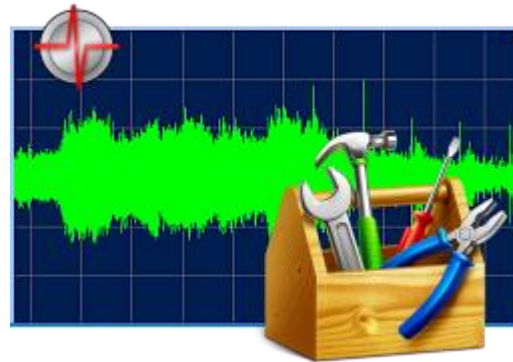


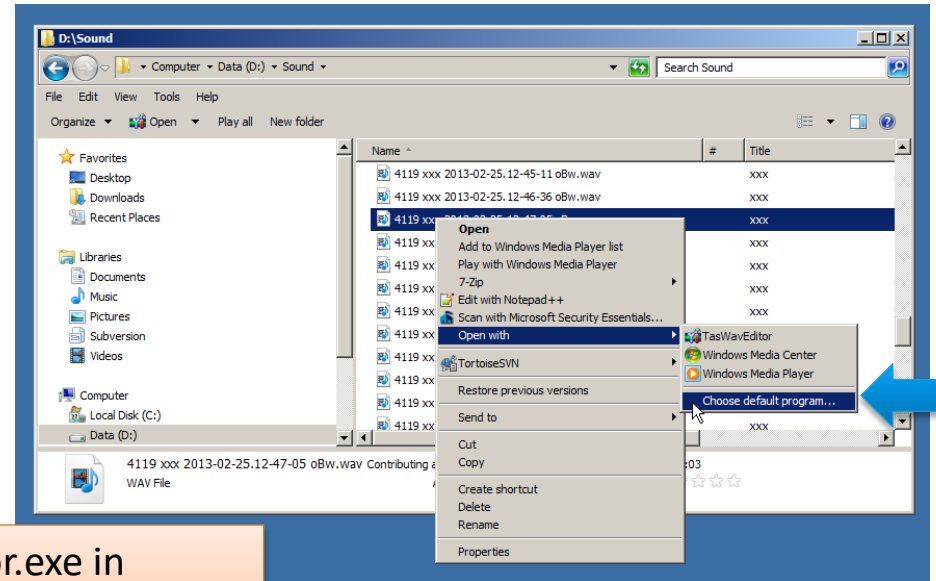
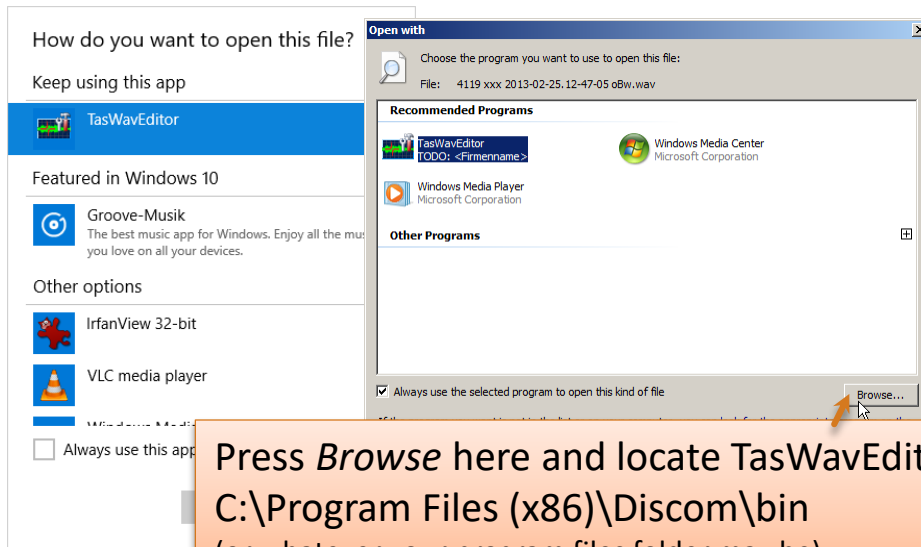
TasWavEditor



Basic usage guide

Starting TasWavEditor

In Windows Explorer, find a wave file (e.g. in D:\Sound on a measurement PC). Right-click on the file and choose *Open with...* from context menu. If TasWavEditor is already in the list, select it. Else, use *Choose default program*:



Press *Browse* here and locate TasWavEditor.exe in C:\Program Files (x86)\Discom\bin (or whatever your program files folder may be)

Keep “Always use...” checked to automatically start TasWavEditor by double-clicking on wave files.

When you start TasWavEditor directly (for example by using a desktop link), you will immediately be prompted for the wave file you want to load.

Loading Wave Files

You can load additional files into TasWavEditor by using the usual “File – Open” command from the menu, or by dragging them into the TasWavEditor window.

When you start TasWavEditor directly (for example by using a desktop link), you will immediately be prompted for the wave file you want to load.

In the TasAlyser measurement application, the “Wave Playback” window offers direct access to TasWavEditor:



Press here to open the currently loaded wave file in TasWavEditor.

Press this button to automatically load the most recent completed recording.

So with two button clicks you can load the latest test run from TasAlyser into TasWavEditor.

Overview

After loading a wave file, TasWavEditor shows an overview of the sensor signals:

'Start' button:

Load recent files, print the scope picture, and more.

'Ribbon':

Change the display style and call editor functions here.

Channel structure:

Lists the channels in the wave file and their properties.

Docking windows:

There are more information windows docked here.

File Name:

You can load multiple files into TasWavEditor

'Scope' pane:

Shows sensor signals along with test run events.

Speed decoding:

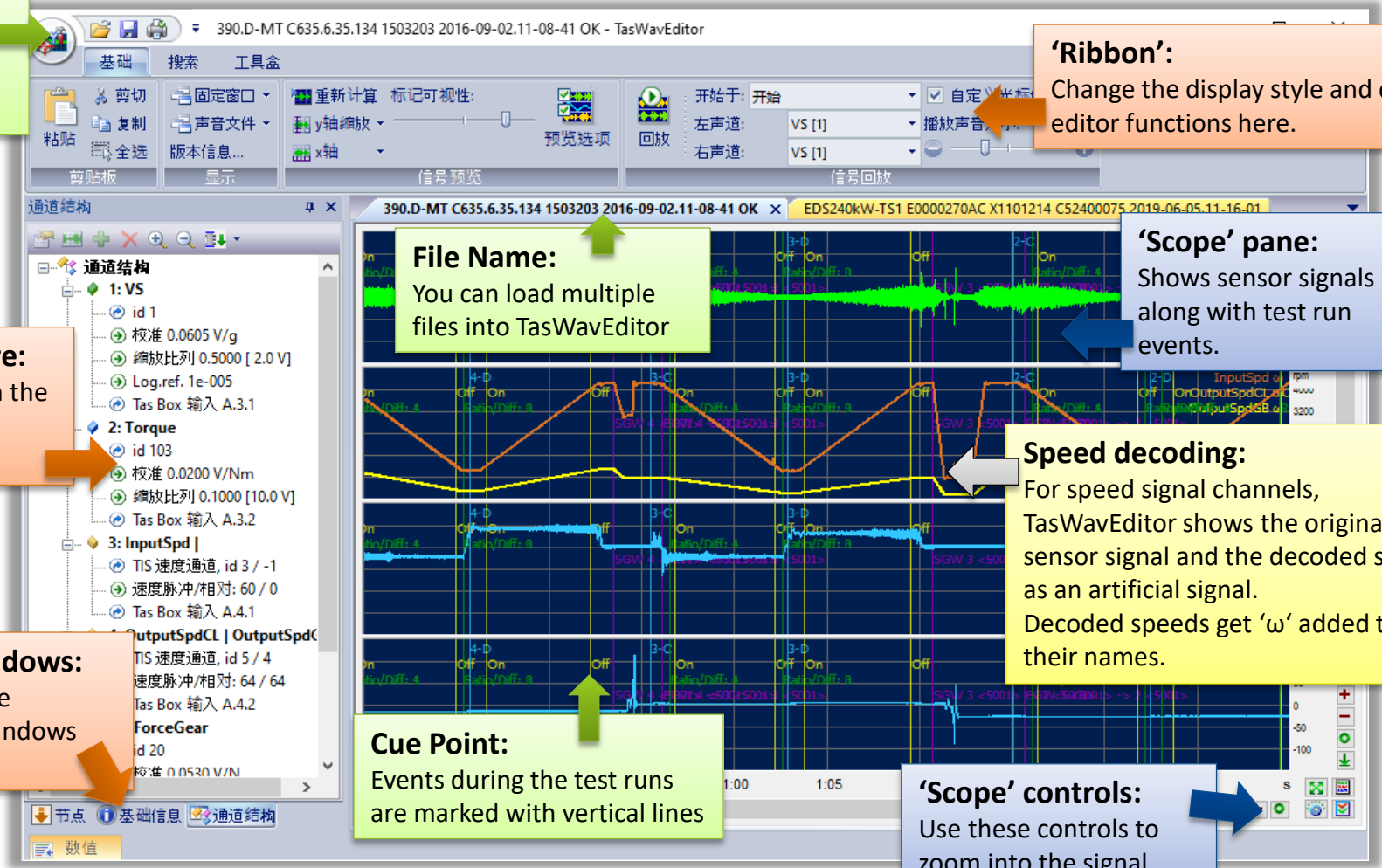
For speed signal channels, TasWavEditor shows the original sensor signal and the decoded speed as an artificial signal. Decoded speeds get 'ω' added to their names.

