ASC429-x

Avionics Databus Solutions

USB SmartCable™ for ARINC429 Test & Simulation

Data Sheet

Picture: ASC429-x

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USB SmartCable™ for ARINC429 Test & Simulation

General Features

The ASC429-x (AIM SmartCable™) USB module offers full function test, simulation, monitoring and databus analyser capabilities for ARINC429 applications and is available in configurations with 2Tx/4Rx (6 Channels) and 4Tx/8Rx (12 Channels).

ASC429-x modules are powered from the host computer via the single USB2.0 (or higher) connection – no external power adapter is required. Designed in a connector housing size, the ASC429-x supports up to 8 discrete input/output signals to be monitored or generated.

An onboard high-precision 'free wheeling' IRIG-B time encoder/decoder allows users to accurately synchronise single or multiple ASC429-x modules to a common time source.

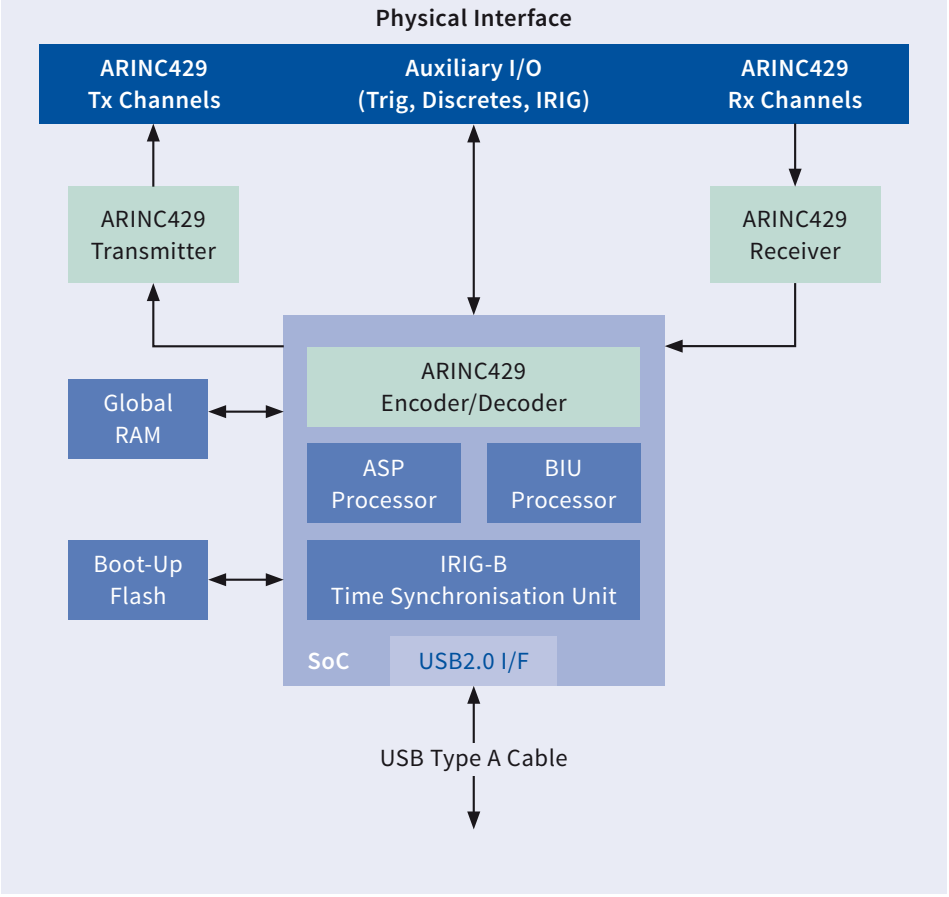
The optional PBA.pro™ Databus Test & Analysis Tool (for Windows & Linux) as well as the EasyLOAD-429/EasyDLE ARINC615 DataLoader Software are compatible to the ASC429-x.

A common Application Programming Interface (API) supports all AIM ARINC429 modules.

