



## AFDX Suite

### AFDX Explorer - AFDX Monitor - AFDX Switch

#### An Overview of the AFDX Suite

#### What is AFDX®?

AFDX stands for Avionics Full Duplex Switched Ethernet, a transmission standard which is based on Ethernet and is designed for the communications for newer airplane systems. AFDX is the term for the ARINC 664 Part 7 standard. The Airbus Group developed the AFDX standard and had it patented.

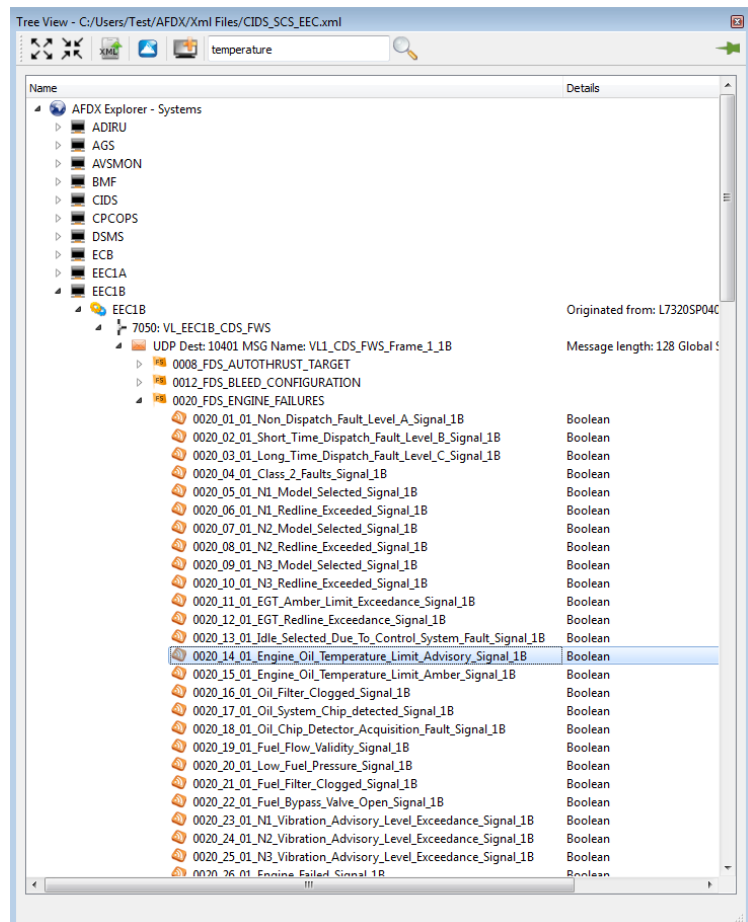
#### The Development of the AFDX Suite

The goal of the development was the easiest possible use of the AFDX Suite and the capability of quickly learning to use them. The Suite was supposed to be developed which could be successfully deployed from the very beginning of the design phase to the operational phase of the airplane systems, for example, for subsequent modifications as well as for searching for errors.

The profound knowledge of the Airbus employees has also been utilised during the development of the AFDX Suite. Thus, today, we have AFDX Suite which is fast, easy and efficient.

It is easy to display the AFDX systems, e.g. in the Explorer file, which makes it possible to obtain a quick overview. Relevant information is immediately available.

On the following pages, we would like to give you an overview of the basic functions of the AFDX Suite.





The AFDX Suite can be used within a very short period of time and **without any special AFDX hardware**. A notebook or a standard PC is sufficient for the AFDX Suite. It is not necessary to install our software on your hardware because the AFDX Suite is executable from a USB stick.

The systems are displayed with the relevant links (virtual links), messages and signals and provide information as required right down to the bit level.