Cue Point:

Events during the test runs are marked with vertical lines

'Scope' controls:

Use these controls to zoom into the signal.



Using the 'Scope'

There is a lot of functionality hidden in the scope...

Hit me:

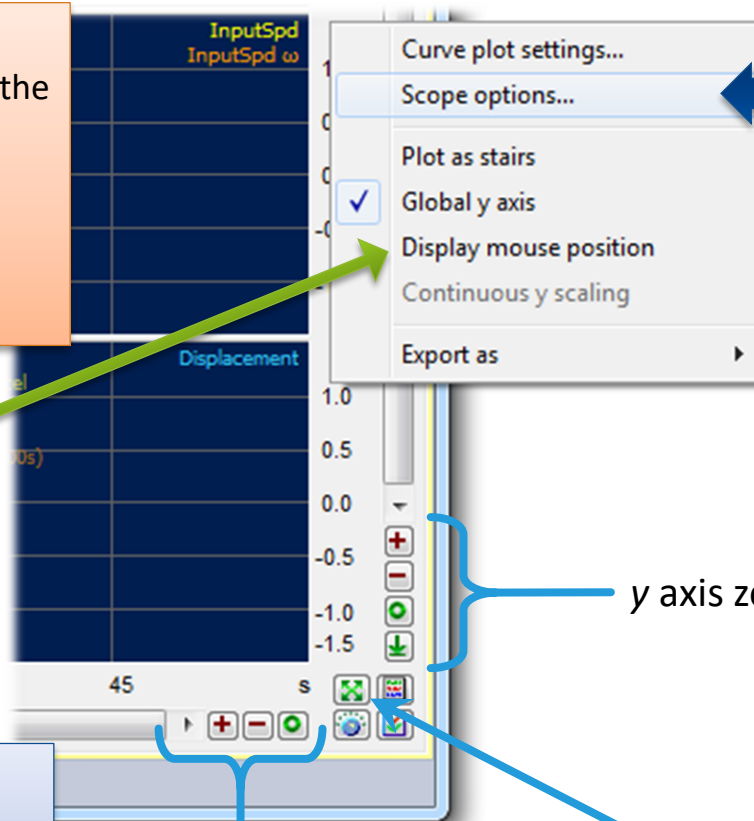
You can also navigate around by using the keyboard arrow keys and the mouse wheel.
Use the keyboard keys + and - for zooming y axis in and out and 'home' button for autoscale.

Where am I?:

Check 'Display mouse position' to get a crosshair cursor and a display of the mouse position in the scope panes.

Zoom controls:

- zoom in
- zoom out
- autoscale axis
- scroll to zero position



General options popup menu:

Right-click into the area outside of the dark blue display panes to call up the popup menu for general scope options.

There is also a popup menu within each pane.

y axis zoom controls

global autoscale button

x axis zoom controls

Listening to Sensor Signals

TasWavEditor can play back the sensor signals on the computer's sound card.

This way you can directly listen to the raw data using your headphone or speakers.

Play!
Start and stop playback here.

Starting Point:
Playback can start at any test run event (see Cue Points on page 8) or can use the cursor positions (see page 11).

Channel Selection:
Choose here which wave file channel will be directed to the left and right stereo channel of the headphone or speakers.

Docking Windows II:
Docking windows can be grabbed by their title bar and moved around. If you have closed a docking window, re-open it with this ribbon menu button.

The screenshot shows the TasWavEditor interface with a ribbon menu at the top containing options like '重新计算', 'y轴缩放', 'x轴', '预览选项', and '回放'. The '回放' (Playback) button is highlighted with a green callout. Below the ribbon, there are controls for '开始于' (Start at), '左声道' (Left channel), and '右声道' (Right channel). The '左声道' is set to 'VS1 [11]' and the '右声道' is set to 'S1 [11]'. A blue callout points to these controls. The main area displays a signal waveform in green. Below the waveform, there are several rows of data, including 'Steady-0', 'Wait-1', 'Steady-1', 'Drive-1', 'Drive-2', 'Drive-3', 'Coast-3', 'Coast-2', and 'Coast-1'. A yellow callout points to a ribbon button on the left side of the interface.

Channel Tricks

The Channel Info window toolbar offers some useful functions:

Hide Channel

Channel Sorting selection

Fold/Expand Tree View
Folds or expands all additional information in the channel info tree view.

Add or Delete Channel
You can use TasWavEditor to delete a channel from the wave file or to insert a new channel as a copy of an existing one. Afterwards, save the file under a new name.

Edit Channel Properties
(See more details on page 15)

Hide Channel:
You can hide and un-hide a channel from display also by double-clicking on the name.
Right-clicking on a name will open a context menu with channel functions.

通道结构

按照 TasBox 通道排列
按照信号类型排列
按照信号编号排列
按照声音文件通道排列

1: DzOut1
速度脉冲
Tas Box 输

2: VS1
id 11
校准 0.0113 V/m/s²
缩放比例 0.5000 [2.0 V]
Log.ref. 1e-006
Tas Box 输入 A.1.1

