IPETRONIK

IPEMOTION
Software

IPEmotion_PlugIn_Demo_Signals_V01_05_00

2. Januar 2019

Table of Contents

1 Important and general information

1.1 Important information

Please follow these instructions before and during the use and application on any IPETRONIK product!

1.1.1 Safety and Warning instructions

Please follow the instructions **and** information as contained in the user manual!

1. The user can **influence an electronic system by applying the IPETRONIK product**. This might cause risk of personal injury or property damages.

2. The **use and application of the IPETRONIK product is permitted only to qualified professional staff**, as well as, only in appropriate manner and in the designated use.

3. **Before using an IPETRONIK measurement system** in the vehicle it **has to be verified** that **no function of the vehicle, which is relevant for secure operation, might be influenced**:
   - by the installation of the IPETRONIK measurement system in the vehicle,
   - by an potential malfunction of the IPETRONIK system during the test drive.

   In order to avoid possible danger or personal injury and property damages, appropriate actions are to be taken; such actions have to bring the entire system into a secured condition (e.g. by using a system for emergency stop, an emergency operation, monitoring of critical values).

   Please check the following points to avoid errors:

   - Adaption of sensors to components of the electrical system / electronics, brake system, engine and transmission control, chassis, body.

   - Tap of one or several bus systems (CAN, LIN, ETHERNET) including the required electrical connection(s) for data acquisition.

   - Communication with the vehicle's control units (ECUs), especially with such of the brake system and/or of the engine and transmission control (power train control system).

   - Installation of components for remote data transmission (mobiles, GSM/GPRS modems, WiFi and Bluetooth components).

   The products can be operated in extended temperature ranges greater $70\,°C$ and therefore the operator has to take safety measures to avoid any skin burnings on hot surfaces while touching the products.

4. **Before** directly or indirectly using **the data acquired by an IPETRONIK measurement system to calibrate control units, please review the data regarding to plausibility**.

5. With regard to the application of IPETRONIK products in vehicles during use on public roads the manufacturer and/or registered user of the vehicle **has to ensure that all changes/modifications have no influence concerning the license of the vehicle or its license of operation.**

6. **User does agree to the instructions and regulations as mentioned above.** In case the user does not agree with the instructions and regulations as mentioned above, he has to notify this expressly and immediately in writing to IPETRONIK before confirming the sales contract.

1.2   Terms and conditions

See IPETRONIK website for details: www.ipetronik.com

1.2.1   Legend of used icons

	Tip	*This icon indicates a useful tip that facilitates the application of the software.*
	Information	*This icon indicates additional information for a better understanding.*
	Attention!	*This icon indicates important information to avoid potential error messages.*

1.2.2   Support

Headquarter:

IPETRONIK GmbH & Co. KG
Im Rollfeld 28
76532 Baden-Baden, Germany
Phone +49 7221 9922 0
Fax +49 7221 9922 100
info@ipetronik.com
Website: www.ipetronik.com

Limited commercial partnership with its head office in Baden-Baden, registry court HRA No. 201313
IPETRONIK Verwaltungs-GmbH Baden-Baden is an individually liable society, registry court Mannheim HRB No. 202089
CEOs: A. Wocke, C. Buchholz

**Technical support and product information** e-mail: support@ipetronik.com

2 PlugIn overview

2.1 PlugIn description

The Demo PlugIn is a very useful PlugIn to test and simulate different wave forms and CAN and FlexRay traffic. With this PlugIn you can test many functions of IPEmotion with having any specific measurement hardware connected.

2.2 PlugIn installation

In order to use the PlugIn together with IPEmotion you need to install it. The PlugIn is available for download from the IPETRONIK website: https://www.ipetronik.com/ When you have installed the PlugIn, you need to launch the IPEmotion software. Then you need to access the application menu and open the OPTIONS. In the OPTIONS you can activate the PlugIn as indicated below.
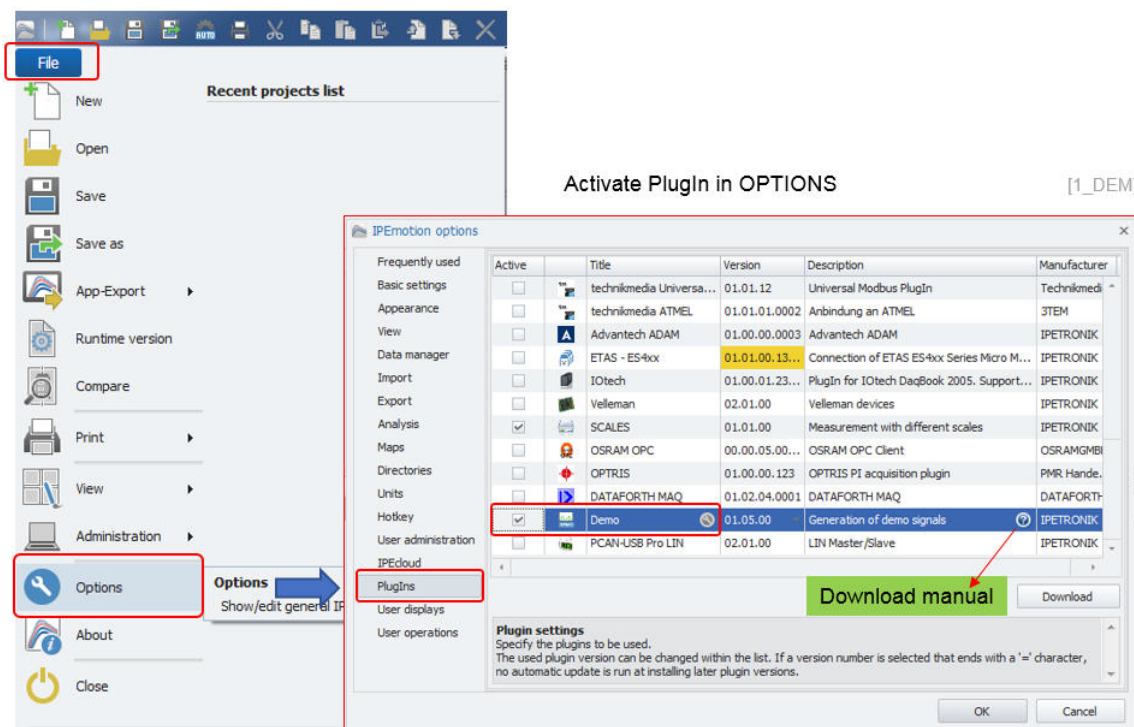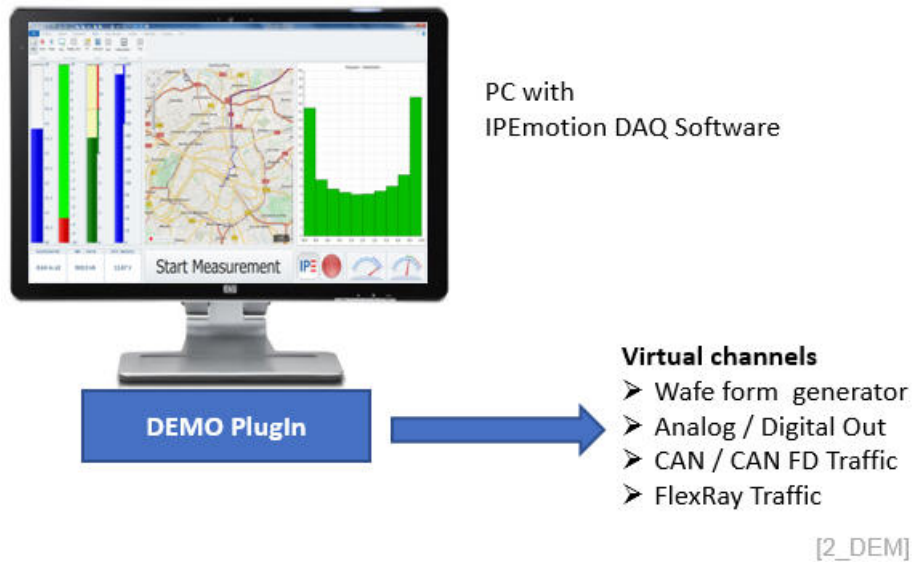

