



- **Portable USB Device**
- **On Board resources (200 MHz processor, 64Mbytes RAM, 16Mbytes Flash, 256Mbytes NAND Flash)**
- **Available in a combination of 2Tx / 4Rx Channels**
- **GPS Synchronization Capability (optional)**
- **8 User programmable Discrete I/Os**
- **Supports up to max 12 Channels**
 - > 4 Transmit Channels
 - > 8 Receive Channels
- **Configurable for High Speed/Low Speed**
- **128 x 32 bit Static RAM Interface on each Arinc429 node**
- **Programmable interrupts**
- **Receive Data time-stamping**
- **Transmit Data Scheduling (Asynchronous/Synchronous) messages**
- **Two 32 x 32 Transmit FIFO on each Arinc429 node**
- **Graphical User Interface Software for Bus Analysis and Simulation**
- **Software Driver support Windows XP, Windows 7, Linux, RT Linux**

OVERVIEW

The AT-USB-429 module is a small, portable, USB device that provides a flexible, powerful ARINC429 avionics data bus interface for the development and maintenance of commercial avionics. The unit is designed to transmit and receive messages up to 12 channels. Each channel is software configurable for high or low speed (12.5k or 100k bits per second) and ARINC429 protocol requirements. The ARINC data word can be decoded and sorted based on the Label and SDI bits and stored in RAM and/or FIFOs.

Having extensive functionality, they are used to communicate with, simulate, test, and monitor ARINC429 equipment and systems. The unit has onboard resources to compute time tags, handle data scheduling and offload the host from ARINC communication overheads. The unit comes with powerful software that reduces development time. All data bus functionality is supported from our advanced API (Application Programming Interface) and VIP (Virtual Instrument Panel).

Hardware

The AT-USB-429 module can be configured up to 2 nodes with ARINC429 controllers from DDC, each node containing 2 Transmit and 4 Receive channels, providing a maximum of 12 channels. Each controller has a 128 x 32 bit static RAM, four 32 (words deep) x 32 (bit) Receive FIFOs and two 32 (words deep) x 32 (bit) transmit FIFOs. Look-up tables loaded into RAM enable the modules receive circuitry to filter and sort incoming data by label and destination bit as well as provide multilevel data specific interrupts or hardware triggers.

The receive channels allow for the storage of all selected Labels with status and time tag information (optional) appended to each word. The receivers allow for filtering and multi-storage modes of Data Words. The transmit channels operate via a transmit "instruction stack" which allows scheduling of data transmissions and reduces the need for host computer intervention. The discrete channels contain control I/O registers that are memory mapped and can be accessed in real time.

Power

The unit contains a DC power jack for connection to an external +12V power source. The DC jack is designed to interface with off-the-shelf AC adaptors.

Software

The AT-USB-429 software includes Drivers & APIs. The product comes with a powerful set of library functions to access the entire ARINC429 functionality. The drivers are designed in a modular fashion consisting of component functions and application functions. The user's test program can be developed with few calls to the driver, by using the set of Application functions provided. Driver and high-level API libraries for Windows XP, Windows 7, Linux, RT-Linux are available. Sample applications are included.

AT-USB-429

ARINC429 USB MODULE

PRODUCT SPECIFICATIONS

ARINC429 Interface

- Supports up to 12 ARINC429 channels
 - > 4 Transmit Channels
 - > 8 Receive Channels
- 128 x 32 bit Static RAM interface on each ARINC429 controller
- Programmable Interrupts
- Configurable Bit Format Control

Transmit Interface

- Programmable 12.5/100KHz bit rate
- Two 32 (words deep) x 32 (bit) Transmit FIFOs on each ARINC429 controller
- Major/Minor frame scheduling
- Independent data transmit by each channel
- Programmable data transmit rate for each channel
- Transmit FIFO Status Indicators
- Synchronous word transmission
- Programmable Inter word gap

Receive Interface

- Four 32 (words deep) x 32 (bit) Receive FIFOs on each ARINC429 controller
- Receive data rates can be programmed for channel 0 and 1 independent of channel 2 and 3 in each ARINC429 controller
- Reducing Receive Data Latency
- Label and Filtering & Sorting of data
- Storage of data
- Parity Error Checking & Reporting
- Receive FIFO status indicator
- Time tagging of received messages

Diagnostics

- Power-up Self test with status reports
- Testing of Memory Elements
- Testing Transmit/Receive functions
- Interrupt Function Testing
- Wraparound Test for each channel

Error Conditions

- Sequence Error
- Address Error
- FIFO Overflow Error
- Receive Data Parity Error
- ARINC Clock Error

Discrete Channels

- 8 Discrete Inputs, TTL (0-5V)
- 8 Open Drain Discrete Outputs, TTL (0-5V), max current of 100mA

GPS Receiver (optional) for Synchronization

- GPS receiver on-board for Synchronization
- Synchronization control through software
- Synchronization of on-board time tag counters with GPS time
- 32 bit micro-second time tag counter synchronized with GPS
- Separate GPS antenna provided along with the unit

Software Support

- Driver and high-level API libraries for Windows XP, Windows 7, Linux, RT Linux

Physical

- Durable Enclosure with covers for 429 connectors
- Approximate dimensions (135mm x 155mm x 32mm)

Environmental

- Operating temperature: 0° C to +50° C
- Storage temperature: -20° C to +70° C

Power

- +12V External Powered through AC Adapter

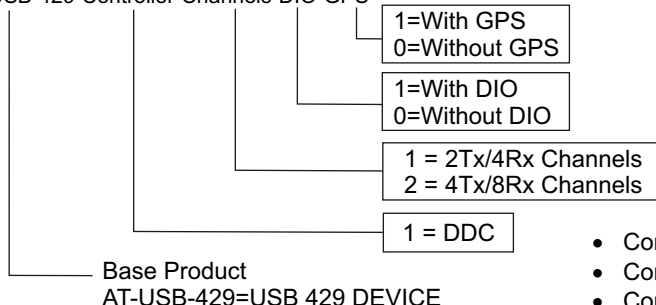
Warranty

- 1 year limited warranty

ORDERING INFORMATION

Hardware Selection

AT-USB-429-Controller-Channels-DIO-GPS



- Contact sales for support for other Operating Systems
- Contact sales for configuration of front and rear I/O configuration
- Contact sales for environmental options



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