3: VS2
id 25
校准 0.0113 V/m/s²
缩放比例 0.5000 [2.0 V]
Log.ref. 1e-006
Tas Box 输入

4: VS3
5: VS
6: VS5

7: Laser
id 12
校准 40.0000
缩放比例 0.2
Log.ref. 1e-006
Tas Box 输入

8: DmOut1
id 22
校准 -0.0017 V/Nm
DC Off + 0.0033 V 31.00

节点 基础信息 通道结构

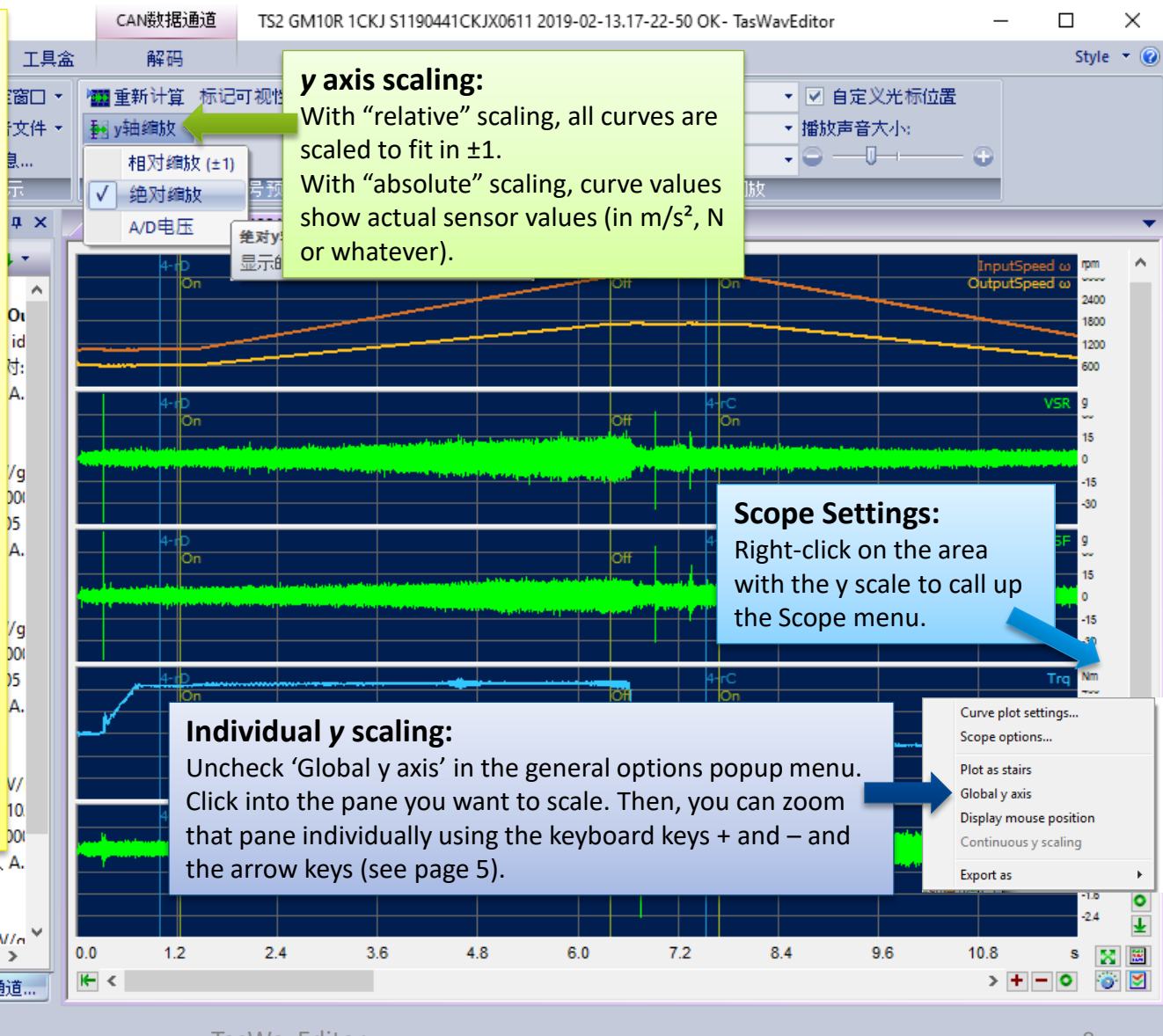
Y Axis Scaling

There are three ways of scaling for the y axis:

Relative will scale each channel to full gain = ± 1 . This is useful for a quick overview and for comparing the signal levels of similar sensors.

Absolute will use the individual y axis of each channel. This is useful for reading absolute values (like acceleration, speed or torque).

A/D Voltage shows the gain as input voltage at the Tas Box. You can detect overload or inappropriate gain settings here.



Cue Points

“Cue Points” are events during the test run like test step changes.

TasWavEditor shows these cue points in the signal preview and as a list in a docking window:

Editing Cue Points:

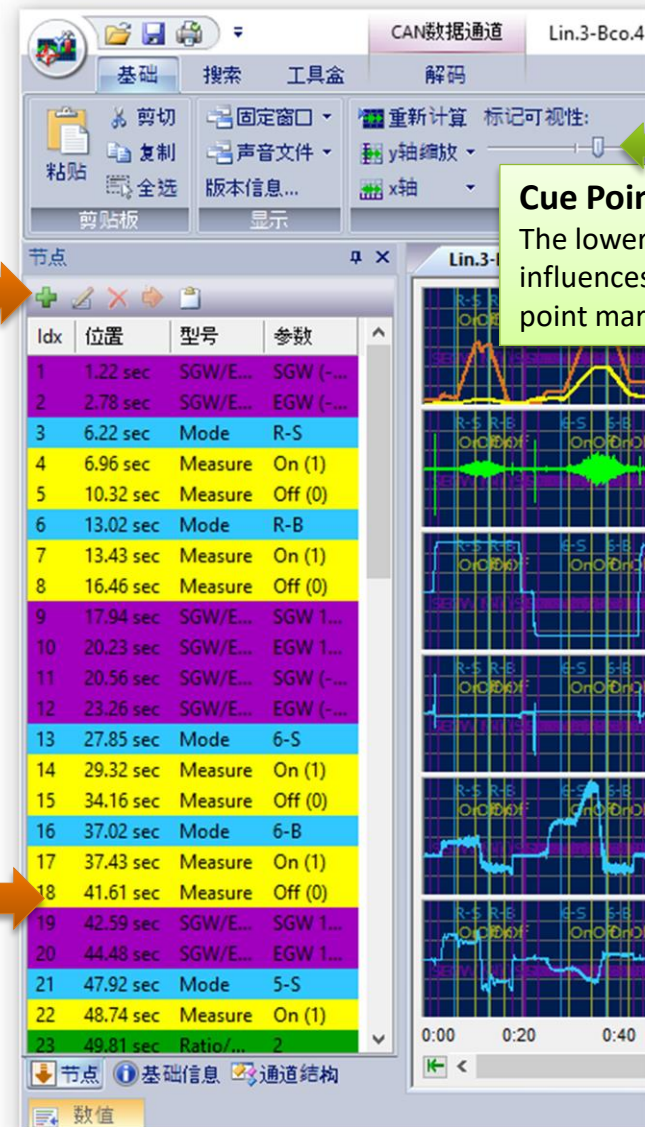
You can change cue point positions, remove and add cue points. Use the toolbar to edit, add and remove cue points.

Jump to Cue Point:

When you double-clicking on a list row, the signal preview is scrolled so that this cue point gets visible.

Signal Playback:

Use the playback section in the Ribbon to hear the sensor signals on the PC soundcard. Select the channels you want to hear and the cue point where to start.

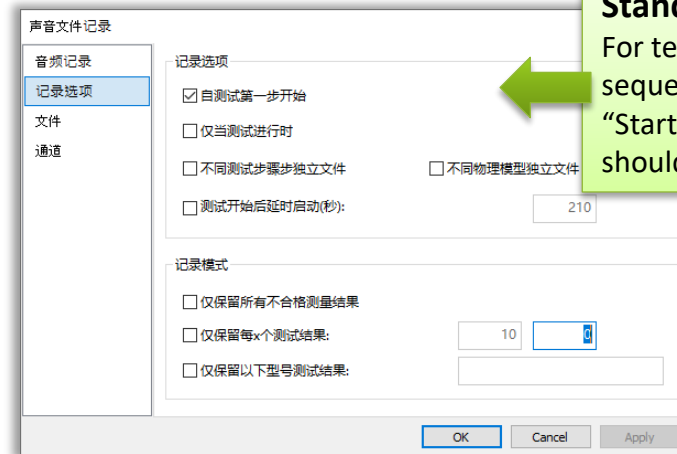
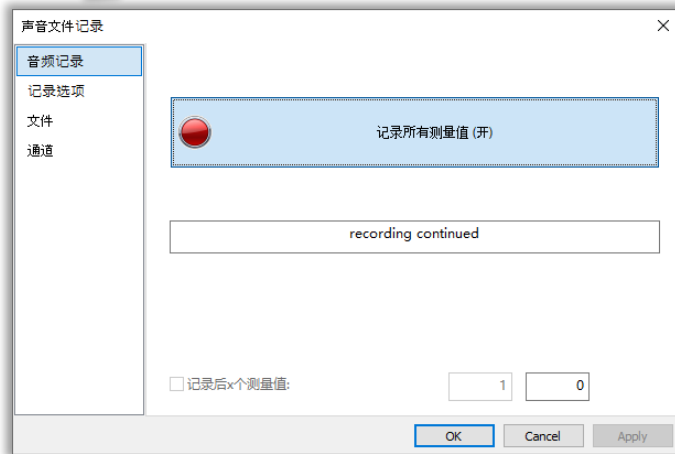


Cue Point Visibility:
The lower slider control influences the visibility of the cue point marks in the signal preview.