The PlugIn is supporting the following operating systems:

► 32 bit

► 64 bit

3   PlugIn configuration

3.1   Functional architecture

The Demo PlugIn requires no hardware interface. It is a pure software simulation with IO channels to generate waveforms and traffic to use other functions of the IPEmotion software.


[2_DEM]

3.2   Creating interface systems

The PlugIn is supporting an automatic system detection function. When you execute the detection a demo interfaces system will be created automatically. However the system can be created manually too.

Create Demo interface

[3_DEM]
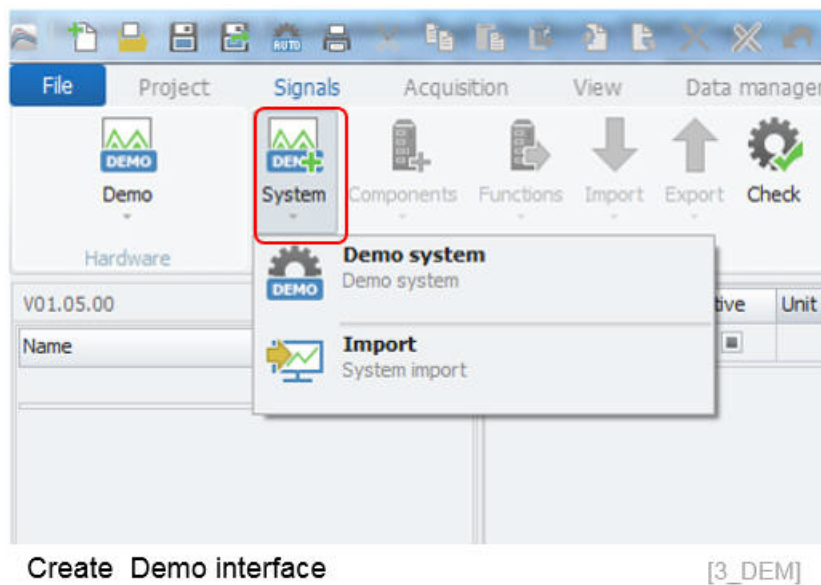
4   Demo PlugIn – Periodic signals configuration

The periodic signals can be created when you select the periodic signal interfaces. The different signals
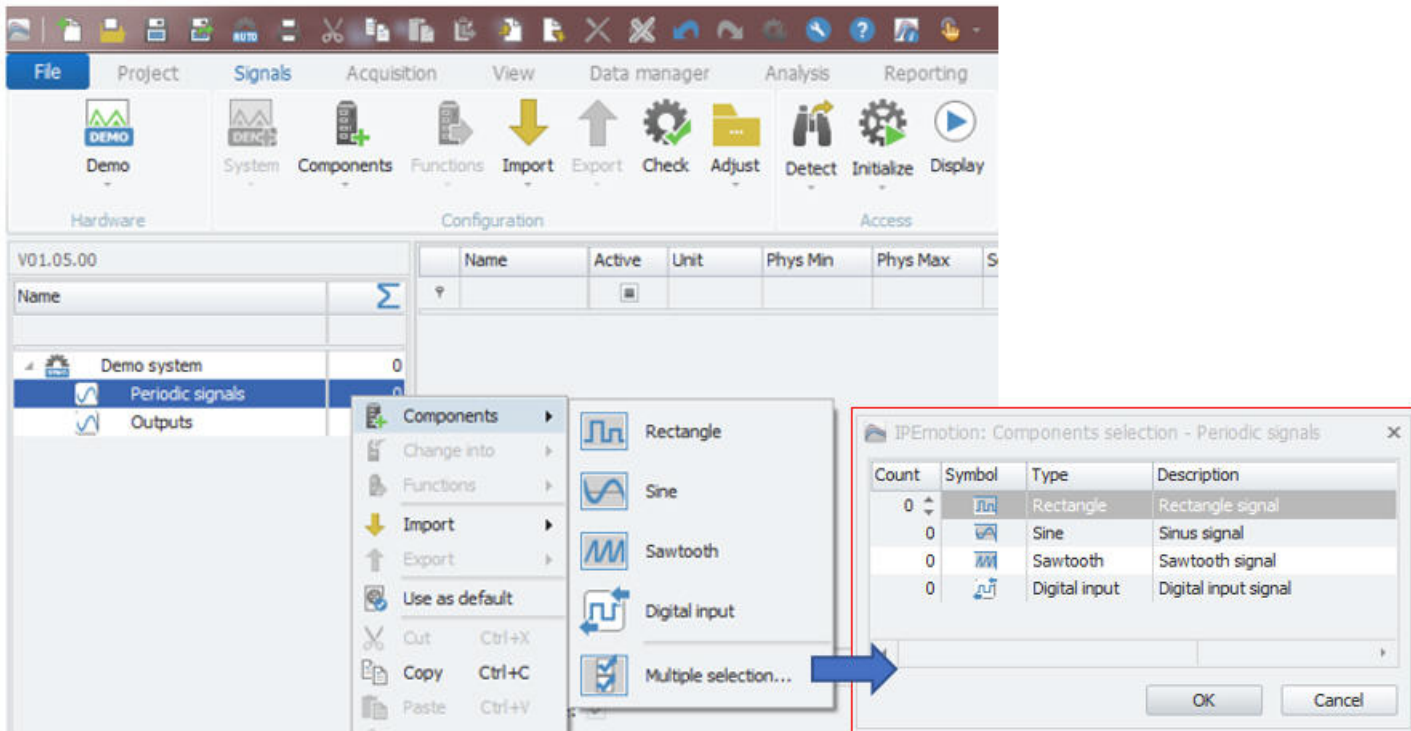

