1 Disclaimer of Liability

THIS IS A HIGH PERFORMANCE PRODUCT USE AT YOUR OWN RISK.

This product is intended for OFF ROAD USE ONLY.

This product is not intended to be used to break the law.

Do not use this product until you have read the following agreement.

This agreement sets forth the terms and conditions for the use of this product.

The installation of this product indicates that the buyer has read and understands this agreement and accepts the terms and conditions.

1.1 DISCLAIMER OF LIABILITY

TomElectronics Srl, it's distributors, jobbers and dealers (hereafter Seller) shall be in no way responsible for the product's proper uses and service. THE BUYER HEREBY WAIVES ALL LIABILITY CLAIMS.

The buyer acknowledges that he is not relying on the Sellers skill or judgment to select of furnish goods suitable for any particular purpose and that there are no liabilities which extend beyond the description on the face hereof, and the buyer hereby waivers all remedies or liabilities expressed or implied, arising by law or otherwise (including without any obligation of the seller with respect fitness, merchantability and consequential damages) whatever or not occasioned by the sellers negligence.

The Seller disclaims any warranty and expressly disclaims any liability for personal injury and damages. The buyer acknowledges and agrees that the disclaimer of any liability for personal injury is a material term for this agreement and the buyer agrees to indemnify the Seller and to hold the Seller harmless from any claim related to the item of the equipment purchased. Under no circumstances will the seller be liable for any damages or expenses by reason of use or sale of any such equipment.

The Seller assumes no liability regarding the improper installation or misapplication of its products.

It is the installers responsibility to check for proper installation and in doubt contact the manufacturer.

The buyer is solely responsible for all warranty issues from the manufacturer.

1.2 LIMITATION OF WARRANTY

TomElectronics Srl (Hereafter Seller) gives Limited Warranty as to description, quality, merchantability, and fitness for any particular purpose, productiveness, or any other matter of the Seller's product sold herewith. The Seller shall be in no way responsible for the products proper use and service and the buyer hereby waives all rights other than those expressly written herein. This warranty shall not be extended, altered or varied except to be a written instrument signed by Seller and Buyer.

The warranty is limited to one (1) year from the date of sale and limited solely to the parts contained within the products kit. All products that are in question of warranty must be returned prepaid to the Seller and must be accompanied by a dated proof of purchase receipt. All Warranty claims are subject to approval by TomElectronics Srl.

Under no circumstances will the Seller be liable for any labor charged or travel time incurred by in diagnosis for defects, removal, or reinstallation of this product or any other contingent expenses.

Under no circumstances will the Seller be liable for any damage or expenses incurred by reason of the use or sale of any such equipment.

In the event that the buyer does not agree with this agreement: THE BUYER MAY PROMPTLY RETURN THIS PRODUCT, IN A NEW AND UNUSED CONDITION, WITH A DATED PROOF OF PURCHASE TO THE PLACE OF PURCHASE WITHIN TEN (10) DAYS FROM THE DATE OF PURCHASE FOR A FULL REFUND.

THE INSTALLATION OF THIS PRODUCT INDICATES THAT THE BUYER HAS READ AND UNDERSTANDS THIS AGREEMENT AND ACCEPTS THE TERMS AND CONDITIONS.

2 What is the Smarty UDC tuning software?

UDC stands for **U**ser **D**efined **C**aTCHER. The Smarty UDC tuning software (PC based) is an ADDITION to the already existing Smarty tuners. This means that the tuning software can be used with any Smarty product, both already sold or new.

The Smarty tuner retains all of it's actual features. I.E. all power levels, options and possible settings remain "as is". In addition to the previous features there is now the possibility for the customer to program the Smarty with his own modified parameters to fine tune his truck. One more power level is added to Smarty's menu. The **U**ser **D**efined **C**aTCHER.

2.1 How it works

First thing, the Smarty tuner needs to be upgraded with the UDC feature. This is simply done by updating the tuner with a new software release which is available for free download from our website. This needs to be done only with a pre owned product. Once the UDC software is released the tuners will leave our facility with the UDC feature already installed.

Then the Smarty UDC software will be able to identify the software for THAT truck and provide certain STOCK parameters to the customer which can be tuned at will.

Once the customer has modified the stock parameters on the PC to his needs, he will then download that SW to the Smarty. Now, the Smarty can program his truck with the **U**ser **D**efined **C**aTCHER level.

2.2 *Easy* tuning!

Our highest priority for the UDC: ***"it has to be as simple as possible!"***. Any professional tuner will tell you that the most time consuming part in custom tuning is working out the right "base tune". I.E. a tune where all the parameters needed for the increased performance (like: torque limiters, fuel limiters, boost limiters, just to mention very few) are finely matched. There are hundreds of parameters that need to come together for a smooth, powerful and trouble free base tune! That requires broad knowledge and hundreds if not thousands dyno runs! Weeks if not months or years!

With the UDC, as the base software, the highest CaTCHER in the Smarty is used and the customer then needs to fine tune only the most performance relevant parameters.

For example, for the Cummins CR 5.9L these engine operation parameters are:

1) Duration (how long the fuel is injected->The fuel quantity).
2) Timing (when the fuel is injected in relation to the TDC).
3) Rail Pressure.
4) Wastegate opening pressure (where applicable).
5) Torque management (more or less sensitive throttle).

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It is now possible in very short time to finely match the above mentioned parameters to the truck's needs. **In addition**, we will provide "**sample**" tunes from the **real** tuning world. It is then possible to copy all (or part !) of these into a customer's software. A very good starting point for everybody's needs! Combine this with the "**tuning tips**" that we provide in the UDC software and fine tuning becomes **E A S Y !**

The previously mentioned tuning **sample document** files can be copied and pasted into the customer's software. The resulting tuning file can be eventually shared exporting it in "sample" format.

It is possible to write a modified file into Smarty but it can **NOT** be read from the Smarty later on! This is most important for example the tuning shop that needs to protect the hard work.

The software we write into the ECM is protected against read out. Thus, it is not possible to simply read the ECM to get the tuning file. The reason for this is the same reason as above, protect the hard work.

We don't need to read out the ECM! The Smarty already has the software's for all trucks on board. Smarty only needs to identify the truck (Year / Tranny / Emissions / VIN#) this takes two seconds (Needed only if Smarty is not already VIN# locked).

The features like the ability to alter certain parameters like for example the speed limiter; rev limiter; shift defuel; depend upon the Smarty NOT upon the UDC SW!

Example: the JR does not provide the option to raise the rev limiter; that's not going to change even with the UDC. Those parameters remain in Smarty's options.

There is no limit to the number of VIN# licenses that can be used with the same software (Main Dongle) but the Smarty will remain as is; one truck at a time. In other words, multiple vehicles require multiple Smarty's and license dongles but only one tuning software main dongle.