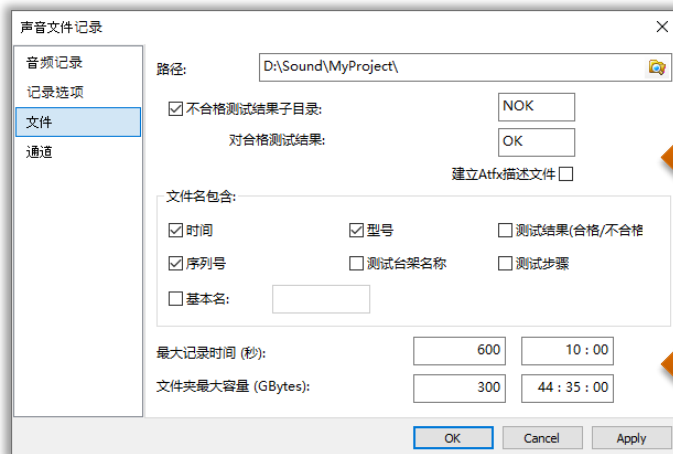
Addendum: Wave Recording Settings in TasAlyser **DISCOM**



The Wave Recording settings in the measurement application TasAlyser define, what is recorded into the wave files and how they are named.



Standard Settings
For test stands with automated sequences, only the checkmark “Start with first test step” should be set.



Sub-folders and maximum directory size
The “max. size for directories” is counted separately for each subfolder. In this example TasAlyser will keep up to 250 GB *each* for OK and not OK test runs. When the max. dir. size is reached, the oldest recordings are delete automatically.
(The maximum size for a single wave file is 2GB according to the wave file format specification. From that limit the maximum recording time is derived.)

Addendum: Wave Playback Tricks

TasAlyser's Wave Playback has some useful extra functionality:

When 'Pause' is pressed, you can jump forward or backward or directly go to a certain test run event (= Cue Point).

Directly load the recording of the last test run or the recently used files

Settings for playback

Open recording in TasWavEditor

Looped playback (until 'Stop' is pressed)

Direct access to audio monitor (for listening along)

You can load multiple wave files or drag-and-drop them into TasAlyser, and then replay the whole list.

When playback is paused, the current time position is shown here (so you can find it in TasWavEditor)

Different type, serial number, different time stamp?

Set the check marks at the according fields and enter different information.

Leave the 'Time Stamp' field empty to use the time stamp from the wave file (instead of the time of playback).

Then generate a measurement archive with the new metadata.

通道	Name	信号ID	单位	信号类型
1	VS1	1	g	传感器
2	InputSpd I	20 -1	rpm	转速 Tis24
3	Torque	50	Nm	控制测量值

音频回放设置

输出参数
数据容量 (样本): 4096 (0.041 s) ◀

回放速度: x 2

直接输出 (无滤波器)
 使用声音文件中的校准因子

自动测试循环回放
 激活测试循环回放

型号: EDGbx Proto EDGbx-TS1

序列号: 190812-135711

时间: []

执行指令:
 测试周期 ('Insert'/'Remove')
 测试步骤更改
 开始/停止测量
 速比和差分测试
 按数据格式生成...

禁止回放过程中的参数自学习
 禁止回放过程中的结果存档
 禁止回访过程中的音频记录
 不要接受台架命令

取消 确定

Using Cursors and Data Value Display

You can place two data cursors in the signal preview to read out the values:

Can't find it:
If you have closed a docking window like the 'Data Values', re-open it with this ribbon menu button.

Used in Playback:
The signal playback can be constrained to the cursor interval.

Placing Cursors:
Right-click into the pane where you want to set a cursor and choose 'place cursor here'.
You can move the cursor by dragging it with the mouse.

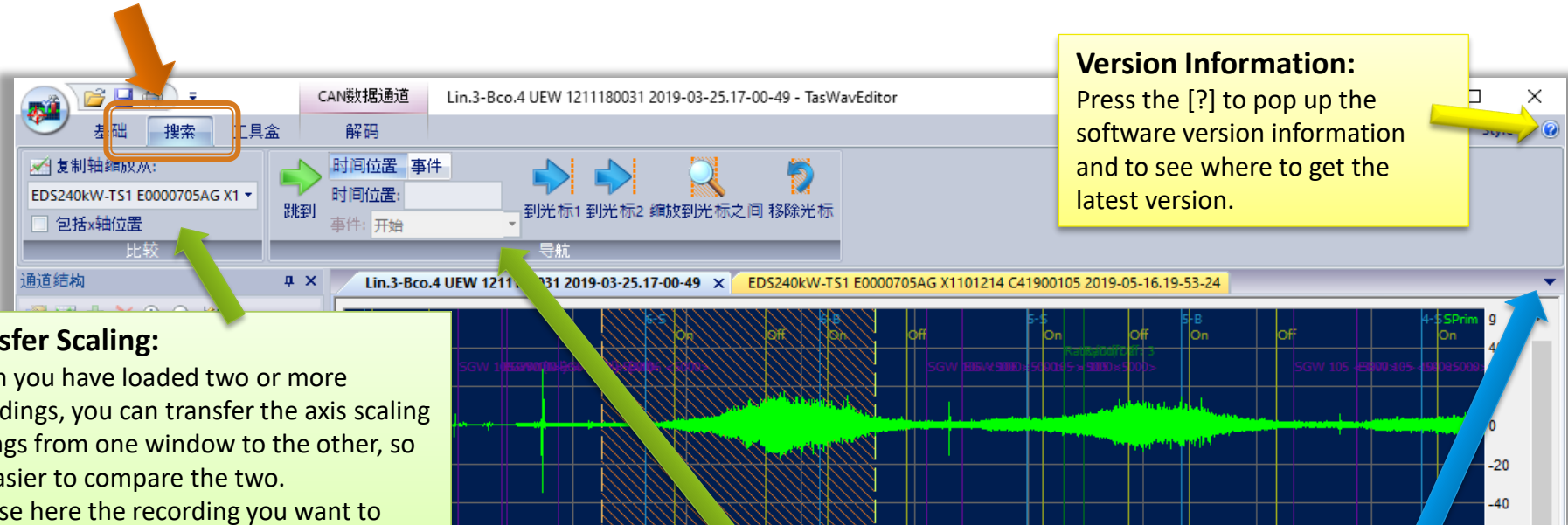
Data Values:
Open the 'Data Values' docking window to read the curve values at the cursor positions.

Cursor positions:
You can enter the cursor positions manually into the table fields. Clear a table field to remove the cursor.

Keep it open:
Press the little 'pin' to keep the docking window open.

通道	Cursor 1	Cursor 2	差值	最小	最大	频率 / 阶次
位置	26 s	40 s	14.4 s			
SPrim [g]	-0	-2	-1.4	-17	17	
RevEntrada ω [rpm]	488	2004	1516.3	480	3602	
RevSalida1 ω [rpm]	203	834	631.3	200	1500	
Par_Salida [Nm]	91	46	131.1	350	69	
RevSalida2 ω [rpm]					1500	

The *Scouting* ribbon provides functions for navigating within the recording.