Create waveform signals

- ▶ Rectangle
- ▶ Sine
- ▶ Sawtooth
- ▶ Digital output

When you change the sample rate in the channel grid it has an impact in how man samples are taken to generate the waveform. It can also impact the frequency of the when they respond to ticks like it is the case for a rectangle signal.

4.0.1 Rectangle

This signal supports thee configuration function for amplitude and the distribution / ratio of the UP (high) and DOWN (low) ticks. The high / low duration is depending on the number of defined in the column sample rate. Example:

► 100 Hz sample rate and 100 ticks high = 1 s high

► 10 Hz sample rate and 100 ticks high = 10 s high

Rectangle   [5_DEM]
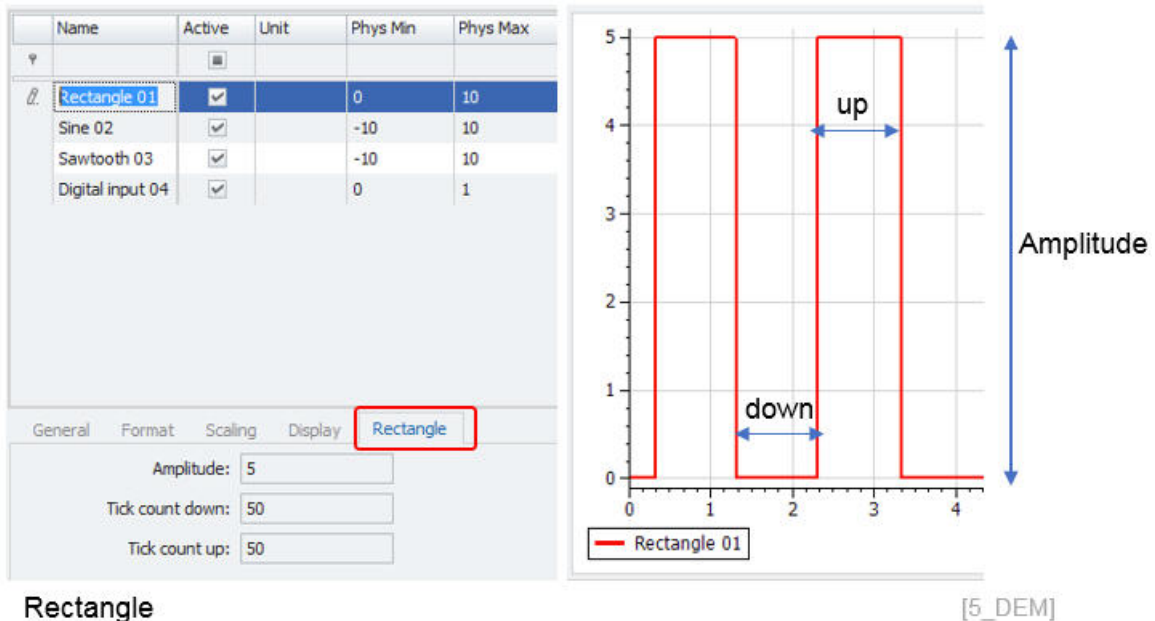
4.0.2 Sine

In the Sine signal you can configure only the amplitude. However with the channel scaling for the Physical min and max you can modify the amplitude and the offset as well. The frequency of the Sine signal cannot be changed.