The UDC SW can be downloaded from our website but fully works only when combined with a main dongle.

For evaluation purposes, the UDC software downloaded from our website works as a Demo version until it is used in combination with a Main Dongle. The Demo version can not save any changes made to a file and can not communicate with the Smarty.

3 Setup

3.1 Requirements

3.1.1 Minimum Hardware Requirements

CPU:
Pentium 1 GHz or higher.

RAM:
512 MB or more.

Video card:
3D accelerated;
OpenGL 1.1 compatible;
800x600 65,535 colors.

Disk space:
you may need up to 650 MB of available
(if MS Framework is not yet installed).

you may need up to 48 MB of available
(if MS Framework is already installed).
USB:
two free USB(2 or 3) ports.
One for the license dongle and one for the Smarty.

3.1.2 Supported Operating Systems

Windows XP   32 bit Service Pack 3.
Windows Vista 32 bit Service Pack 2.
Windows Vista 64 bit Service Pack 2.
Windows 7   32 bit Service Pack 1.
Windows 7   64 bit Service Pack 1.
Windows 8   32 bit.
Windows 8   64 bit.

3.2 Software installation

Setup installs the following software:

SmartyUDCsw	Smarty Tuning Software
SmartyUSB	Smarty USB Update Program
FTDI Driver Setup	USB driver setup for the Smarty
FTDI Driver	USB driver for the Smarty

3.3 Details of the setup

During the installation the following parts are loaded on the "C" drive of your computer:

- the folder **...\<program files>\SPK\SmartyUDCsw** with the applications:
  - **SmartyUDCsw.exe** and it's related files;
  - **SmartyUSB.exe**;
  - the folder **...\Documents\SmartyUDCsw** contains the sub-folders:
    - **Demo** contains the files:
      - **Demo document**s.
    - **Dodge** contains the folder:
      - **CTD** contains the folders:
      - **JR**, **S06P** e **SSR** each of those is then again organized in sub folders for the different models and MY. They contain the:
        - **Sample document**s.
- The folder **...\<common application data>\SmartyUDCsw** contains:
  - the file "**UDC settings**" **SmartyUDCsw.dat**;
  - The folder **...\<user application data>\SmartyUDCsw** is empty, ready to store the files produced when the SmartyUDCsw is first launched:
    - **ApplicationOptions.dat** with the **Basic options...**;
    - **ApplicationUserData.dat** with the **User data...**.

A folder in the path: **Start\All programs\SMARTY Performance King** is installed. It contains:

- the link to **Uninstall SmartyUDCsw and Tools**;
- the folder **SmartyUDCsw** contains the links to:
  - **Link to Application settings**;
  - **Link to User settings**;
  - **SmartyUDCsw Guide**;
  - **SmartyUDCsw Quick Guide**;
  - **SmartyUDCsw Tuning Tips**;
  - **SmartyUDCsw**.
- the folder: **Tools** contains the links to:
  - **FTDI Driver Setup**;
  - **Smarty USB Update Program**.

4 License management

There are two different types of licenses. The "Main" license which enables the full functionality of the UDC tuning Software and the eventually added "VIN#" license. Both consist in a USB dongle.

The VIN# license dongle works only in combination with the Main license dongle. If more than one VIN# needs to be worked on, both need to be inserted into USB ports on the PC the UDC tuning software is installed.

4.1 Application license (Main Dongle)

The "Main" license dongle is essential for the use of the full functionality of the "Smarty UDC tuning software". The Main dongle contains also the license for **ONE** VIN#. AKA, it is possible to tune **one** vehicle with this license. Should the need arise to tune more than one vehicle then additional VIN# licenses need to be purchased.

When the UDC tuning software is started without the main dongle inserted into an USB port on the PC, the software will be executed in Demo mode with limited functionality.

When the software for the vehicle you intend to tune is read for the first time from the Smarty, you will be asked if you want to use the available VIN# license for that vehicle. If confirmed, the available license will be used for the vehicle and the tuning file is generated and saved on the PC allowing the customer to gain access to the full functionality of the UDC tuning software.

Attention!

Once the VIN# license has been used for a vehicle it is not possible to use the same license on a second vehicle. You need to purchase an additional VIN# license dongle!

4.2 Vehicle license

The VIN# license dongle is **NOT** essential for the use of the UDC tuning software! It contains only one additional VIN# license should you need to tune more vehicles than the VIN# contained in the main dongle.

5 UDC settings

The "UDC settings" (the definitions for the tuning maps) are contained in the file SmartyUDCsw.dat which can be found in the the folder <Application Data>\SmartyUDCsw of your computer.

The installation of the UDC software prepares a link to the folder with the file SmartyUDCsw.dat **Start\All programs\SMARTY Performance King\SmartyUDCsw\Link to Application settings**.

Every time the UDC software is started, by default, the function **Auto Update 'UDC settings'**, checks through the internet if an new(er) version has become available (No data is collected from your PC!). If there is a newer version, the information about the previous and the new version are displayed. The customer is then asked if he wishes to download and install the new version.

During the update of the "UDC settings" an update of the already present tuning files is done automatically.

It is also possible to update the "UDC settings" manually through the internet or from the hard disk drive through the function **Update 'UDC settings'...**.

6 Using Smarty with SmartyUDCsw

6.1 Connecting Smarty

The Smarty becomes available for the communication with the PC after a few seconds after it has been connected to the USB port. You need to wait for the main menu to appear on Smarty's display. Typically a couple seconds.

If more than one Smarty are connected to the USB ports, only the one connected to the lowest numbered port will communicate with the UDC.

6.2 Setting the Smarty for the UDC

For the Smarty to work with the UDC tuning software you first need to update it's software with a UDC enabled version from our website (If not already installed). This update is free and can be found on our download page http://www.tomelectronics.it/download.html.

6.3 Read the stock file from the Smarty

Once the Smarty is connected to the USB port with a standard USB printer cable (included with the Main Dongle) the stock tables for your vehicle can be transferred from the Smarty to the PC for modification with the UDC tuning software (From the top UDC menu select **Smarty** then **Read stock from Smarty**).

Should the USB cable become disconnected during this process, no document will be created and saved on the PC!

Warning!

The command Read stock from Smarty does NOT allow to read a custom tuned file from the Smarty but only the stock one! Please keep a backup of your *.smarty files!

6.4 Write the UDC to Smarty

Once the modifications to the table(s) have been done, to transfer those into the Smarty select **Smarty** from the top menu and then "**Write file to Smarty…**." This process takes about 10 seconds. Now you're ready to update your truck with the modified UDC parameters.

The Smarty stores only one User Defined CaTCHER (stands for Clutch and Traction Challenger, a performance software) which is overwritten at every update of the Smarty.

Warning!

