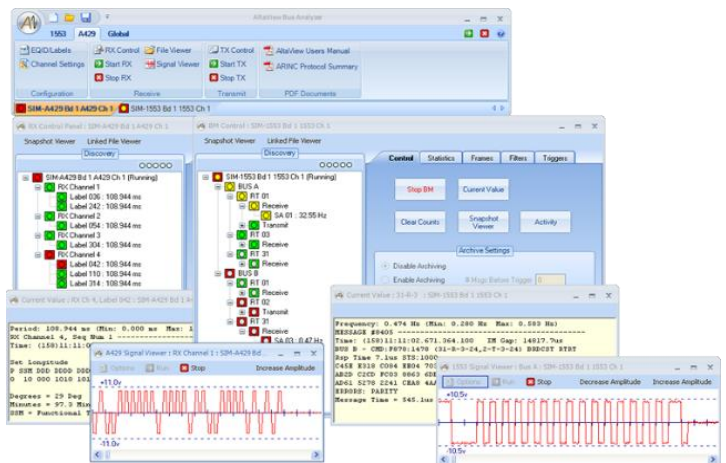
USB-C Thunderbolt Rated Cable to J2



Ideal for Thunderbolt 3/USB-C Featured Laptops or Servers

Optional **AltaView** Windows Analyzer. Full 1553 or ARINC Control with Signal Capture.


AltaRTVal 1553 Validation also Optional.



AltaCore-1553/ARINC

TBOLT-MA4 Appliance Specifications

General

- Thunderbolt 3 USB-C Connection ONLY
 - USB-C Thunderbolt 3 Spec Cables Only 
- Physical: 8.4 x 8.8 x 1.4 cm. 140grams
- 1-2 Dual Redundant Independent 1553 Busses
 - Optional 1553 Variable Voltage
- **and/or** 8 ARINC Channels: 4 RX/TX & 4 RX
 - TX Extra RX Load; Unpowered RX Drain
- One Megabyte RAM Buffering Per Channel/Bank
- USB 3.1 Spec 5V @ 2050 mA Bus Power:
 - Idle 3.6W
 - 100% TX Load, Full Channels: ~10W
- 2 Temp Sensors: TX and FPGA
- Temp (C): 0-60 Operating; -55 to +120 Storage
- 5-95% humidity, non-condensing
- Transmit Inhibit Optional
- Flash Disable Factory Setting for Secure Mem
- Two SE Avionics Discretes, OneRS-485 Discrete, TTL Clock, Trigger
- IRIG-B DC or PAM RX
- Advanced Startup, User and Continuous BIT
- PCIe Hardware or Polling Interrupts

1553 BC & TX ARINC

- 1553 Framing, Subframing, Scheduling, Aperiodic
- ARINC TX Complete Frequency Control
- 1553 Legal and Reserved Mode Codes
 - 1553A and 1553B Support
- 64-Bit, 20 ns Time Tags
- Full Error Injection/Detection

1553 RT Features

- Circular Linked Data Buffers SAs and MCs
- Legal, Reserved, and 1553A Mode Codes
- 64-Bit, 20 ns Time Tags
- Full Error Injection/Detection

1553 Bus Monitor

- Sequential Monitor
- RT SA Map Monitor
- 64-bit, 20 ns Time Tags and IRIG Sync

ARINC RX Features – 3 RX Modes

- Channel Level Label/Word Tables
- Multi-Channel Data Tables for All Channels
- Channel Level Current Value Tables
- ARINC 717 Frame Support
- 64-Bit, 20 ns Time Tags

Playback/Signal Vector (BC or TX)

- Real Hardware Playback from Archive Files.
- Signal Vector Generation at 20/1000 (1553/ARINC) ns ****INDUSTRY FIRST****
- 20 nSec 1553 Vectors and 1 us ARINC Vectors
- 8-bit, 50 ns 1553 and 1 uSec A/D Waveform Signal Capture. 1st Channel 1553 and First 2 RX of ARINC

Software – Win10 Only: *AltaAPI, AltaView & AltaRTVal*

- Multi-Layer *AltaAPI SDK* Architecture – Windows 10, C/C++, .NET, LabVIEW/Windows, etc..
- Optional *AltaView Analyzer & AltaRTVal* Windows Applications.
 - Full Analyzer Integration Tool & RT Validation Tools
 - Multi Language Support

Part Numbers (1553 and ARINC)

1553 Dual Function: BC/Monitor or mRT/Monitor

- **TBOLT-MA4-1D8 or TBOLT-MA4-2D8**

1553 Full Function: BC, mRT and Monitor

- **TBOLT-MA4-1F8 or TBOLT-MA4-2F8**

- **For 1553 Only Substitute “-1D0” example**

- **For ARINC Only Substitute “-0D8” example**

Options: Add -N for NVRAM Write Protection, -F for Conformal Coating, -I for TX Inhibit; -V 1553 Variable Voltage, -A for AltaView Analyzer and -B for AltaRTVal Software.

Example: TBOLT-MA4-2F8-ABFINV

2m J2 USB-C Thunderbolt 3 Rated Cable Provided

Optional J1 1553/ARINC Cables:

- **PCCDCAB-1553-1-01 or PCCAB-1553-2-01**
 - Single or Dual Channel 1553 Jacks Only
- **TBCAB-AUX01:** DB26 Only for ARINC and Aux
- **TBCAB-1-AUX01:** Single Channel 1553 with DB26
- **TBCAB-2-AUX01:** Dual Channel 1553 with DB26

5 Year Limited Warranty!

EU and China RoHS Compliant

Non-Public Telcom/CE Device/Non Safety-Mission

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