Sine   [6_DEM]
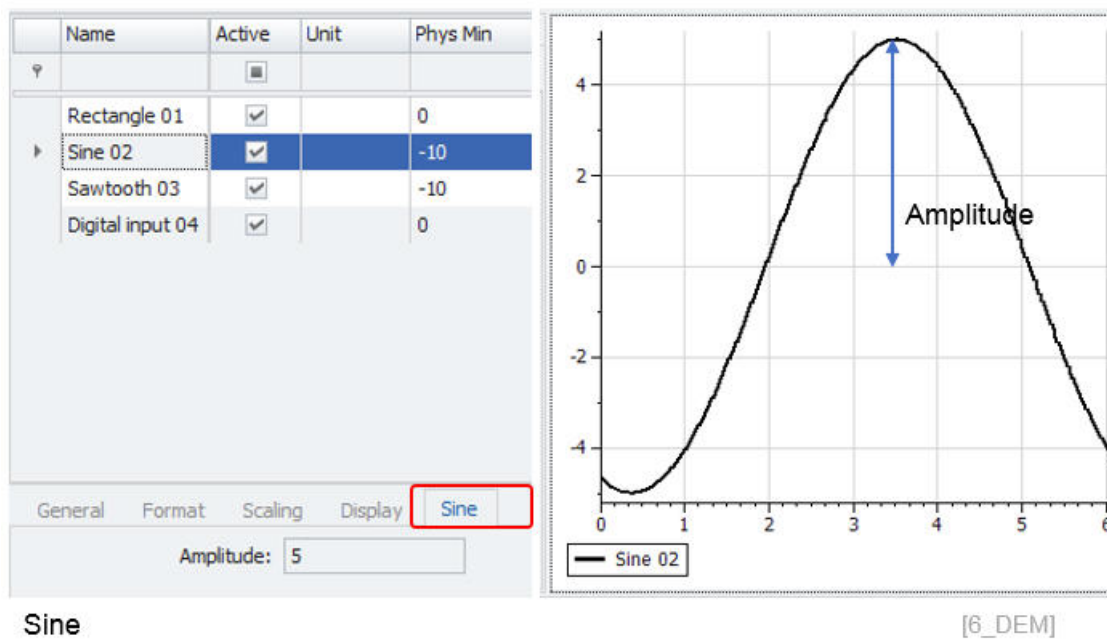
4.0.3 Sawtooth

This signal generator has 3 configuration parameters for start value, increment and end value. With every tick the slope will rise by the defined increment. The sample rate has an impact how fast the end value is reached. The increment has an impact how large the steps are. Large increments will lead to stair case types of diagrams with a higher signal frequency. Small increments with high sample rates will lead to very smooth and slow rising graphs.
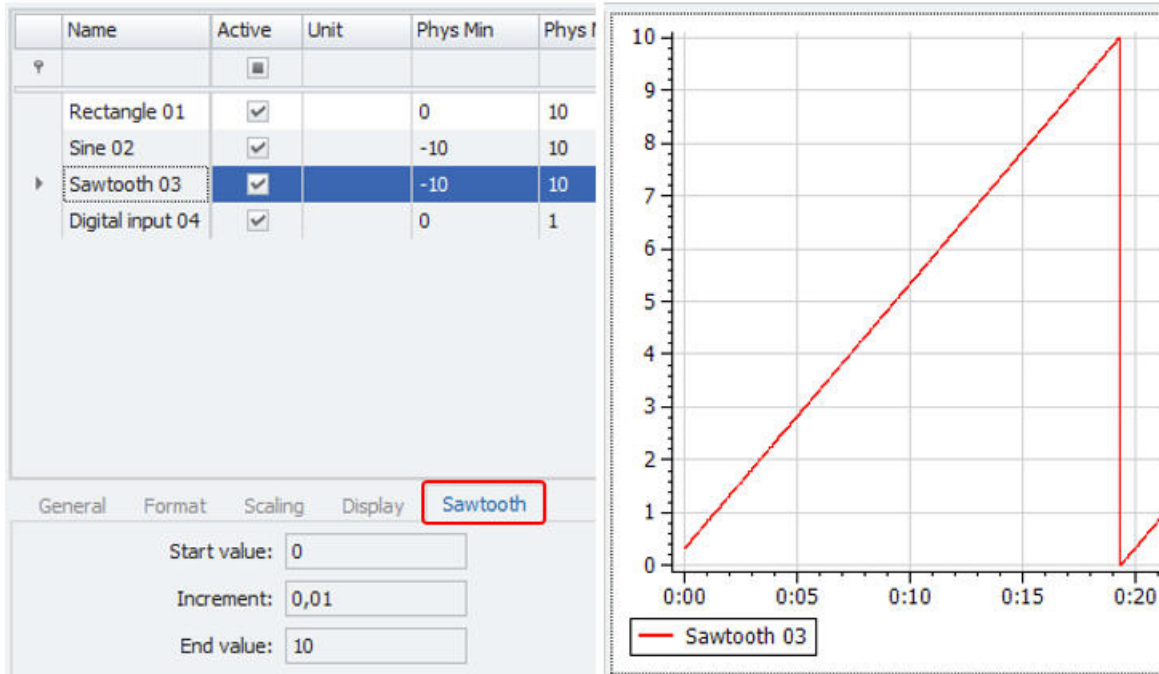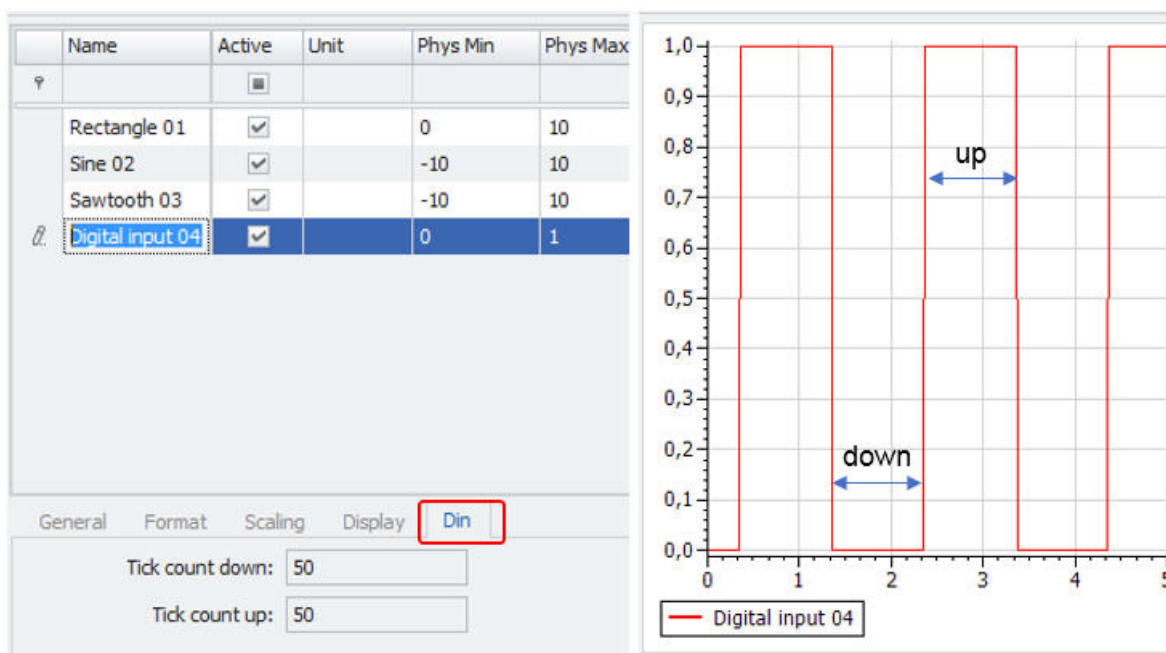

Sawtooth   [7_DEM]

4.0.4 Digital output

This signal can be configured like the rectangle waveform. The amplitude is statically defined to 1 and the ratio between high and low values is defined in ticks.
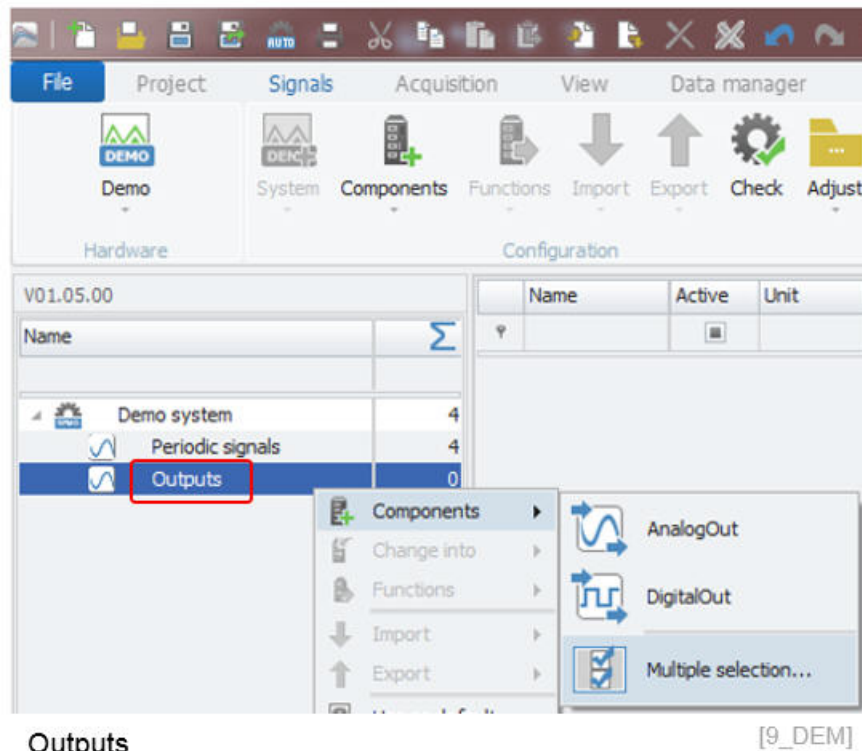

