# BUSMASTER – FlexRay Add-On

## BUSMASTER © - FlexRay Overview

### ❖ Introduction

BUSMASTER Add-On for FlexRay can be used to monitor, analyse and simulate FlexRay bus

### ❖ Features Supported

- Hardware Support
  - ETAS BOA (ES595, ES583)
  - Vector XL (VN3600, VN7600, VN8900)
- Channel Configuration
- Controller Configuration
- Transmission of Messages
- Monitoring Messages
- Network Statistics
- Filters
- Logging
- Signal watch
- Node Simulation

### ❖ Installation

FlexRay support in BusMaster is available as a Commercial Add-On

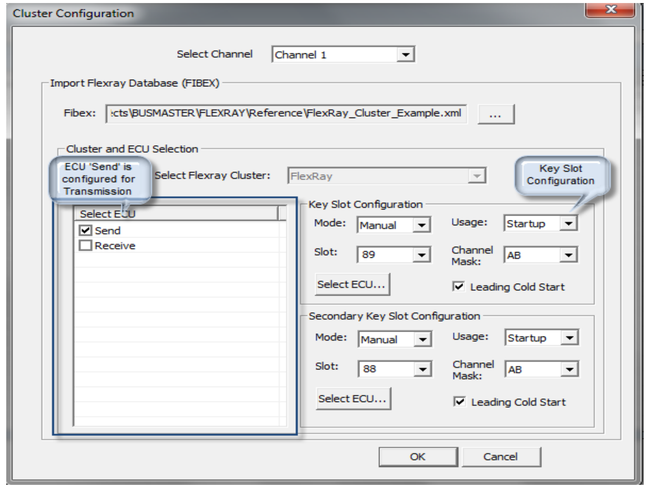
FlexRay Add-On works on top of open source version

For further details, please contact E-mail: BUSMASTER@in.bosch.com

## BUSMASTER © - FlexRay Features

### ❖ Channel Configuration

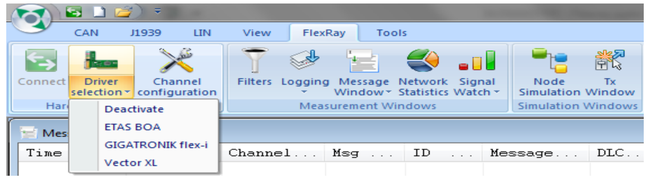
Cluster configuration is used to associate FIBEX file to a FlexRay channel




### ❖ Controller Configuration

BUSMASTER can be connected to FlexRay physical channel using FlexRay Controller

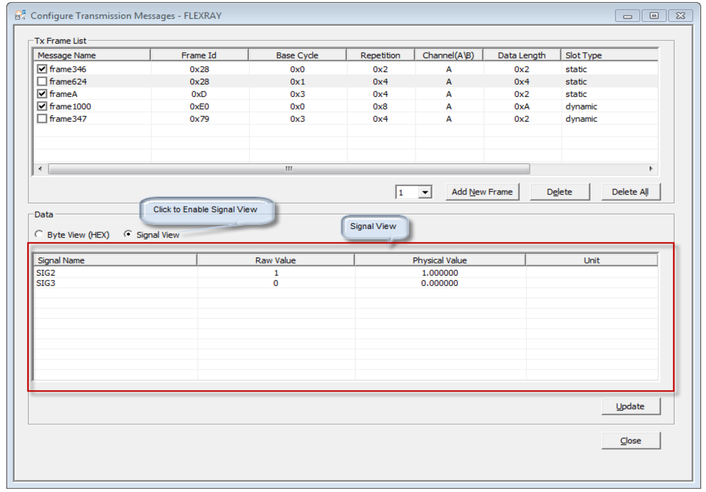
- ETAS and Vector FlexRay controllers are supported




## BUSMASTER © - FlexRay Features

### ❖ Transmission of Messages

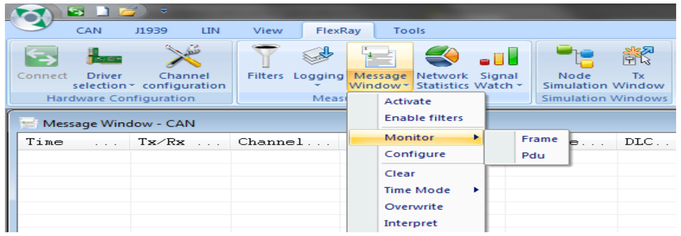
Configure FlexRay messages for transmission




