2027 PRODUCT PREVIEW

AVBI

Technical datasheet

Simulate aircraft interfaces on the bench. Open the local web interface on a phone, tablet or laptop connected by Wi-Fi. No software installation is required.



Interface configuration

INTERFACE	CONFIGURATION	FIRMWARE BEHAVIOUR
ARINC 429	8 RX / 4 TX, HI-3210	12.5 or 100 kbit/s. Each RX has an enable bit, speed setting and 256-label mask. The driver verifies mask writes by readback.
RS-232	2 independent TX/RX ports	7 or 8 data bits, none/even/odd parity and 1 or 2 stop bits. Each port has its own baud and framing settings.
Isolated UART	1 TX/RX port	Separate framing and baud settings. The serial configuration API accepts 1,200 to 3,000,000 baud. Electrical limits depend on the link.
Classic CAN	1 port at 500 kbit/s	Standard 11-bit and extended 29-bit identifiers, up to 8 data bytes. Live reception and manual frame transmission.
Digital I/O	4 inputs / 2 outputs	PCA9536 inputs are sampled on a 500 µs timer. The monitor exposes levels and change counts. GPO1 and GPO2 are individually driven.
I²C	100 kHz master	Converter address range 0x08 to 0x77. Address 0x41 is reserved. The peer implements the line-framed raw-word protocol on page 2.
Wi-Fi and USB	AP + station / native USB	WPA2 access point, station mode and mDNS. Local browser UI and HTTP API. Native USB supports diagnostics and raw-word output.

Receiver stimulus

The waypoint encoder takes latitude, longitude and waypoint ID (0-127). It emits octal labels 074, 303, 306, 307 and 113 in sequence, including the checksum. The API accepts TX0-TX3, 1-20 repetitions and an inter-word gap setting of 0-1,000 ms.

BENCH CONNECTIONS

D-sub A carries ARINC 429. D-sub B carries the serial, CAN, I²C and digital signals.

CONNECTOR AND DATA REFERENCE

Wiring and data paths

Receive and transmit directions are relative to AVBI. Pin numbers below follow the instrument firmware's converter view. The D-sub B list covers the converter connections.

D-sub A / ARINC 429

CH	RX +	RX -	TX +	TX -
0	5	18	1	2
1	6	19	3	4
2	7	21	17	16
3	8	22	15	14
4	9	23	-	-
5	10	24	-	-
6	11	25	-	-
7	12	13	-	-

Common ground on pin 20.

D-sub B / converter pins

FUNCTION	PINS
RS-232 port 1	TX 19 / RX 18
RS-232 port 2	TX 20 / RX 21
Isolated UART	TX 10 / RX 11
I²C	SDA 2 / SCL 3
Ground	1 and 15

Converter example: one ARINC word sent to USB as hex produces eight ASCII digits and a line feed.

```
3C0110E0  +  LF
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Capture, replay and conversion

Capture to microSD

The recording session reserves a 65,536-event buffer. Segmented CSV records contain millisecond timestamps, source channel, label and hex payload. RS-232 capture can add readable text.

Replay to hardware

CSV or JSONL records matching the selected bus are scheduled relative to the first matching timestamp. Choose an ARINC TX, RS-232 port or UART and a playback factor from 0.1× to 20×.

Convert one route

Bridge one ARINC channel to or from RS-232, isolated UART or a compatible I²C peripheral. Select hex or 32 ASCII binary digits with LF. USB is an output destination. Stop conversion before replay.

Access from the bench

Connect a browser to the device access point or the local Wi-Fi network. The HTTP API exposes raw/decoded ARINC words, receiver filters, replay status and converter counters.

DOCUMENTED BENCH RUN / LOGGER FW 1.2.2-core

Six wired RX channels recorded 1,969,782 ARINC words over a 120 s run with four high-speed transmitters and concurrent web requests. The sequence check found no missing words or data errors in this run.