Digital input   [8_DEM]

4.1   Output channels

The characteristic of the output channels is that you can write data to this type of channels. There are to types supported. An analog output and a digital output.

Outputs   [9_DEM]

In the tab sheet format you can see the data direction is indicated as output. The impact of data direction output is also that alphanumerical instruments in the VIEW workspace show spin buttons to enter values. Also the slide controller and switch can write data the output channels.

[10_DEM]
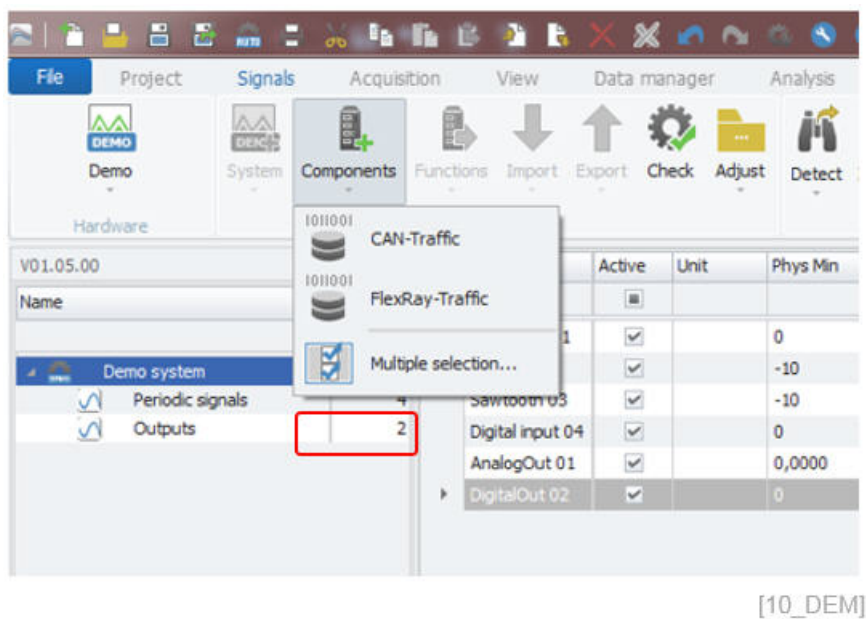
The configuration of the analog output covers a start value and the settings of the output level. The output level is related to the user administration. Here you can control which user profile can operate outputs at all. The configuration of the user administration is in detailed explained in the IPEmotion manual.
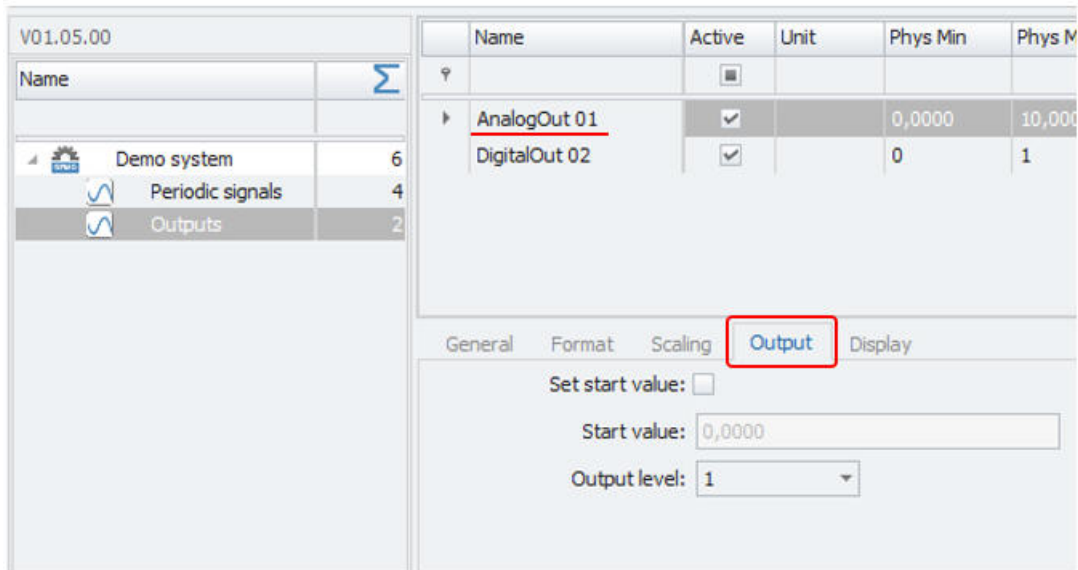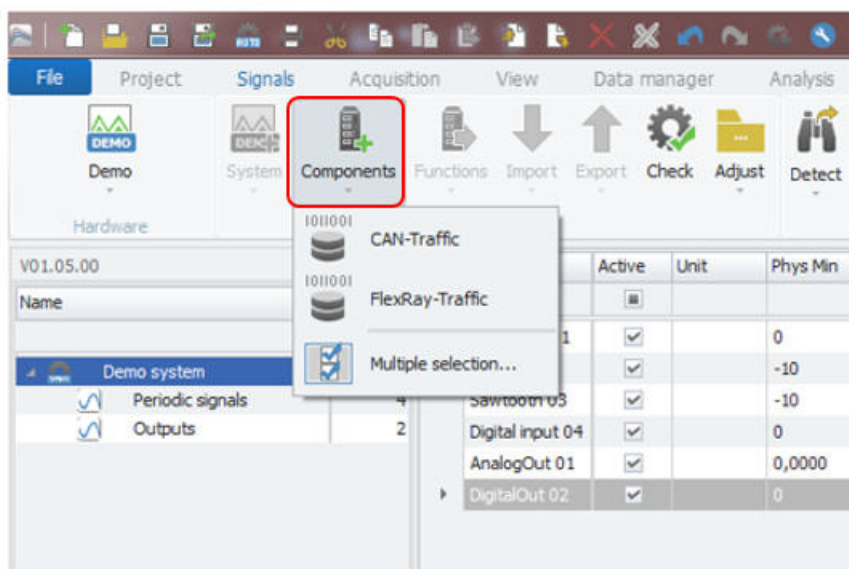

Outputs settings   [11_DEM]

The Digital channel has no separate configuration tab sheet.

