

Product Information CANalyzer.FlexRay

Table of Contents

1	Introduction CANalyzer.FlexRay.....	3
1.1	Highlights.....	3
1.2	Application Areas	3
1.3	Database Support	3
2	Analysis.....	4
3	Stimulation/Simulation	4
4	Diagnostics	4
5	Further Programs.....	4
5.1	FIBEX Explorer.....	4
5.2	AUTOSAR System Description Network Explorer	5
6	CAPL Interface.....	5
7	Hardware Interfaces.....	5
7.1	Hardware Time Synchronization	5
8	Software Interface.....	5
9	Stress Module for FlexRay	5

Documentation Note

Valid for CANalyzer.FlexRay 8.0

This document presents the **CANalyzer.FlexRay** application areas of analysis, stimulation and diagnostics and their individual functions. The document contains a short overview of programming in **CANalyzer.FlexRay**, supplemental programs and hardware and software interfaces.

Product information and **technical data** on CANalyzer and the LIN and MOST options are available in separate documents.

1 Introduction CANalyzer.FlexRay

FlexRay is a scalable, flexible high-speed communication system that fulfills growing technical requirements in the automotive field. High-performance analysis tools are needed in this area of safety-critical applications with FlexRay. The CANalyzer.FlexRay from Vector gives you a universal tool for analyzing distributed real-time systems.

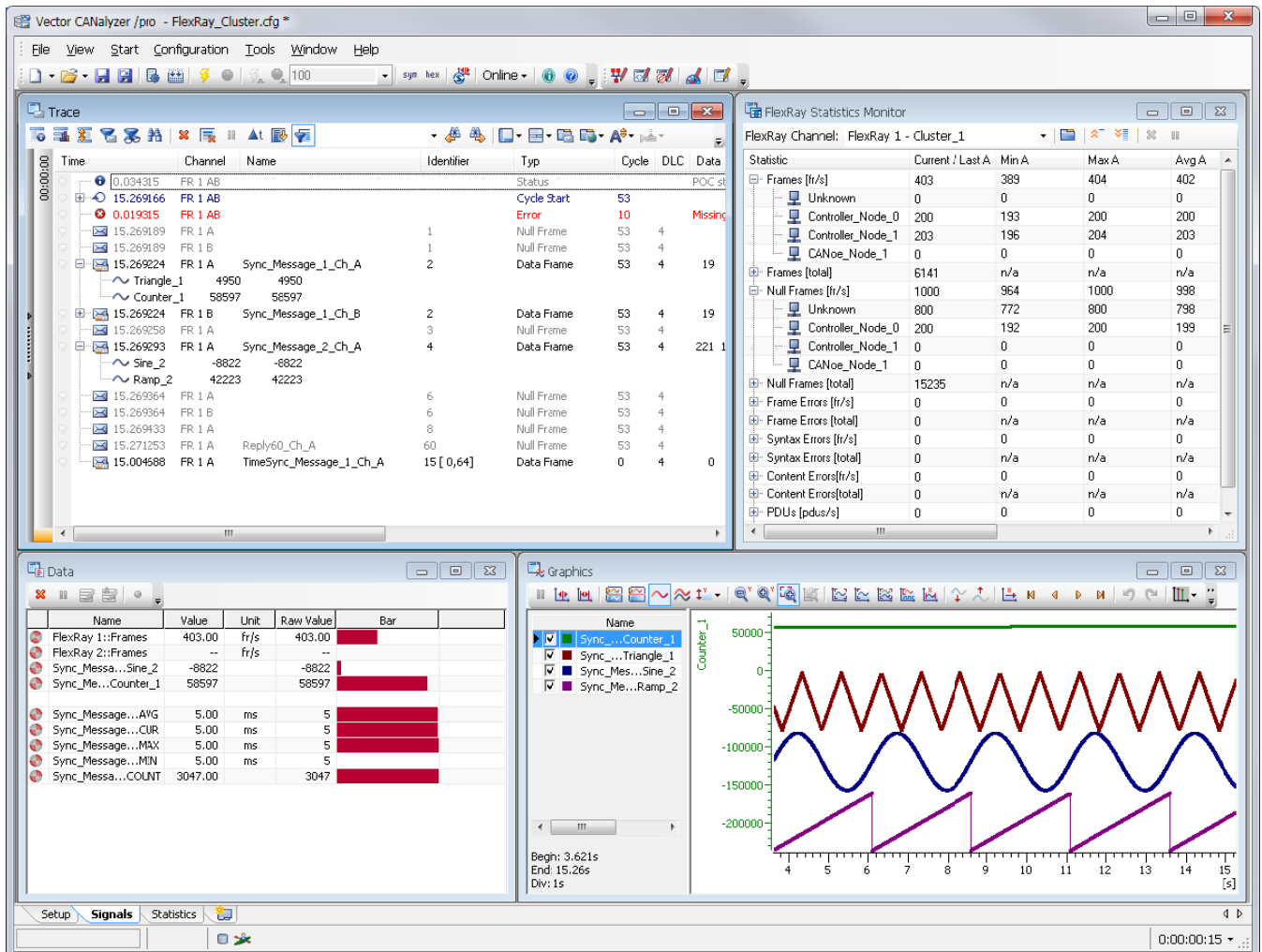


Figure 1: CANalyzer.FlexRay configuration for analyzing a FlexRay system with Trace window and Statistics window