## The Signal Window

No.	MODULE	VL ID	UDP Port	Signal	Type	Unit	Rx Val	Rx FS	Timestamp	Tx Val	Tx FS	Value Range
1	10	TCS1	29650 35121	Upper_Deck1_Temperature_1	Float	deg C	22.4500007629	NO	16:07:16.279000	22.45	3	-40.0 ... 100.0
2	20	CIDS1	33954 39250	Sign_Current_Potable_Water_Quantity_1	Integer	%	56	NO	16:07:17.767000	56	3	0 ... 127
3	30	FW1	12051 50650	FW_Flight_Phase_1	Integer		8	NO	16:07:15.579000	8	3	1 ... 12
4	40	SPDB1	24451 27925	Current_Measurement_PhaseA_Group65_2474_1	Float	A	56.8699989319	NO	16:07:15.579000	56.87	3	0.0 ... 120.0
5	50	SPDB1	24450 27928	PED_Power_Active_Inactive_No1_CARD4_2474_1	Boolean		1   Active	NO	16:07:15.679000	1	3	FALSE = 0 = inactive, TRUE = 1 = Active
6	60	CIDS1	33954 50204	Sign_CidsInternCockpitDoorOpen_1	Boolean		0   INACTIVE	NO	16:07:17.867000	0	3	FALSE = 0 = INACTIVE, TRUE = 1 = ACTIVE
7	70	SCI	15068 50210	Engine1_on	Boolean		1   Engine 1 on	NO	16:07:17.767000	1	3	FALSE = 0 = Engine 1 off, TRUE = 1 = Engine 1 on
8	80	SCI	15068 50210	Engine1_TO	Boolean		0   Engine1. not at Take off power	NO	16:07:17.767000	0	3	FALSE = 0 = Engine1 not at Take off power, TRUE = 1 = Engine1 at Take off power
9	90	TCS1	29650 35121	Software_Version_1	Integer		23	NO	16:07:16.279000	23	3	0 ... 65535
10	100	CIDS1	33954 50204	Sign_HijackingCabinAlert_1	Boolean		0   OFF	NO	16:07:17.867000	0	3	FALSE = 0 = OFF, TRUE = 1 = ON

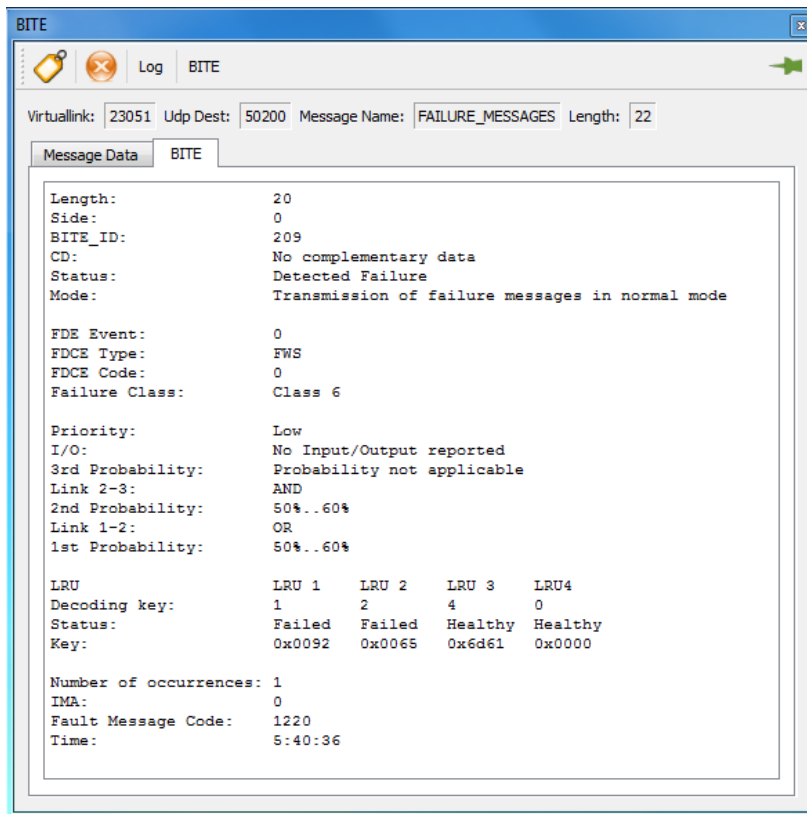
The AFDX signals can be transmitted by mouse click within signal windows. In these windows, the AFDX signals are displayed with all relevant information.

For example, Boolean AFDX signals (true/false) are displayed with their significance, "Engine 1 on". The type, the unit and the limits of the values are made available in addition to the clear classification to the AFDX systems. AFDX data can be **sent** from the signal window.



## BITE - Build In Test Equipment

The BITE function that has been integrated into the AFDX systems continuously sends information regarding the system statuses. The AFDX Suite decodes these data, displays them and, as required, log files are created.



It is not necessary to classify the BITE messages individually from the systems within the TreeView of data collection. They can be automatically collected for each linked AFDX bus! Thus, a defective device on an AFDX bus can be very quickly located.