4.2   Traffic simulator

The Demo PlugIn is also providing a traffic simulation function for CAN and FlexRay. With this demo traffic stream you can test the functions of the Traffic Analyzer instrument in the VIEW work space.
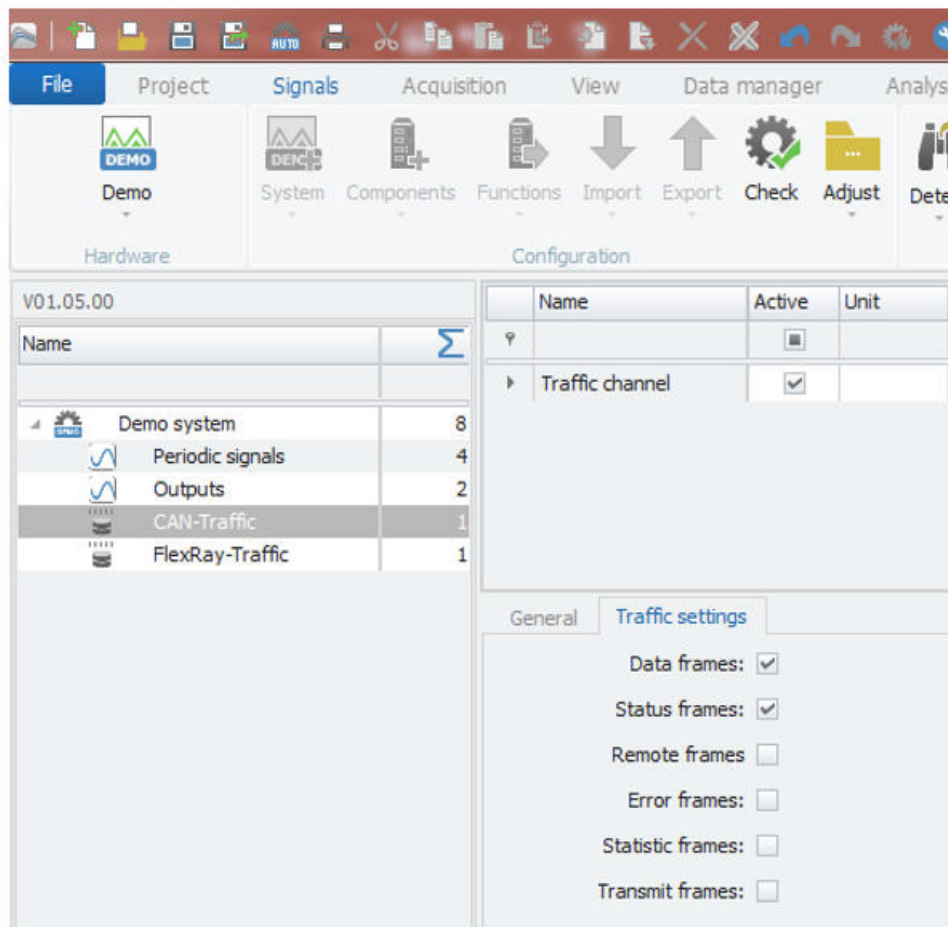

Create traffic simulators   [12_DEM]
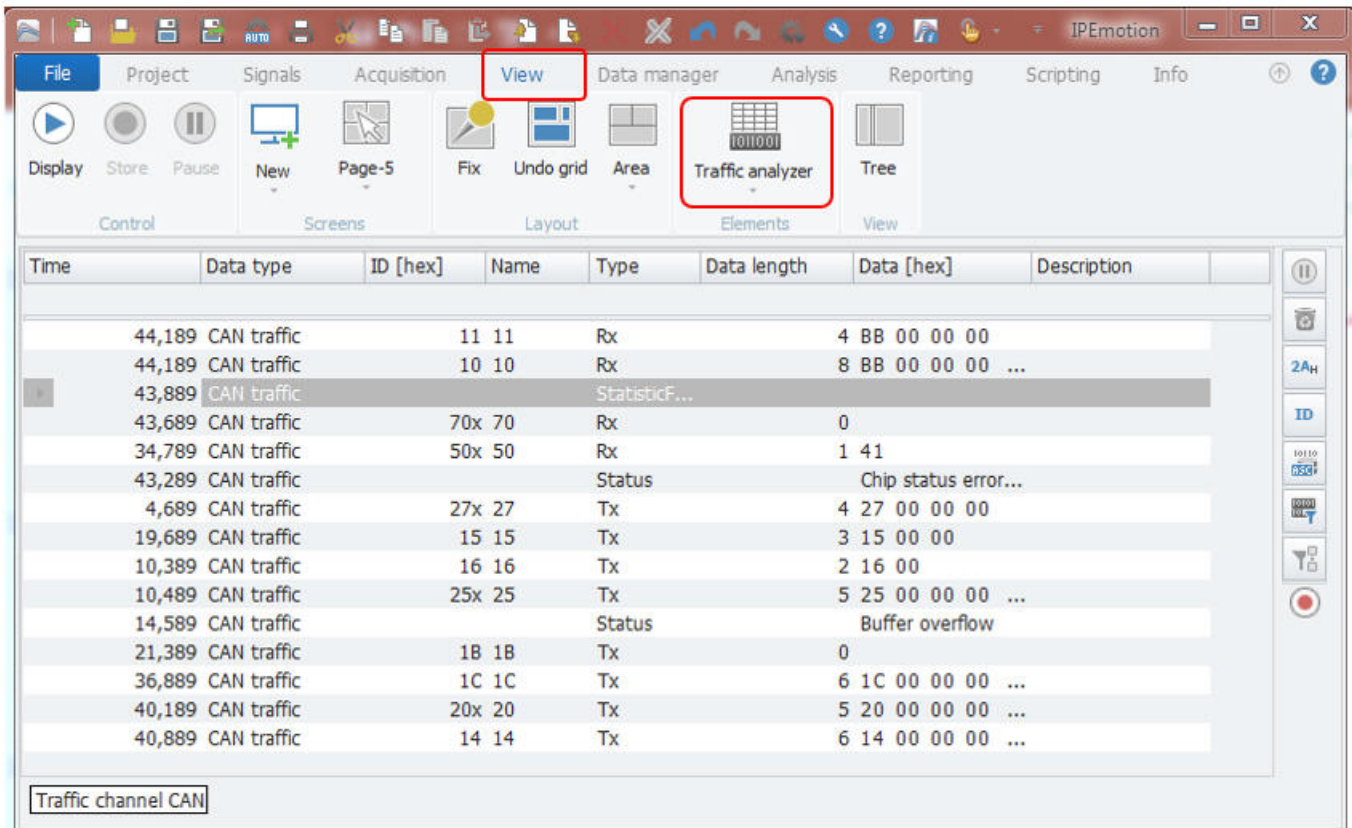
4.2.1 CAN traffic simulator