Please keep a backup of your *.smarty files!

Should the USB cable become disconnected during this process, please repeat the update.

Warning!

The User Defined CaTCHER file is erased from Smarty's memory during every firmware update of the Smarty!

PLEASE! KEEP A BACKUP OF YOUR .smarty TUNING FILES!!!

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7 SmartyUDCsw Documents

All files created by the UDC tuning software use the extension .smarty (Dot smarty). We refer to those files as "Documents" since they contain not only the tuning tables but also various information about the vehicle, the UDC version used to create the file and so on.

7.1 Demo document

The **Demo** documents are for UDC software evaluation purposes only. The Demo documents do not provide the full functionality of the UDC software. The Demo documents are included in the UDC software as downloaded from our website.

Features:
YES   Edit maps
YES   Compare maps
NO   Save the changes
NO   Write the UDC file to Smarty

7.2 Standard document

The standard document is normally used for all UDC tuning software modifications and operations. The standard document also contains the VIN# of the vehicle it is associated to.

The standard document can be opened / modified / written into Smarty, only if a matching VIN# has been used in the Main or VIN# dongle! In addition, the standard document can be written into a Smarty only if that Smarty is associated (VIN# locked) to the same VIN#.

The standard document is created automatically by the UDC tuning software when a file is read from the Smarty. It is also possible to rename the standard document to your needs.

See also **Read stock from Smarty...**, **Save as...** and **Document File Behavior**.

Feature:
YES   Edit maps
YES   Compares maps
YES   Save the changes
YES   Write the UDC into Smarty

7.3 Sample document

The scope of a Sample document is file sharing. If a customer wishes to share his work with others the standard document needs to be exported as a Sample. The Sample file **does not contain a VIN#** and can be opened by all UDC customers without needing to use a VIN#

license. Several Sample documents are included in the UDC tuning software download and are meant as a base to start your own modifications. Not all features can be used with a Sample document!

See also **Export sample...**.

Feature:

NO	Edit maps
YES	Compares maps
NO	Save the changes
NO	Write the UDC into Smarty

7.4 Protected document
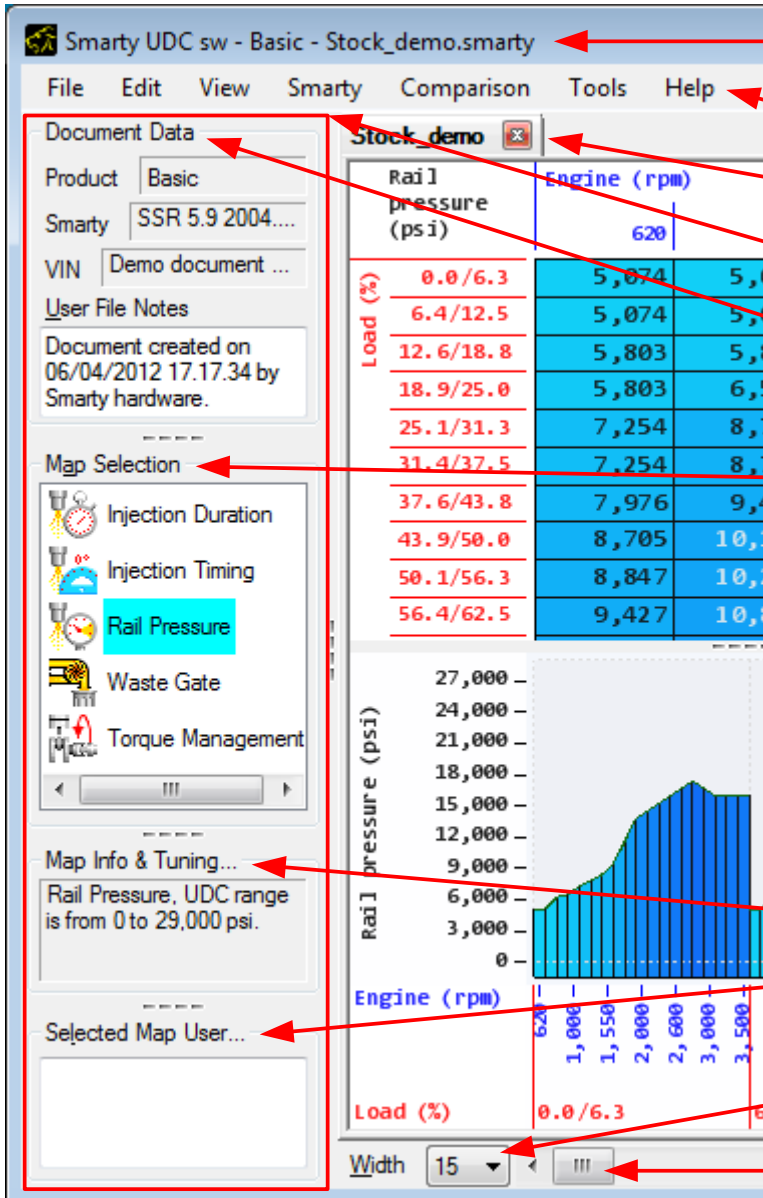
The scope of a protected document is to protect your know how and hard work. The protected document can only be written into a Smarty with the matching to the document VIN#. It can not be viewed, used for comparison, or copied. The professional tuner can send these files to his customers without allowing anybody to see what modifications he has done to the tables contained in it. The encryption of a protected file depends upon the individual Main dongle used for the file. It can NOT be decrypted without THAT dongle! Please keep a back-up of your files!!!

See also **Export protected...**.

Feature:

NO	Edit maps
NO	Compares maps
NO	Save the changes
YES	Write the UDC into Smarty

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8 User interface

Title
Menu
Document tab
Left panel
Document Data
Map Selection
Map Info
Selected Map User Notes
Width
Horizontal scroll bar

Control box

Right panel

Main commands Panel

Vertical track bar

Info cell Current / Cursor

Vertical scroll bar

Unit Changes

Check button pan / rotate

8.1 Title bar

8.1.1 Title

Smarty UDC sw - Basic - Stock_demo.smarty (compared with Modified_demo.smarty)

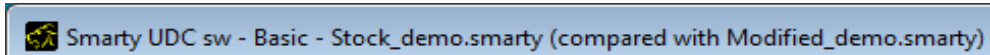The title shows the <product name> - <product configuration name> - <active document name>.

If a comparison file is opened then the file name is added at the end of the string (compared with <compared document name>).

If the file is read-only, the text "(Read Only)" is added to its name. The read-only files can not be edited.

8.1.2 Control box

The control box provides buttons to minimize, maximize, or close the window. Closing the window prompts the user to the confirmation to save the changed files.

