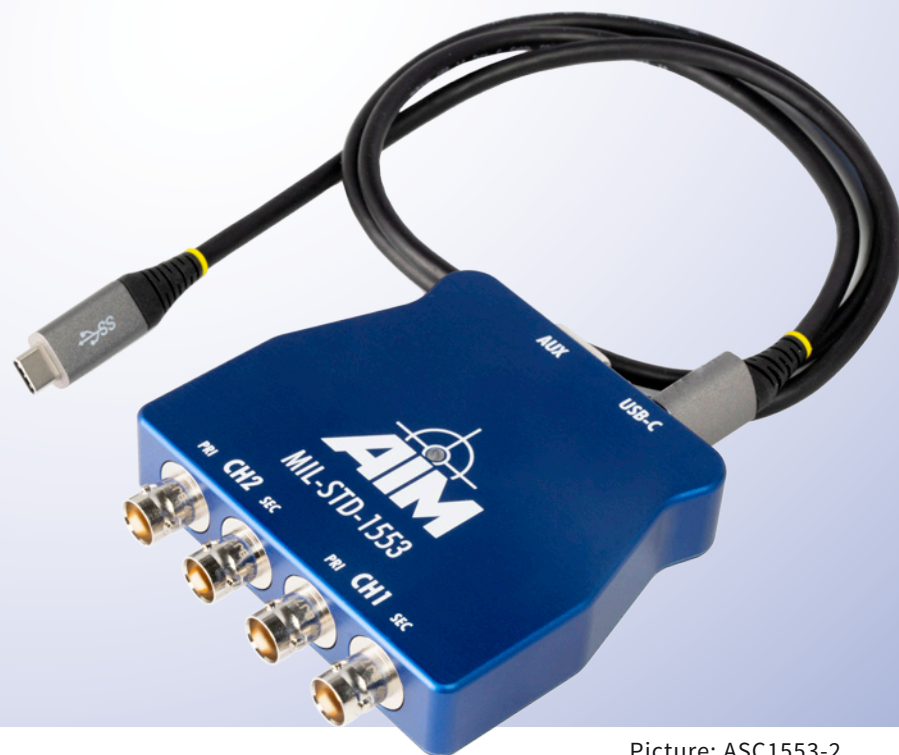


ASC1553-2

Dual Stream USB
SmartCable™ for MIL-STD-1553
Test & Simulation

Data
Sheet



Picture: ASC1553-2

ASC1553-2

Dual Stream USB SmartCable™ for MIL-STD-1553 Test & Simulation

General Features

The ► **ASC1553-2** (AIM SmartCable™) USB module offers full function test, simulation, monitoring and recording for MIL-STD-1553B applications implemented in an ultra compact form factor.

The ASC1553-2 module provides a dual channel, dual redundant MIL-STD-1553 interface and concurrently acts as Bus Controller, Multiple Remote Terminals (31) and Chronological/Mailbox Monitor.

ASC1553-2 modules are powered from the host computer via a single USB-C connection – no external power adapter is required. Embedded in a connector housing, the ASC1553-2 supports up to 8 discrete input/output signals to be monitored or generated (ASC1553-2-A only).

An onboard high-precision free-wheeling IRIG-B time encoder/decoder supports time tagging on all ASC1553-2 models and allows users to accurately synchronize modules to a common IRIG-B time source with the ASC1553-2-A variant.

The ASC1553-2 offers Transformer Coupling to the databus.