Version Information:
Press the [?] to pop up the software version information and to see where to get the latest version.

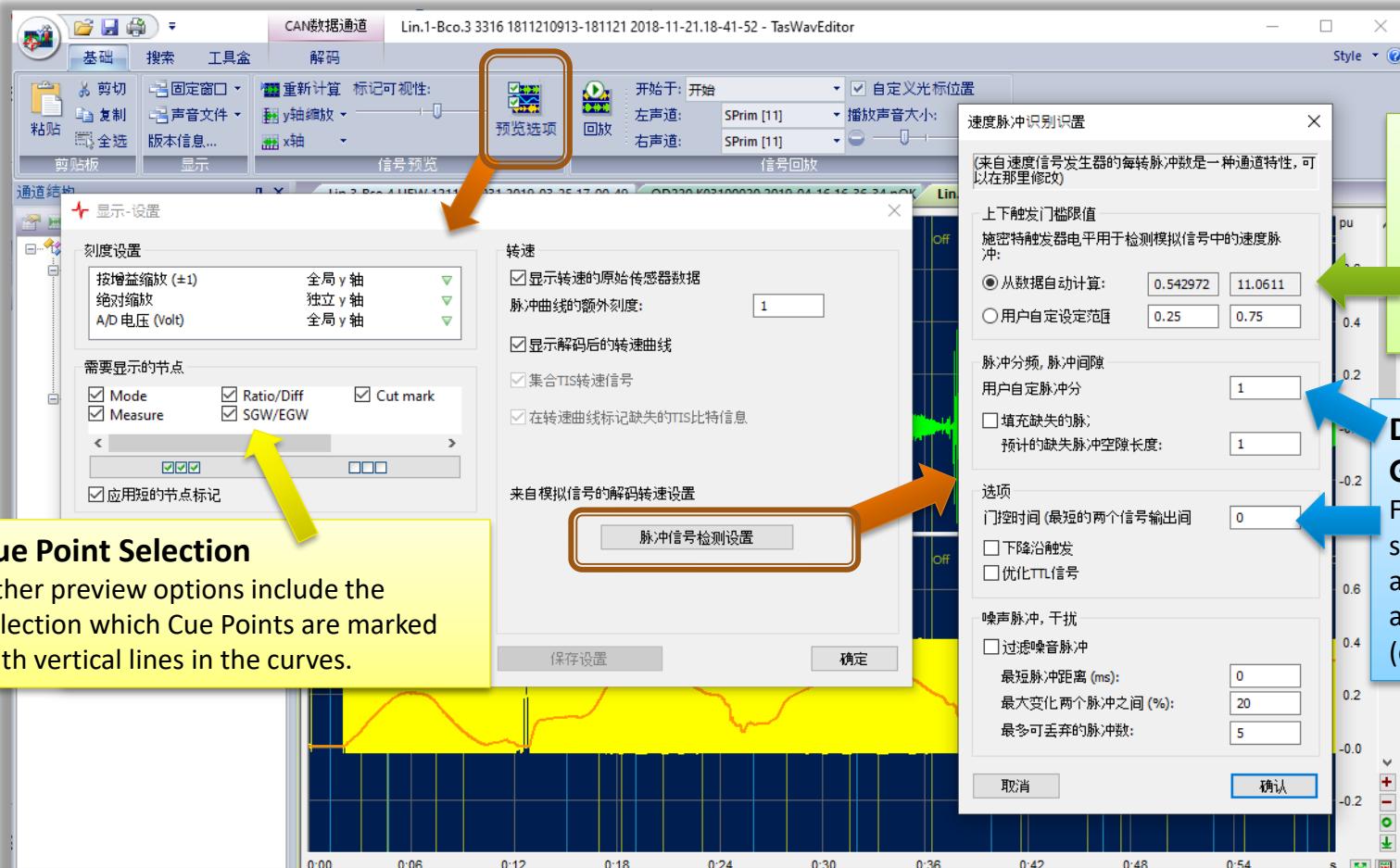
Transfer Scaling:
When you have loaded two or more recordings, you can transfer the axis scaling settings from one window to the other, so it's easier to compare the two. Choose here the recording you want to copy *from* and whether you also want to transfer the x position, then press [Copy axis scaling from].

Navigation:
Use the controls in this panel to shift the view to a specific time position or Cue Point event. Enter the time in seconds and press the [Go to] button. If you have set cursors, you can also move directly to the cursor positions.

File List:
If you have loaded multiple files into TasWavEditor, use this menu to easily switch between them.

Speed Calculation Options

The TasAlyser pulse detection offers a set of advanced options for calculating the rotational speed from the raw data. To access these options in TasWavEditor, go to the Preview Options and press [Speed pulse detector settings]:



Pulse Detection
Set the Schmitt Trigger thresholds manually if the automatic calculation is not appropriate.

Divider and Gating Time
For pulse trains with slight variability, use a pulse divider and/or a gating time (e.g. 10 ms).

Cue Point Selection
Other preview options include the selection which Cue Points are marked with vertical lines in the curves.

To save your Preview Options and Speed Decoding settings, go to the 'Toolbox' ribbon and create a settings file.

Changing Channel Properties and Metadata

With TasWavEditor you can change calibration factors and other channel properties *a posteriori*.

1 - Call it:

Call the command "Properties" from the channel tree context menu (or use the toolbar button).

3 - Save it:

Press the "Save" button to replace your original file or use the "Save as..." command to create a copy.

2 - Change it:

Change the channel properties as desired, for example by entering a new calibration factor or by correcting the speed pulses per revolution.

When you replay the changed wave file in the TasAnalyser measurement application, you will get a new "measurement" with the changed settings.

基础信息

属性	参数
音频长度	2 min 33 sec
通道	10 通道, 32 Bit IEEE Fl...
采样率	50.000 kHz
采样总数	7 680 582
每数据块采...	4096 (= 81 ms)
型号	UEW
序列号	1211180031
测试台	Lin.3_Boc 4
时间	2019
Software Ver...	Versi...
测试步骤	(mul...
Track #	0325
排序文件夹	NOK
原始结果	Prüf...
时区	UTC
项目名称	Seat...
Discom 项目...	1609
Format	<input checked="" type="checkbox"/> Discom 数据

Metadata:
You also can change the measurement metadata by directly editing them in the 'Basic Data' window.