8.2 Menu

8.2.1 File menu

8.2.1.1 Read stock from Smarty (CTRL+N)

Allows to read the stock file of your vehicle. In order to upload the stock file to your PC the Smarty first needs to know with which vehicle he has to work with. This can be done in two different ways:

1) The Smarty is already VIN# locked to a vehicle. No further action needs to be taken. The Smarty is ready to upload the stock file to the PC.

2) The Smarty is not yet VIN# locked to a vehicle (like new out of the box). In this case the Smarty needs to be connected to the vehicle you intend to tune first (key in run position, engine not running) and wait for the main menu to appear on Smarty's display. Once the main menu is displayed, press:

   a) with the Smarty senior key # "9";
   b) with the Smarty Junior press keys "<" and ">" at the same time.

   Follow the instructions on Smarty's display. This routine will take about two seconds to complete.

The Smarty has to be connected to a free USB port on your PC. The Smarty becomes available for the communication with the PC after a few seconds after it has been connected to the USB port. You need to wait for the main menu to appear on Smarty's display. This takes typically a couple seconds.

A document with the stock software will only be created if a valid VIN# license is available for the connected Smarty. OR if a free VIN# license is available (dongle connected to a USB port) and the customer agrees to use that license.

In the case that several free licenses are connected to the USB ports of the PC, the one connected to the lowest numbered USB port will be used. See also **License**.

By default the new document is automatically saved on your PC. See the option **Folder Automatic Saving**, **File Name Numbering**, with a 3 digit # see the option **File # Length**.

Warning!

Once a VIN# license has been associated to a VIN# it is NOT possible to unlock it from that VIN#!

See also **Using Smarty with SmartyUDCsw** and **SmartyUDCsw documents**.

8.2.1.2 Open... (CTRL+O)

Allows to select a file you want to open. It is possible to open multiple files and each of them can be compared to a different file. It is possible to open a Standard and protected file only with a matching VIN# license.

SmartyUDCsw has a (Multi Documents Interface), every time a document is opened a **Tab with file name and close button** is added which allows to activate and close the document.

8.2.1.3 Recent documents

Allows to open one of the files that have been opened recently.

8.2.1.4 Save (CTRL+S)

Saves the opened file with the same name.

Modifications can be saved to the Standard documents ONLY. All other document types can NOT be edited and saved!

When the option automatic saving has been disabled, see also **Folder Automatic Saving**, when a document is saved the customer will be requested to specify a file name and a path where to store the file.

8.2.1.5 Save all

Saves all the opened files with their original names exactly like the **Save** command.

8.2.1.6 Save as... (CTRL+MAIUSC+S)

Allows to rename a file and then save it.

The customer can change the path and file name at will for a **Standard document.**

8.2.1.7 Export sample...

Allows to export a Standard document in .sample format for file sharing. If a customer wishes to share his work with others the standard document needs to be exported as a Sample. The Sample file **does not contain a VIN#** and can be opened by all UDC customers without needing to use a VIN# license. Several Sample documents are included in the UDC tuning software download and are meant as a base to start your own modifications. Not all features can be used with a Sample document!

Feature:
NO	Edit maps
YES	Compare maps
NO	Save the changes
NO	Write the UDC into Smarty

8.2.1.8 Export protected...

Allows to export a standard file on the protected format. The scope of a protected document is to protect your know how and hard work. The protected document can only be written into a Smarty with the matching to the document VIN#. It can not be viewed, used for comparison, or copied. The professional tuner can send these files to his customers without allowing them to see what modifications he has done to the tables contained in it. The encryption of a protected file depends upon the individual Main dongle used for the file. It can NOT be decrypted without THAT dongle! Please keep a back-up of your files!!!

Feature:
NO	Edit maps
NO	Compares maps
NO	Save the changes
YES	Write the UDC into Smarty

8.2.1.9 Close

Closes the **active** document. If the **Folder Automatic Saving**, option has been disabled the user will be asked to specify where the file has to be saved and with which name it has to be saved.

8.2.1.10 Close all

Closes **all** files that have been opened.

Similar to the close command but closes all documents that have been opened at the same time.

8.2.2 Edit menu

8.2.2.1 Foreword undo and redo commands

It is not possible to use the undo and redo commands in the document notes.

By default the max number of consequential undo or redo is limited to 50.

See also the option **Maximum # Of Undo**.

8.2.2.2 Undo (CTRL+Z)

Allows to return the file to the previous situation before the last change.

See also **Foreword undo and redo commands**.

8.2.2.3 Redo (CTRL+Y)

Allows to return to the situation before the **Undo** has been used.

See also **Foreword undo and redo commands**.

8.2.2.4 Foreword selection echo commands

The Echo commands are not active when a multiple selection (in several load ranges at once) has been made. In order to use these commands a selection in a SINGLE load range needs to be done.

At the same time, the Echo commands are active if a selection (one cell or several cells) has been made in a load range.

8.2.2.5 Backward selection echo (ALT+Left)

Allows to repeat the cells that have been **selected** in a certain load in the previous load range (numerically lower load range).

Of course, this command can not be active when a selection in the first load range has been made.

8.2.2.6 Full selection echo (ALT+Down)

Allows to repeat the cells **selected** in a certain load range in ALL load ranges.

See also **Foreword selection echo commands**.

8.2.2.7 Forward selection echo (ALT+Right)

Allows to repeat the cells that have been **selected** in a certain load in the following load range (numerically higher load range).

Of course, this command can not be active when a selection in the last load range has been made.

See also **Foreword selection echo commands**.

8.2.2.8 Foreword Copy and Paste commands

Copy and paste commands are compatible with the most popular spreadsheets.

Values outside the allowed range will be automatically set to respect the limits.

When the paste command is used on a spreadsheet any not selected cells will be empty.

When the paste command is used on a SmartyUDCsw document, the empty cells will be ignored.

8.2.2.9 Copy (CTRL+C)

Copy **selected** cells to clipboards, marking the **current cell**. If no selection is available, all cells will be copied and the first cell will be used as current cell.

The **current cell** marked in the notes will be used as a origin cell when the cells will be pasted.

See **Foreword Copy and Paste commands**.

8.2.2.10 Paste (CTRL+V)

When a **selection** is available data from the clipboard will be pasted in such a way that the **current cell** in the clipboard will override the current cell in the document.

If no **selection** is available the content of the clipboard will be pasted in the document starting from the first cell.

All the values outside the map will be ignored.

See **Foreword Copy and Paste commands**.

8.2.2.11 Manual entry… (F2 or Digits)

Manual entry
Current value: 1,701
New value: 1701
☑ Applies to the whole selection
OK   Cancel

Only if a **selection** has been made, the manual entry command will allow to type directly the value that will be inserted in the current cell or the whole selection.

It is not allowed to insert values exceeds the map range.