1.1 Highlights

- Full AUTOSAR PDU support
- Ready for use with all official FIBEX versions
- During gateway operation the simultaneous analysis and testing of CAN and FlexRay networks is possible

1.2 Application Areas

CANalyzer.FlexRay covers all applications from simple network analysis to focused troubleshooting of complex problems. The multibus approach enables simultaneous operation of the CAN, LIN, MOST, Ethernet and FlexRay bus systems.

1.3 Database Support

The FlexRay system description is saved in FIBEX or AUTOSAR format. CANalyzer.FlexRay reads in these databases and provides you with the information for analysis and for automatically configuring the hardware.

2 Analysis

The basic functions that are provided give you a wide variety of possible uses. They include:

- Listing the bus data traffic (tracing)
- Graphic and text displays of signal values
- Interactive sending of pre-defined PDUs und frames
- Statistics on nodes and messages with the Statistics window and Cluster Monitor
- Logging messages for later replay or offline evaluation
- Well-organized display of cycle multiplexing, in-cycle repetition and PDUs in the analysis windows

3 Stimulation/Simulation

In network stimulation, the FlexRay Frame Panel gives you a convenient way to send out FlexRay frames. FlexRay-specific parameters such as header flags and cycle multiplexing can also be conveniently adapted to the payload data.

The FlexRay PDU Panel lets you send PDUs interactively. Besides modifying the signal values, the Update Bit and Update Counter can also be modified.

4 Diagnostics

- Visualize diagnostics in the Trace window via an observer
- Parameterize via the CANdela database or by ODX or MDX
- Supported transport protocols: AUTOSAR, ISO 10681-2, OEM-specific

5 Further Programs

5.1 FIBEX Explorer

FlexRay developers get a quick and detailed understanding of data and their interrelationships with the FIBEX Explorer supplied with the product, which lets them view, edit and extend the FIBEX data. All relevant variants of the FIBEX specification are supported:

- 1.2.0a
- 2.0.1
- 3.x

The FIBEX Explorer is supplied in two variants. The View variant allows the user to display data, while the Pro variant, in addition to View variant features, also supports editing:

Programs	CANalyzer		
	fun	exp	pro
FIBEX Explorer Pro	no	yes	yes
FIBEX Explorer View	yes	no	no

5.2 AUTOSAR System Description Network Explorer

The AUTOSAR Explorer lets you display system descriptions and ECU extracts in an easy to comprehend way. This tool gives users a quick overview of their systems.

The AUTOSAR Explorer currently supports the following AUTOSAR versions:

- 3.0.2 (only view)
- 3.1.4 (view and edit)
- 3.2 (view and edit)

The AUTOSAR Explorer is supplied in two variants. The View variant allows the user to display data, while the Pro variant, in addition to View variant features, also supports editing:

Programs	CANalyzer		
	fun	exp	pro
AUTOSAR Explorer Pro	no	yes	yes
AUTOSAR Explorer View	yes	no	no

6 CAPL Interface

The CAPL script language is used in all areas of CANalyzer usage, from analysis to simulation and testing. CAPL offers functions tailored to the FlexRay protocol:

- Event Handler for bus events and controller states (e.g. error, symbols, synchronization status)
- CAPL objects for frames, PDUs, signals to be sent and for network configuration
- Specific functions for such tasks as sending and receiving the wake-up pattern and configuring the communication controller

7 Hardware Interfaces

CANalyzer.FlexRay supports the Vector's VN interface product line and the FlexCard. These high-performance and flexible PC interfaces for FlexRay give you optimal interfaces for your application. For detailed information please refer to the "Hardware Interfaces for FlexRay and CAN" datasheet.

7.1 Hardware Time Synchronization

Bus interfaces of the XL product line make it possible to perform time-synchronized multibus analysis in CANalyzer.FlexRay. The devices to be synchronized are interconnected via a simple "party line".

8 Software Interface

The Windows-supported interface for program communication (Microsoft COM) lets you:

- Conveniently exchange data with standard software, such as for measurement data analysis or for more in-depth evaluation of the observed bus traffic
- Control the measurement flow by external applications
- Automate recurring test sequences

9 Stress Module for FlexRay

FRstress is a special tool for error simulation and manipulation of FlexRay frames on the protocol and bit levels. Besides disturbing the bus physics, it is also possible to manipulate, delay or delete specific data.

For more information please refer to the FRstress datasheet.

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