Key Features

- Robust and Low Power USB2.0 Module with up to 12 ARINC429 Channels
- Powered via single USB2.0 (or higher), no external power adapter required
- Hot Plug Capability
- Ruggedised 37-pin female D-SUB Connector
- 6 Channels (2Tx/4Rx) and 12 Channels (4Tx/8Rx) Versions
- Concurrent Operation for Simulation/ Monitoring on all Channels
- Full Error Injection/Detection Capability
- Multi Level Triggering for Capturing/ Filtering
- IRIG-B Time Encoder/Decoder for Data Correlation
- Real Time Recording and synchronised Bus Replay
- 8 bi-directional Discrete-I/O Signals
- Drivers for 32/64-bit Linux and 32/64-bit Windows7/8/8.1/10
- Compatible with PBA.pro™ and EasyLOAD-429/EasyDLE Application Software
- Software compatible with AIM's Family of ARINC429 Cards

ASC429-x Block Diagram



Transmit Channel Operation

- Cyclic/Acyclic Label Transmission and Channel Loop Mode
- Error Injection for each Label Transfer: Short Gap, Parity, Bit Count, Coding
- Programmable Gap between Labels: 0 to 255 Bit
- Simulate Zero-Jitter Scenarios using Virtual Label Transfers
- Multi-Buffering with Real Time Update supported per individual Label Transfer
- Reconstruction of previously recorded ARINC429 Traffic physically to the Bus with excellent Timing Accuracy (Physical Replay)
- Notification on Label Transmit (configurable per Label Transfer)

Receive Channel Operation

- Label Oriented Receive Mode (individual Buffers for each Label with Multi-Buffering and Real Time Updates)
- Chronological Receive Mode per Channel with 1µs Resolution Time Stamping
- Chronological Mode concurrent to Label Oriented Receive Mode
- Local Monitoring (individual Buffer per Channel) or Global Monitoring (common Buffer for all Channels)
- Continuous or Single Shot Capturing Modes
- Support of SDI Handling
- Notification on Label Reception (configurable per Label/SDI)
- Complex Triggering and Filtering Functions
- Loop of received Data to configurable Transmit Channel with Label Data Modification Capability

Physical Bus Interface

The ASC429-x Modules have integrated ARINC429 Line Transmitter/Receiver Channels and selectable Transmission Rate for each Single Channel independently

IRIG-B Time Encoder/Decoder

- Onboard, free wheeling IRIG-B Time Encoder/Decoder with amplitude modulated sinusoidal Output
- Synchronise with multiple AIM Modules or any IRIG-B compatible Module

Discrete & Trigger I/O

- 8 bi-directional Discrete-I/O Signals
- 1 Trigger Input
- 1 Trigger Output

Driver Software Support

- C/C++ Application Programming Interface (API) 32/64-bit, .NET Assemblies, LabView VI's
- Drivers for 32/64-bit LINUX and 32/64-bit Windows7/8/8.1/10

Technical Data

USB2.0 Interface
480Mbit USB2.0 Standard Interface (Revision 2.0)
Memory
128MB RAM
Processor
SoC Device with 2x 400 MHz Processors
Time Tagging
46-bit absolute IRIG-B Time
Discrete I/O
8 bi-directional Discrete-I/O Signals
Trigger I/O
1 Trigger Input and 1 Trigger Output Line, TTL compatible
Physical Bus Interface
2 or 4 ARINC429 Transmitter;
4 or 8 ARINC429 Receiver
ARINC and Auxiliary Connector
37-pin D-Sub Connector for ARINC429 Tx/Rx and Discrete-I/O, IRIG-B and Trigger Signals
USB-Connection
fixed mounted cable with single USB Type A host Connector – other Connectors on request

Dimensions
75mm x 65mm x 16mm (W x L x H)
(Housing incl. D-Sub I/O-Connector)
Supply Voltage
+5V from single USB2.0 (or higher) Supply Voltage
Power Consumption
2.5W max

Operating Temp. Range
Standard: 0ºC to +50ºC ambient
Extended: -15°C to +60°C
Storage Temp. Range
-40ºC to +85ºC
Humidity
5 up to 95% (non-condensing)

Ordering Information

ASC429-6
2 Channel Transmitter/4 Channel Receiver USB2.0 to ARINC429 Interface: Including IRIG-B Time Encoder/Decoder, 8 General Purpose Discrete-I/O's, 1x Trigger In, 1x Trigger Out, 128MB RAM Including USB Cable (1m), USB Type A Connector host side, fixed on housing side Includes Driver Software for 32/64-bit LINUX and 32/64-bit Windows7/8/8.1/10

ASC429-12
4 Channel Transmitter/8 Channel Receiver USB2.0 to ARINC429 Interface: Including IRIG-B Time Encoder/Decoder and 8 General Purpose Discrete-I/O's, 1x Trigger In, 1x Trigger Out, 128MB RAM Including USB Cable (1m), USB Type A Connector host side, fixed on housing side Includes Driver Software for 32/64-bit LINUX and 32/64-bit Windows7/8/8.1/10

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