FL3X Config

FL3X Config is the all-purpose tool for all challenges related to automotive bus systems. With this tool bus data can be simulated, visualized, manipulated and recorded very easily. This is implemented for almost every OEM and almost every bus system in the automotive environment. The focus is always on simple operation in order to make even the most complex applications easy to implement.

BENEFITS

- Support for 1000BASE-T1, 100BASE-T1, 100BASE-TX, CAN-FD, CAN-HS, FlexRay, LIN, SENT
- One tool for simulation, visualization, manipulation and recording of automotive bus datas
- Supports a wide range of interfaces
- Support of a wide range of network description formats, e.g. AUTOSAR (*.arxml), FIBEX (*.xml), CANdb (*.dbc), LDF (*.ldf)
- Support of a wide range of car manufactures and their special handlings
- Very easy realization of different use cases, like remaining bus simulations, gateways, or rapid prototyping
- Very short latencies and boot times <200 ms are possible, since the generated remaining bus simulation is executed directly on the hardware
- Existing project can be updated to a new version of a network description file

FL3X CONFIG - SIMULATION

- Easy configuration of remaining bus simulations and gateways
- Automatic detection and configuration of the E2E protection
- Various settings for AUTOSAR time synchronization (e.g. boundary clock)
- Supports Secure Onboard Communication, IPSec, TLS, DTLS and other security mechanisms
- Outstanding Gateway functionality to create gateways between different bus systems, including automatic scaling of routings

FL3X CONFIG - VISUALIZATION*

- Easy configuration of viewsets with different widgets (e.g. gauge, linechart, barchart, matrixchart, lamp, signal, text, button, timer, etc.)
- Viewsets can be used on the pc and also on a mobile device (e.g. android tablet)

* CAN, FlexRay, Ethernet incl. SOME/IP

VIRTUAL FL3X DEVICE

- The virtual FL3X Device is a DLL which contains a FL3X Config project
- The virtual FL3X Device can convert log files from one communication matrix to another
- Virtual gateways and virtual signal manipulations are possible

REPLAY

- Time-synchronous replay of FlexRay, CAN and Ethernet incl. valide SOME/IP handshakes, SecOC, IPSec, Timesync.
- Integration of gateway functionality into the replay possible, so a replay can convert a logfile with an old communication matrix to a replay based on a new communication matrix at runtime
- Manipulations can be executed during runtime at the replay

FL3X CONFIG - MANIPULATION

- Real time manipulations are possible during execution of the gateway or the remaining bus simulation
- A transparent Gateway can be configured very quickly to implement a man in the middle setup for manipulating any bus traffic
- Different manipulations are possible (e.g. offset, freeze, ramp, drift, loss, factor)
- Different triggers for starting/ending a manipulation can be defined
- The duration/delay of a manipulation can set freely

FL3X Config

FL3X CONFIG - LOGGING
- Logging can be executed parallel to all other functions (e.g. simulation, visualization, manipulation)
- Different time bases can be used for the time stamp of the log files, for example 802.1AS / IEEE1588 PTP, RTC, fpga timestamp (0 based from startup)
- Different logging formats are supported (e.g. *.mf4, *.asc)
- The logged data can be accessed via ftp over ethernet or WiFi or directly form the SD-Card.

FL3X CONFIG - RAPID PROTOTYPING
- Integrated C-Code Editor for adding complex functionality and low-level access to the specific hardware functions
- Easy integration of ecu models (e.g. MATLAB)

FL3X CONFIG ENTERPRISE
- External development environments can be integrated, e.g. in Visual Studio Code
- Optimized support for version control tools (svn / git)

FL3X CONFIG - VERSIONS

	FL3X Config **Basic**	FL3X Config **Professional**	FL3X Config **Enterprise**
Basic functions			
simulation	●	●	●
visualization	●	●	●
manipulation	●	●	●
recording	●	●	●
rapid prototyping	●	●	●
Bus systems			
SENT	●	●	●
LIN	●	●	●
CAN-HS	●	●	●
CAN-FD	●	●	●
FlexRay	●	●	●
100BASE-TX	●	●	●
100BASE-T1	●	●	●
1000BASE-T1	●	●	●
Comfort features			
Database Update		●	●
Bus Routing		●	●
Scaling		●	●
Routing Find Target		●	●
Print Routiungs		●	●
Advanced teamwork			
Import/Export of Routingtables			●
Visual Studio Code Support			●
Version Control Format e.g. SVN			●