### ❖ Monitoring Messages

On-line FlexRay Network Monitoring can be done using FlexRay Message window

- Frame Monitoring
- PDU Monitoring
- Frame and PDU Monitoring



## BUSMASTER © - FlexRay Features

### ❖ Frame Monitoring

Message Window - FLEXRAY

| Time | Tx | Id | Type | Frame Ty... | Slot T... | Description | Cycle... | Cha... | D... | Data Byte(s) |
|---|---|---|---|---|---|---|---|---|---|---|
| 15:50:28:2907 | Tx | 0001 [0, 1] | Frame | Data | static | New_Frame_1 | 51 | A | 16 | 000 000 000 0 |
| 15:50:28:2907 | Tx | 0002 [0, 1] | Frame | Data | static | New_Frame_2 | 51 | A | 16 | 000 000 000 0 |
| 15:50:28:2907 | Tx | 0003 [0, 1] | Frame | Data | static | New_Frame_3 | 51 | A | 16 | 000 000 000 0 |
| 15:50:28:2907 | Tx | 0004 [0, 1] | Frame | Data | static | New_Frame_4 | 51 | A | 16 | 000 000 000 0 |
| 15:50:28:2907 | Tx | 0005 [0, 1] | Frame | Data | static | New_Frame_5 | 51 | A | 16 | 000 000 000 0 |
| 15:50:28:2907 | Tx | 0006 [0, 1] | Frame | Data | static | New_Frame_6 | 51 | A | 16 | 000 000 000 0 |
| 15:50:28:2907 | Tx | 0007 [0, 1] | Frame | Data | static | New_Frame_7 | 51 | A | 16 | 000 000 000 0 |

### ❖ PDU Monitoring

Message Window - FLEXRAY

| Time | Tx | Id | Type | Frame Ty... | Slot T... | Description | Cycle... | Cha... | D... | Data B |
|---|---|---|---|---|---|---|---|---|---|---|
| 15:49:40:5771 | Tx | 0001 | PDU | | | New_PDU_2 | 18 | A | 1 | 000 |
| 15:49:40:5771 | Tx | 0001 | PDU | | | New_PDU_1 | 18 | A | 1 | 000 |
| 15:49:40:5771 | Tx | 0002 | PDU | | | New_PDU_3 | 18 | A | 1 | 000 |
| 15:49:40:5771 | Tx | 0002 | PDU | | | New_PDU_1 | 18 | A | 1 | 000 |
| 15:49:40:5771 | Tx | 0003 | PDU | | | New_PDU_2 | 18 | A | 1 | 000 |
| 15:49:40:5771 | Tx | 0004 | PDU | | | New_PDU_2 | 18 | A | 1 | 000 |
| 15:49:40:5771 | Tx | 0004 | PDU | | | New_PDU_1 | 18 | A | 1 | 000 |
| 15:49:40:5771 | Tx | 0004 | PDU | | | New_PDU_5 | 18 | A | 1 | 000 |
| 15:49:40:5771 | Tx | 0004 | PDU | | | New_PDU_4 | 18 | A | 1 | 000 |
| 15:49:40:5771 | Tx | 0007 | PDU | | | New_PDU_6 | 18 | A | 1 | 000 |
| 15:49:40:5771 | Tx | 0007 | PDU | | | New_PDU_7 | 18 | A | 1 | 000 |
| 15:49:40:5771 | Tx | 0007 | PDU | | | New_PDU_8 | 18 | A | 1 | 000 |
| 15:49:40:5771 | Tx | 0007 | PDU | | | New_PDU_9 | 18 | A | 1 | 000 |