8.2.2.12 Foreword editing commands

When the unit change has been selected as a percent (%), selected cells which value is zero will not be changed using any of the edit commands. 100% of zero makes still zero… Furthermore, in the tuning software changes in percent to negative values is considered as if the value was a positive number. This was done to avoid confusion. When a "increase" (facing UP) button is hit, one expects the graph to go UP not down…

It is possible to increase and decrease the values of the single cells only to the max and min limits set for the Map in use.

Remember, a **Sample document** is read only.

8.2.2.13 Large increase (CTRL+Up)

Increases the value(s) of the **selected** cell(s) based upon the settings in the **Unit Changes** window.

See **Foreword editing commands**.

8.2.2.14 Small increase (CTRL+SHIFT+Up)

Increases the value(s) of the **selected** cell(s) by the **smallest** possible value for the table in use. For example, the smallest value for degrees is 0.1 degrees. The smallest change for the time is 1 micro second. The smallest change for pressure is 1 PSI.

See **Foreword editing commands**.

8.2.2.15 Restore original values (CTRL+Space)

Returns the value(s) of the the **selected** cell(s) to the original values (previous value(s) to any and all changes).

See **Foreword editing commands**.

8.2.2.16 Paste from compared values (CTRL+SHIFT+Space)

Copies and pastes the value(s) from the file in comparison of the **selected** cell(s).

This function is available only when the a document (.sample!) is being compared with a .smarty document.

Please see also **Compare with file**, **Foreword editing commands** and **Comparison**.

8.2.2.17 Small decrease (CTRL+SHIFT+Down)

Decreases the value(s) of the **selected** cell(s) by the **smallest** possible value for the table in use. For example, the smallest value for degrees 0.1 degrees. The smallest change for the time is 1 micro second. The smallest change for pressure is 1 PSI.

See **Foreword editing commands**.

8.2.2.18 Large decrease (CTRL+Down)

Decreases the value(s) of the **selected** cell(s) based upon the settings in the **Unit Changes** window.

See **Foreword editing commands**.

8.2.2.19 Foreword changes ramp

The direction of the selection (left to right rather than from the right to the left) determines the first and last cell used for this function. Thus different selection directions give different results.

8.2.2.20 Increase ramp (CTRL+Add)

Increases the values of the **selected** cells. The maximum percentage is applied in order of the selection (from left to right OR from right to left) to the last selected cell. It is used to help to completely re-shape a "curve" in a load range.

See **Foreword changes ramp** and **Foreword editing commands**.

8.2.2.21 Decrease ramp (CTRL+Subtract)

Decreases the values of the **selected** cells. The maximum percentage is applied in order of the selection (from left to right OR from right to left) to the last selected cell. It is used to help to completely re-shape a "curve" in a load range.

See **Foreword changes ramp** and **Foreword editing commands**.

8.2.3 View menu

8.2.3.1 Default view (CTRL+D)

Returns the selected / active map (1D-2D-3D) to the default view.

8.2.3.2 Zoom fit (CTRL+F)

Returns the 3D map that has been zoomed to a dimension that fits the size of the window.

8.2.4 Smarty menu

8.2.4.1 Read stock from Smarty (CTRL+N)

Allows to read the stock file of your vehicle. In order to upload the stock file to your PC the Smarty first needs to know with which vehicle he has to work with. This can be done in two different ways:

1)The Smarty is already VIN# locked to a vehicle. No further action needs to be taken. The Smarty is ready to upload the stock file to the PC.

2) The Smarty is not yet VIN# locked to a vehicle (like new out of the box). In this case the Smarty needs to be connected to the vehicle you intend to tune first (key in run position, engine not running) and wait for the main menu to appear on Smarty's display. Once the main menu is displayed, press:

> a) with the Smarty senior key # "9";
> b) with the Smarty Junior press the keys "<" & ">" at the same time.

Follow the instructions on Smarty's display. This routine will take about two seconds to complete.

Same as **Read stock from Smarty** in the File menu.

See also **Using Smarty with SmartyUDCsw**.

8.2.4.2 Write file to Smarty... (CTRL+F)

When the Smarty is connected to the USB port with a standard USB printer cable (included with the Main Dongle) the UDC modified (or not, this means that it is also possible to write the the stock parameters into Smarty) tables for your vehicle can be transferred from the PC to the Smarty.

Attention!

The .smarty software (standard document) contains the VIN# of the vehicle you're tuning. Only when the VIN#'s in the tuning file & Smarty & the vehicle are matching will this process be completed. It is not possible to write a Demo or Sample software into the Smarty! These documents do NOT contain a VIN#.

Please keep a backup of your custom tuned files! It is not possible to read them from the Smarty!

See also **Using Smarty with SmartyUDCsw**.
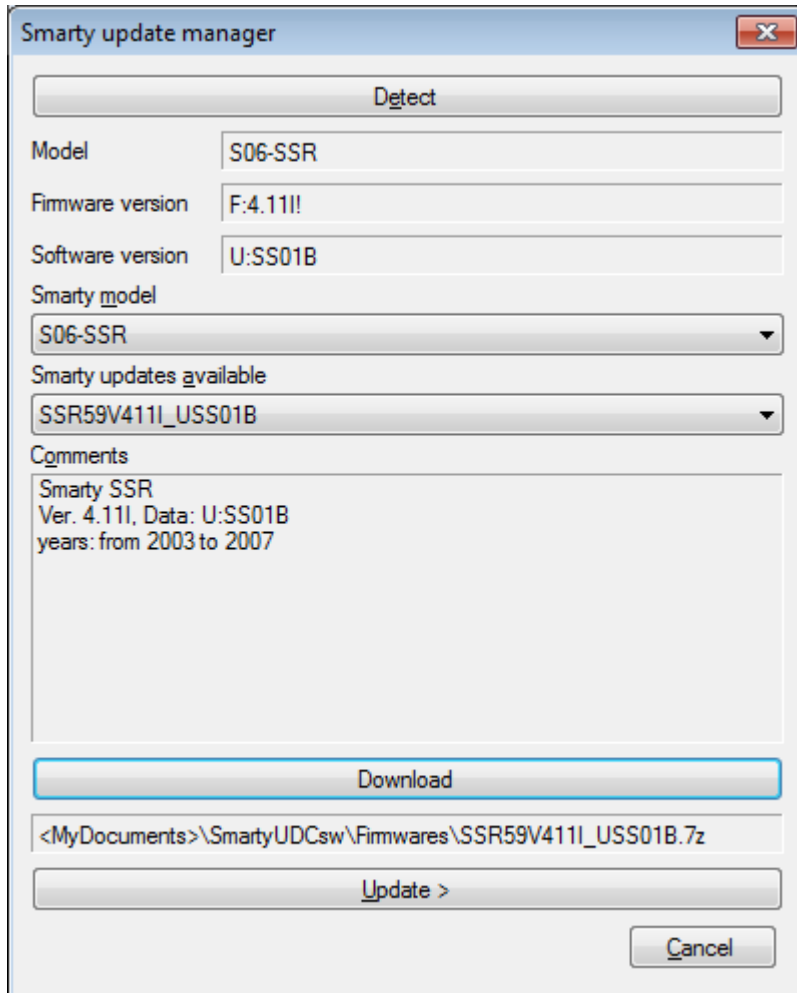
8.2.4.3 Read info of Smarty...