FL3X CONFIG - SUPPORTED HARDWARE
- all actual FlexDevice/FL3X Device, FlexCard, FlexCard PXIe3, FL3X System and FL3X Interface

FL3X CONFIG - SUPPORTED NETWORK DESCRIPTION FORMATS
- CANdb (*.dbc)
- LDF (*.ldf)
- FIBEX (*.xml) Version:
  2.0.0d, 2.01, 3.0.0, 3.1.0, 4.0.0, 4.1.1, 4.1.2, FIBEX+ 1.4
- AUTOSAR (*.arxml) Version:
  3.0.2, 3.1.0, 3.1.4.DAI.2, 3.1.4.DAI.4, 3.2.2,
  4.0.3, 4.1.1, 4.2.1, 4.2.2, 4.3.0, 4.3.1, 4.4.0, 4.6.0, 4.7.0

SCOPE OF DELIVERY
- FL3X Config
- Documentation

ORDER INFORMATION FL3X CONFIG

Product	Description	Order number
FL3X Config Basic	Configuration software FL3X Config in the basic version.	3-01141A01
FL3X Config Professional 1 year	Configuration software FL3X Config in the professional version. The term is limited to one year.	3-V1141C01
FL3X Config Professional 2 year	Configuration software FL3X Config in the professional version. The term is limited to two years.	3-V1141D01
FL3X Config Professional 3 year	Configuration software FL3X Config in the professional version. The term is limited to three years.	3-V1141E01
FL3X Config Enterprise 1 year	Configuration software FL3X Config in the Enterprise Version. The term is limited to one year.	3-V1141G01
FL3X Config Enterprise 2 year	Configuration software FL3X Config in the Enterprise Version. The term is limited to two years.	3-V1141H01
FL3X Config Enterprise 3 year	Configuration software FL3X Config in the Enterprise Version. The term is limited to three years.	3-V1141I01

ORDER INFORMATION ACCESSORIES

Product	Description	Order number
FL3X Dongle	Dongle for hosting licenses	3-V0709A01
FL3X Config Extended Runtime TransferFee	This enables the Extended Runtime to be used on a PC.	3-V0709A02
FL3X Config OEM Package	Extension for OEM specific configurations. Available for several OEMs.	on request

ORDER INFORMATION HARDWARE RUNTIMES

Product	Description	Order number
FL3X Config Standard Runtime 1 year	1 year Standard Runtime	3-01142A01
FL3X Config Standard Runtime 2 year	2 years Standard Runtime	3-01142B01
FL3X Config Standard Runtime 3 year	3 years Standard Runtime	3-01142C01
FL3X Config Standard Runtime 4 year	4 years Standard Runtime	3-01142D01
FL3X Config Standard Runtime 5 year	5 years Standard Runtime	3-01142E01
FL3X Config Standard Runtime 6 year	6 years Standard Runtime	3-01142F01
FL3X Config Standard Runtime 7 year	7 years Standard Runtime	3-01142G01
FL3X Config Standard Runtime Lifetime	Authorized for permanent use. Not transferable to other hardware.	3-01142O01
FL3X Config Extended Runtime 1 year	1 year Extended Runtime	3-01142H01
FL3X Config Extended Runtime 2 year	2 years Extended Runtime	3-01142I01
FL3X Config Extended Runtime 3 year	3 years Extended Runtime	3-01142J01
FL3X Config Extended Runtime 4 year	4 years Extended Runtime	3-01142K01
FL3X Config Extended Runtime 5 year	5 years Extended Runtime	3-01142L01
FL3X Config Extended Runtime 6 year	6 years Extended Runtime	3-01142M01
FL3X Config Extended Runtime 7 year	7 years Extended Runtime	3-01142N01
FL3X Config Extended Runtime Lifetime	Authorized for permanent use. Not transferable to other hardware.	3-01142P01