### ❖ Frame and PDU Monitoring

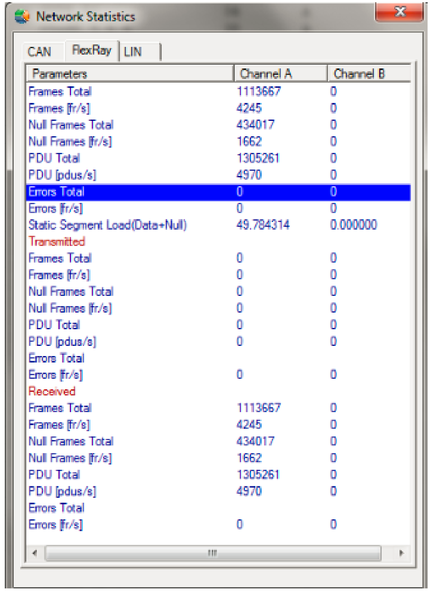
Message Window - FLEXRAY

| Time | Tx | Id | Type | Frame Ty... | Slot T... | Description | Cycle... | Cha... | D... | Data Byt |
|---|---|---|---|---|---|---|---|---|---|---|
| 15:43:54:3590 | Tx | 0001 [0, 1] | Frame | Data | static | New_Frame_1 | 29 | A | 16 | 000 000 |
| 15:43:54:3590 | Tx | 0001 | PDU | | | New_PDU_2 | 29 | A | 1 | 000 |
| 15:43:54:3590 | Tx | 0001 | PDU | | | New_PDU_1 | 29 | A | 1 | 000 |
| 15:43:54:3590 | Tx | 0002 [0, 1] | Frame | Data | static | New_Frame_2 | 29 | A | 16 | 000 000 |
| 15:43:54:3590 | Tx | 0002 | PDU | | | New_PDU_3 | 29 | A | 1 | 000 |
| 15:43:54:3590 | Tx | 0002 | PDU | | | New_PDU_1 | 29 | A | 1 | 000 |
| 15:43:54:3590 | Tx | 0003 [0, 1] | Frame | Data | static | New_Frame_3 | 29 | A | 16 | 000 000 |
| 15:43:54:3590 | Tx | 0003 | PDU | | | New_PDU_2 | 29 | A | 1 | 000 |
| 15:43:54:3590 | Tx | 0004 [0, 1] | Frame | Data | static | New_Frame_4 | 29 | A | 16 | 000 000 |
| 15:43:54:3590 | Tx | 0004 | PDU | | | New_PDU_2 | 29 | A | 1 | 000 |
| 15:43:54:3590 | Tx | 0004 | PDU | | | New_PDU_1 | 29 | A | 1 | 000 |
| 15:43:54:3590 | Tx | 0004 | PDU | | | New_PDU_5 | 29 | A | 1 | 000 |
| 15:43:54:3590 | Tx | 0004 | PDU | | | New_PDU_4 | 29 | A | 1 | 000 |
| 15:43:54:3590 | Tx | 0005 [0, 1] | Frame | Data | static | New_Frame_5 | 29 | A | 16 | 000 000 |
| 15:43:54:3590 | Tx | 0006 [0, 1] | Frame | Data | static | New_Frame_6 | 29 | A | 16 | 000 000 |
| 15:43:54:3590 | Tx | 0007 [0, 1] | Frame | Data | static | New_Frame_7 | 29 | A | 16 | 000 000 |
| 15:43:54:3590 | Tx | 0007 | PDU | | | New_PDU_6 | 29 | A | 1 | 000 |
| 15:43:54:3590 | Tx | 0007 | PDU | | | New_PDU_7 | 29 | A | 1 | 000 |
| 15:43:54:3590 | Tx | 0007 | PDU | | | New_PDU_8 | 29 | A | 1 | 000 |
| 15:43:54:3590 | Tx | 0007 | PDU | | | New_PDU_9 | 29 | A | 1 | 000 |

## BUSMASTER © - FlexRay Features

### ❖ Network Statistics

Displays FlexRay bus statistics like number of frames, PDU's transmitted and received, error frames, static segment load etc.,




### ❖ Filters

Configure Stop or Pass filters for FlexRay Frame's/PDU's

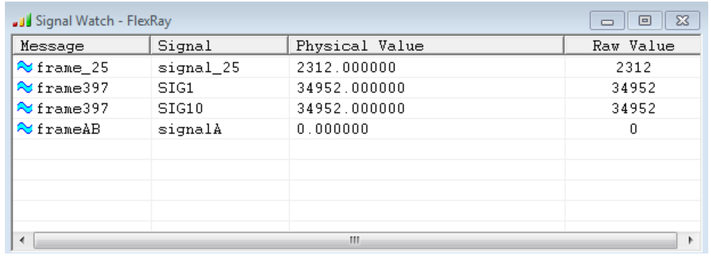
### ❖ Logging

Configure log files to log FlexRay Frame's/PDU's transmitted or received on the FlexRay bus

## BUSMASTER © - FlexRay Features

### ❖ Signal Watch

Analyze selected signal's Raw and Physical values




### ❖ Node Simulation

FlexRay Node functionality can be simulated with following handlers

- Bus Events
- Message Handlers
- PDU Handlers
- POC Handlers
- Start Cycle Handlers
- Timer Handlers
- Key Handlers
- DLL Handlers