

# CANalyzer .CANaero

Product Information

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This document presents the CANalyzer .CANaero application areas of analysis, stimulation and their individual functions, and their individual functions. The document contains a brief overview of programming in CANalyzer, supplemental programs and hardware interfaces.

**Product information** and **technical data** on CANalyzer in general are available in a separate document.

# 1 Introduction

Over the years, a number of bus systems have become established in aerospace engineering. CAN is playing an increasingly important role here. CANalyzer .CANaero is the universal analysis tool for CAN-based avionics networks and distributed systems. Besides offering monitoring and analysis, it also makes it easy for you to stimulate the data traffic.

## 1.1 Overview of Advantages

- > Easy observation of data traffic and comprehensive network analysis
- > Flexible configuration of the measurement setup
- > Time-synchronous analysis of multiple buses
- > Support of the protocols ARINC 825 and ARINC 826
- > Open interfaces and database concept offer optimal support for proprietary protocols as well

## 1.2 Application Areas

CANalyzer .CANaero covers all use areas from simple network analysis to focused troubleshooting of complex problems. The multibus approach lets you simultaneously operate multiple channels, different bus systems such as CAN, Ethernet and FlexRay as well as different protocols.

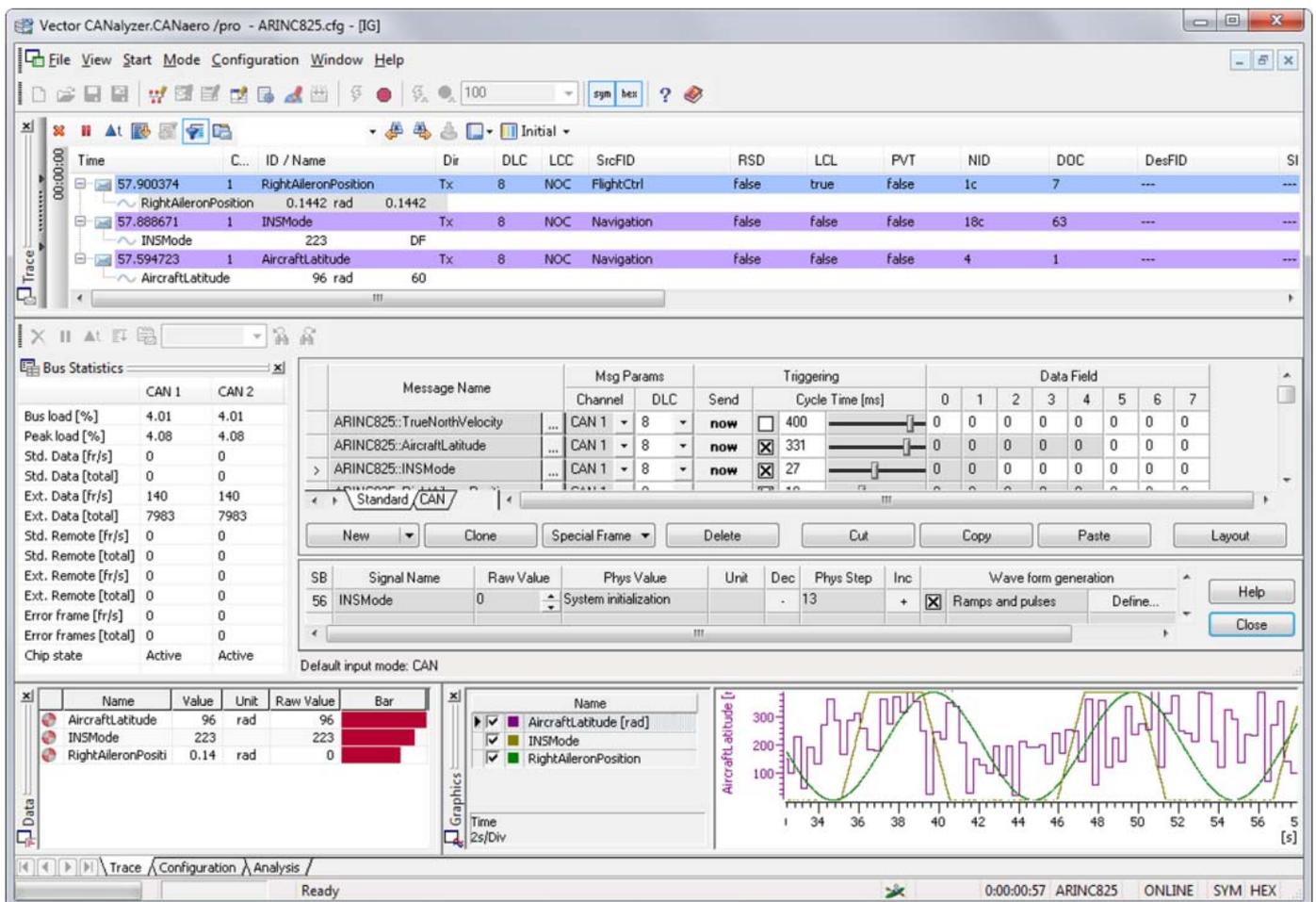


Figure 1: Display of ARINC 825 specific data in the Trace, data and statistics windows. Interactive generation of messages.

### 1.3 Further Information

#### > [Vector Download-Center](#)

Various documents related to CANalyzer are available on the Internet. In the Demo version, for example, you get sample configurations for the various use areas and detailed online Help texts, in which all CANalyzer functions are described. In addition, you benefit from our valuable know-how in the form of technical articles and application notes.

#### > [CANalyzer Feature Matrix](#)

More information on variants, channels and bus system support is presented in the feature matrix.

## 2 Functions

Basic functions offer an abundance of capabilities such as:

- > Tracing of the bus data traffic
- > Graphic and text displays of signal values
- > Interactive sending of messages
- > Statistics on nodes, messages, bus loading and faults
- > Logging of messages for later replay or offline evaluation with versatile triggering options
- > Generation of bus disturbances

## 3 Database Support

In a project database, messages and their data segments may be assigned project-specific names, conversion formulas and physical units. The database is set up and maintained with the CANdb++ data management program that is supplied with the product.