Allows to read the firmware version from the Smarty (when connected to the PC).

See also **Using Smarty with SmartyUDCsw**.

8.2.4.4 Smarty update manager...

The "**Detect**" button verifies which Smarty is connected to the PC and selects it form the drop down menu. In addition, the most relevant parameters like firmware revision and level are displayed.

When the "**Detect**" button is used, the text windows display the information read from the Smarty like **Model**, **Firmware version** and **Software version**.

The drop down menu **Smarty model** allows to select manually which Smarty model needs to be updated. Use this menu if the Smarty does not already have a UDC firmware installed since the previous (older before UDC) firmware's do not have the ability to communicate automatically with the PC.

The drop down menu **Smarty updates available** allows the selection of the update for the selected Smarty. Depending upon the Smarty model more than one update can be available. Please select the one you need to install.

The **Comments** window displays the eventual information of the selected update.

The **Download** button downloads (through the web!) the selected update onto the PC in use and stores it on the hard drive. **Internet connection is needed!**

Once the right update has been downloaded onto the PC, the **Update >** button does the un-zip of the .smt file and launches the SmartyUSB software. The update of the Smarty through the Smarty USB software is **NOT** automated! The customer needs to acknowledge and click on the **Send** button menu. Now the update process starts and completes without any further customer intervention.

8.2.5 Comparison

8.2.5.1 Compare with a file... (CTRL+K)

Opens a second file and lays it over the first file that has been opened.

It is only possible to compare files for the Smarty devices compatible with each other (see following table), for example, it is not possible to compare JR with SSR files, or TNTR with REVO.

The sample files are read only and can not be modified!

The colors and way of visualization of the comparison file can be customized in the basic options.

Please see also **Document_Appearance**.

The basic option **Mode Of Default Folder Of Document Compare** is set by default so that ta file is saved automatically in the folder where the files for that vehicle and Smarty model reside.

8.2.5.2 Compatibility comparison table

DEVICE	YEARS		DEVICE	YEARS
J06	2003 to 2004	↔	J06	2004.5 to 2007
S06 / ST REVO	2003 to 2004	↔	S06 / ST REVO	2004.5 to 2007
S06 / ST TNTR	2003 to 2004	↔	S06 / ST TNTR	2004.5 to 2007
S06 / ST SSR	2003 to 2004	↔	S06 / ST SSR	2004.5 to 2007

8.2.5.3 Remove comparison (CTRL+SHIFT+K)

Closes the active comparison file.

8.2.6 Tools menu

8.2.6.1 Update 'UDC settings'...

Checks for updates for the "**UDC settings**" parameters used by the tuning software.

Updates the UDC definitions from the hard drive or the inter net.

During the download from the internet NO information are collected from your PC!

8.2.6.2 Quit the download of the 'UDC settings' update...

Quit the download of the "**UDC settings**" update.

8.2.6.3 Info of 'UDC settings'...

Displays the version and revision of the "**UDC settings**" in use.

8.2.6.4 Info of document 'UDC settings'...

Provides all information about the "**UDC settings**" used to edit the file in use.

8.2.6.5 Read info of dongles...

Show the informations for all the dongles detected: type and VIN#. It also reports the not readable dongles.

8.2.6.6 Basic options...

Allows for the customization of several functions in the tuning software.

Some changes to the options become active immediately. Others will be applied only to the next document, others again only upon the next start of the tuning software! In the last two cases an alert window will appear and display the needed information.

See **Basic options details**.

8.2.6.7 User data...

The Tuner information which will be saved in the "Protected" files and displayed when a protected file is opened.

8.2.7 Help menu

8.2.7.1 Quick guide...

Opens the quick guide.

8.2.7.2 Application guide...

Opens this guide.

8.2.7.3 Tuning tips...

Opens the tuning tips.

8.2.7.4 Web site 'SmartyUDCsw'

Opens our home page.

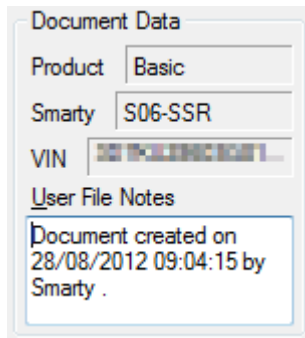### 8.2.7.5 About...

Displays the version of the UDC Tuning software.

8.3 Left panel

8.3.1 Document Data

8.3.1.1 Product version

The UDC tuning software product version.

It displays weather the software is run as a Demo or fully functional Basic version. If the UDC software is started without the main dongle connected to a USB port on the PC then by default it'll start as a Demo version only.

8.3.1.2 Smarty

The Smarty type of the opened document.

8.3.1.3 VIN

The VIN# used in the opened document and it has been locked to.
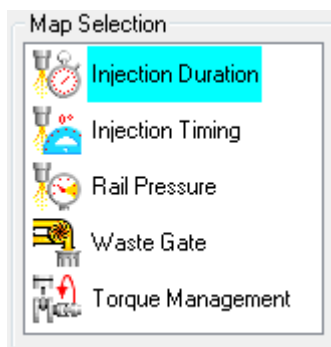
8.3.1.4 User File Notes

For user notes and input on the tuning file.

Displays the user notes for the active document.

The User File Notes are in read only for the **Demo documents**, **Sample documents** and protected **Protected documents**, while they are in read and write mode for the **Standard documents**.
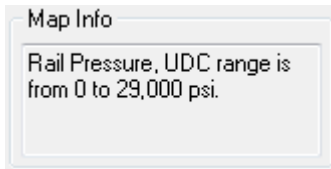
8.3.2 Map Selection

Selection of the table(s) in which modifications need to be done.
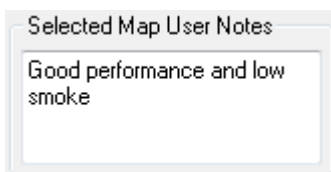
A single (left)click to select a table.

8.3.3 Map Info

Important information about the tables which can be worked on are displayed here. The defined maximum and minimum values are found here.

This window is read only for all documents.

8.3.4 Selected Map User Notes

Customer notes for each single Map can be input here.

The Selected Map User Notes are in read only for the **Demo documents**, **Sample documents** and **Protected documents**, while they are in read and write mode for the **Standard documents**.

