

## TTXConnexion Gateway Tool for Manipulation, Online Viewing and Logging



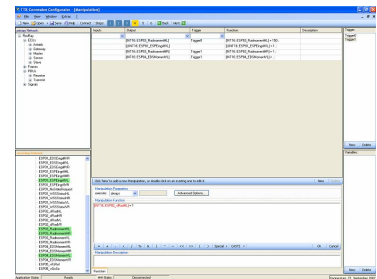
### Intelligent Gateway and Testing Tool for CAN and FlexRay

#### Development, Integration and Test of CAN and FlexRay Networks

To effectively develop, integrate and test CAN and FlexRay™ networks, a number of powerful devices are needed. With the next generation of TTXConnexion, TTTech Automotive provides an even smaller, portable and autonomous, intelligent gateway tool, which combines features for data manipulation, online viewing and logging in a single compact unit.

#### Data Manipulation: Continuous or Defined Triggers

In order to test a FlexRay or CAN application, it is necessary to modify messages on the bus. The new TTXConnexion allows the user to apply various data manipulation scenarios to simulate a variety of environments without changing the software application in the ECUs itself. The tool can manipulate data, based on mathematical and logical functions, in order to modify messages on the bus and to simulate the application's range limits. The new enhanced data manipulation functions enable the repeated application of manipulations functions. In addition, trigger configuration and visualization in the new TTXConnexion have been optimized. It is controlled by an intuitive configuration tool. Network descriptions in the Fieldbus Exchange Format (FIBEX) are used for configuring FlexRay network parameters, signals and protocol data units (PDUs). The CANdb description is supported for CAN-based networks.



#### Gateway Functionality: Mediator between Different Development Stages

TTXConnexion is able to translate FIBEX communications schemes of various development stages. It works as a gateway, translating signals in four different directions: FlexRay-to-FlexRay, FlexRay-to-CAN, CAN-to-FlexRay, and CAN-to-CAN. So, a newly developed ECU can be added to an existing network without modifying existing control units. Thus, CAN ECU's can be integrated easily into FlexRay networks, and FlexRay control units can be tested with existing CAN test rigs. To simplify the handling, the new TTXConnexion offers configurable, integrated termination resistors for all buses that are connected to the device. The resistors can be switched on and off using buttons on the device.

During the integration process, the various control units are often in different states of readiness. In addition, at certain stages FlexRay control units from other projects may need to be linked. TTXConnexion supports such integration efforts by forming different sub networks with FlexRay schedules of their own. The device links networks and translates the necessary messages of one FlexRay network into the other network. Therefore, control units from different integration stages are merged into a single network.

The connectors on the tool have also been redesigned so that the space necessary for cabling is optimized. Utilizing TTXConnexion's enhanced power management functionality the user can put the device into a "sleep state" with low power consumption.

## Data Logging from Networked Systems

During test runs the test data can be filtered and logged on a compact flash card. TTXConnexion comes with TTXAnalyze, a convenient tool for data analysis on the PC. TTXConnexion supports intelligent logging, ensuring that data are recorded only if needed for later analysis. Since the data can be filtered selectively, memory and development time are minimized. TTXAnalyze also enables simultaneous viewing of data from all connected buses.

## Online Data Viewing in Real Time

The TTXAnalyze viewing tool also allows real-time monitoring of manipulations and their effects, as well as analysis of bus communication.

### Hardware

- 32-bit MCU at 200 MHz
- 3x Freescale MFR4310 communication controller
- 64 MByte RAM
- 32 MByte flash
- 4 GByte compact flash card is included (optionally extensible)

### Interfaces

- 2x FlexRay interface (2 channels) at 10 Mbit/s
- 2x internal CAN high speed ISO 11898-2 and ISO 11898-3 (up to 1Mbit/s)
- 3x digital input trigger  
3x digital output trigger
- USB 2.0 high speed
- 10/100 Mbit/s Ethernet
- Status LEDs

### Specifications

- Dimensions (mm): 260 x 140 x 37
- Operating temperature: -10 °C to +70 °C
- Input voltages: 7V to 40V
- Robust housing

### Functional Characteristics

- FlexRay and CAN in a single unit
- Manipulation of application signals
- Extended data manipulation function
- Manipulation triggering and logging via various trigger options
- Optimized trigger concept
- Integrated switchable bus termination
- User-friendly GUI
- Routing and filtering of frames between two FlexRay and CAN networks
- FlexRay-to-FlexRay and FlexRay-to-CAN gateway functionality
- Optimized connector concept
- Selective masking of data
- Specific filtering of frames during logging
- Simultaneous logging of FlexRay and CAN messages on a compact flash card
- Analysis tool for viewing und logging
- Network configuration via FIBEX
- Import of CANdb files
- Configuration with PC via USB or Ethernet
- Enhanced power management

For further information, including price and availability, contact [products@tttech-automotive.com](mailto:products@tttech-automotive.com).

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