For CAN traffic you can activate a couple of additional traffic messages which are part for a real traffic scream from bus networks.

CAN traffic settings for frames   [13_DEM]

You can visualize the traffic stream in the VIEW workspace with the Traffic Analyzer instrument. You need a Demo Edition or Professional Edition to get access to this instrument. The functions of the Traffic Analyzer Instrument are explained in the IPEmotion manual.

Traffic analyzer – CAN traffic   [14_DEM]

When you import the IPEmotionDemo.dbc file you can convert the traffic stream into signals too.
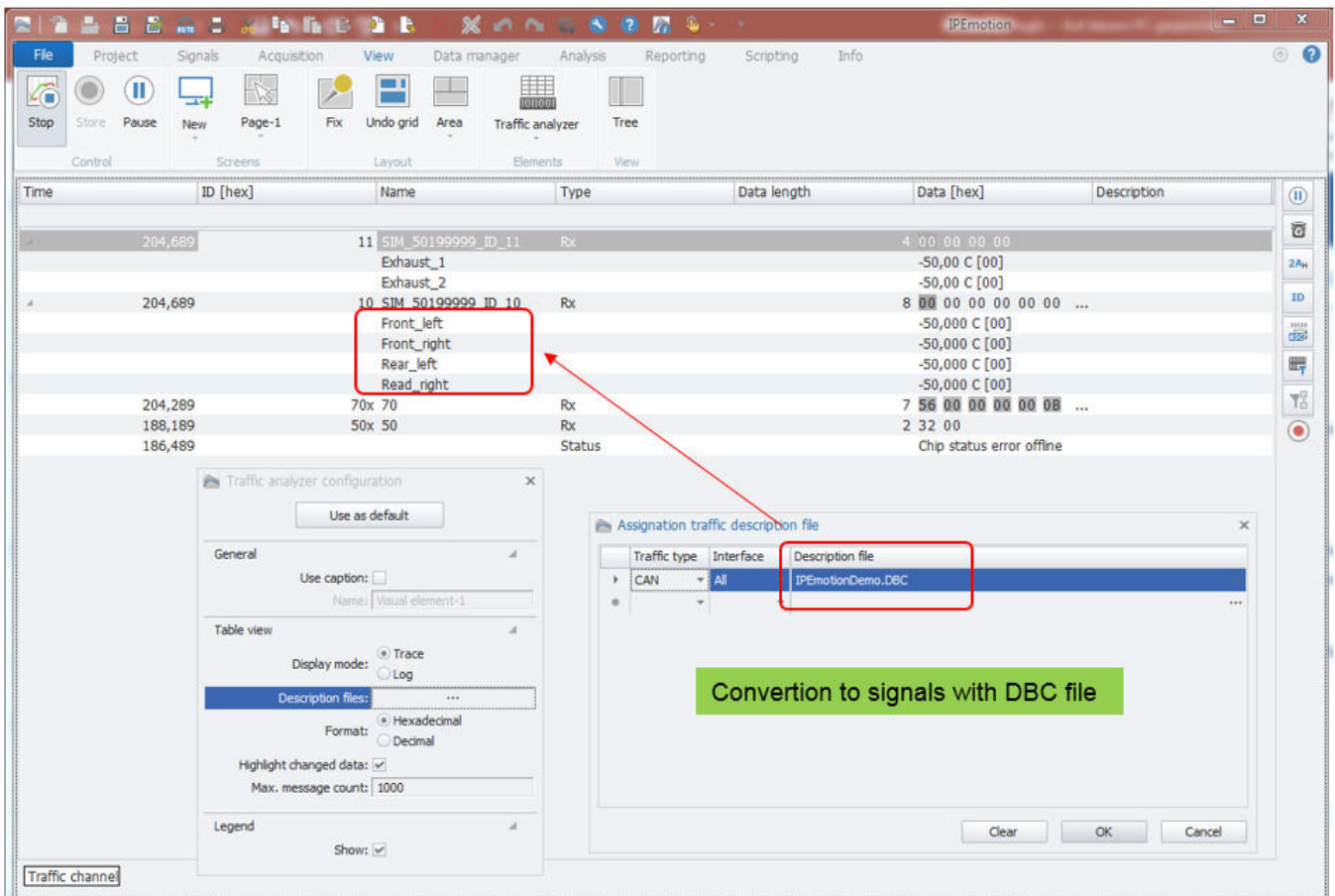
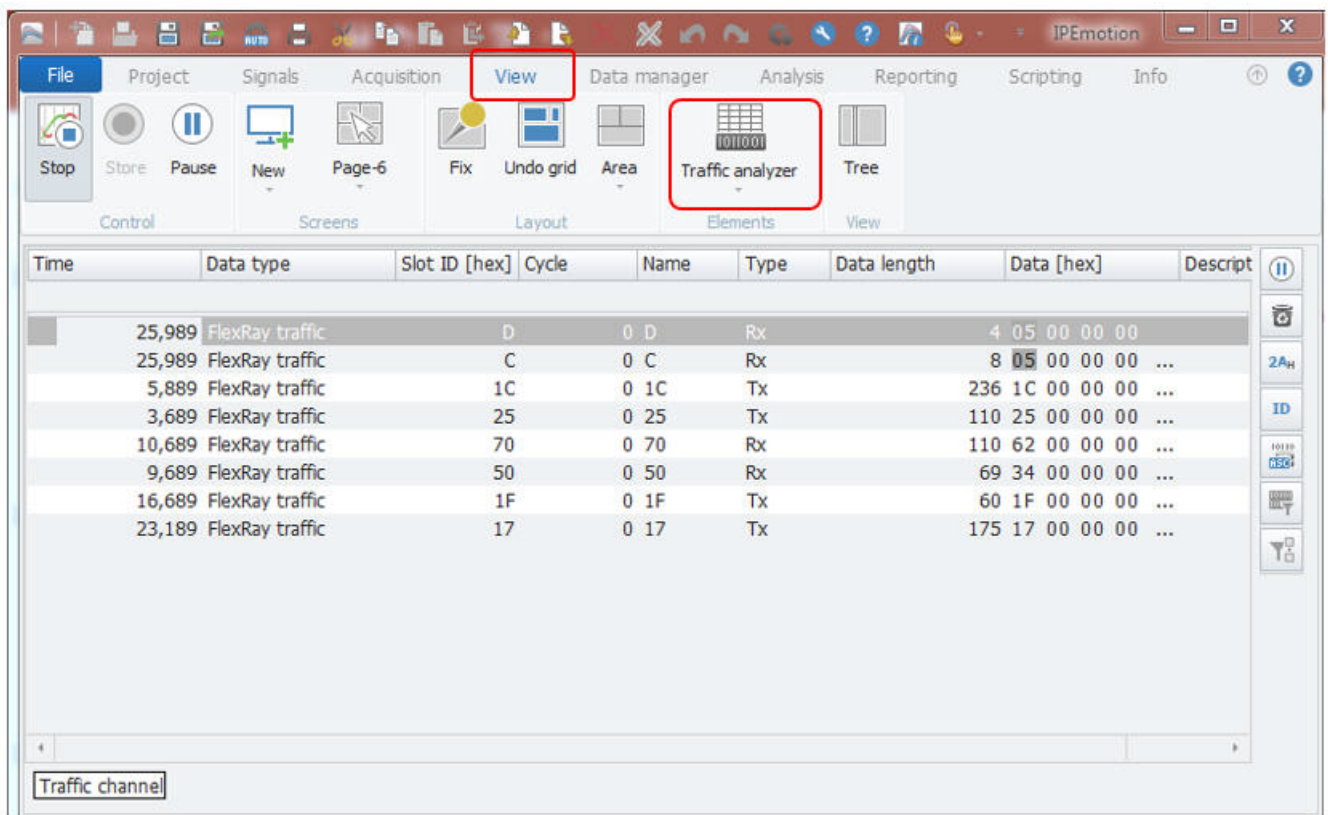[15_DEM]