Channel Properties

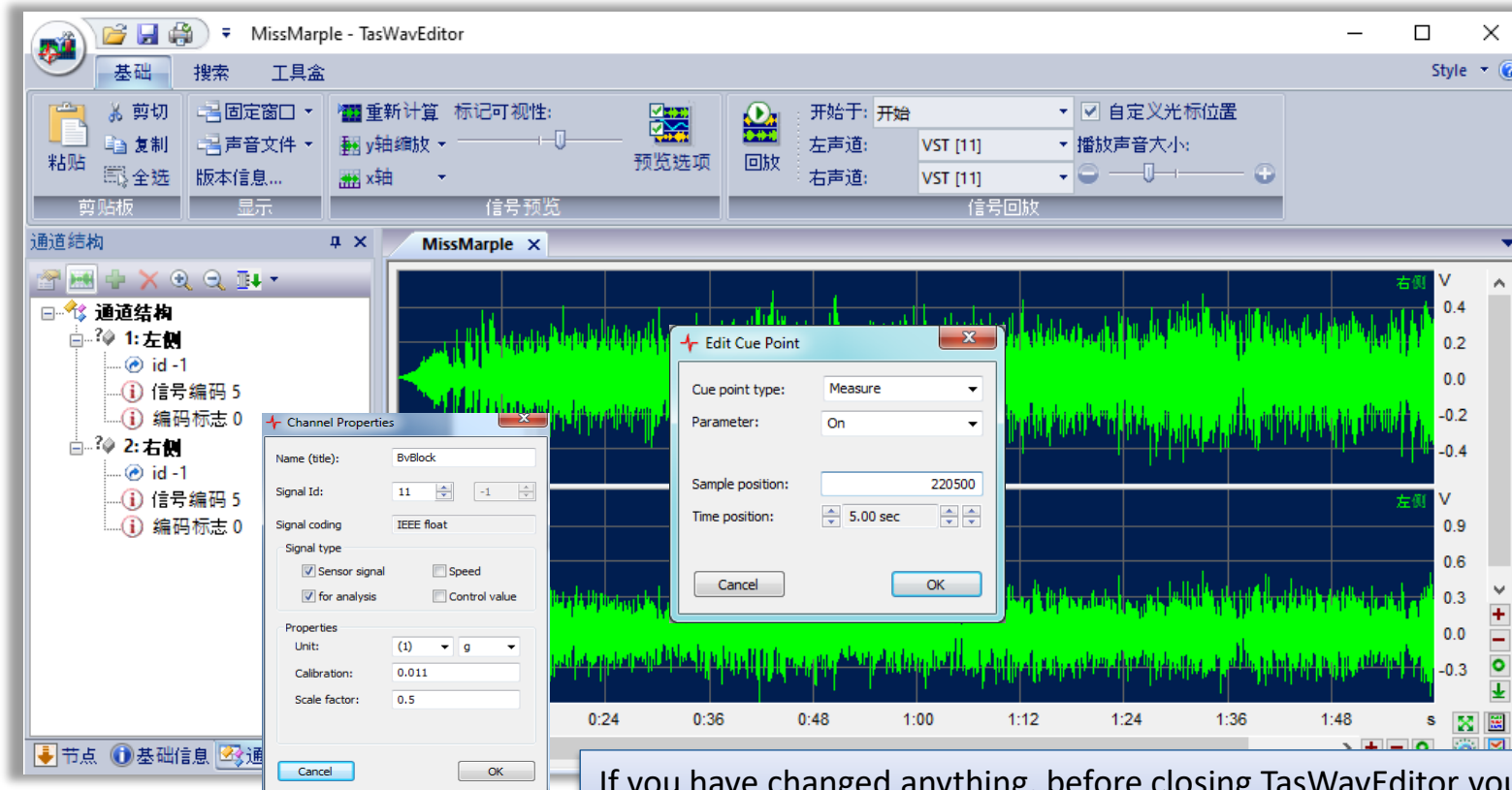
Name (title): BKS
Signal Id: 103
Signal coding: IEEE float
Signal type:
 Sensor signal
 Speed
 for analysis
 Control value
Properties:
Unit: (1) g
Calibration: 0.7
DC Offset: 0
Scale factor: 0.5

Channel Properties

Name (title): InputSpd |
Signal Id: 3
Signal coding: TIS Speed
Signal type:
 Sensor signal
 Speed
 for analysis
 Control value
Properties:
Unit: (1) rpm
Calibration: 1
DC Offset: 0
Scale factor: 0
Speed pulses/rev: 80

Editing the data

TasWavEditor has some simple capabilities for editing the sensor data, but can change any aspect of 'Metadata' (like channel descriptions, cue points and more). You can load a wave file recorded by any other tool and fix the metadata, add channel descriptions and Cue Points and thus make it TasAlyser playable.



If you have changed anything, before closing TasWavEditor you will be prompted to save the changed wave file, optionally with a new name.

Exporting to Third-Party systems

Many third-party applications can import WAV raw data and use 'ATFX' files to import the channel descriptions. Because the TIS speed information is digitally coded, the speed channels have to be exported as analog values:

Channel Export:

Use the 'Channel Export' function in the 'Toolbos' ribbon to export for third-party systems.

Channel Selection:

Choose which channels to export. Speed ω channels contain the decoded speed value. For third-party systems, use these channels and not the original TIS channels.

Atfx file:

Check 'create Atfx description file' to export channel descriptions into a separate file.

Atfx description file:

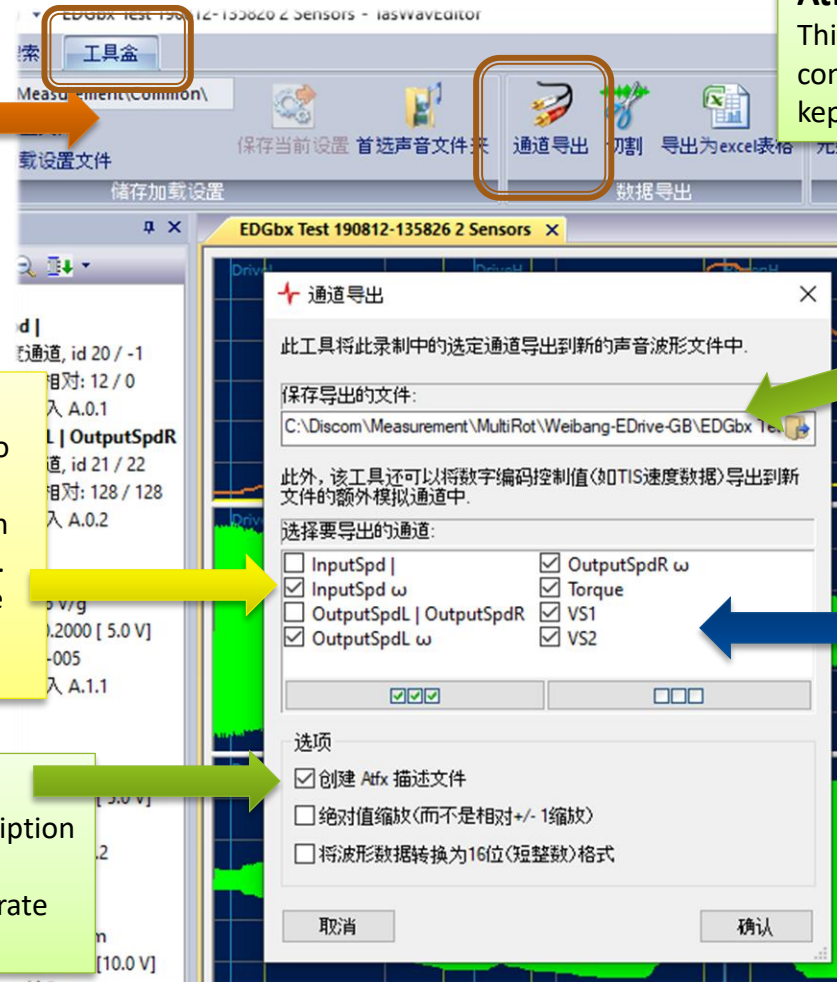
This file (XML format) is a *description* of the contents of the wave file. Both files have to be kept together and should not be renamed.

Export file names:

If switched on, an Atfx file will be generated in the same location as the exported wave file and have the same file name with the extension 'atfx' instead of 'wav'.

Digital Speed Data Export:

Speed signals originally recorded by a TIS card are stored in digitally coded format in the original wave file. For import in third-party systems, these speeds have to be converted to analog values.



Data Export and Cutting

There are two ways to export data: into a new wave file or into an Excel table.

Export functions are accessed via the ribbon 'Toolbox'.

Channel Export and Cutting:

Both generate a new wave file. With 'Cutting' you have the additional options of choosing a time range and a lower sampling rate.