Via the existing log function, the BITE data are outputted in coded and decoded forms. An evaluation can be done in the office.

Because the working times in the airplane and/or in the laboratory are often quite limited, they can be efficiently used.

If only brief times on the AFDX system are available, all AFDX data can be recorded without any restrictions and the evaluation can be done later. The AFDX Suite has been prepared for this.



## SID - System Identification Data

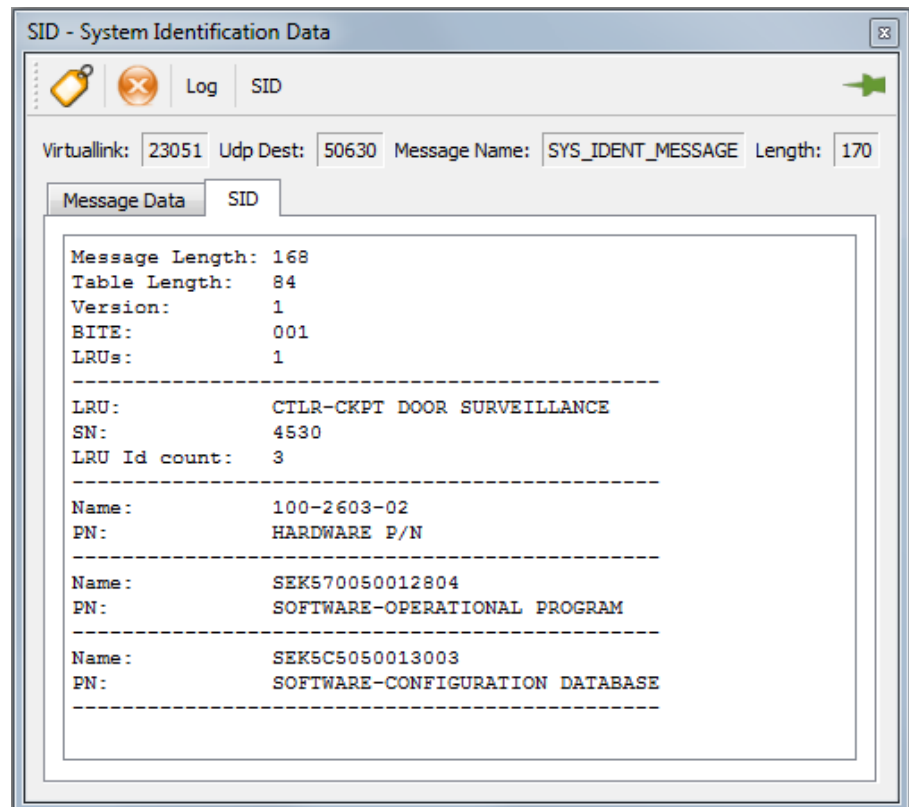
The SID function that has been integrated into the AFDX systems likewise continuously sends information about the system configurations. The AFDX Suite decodes these data, displays them and, as required, they are written into log files.

The SID messages can be classified individually from the systems within TreeView to a display window. In this case, only the SID data for the relevant devices are evaluated.

The SID data can also be collected in a completely automated fashion for each linked AFDX bus. Thus, an "inventory" of all AFDX devices from one AFDX bus can very quickly be done.

When exchanging the devices or updating the software, the logging of the part and serial numbers into the systems is completed with only a few required actions.

The outputting into a log file simplifies the documentation. The notation of serial numbers or print-outs in the cockpit, etc. are no longer required and the data are not in paper form, but rather in a file.



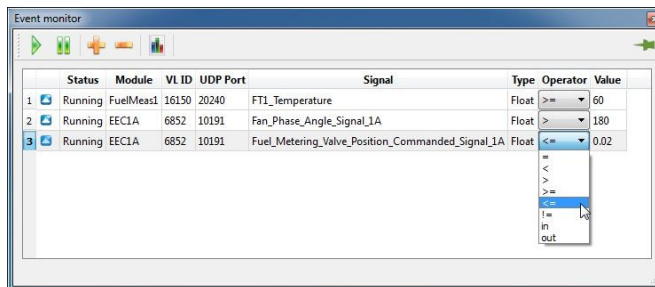
Additional decoders for the **SNMP data** are available. Shortly thereafter, the decoders for the **security log** of A350 and the **data-loading** function follow.

The AFDX Suite continues to be developed permanently and in consultation with the users.

