

# CANflight

CAN/ARINC825/CANaerospace Interface



- Laptop-ready, Dual Core Processor Based Embedded Realtime Control System for Ground and Airborne Use
- Two isolated, fully independent Controller Area Network (ISO 11898), ARINC825 and CANaerospace protocol compliant interfaces
- $\mu$ SDHC card-based Flight Data Recording Option available
- IRIG-B Time Code Input for High Precision Data Synchronization
- Auto-negotiating 10/100/1000 BaseT Ethernet interface with CANaerospace over Ethernet (CoE) and ARINC825 over Ethernet (A825oE) protocol and Application Programmer Interface (API)
- IEEE 802.11 Wireless LAN Option with CANaerospace over Wireless (CoW) and ARINC825 over Wireless (A825oW) protocol available
- Frontpanel Activity LEDs for CAN and Ethernet
- Power Supply using USB cable or EN2282 Aircraft Power (9-36VDC)
- Mechanical Dimensions 80mm x 47mm x 132mm, weight 320g
- CAN/ARINC825/CANaerospace toolbox for Linux, MacOS and Windows
- Custom Software Options available on request

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## Overview

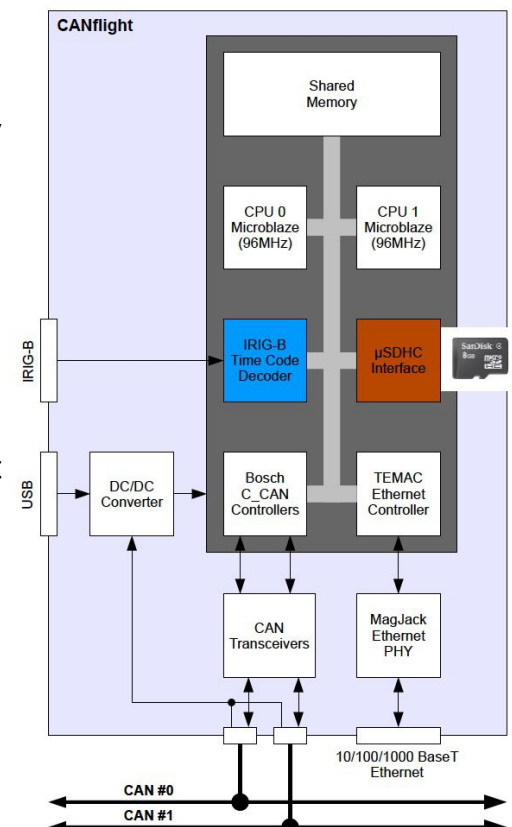
CANflight is an embedded realtime control system for the use in airborne or ground-based aeronautical applications. CANflight units communicate under each other or with other CAN systems through two fully independent, optically-isolated CAN/ARINC825/CANaerospace interfaces. Each module also contains a 10/100/1000 BaseT Ethernet interface for data exchange with remote host platforms.

The CANflight hardware uses a Xilinx Spartan-3 FPGA with two independent Microblaze processors. The CAN 2.0B interfaces are implemented with licensed Bosch C\_CAN controller IP cores to ensure compatibility with the Bosch CAN standard and to allow precise hardware timing and control over the transmission and reception of CAN/ARINC825/CANaerospace messages. The Xilinx FPGAs and the CANflight firmware provide local buffering and 60ns time stamp resolution for all CAN messages and implement ARINC825/CANaerospace specific protocol functions. High precision time synchronization of CAN messages is accomplished through an IRIG-B time code input providing 1 $\mu$ s resolution. All CAN channels work under sustained 100% bus load without dropping any messages. An integrated  $\mu$ SDHC interface is used for data acquisition storage, system configuration information and firmware upgrades.