8.4 Controls around the document

8.4.1 Width

To set the number of cells displayed in the 2D graph.

Then lower the value then more cells are displayed.

8.4.2 Check button pan / rotate

The use of this button allows to rotate the 3D graph with the scroll bars.

In Scroll mode.

In rotation mode.

8.4.3 Horizontal scroll bar

Moves the selected graph left / right (where possible).

8.4.4 Vertical scroll bar

Moves the selected graph up / down (where possible).

8.5 Right panel

8.5.1 Main commands panel

The main panel with the most used tools for the modifications to the software tables. For details please see also the **Edit menu**.

Only the buttons with a dark gray border are active. Which buttons and functions become active depends upon which kind of document has been opened, if a selection of points has been made, which view has been selected (Table, 2D or 3D), etc.

All functions in the Main commands panel are also present in the file menus.

See also **File menu**, **Edit menu** and **View menu**.

8.5.2 Vertical track bar

The vertical track bar is most important for smoothing the "curves". It's function is meant to work mainly with the 2D graph. (It works also with the 3D view but it's more difficult to actually see the smoothness or roughness in the 3D graph.)

Dragging up the cursor "deforms" the view of the table in it's X axis so that the differences between the single cells become more evident. What may look smooth without activating this function may in reality not be so. It is always a good idea to use this function after the first rough adjustments have been done. Anyhow, depending upon the goal of the tuning, smoothness is not always a good thing.

8.5.3 Info cell Current / Cursor

This panel shows the value(s) of the cell(s) that have been selected with the cursor. It displays also the RPM and the load range of the selected cell.

"Original" displays the value of a selected cell like it originally was when the document has been opened.

"Actual" displays the value of a selected cell that has been modified since the document has been last opened. When the value of cell has been modified then "Original" and "Actual" will display two different values. If no changes have been made then the fields "Original" and "Actual" will display the same value.

The field "Cursor Act. - Orig." displays the numerical difference between the original and actual value of the selected cell.

The field "Cursor Act. - Comp." displays the numerical difference between the original and the value of the file in comparison of the selected cell.

The left column is to the current point, the right one the point under the mouse cursor.

The second last line displays the value difference between the current (actual) point and the original value of that point.

The last line displays the value difference between the current (actual) point and the value of the comparison file in use.

8.5.4 Unit Changes

This field allows to define by how many units the large change buttons will increase or decrease the selected cell(s). The small change unit is fixed and can not be changed by the customer. It's value is always as small as possible for the table in use. This allows for very fine changes.

To set the large changes to a value of choice, a number needs to be typed into the "Multiplier" field. As in the picture, "Multiplier" = 100 "Small" = 1 the result is that the large change buttons will change the value of the selected cells 100 times the value of the small change, AKA "100". When the "%" check box is selected then all changes made will be in percent.

8.5.4.1 Percentage (%)

The percentage works only with the **Large increase** and **Large decrease** commands!

8.5.4.2 Multiplier or Percentage (X)

The multiplier applied to value of the small change to set the desired large change value. If the Percentage box has been checked (is active) then the applied changes are in %.
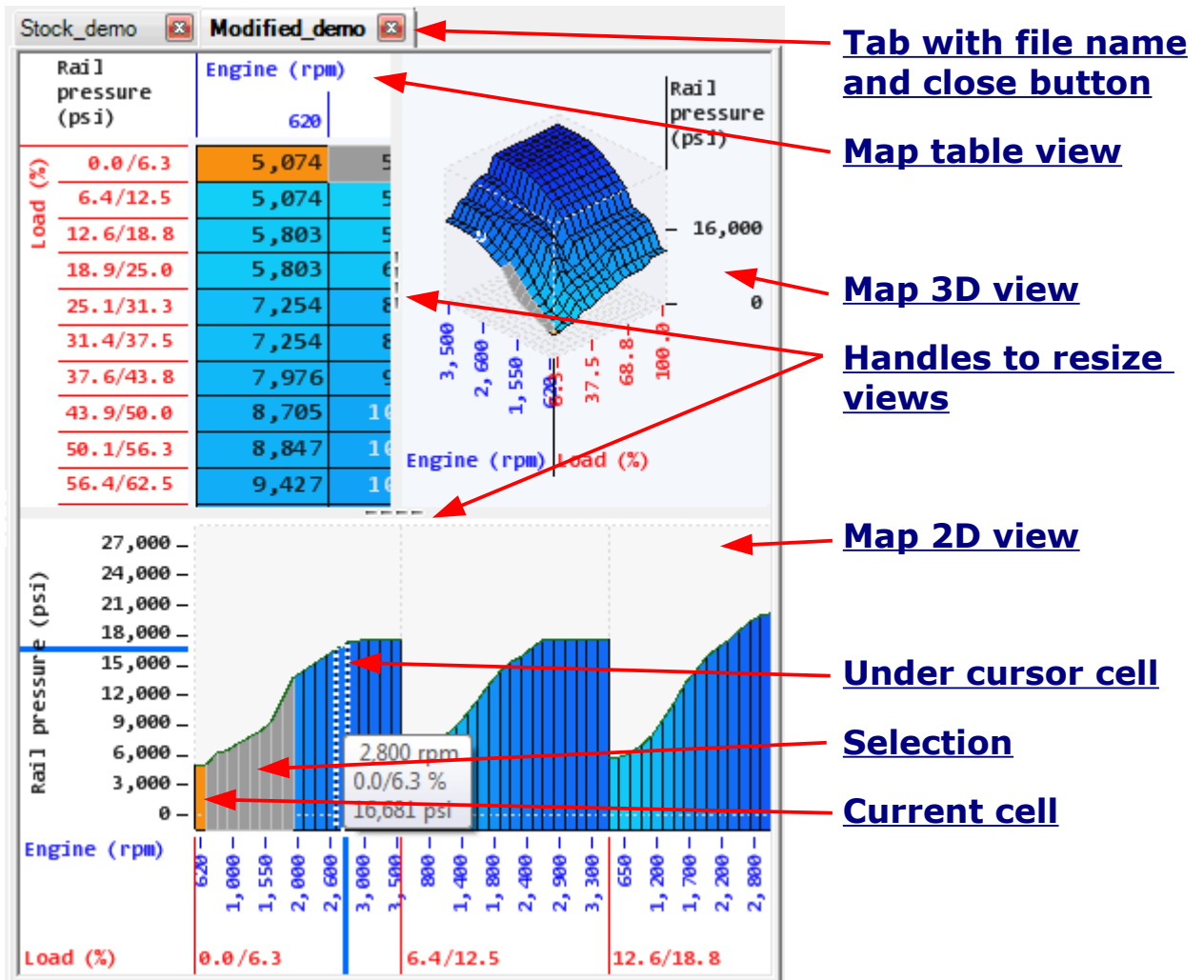
8.5.4.3 Small change (S)

Value set by default to the commands **Small increase** and **Small decrease**.