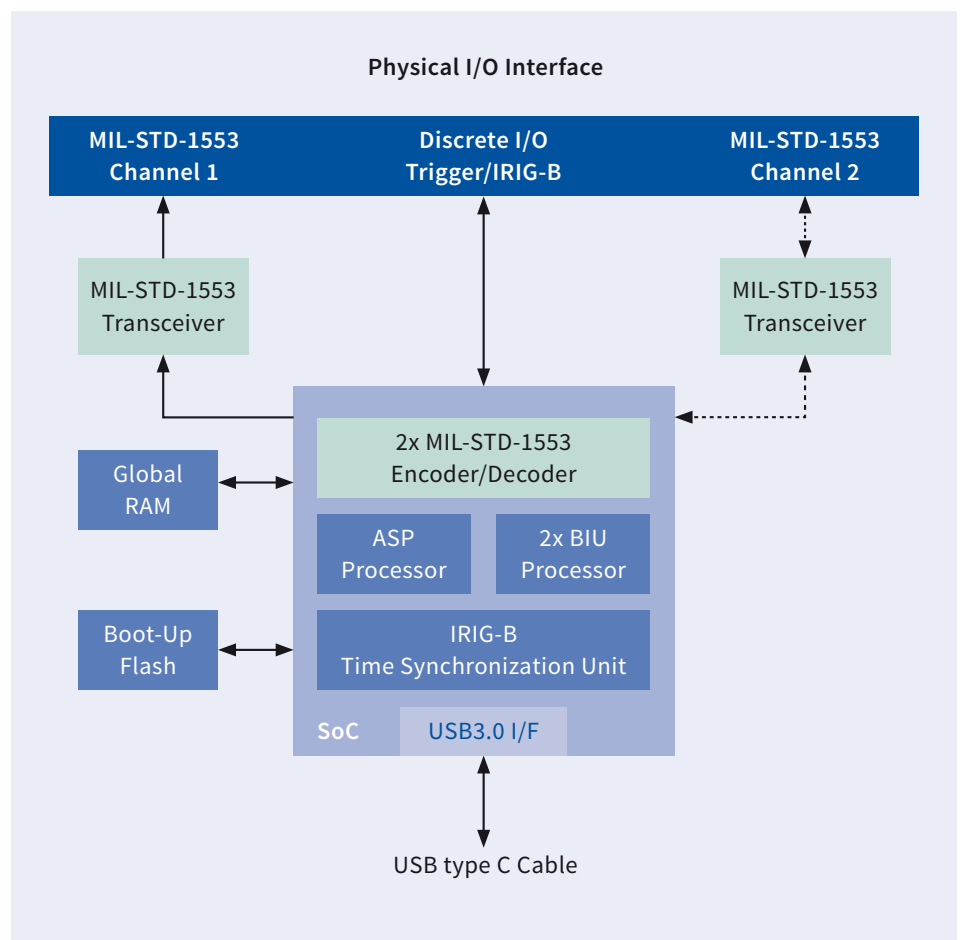
The optional PBA.pro™ Databus Test and Analysis Tool (for Windows and Linux) is also available for use with ASC1553-2 modules.

A common Application Programming Interface (API) supports all AIM MIL-STD-1553 modules.

Key Features

- Robust and Low Power USB3.0 Module implementing a dual stream/dual redundant MIL-STD-1553 Interface
- Powered via single USB-C connection, no external power adapter required
- Standard Twinax BJT77-male Connectors for MIL-STD-1553B Bus Connections
- Single Stream, Dual Redundant Implementation
- Concurrent Bus Controller, 31 Remote Terminals and Bus Monitor
- Full Error Injection/Detection Capability
- Multi-Level Triggering for Capturing/Filtering
- Real Time Recording and Physical Bus Replay at 100% Bus Loads
- Drivers for Linux and Windows
- Fully supported by PBA.pro™
- Fully Software compatible with AIM's Family of MIL-STD-1553 Cards
- Additional D-Sub Connector for Discretes, Trigger I/O and IRIG-B I/O (ASC1553-2-A only)

ASC1553-2 Block Diagram





Bus Control Features

- Autonomous Operation including Sequencing of multiple Minor and Major Frames
- Support for Acyclic Message Insertion/Deletion
- Support for Instructions for Synchronization to external Events and Timing Control
- Programmable BC Retry without Host Interaction
- Full Error Injection down to Word and Bit Level (AS4112 compliant)
- Multi-Buffering with Real Time Data Buffer Updates
- Synchronization of BC Operation to external Trigger In- and Outputs (ASC1553-2-A only)
- 4µs Intermessage Gaps
- Interrupt Generation on BC Transfer Events

Multiple Remote Terminal Features

- Programmable RT Response Time down to 4µs for each simulated RT
- Programmable and intelligent Response to Mode Codes
- Full Error Injection down to Word and Bit Level (AS4112 compliant)
- Multi-Buffering with Real Time Data Buffer Updates
- Mailbox Monitor Mode
- Interrupt Generation on RT Events