## System Architecture

CANflight is a powerful standalone computer system integrated into a rugged aluminum box which is powered from 9-36 VDC allowing it to run from standard 14V or 28V DC aircraft power buses according to the EN2282 specification. The power input lines are protected against transient overvoltage and electromagnetic interference. Alternatively, CANflight runs off a USB power connection for direct use with laptop computers. The total power consumption of a CANflight unit is 5W. The CAN and Ethernet interfaces are serviced by different processors so that all interfaces may be used at the same time without any loss of data. CANflight units may be connected to host computers using CANaerospace/ARINC825 and the auto-negotiating 10/100/1000 BaseT Ethernet interface with CAN over Ethernet protocol.

The  $\mu$ SDHC card slot accepts cards with sizes up to 64GBytes.



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**CAN**  
AVIATION ALLIANCE

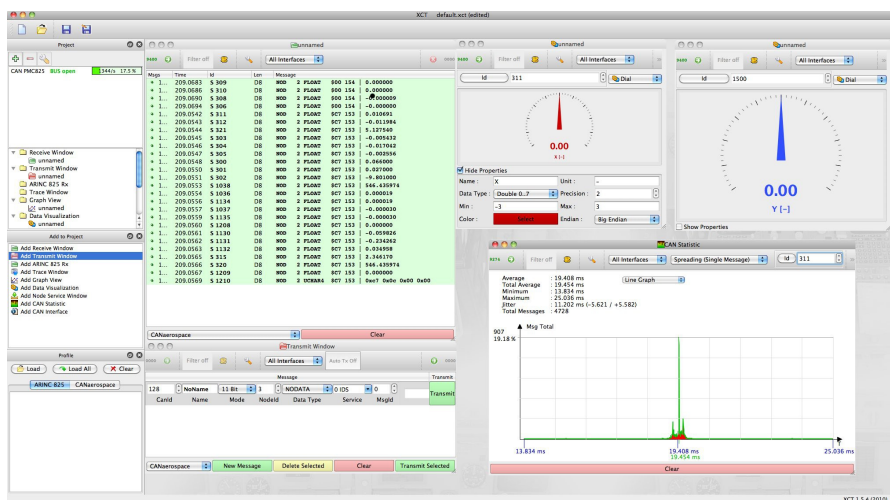


## Software Support

CANflight units can work as either standalone systems or as intelligent nodes within simple or complex CANaerospace/ARINC825 networks. The interface between CANflight and host computer applications via Ethernet/UPD/IP, either wired or wireless, is realized through a corresponding Application Programming Interface (API) for a variety of operating systems including Linux, Solaris, MacOS, Windows and VxWorks.

## eXtended CAN Toolbox (XCT) Software

PowerNECS is delivered with the eXtended CAN Tool (XCT) software, a powerful CAN/ARINC825/CANaerospace network toolbox for Linux, MacOS and Windows XP/7. Among other features, XCT contains an ARINC825 Communication Profile reader and editor, realtime data visualization in raw and ARINC825/CANaerospace formats, network traffic/error statistics and an interface for CANaerospace/ARINC825 Periodic Health Status



Messages and Node Services. XCT may also be used for the CANaerospace protocol and the ARINC specifications 812 and 826 which are both based on ARINC825. XCT provides all necessary functions for ARINC825 network compatibility verification, CANaerospace and ARINC825 end system testing, CAN network analysis and ARINC825 communication profile generation and analysis. XCT allows to trigger on CAN identifiers, provides realtime record and playback of CAN data and supports synthetic CAN/ARINC825/CANaerospace signal generation. XCT project configuration files allow to save and reload XCT configurations and exchange them with other XCT users.

## Ordering and Pricing Information

Ordering Number	Description
<b>TP2102-901</b>	CANflight with 2 optically isolated CAN channels, Ethernet API and XCT Toolbox
<b>TP2701-8xx</b>	Custom firmware for TP2102-901

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Supplier	Contact	
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## ARINC825/CANaerospace Websites

[www.aviation-ia.com/standards](http://www.aviation-ia.com/standards)

[www.arinc825.com](http://www.arinc825.com)

[www.canaerospace.net](http://www.canaerospace.net)