4.2.2   FlexRay traffic simulator
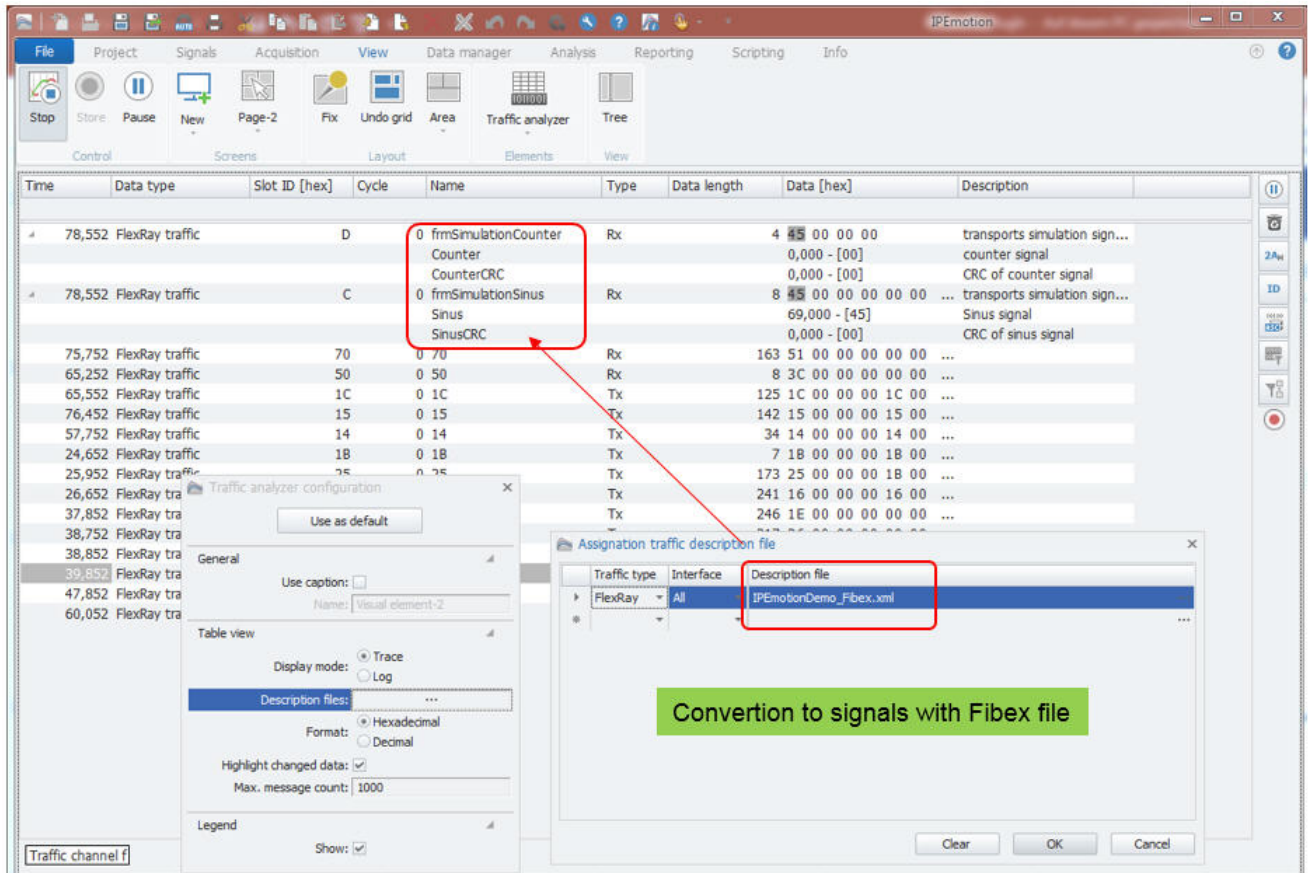
For the FlexRay traffic simulation no additional configuration functions are provided

Traffic analyzer – FlexRay traffic   [16_DEM]

Similar to the CAN traffic you can convert the FleRay traffic stream in to signals when you import the IPEmotionDemo Fibex.xml file.

[17_DEM]

Author: FOT