For systems in which ICD files are provided for the communication description, the supplied converter can be used to convert the description to the internal database format.

Building upon this database, it is possible to represent messages and their data contents on the system level, service level and message level. Examples are: Cabin Pressure Control, Water Waste, Body Pitch Angle, Boiler Water Temperature and much more. This is also how you parameterize sending of messages and their data contents.

## 4 Communication Monitoring

In the Trace window, the CAN message traffic is displayed, and the protocol information it contains is simultaneously interpreted. You not only see which service is currently being executed, you can also view the relevant parameters at a glance. To simplify the analysis, the data can be shown in different font and background colors. This gives you a quick overview of the chronological flow of individual protocol sequences. CANalyzer .CANAero supports the protocols ARINC 825 and ARINC 826.

The columns of the Trace window are user configurable for proprietary protocols. CAN identifiers can be subdivided into segments and displayed in separate Trace window columns. In addition, you can define a value table for each identifier segment, which gives you a text interpretation of the different segments during the measurement. This greatly simplifies the interpretation of proprietary protocols.

## 5 Programmability

User programmability lets you extend CANalyzer functionality as desired. The programming language used here is the application oriented C-like language CAPL (Communication Access Programming Language). CANalyzer contains an interactive development environment that makes it easy to create, modify and compile CAPL programs.

## 6 Supported Protocols

### 6.1 ARINC 825

The "General Standardization of Controller Area Network Bus Protocol for Airborne Use" defines fundamental communication concepts for the use of CAN. It supports the IMA approach and offers addressing mechanisms that extend beyond system boundaries such as AFDX.

### 6.2 Proprietary protocols

Because of its database approach and open interfaces, CANalyzer .CANaero can be extended to handle proprietary protocols.

## 7 Hardware Interfaces

CANalyzer .CANaero supports all hardware interfaces available at Vector. Thanks to the large selection of different PC interfaces (PCMCIA, ExpressCard, USB, PCI, PCI-Express, PXI) and of bus transceivers, optimal bus access is possible for any use case.

## 8 Training

As part of our training program, we offer a range of classes and workshops on CANoe in our classrooms and on-site at our customers.

You will find more information on individual training courses and a schedule online at: [www.vector-academy.com](http://www.vector-academy.com)



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