Hints for Excel export:

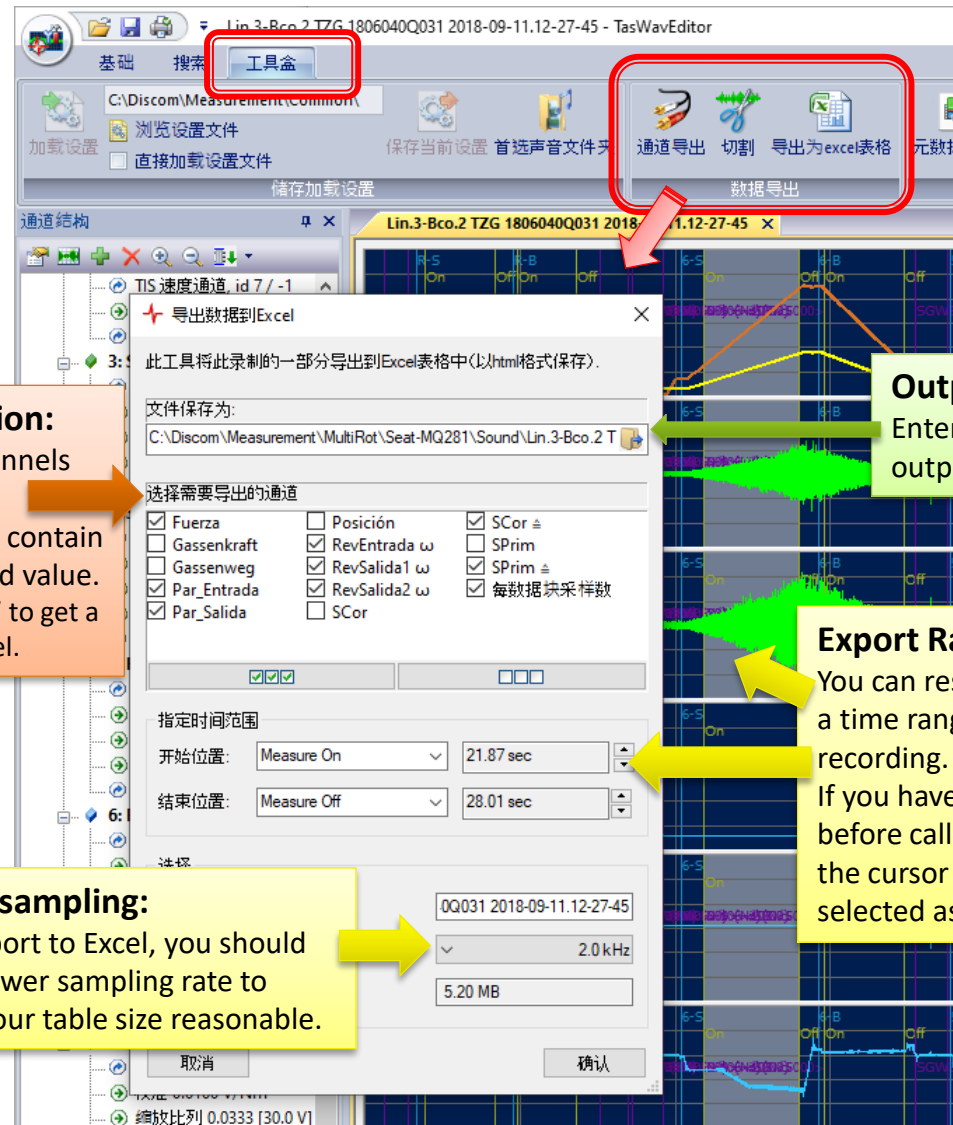
The data are stored in an html file which can be read in directly by Excel (but can also be viewed in any internet browser) – see next page. You should choose a reasonable sampling rate for the exported data in order to restrict the table to a manageable size.

Channel Selection:

Choose which channels to export. Speed ω channels contain the decoded speed value. Use "Time channel" to get a time column in Excel.

Downsampling:

For export to Excel, you should set a lower sampling rate to keep your table size reasonable.

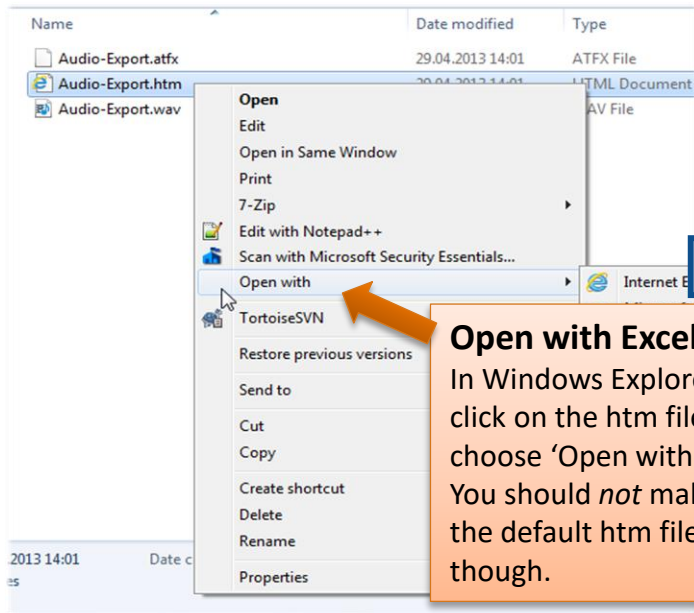


Output file:
Enter or browse for output file name here.

Export Range:
You can restrict export to a time range within the recording. If you have placed cursors before calling up export, the cursor interval is pre-selected as time range.

Excel Export Result

The result of Excel export is an htm file which can be opened directly with Excel.



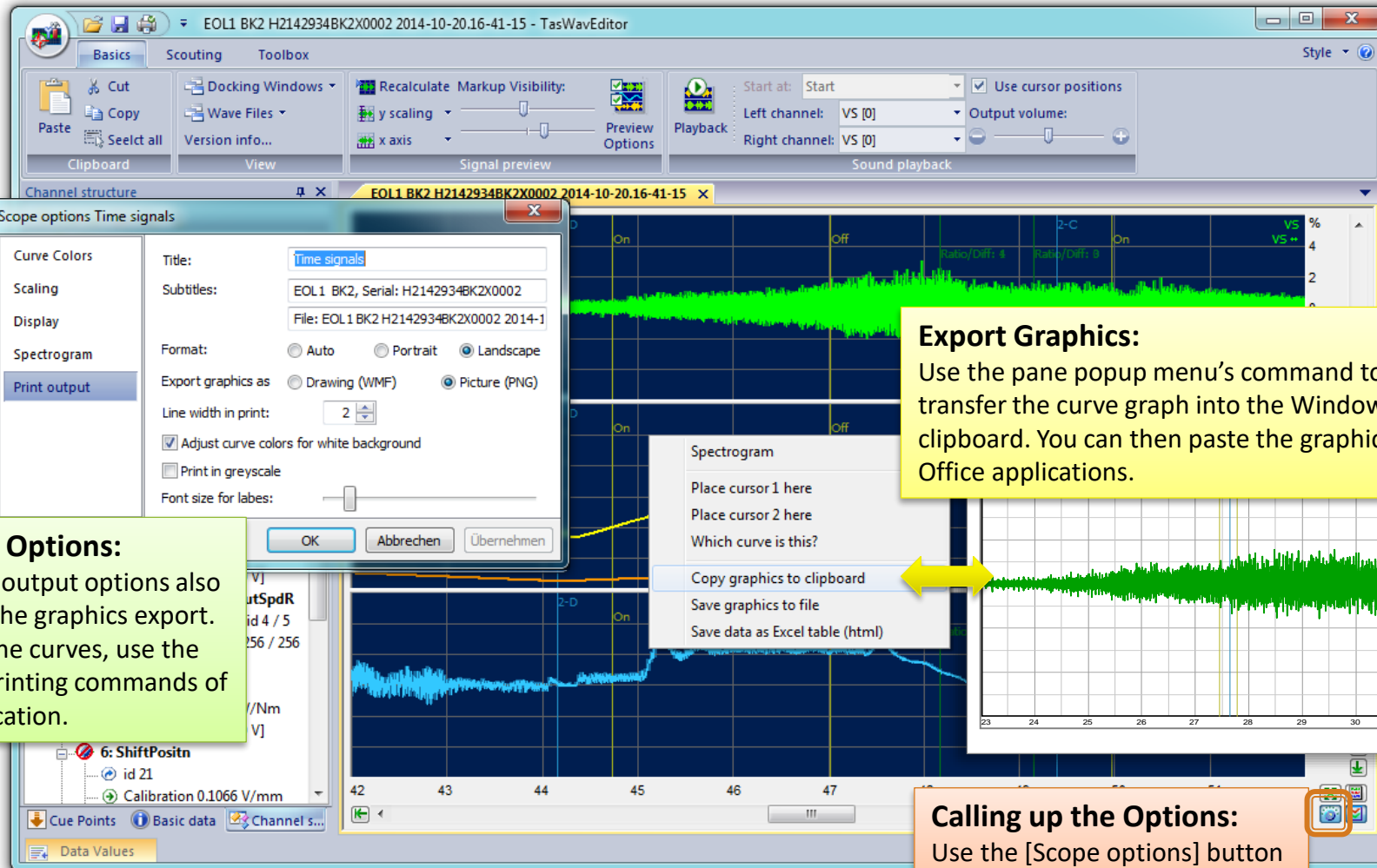
Open with Excel:
In Windows Explorer, right click on the htm file and choose 'Open with...'
You should *not* make Excel the default htm file viewer, though.