Chronological Bus Monitor

- 100% Data Capture on 1 Stream at full Bus Rates
- Single Shot, Continuous or Selective Capture Modes
- Autonomous Message Synchronization and Full Error Detection
- 2 Static/Dynamic Complex Triggers with Sequencing
- Message Filter and Selective Capture
- Bus Activity Recording independent from Trigger and Capture Mode
- Time Tagging:
 - All Bus Traffic to 1µs
 - Intermessage Gaps and Response Time to 250ns
- External Trigger In- and Outputs (ASC1553-2-A only)
- Programmable Response Time-Out

Physical Bus Replay

- Electrically reconstruct previously recorded MIL-STD-1553 Databus Traffic
- Disable any or all RT Responses from the recorded Files

Physical Bus Interface

- 1 dual redundant MIL-STD-1553 Bus Interface
- Transformer Coupling

IRIG-B Time Encoder/Decoder

- Onboard, free-wheeling IRIG-B formatted Time Encoder/Decoder for time tagging
- Amplitude modulated sinusoidal IRIG-B Output (ASC1553-2-A only)
- Synchronization with multiple AIM Modules or any IRIG-B compatible Module (ASC1553-2-A only)

Discrete-I/O

- 8 bi-directional Discrete I/O Signals (ASC1553-2-A only)

Driver Software Support

- Common Application Programming Interface (API)
- Drivers for Linux and Windows

Technical Data

Host Interface

USB-C with USB3.1 Gen1 Protocol,
up to 5Gbit/s
(USB-C Port host PC mandatory)

Memory

1GByte RAM

Processor

SoC Device with 1x 1200MHz and
2x 500MHz Processors

Time Tagging

46-bit absolute IRIG-B formatted

Discrete I/O (ASC1553-2-A only)

8 bi-directional Discrete-I/O Signals

Trigger I/O (ASC1553-2-A only)

BC/BM Trigger Input and Output Lines,
TTL compatible

Encoder/Decoder

2x MIL-STD-1553 Encoder/Decoder
with full Error Injection/Detection

Physical Bus Interface

MIL-STD-1553B Trapezoidal Transceiver;
Transformer coupled

Connector

Standard Twinax BJT77-male Connectors
for MILbus

USB-Connector

Fixed mounted Cable with USB
Type C Connector

Auxiliary I/O Connector (ASC1553-2-A only)

15-pin High-Density D-Sub Connector
for Discrete I/O, IRIG-B I/O and Trigger
I/O Signals

Dimensions

79mm x 88mm x 19,5mm (W x L x H)
(Housing incl. AUX D-Sub and MILbus
Twinax Connectors)

Supply Voltage

+5V from single USB-C port Supply Voltage

Power Consumption

10W @100% Busload
7W @50% Busload

Operating Temp. Range

Standard: 0°C to +50°C ambient
Extended: -15°C to +60°C

Storage Temp. Range

-40°C to +85°C

Humidity

5 up to 95% (non-condensing)

Ordering Information

ASC1553-2-A

Dual Stream, Dual Redundant USB3.0
to MIL-STD-1553 Interface:
BC, Multi RT Simulator with Mailbox &
Chronological Monitor; IRIG-B Time
Encoder/Decoder, 8 General Purpose
Discrete I/O's and Trigger 1x In/1x Out
per stream; 1 GByte RAM, MIL-STD-1553
I/O via 4 Twinax Connectors;
IRIG-B I/O, Discrete and Trigger I/O via
D-Sub Auxiliary I/O Connector.
Including USB Cable, 1.0m, occupying
1 USB (3.0 or higher) Port.
Includes Driver Software for Linux and
Windows.

ASC1553-2

Dual Stream, Dual Redundant USB3.0 to
MIL-STD-1553 Interface:
BC, Multi RT Simulator with Mailbox &
Chronological Monitor; 1GByte RAM,
MIL-STD-1553 I/O via 4 Twinax
Connectors;
No IRIG-B I/O, Discrete and Trigger I/O.
Including USB-C Cable, 1.0m, occupying
1 USB-C (3.0 or higher) Port.
Includes Driver Software for Linux and
Windows.

Simulator Only Versions available

BC, Multi-RT Simulator with Mailbox
Monitor

Single Function Versions available

Chronological & Mailbox Monitor or BC
and Chronological & Mailbox Monitor
or Multi-RT and chronological & Mailbox
Monitor

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