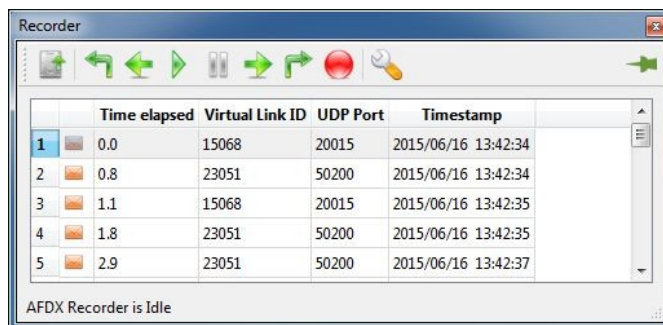


## Additional Functions

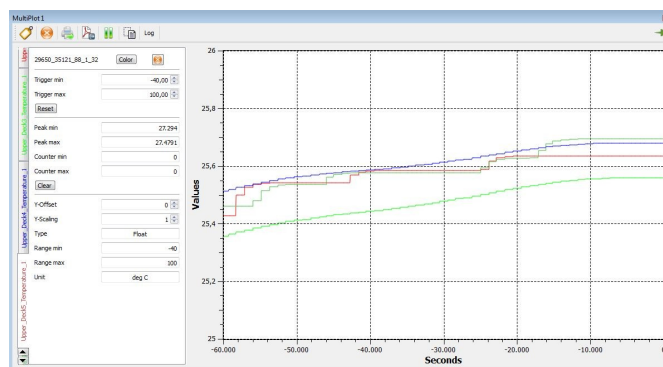
An **event monitor** is provided for sporadic or rarely occurring events.



A **recorder** function makes the recording and playback of the AFDX data possible.



A **graphical depiction** of the AFDX data is provided.



**Test automation** per script is possible.

A software **development kit** is available from June 2016.



## **Installation and Portability**

The installation of the software on the computers is not required. The optionally provided USB stick is equipped with a complete operating system and the preinstalled AFDX Suite. A computer can be booted up by using this USB stick. Thus, an AFDX test system can be created from each computer.

By merely passing on the USB stick in a quite easy fashion, the AFDX test system can be passed on to other users. Windows versions are likewise available.

## **Support**

Competent and fast support is provided. Upon request, we can also support you during your projects. EC Comp GmbH possesses many years of experience in the development and testing of airplane systems.

## **EC Comp GmbH**

For more than 17 years, EC Comp GmbH has worked successfully with Airbus and many suppliers. Companies such as Honeywell and UAC are likewise among our customers as well as universities and other schools of higher education. Our products are used in seven countries. Our focuses are on designing systems, creating software, conducting system tests for cabin systems and documentation.

From years of testing experience, AFDX Suite was created which make simple analysis and operation possible. Our project business also includes the individual development of software if the customer orders it.

From the specification to the utilisation and support of the systems on-site, we will support you. We support our developments from the first hour to the last hour.

Owing to our good network within the aviation environment, comprehensive and complex projects can be implemented. Our partners include big groups of companies as well as small companies with outstanding technical expertise.



## An Overview of the AFDX Suite

- By means of the AFDX Suite, your notebook / PC will become the AFDX test system.
- Purchasing expensive AFDX hardware will no longer be necessary.
- No installation and no access to your computer's internal hard drive will be necessary.
- Very short training periods are required owing to easy, intuitive operation.
- Instructions and support provided by experienced employees on-site as required.
- Passing on the ADFX Suite is possible with a simple USB stick. The operating system and the AFDX Suite has been preinstalled on the USB stick.
- No specialised knowledge is required in order to interpret the AFDX data.
- Clear text displaying of the AFDX data with names, values and the significance.
- A quick overview of the AFDX systems is ensured.
- Missing AFDX systems can be simulated.
- System and error statuses can be generated for testing purposes.
- The documentation of all test data—including graphical test data—is possible.
- It is possible to save the sessions that have been created. Very easy forwarding of the sessions via e-mail.
- Competent and fast support is provided.
- Employees' many years of experience produce efficiency.
- We will support you – whenever you need us.

## Simulate, Analyse and Test Your AFDX Systems – Quickly, Easily and Efficiently.

Talk to us! We would be glad to take the time to provide you with more information. Upon your request, we would be glad to provide you with test versions of the AFDX Suite. Student versions with the full scope of services are likewise available.

Test us out.

**Call us and set up an appointment today.**

The AFDX Suite has been developed in cooperation with Airbus.