Excel export example:
You will get the exported channels as columns in Excel. Now you can use Excel's powers to analyze the data.

	A	B	C	D	E
1	Recording 2013-03-20.12-30-54				
2					
3	Basic data				
4					
5	Property	Value			
6	Start	93.05 sec			
7	End	101.00 sec			
8	Audio length	7.04 sec			
9	Channels	6 channel, 32 Bit IEEE Float			
10	Sample rate	2000 Hz			
11	Type	BR33-7003-AA			
12	Serial	fftb030213143716			
13	Bench	TSS MT82			
14	Time stamp	2013-03-20.12:30:54			
15					
16	Data Values				
17					
18	Time [s]	SForceGear [N]	SForceLane [N]	InputSpd [rpm]	
19	0	0,000261	-0,099199	1565,106934	
20	0,0005	0,013259	0,116119	1546,671509	
21	0,001	0,007018	-0,015891	1554,109863	
22	0,0015	0,137003	0,099562	1555,261841	
23	0,002	0,169425	0,215628	1547,551147	
24	0,0025	0,036343	-0,048668	1558,84082	
25	0,003	-0,004534	-0,098138	1549,018433	
26	0,0035	0,022901	0,149957	1564,487305	
27	0,004	-0,012329	0,182841	1548,474243	
28	0,0045	0,03006	-0,037421	1549,348145	
29	0,005	-0,021918	0,118906	1562,410767	
30	0,0055	-0,217267	0,20696	1548,570435	
31	0,006	-0,072217	-0,045479	1557,673706	
32	0,0065	0,033754	-0,097446	1550,906128	
33	0,007	0,001396	0,153483	1558,86792	
34	0,0075	-0,000397	0,177728	1551,849121	
35	0,008	0,032489	-0,032703	1546,474487	
36	0,0085	0,100000	0,100000	1550,000000	

Exporting the Graphics

You can export the curve graphics of single panes or of all curves.



Printing Options:
The print output options also apply to the graphics export. To print the curves, use the normal printing commands of the application.

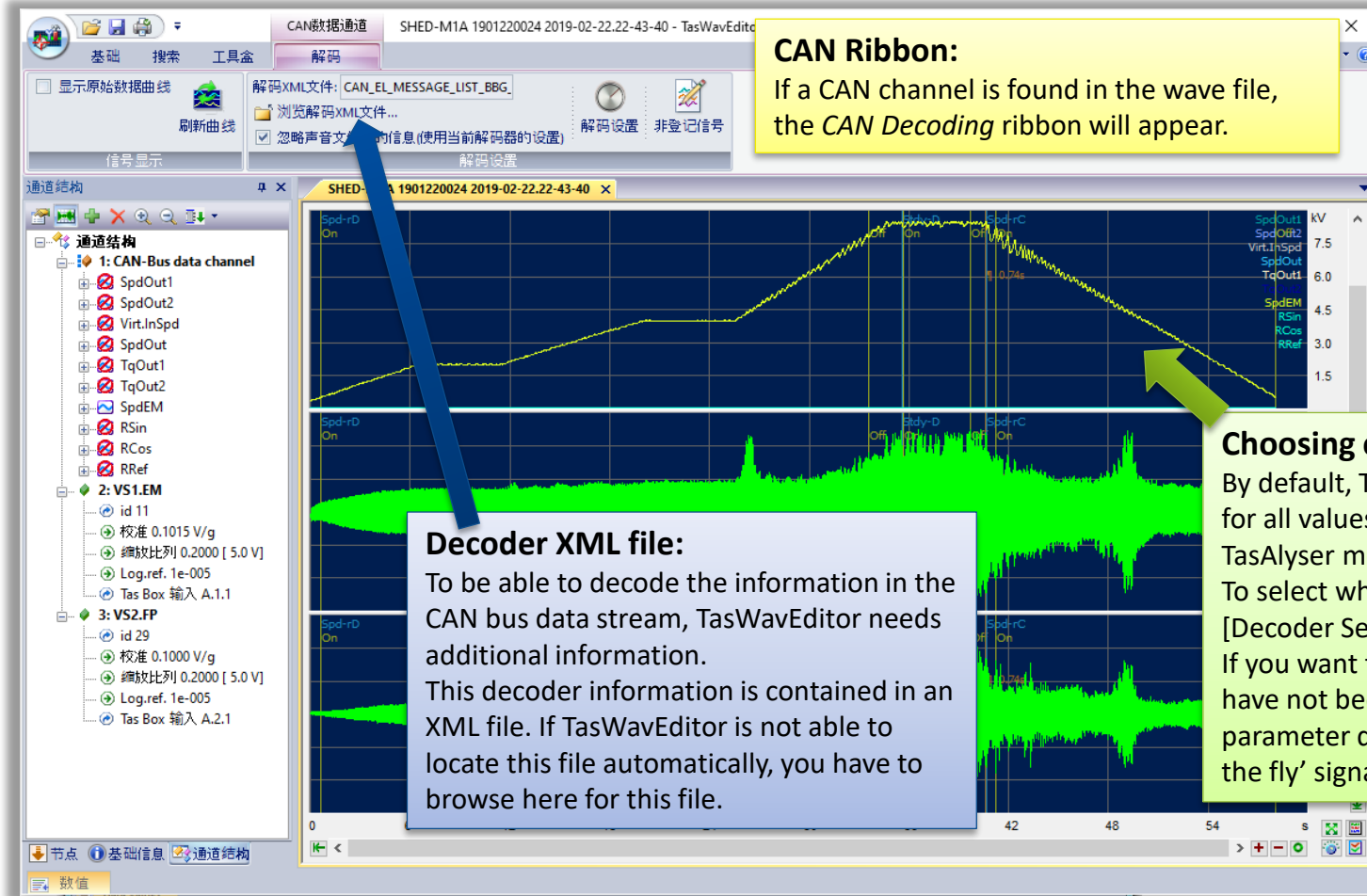
Export Graphics:
Use the pane popup menu's command to transfer the curve graph into the Windows clipboard. You can then paste the graphics to Office applications.

Calling up the Options:
Use the [Scope options] button to open the settings window.

CAN data curves

If your wave file contains a channel with CAN bus data, TasWavEditor will try to decode these data and show the according curves.

.NET required:
Decoding CAN bus data requires Microsoft .NET 4.0 (or higher) installed on your computer.



CAN Ribbon:
If a CAN channel is found in the wave file, the *CAN Decoding* ribbon will appear.

Decoder XML file:
To be able to decode the information in the CAN bus data stream, TasWavEditor needs additional information. This decoder information is contained in an XML file. If TasWavEditor is not able to locate this file automatically, you have to browse here for this file.

Choosing curves:
By default, TasWavEditor will display curves for all values which have been used in the TasAlyser measurement application. To select which values to decode, use [Decoder Settings]. If you want to see curves for values which have not been defined in TasAlyser's parameter data base, you can create 'On the fly' signal definitions.