8.5.4.4 Large change (L)

Calculated value of the **Large increase** and **Large decrease**.

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User interface

8.6 Document tab

Tab with file name and close button

Map table view

Map 3D view

Handles to resize views

Map 2D view

Under cursor cell

Selection

Current cell

8.6.1 Tab with file name and close button

The active (in use) document-tab is displayed in a clear color and **bold** text.

If multiple documents have been opened, only one of them can be used at a time. Clicking on one of the tabs will select that document and that Tab will turn clear and bold. Opening several documents at the same time can become confusing and is recommended only for exercised users!

Clicking on the X in the tab will close that document.

Any action or change done will become effective only in the active document!

8.6.2 Handles to resize views

Left clicking and dragging the handle is used to resize the view of a table. These commands are interactive.

Vertical resize.

Horizontal resize.

Vertical resize. This icon appears when a window (view) becomes too small to display any useful information. Releasing the left click the split view will be moved to the lower border of the screen in order to maximize the area of the windows on the top of the screen. To return the window to it's original size simply double click (left) on the icon.

Vertical resize. This icon appears when a window (view) becomes too small to display any useful information. Releasing the left click the split view will be moved to the upper border of the screen in order to maximize the area of the windows on the bottom of the screen. To return the window to it's original size simply double click (left) on the icon.

Horizontal resize. This icon appears when a window (view) becomes too small to display any useful information. Releasing the left click the split view will be moved to the left border of the screen in order to maximize the area of the windows in the right side screen. To return the window to it's original size simply double click (left) on the icon.

Horizontal resize. This icon appears when a window (view) becomes too small to display any useful information. Releasing the left click the split view will be moved to the right border of the screen in order to maximize the area of the windows in the left side screen. To return the window to it's original size simply double click (left) on the icon.

8.6.3 Images of the cursor in the maps views

No change to the views is allowed.

Only vertical movements of the screens are allowed.

Only horizontal movements of the screens are allowed.

Both vertical and horizontal movements of the screens are allowed.

Moving the mouse rotates the 3D view.

Zoom to the active window. Moving the mouse up / down will zoom in and zoom out. (3D only).

8.6.4 Map table view

8.6.4.1 Keyboard and mouse buttons

Contextual menu: **Right Mouse**

Navigation:
    Pan   **Right Mouse** + drag mouse

Selection:
    Single   Click **Left Mouse** over map cell
    Sequential   Press **Left Mouse** and drag mouse over map cells
    Zone   **SHIFT** + Click **Left Mouse** over start and end map cells
    Multiple add/remove   **CTRL** + Click **Left Mouse** over map cells
    Remove all   **ALT** + Click **Left Mouse** or Click **Left Mouse** in the background of the map
Editing:
    Change   **CTRL** + **SHIFT** + Press **Left Mouse** and drag mouse
    Manual entry   **F2** or **Digits**

See **Edit menu** and **View menu** for other key combinations.

To customize the appearance of the documents please see **Document Appearance**.

8.6.5 Map 2D view

Separation line Y-axis

Actual values

Compared values

Selection

Original values

Zero line

Under cursor cell

Under cursor cell info

2,900 rpm
75.1/81.3 %
24.4+ °

Current cell

Z-axis

X-axis

Y-axis

8.6.5.1 Keyboard and mouse buttons

Contextual menu: **Right Mouse**

Navigation:
  Pan   **Right Mouse** + drag mouse

Selection:
  Single   Click **Left Mouse** over map cell
  Sequential   Press **Left Mouse** and drag mouse over map cells
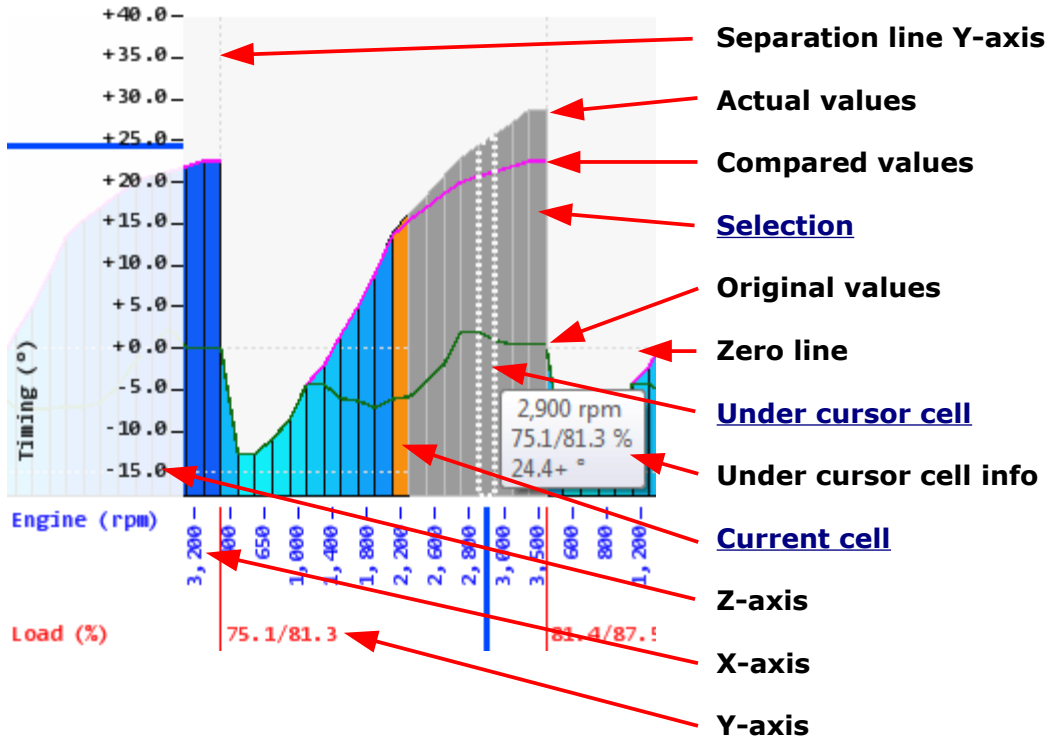 Zone   **SHIFT** + Click **Left Mouse** over start and end map cells
  Multiple add/remove   **CTRL** + Click **Left Mouse** over map cells
  Remove all   **ALT** + Click **Left Mouse** or Click **Left Mouse** in the
                                    background of the map
Editing:
  Change   **CTRL** + **SHIFT** + Press **Left Mouse** and drag mouse
  Manual entry   **F2** or **Digits**

See **Edit menu** and **View menu** for other key combinations.

To customize the appearance of the documents please see **Document Appearance**.

8.6.6 Map 3D view
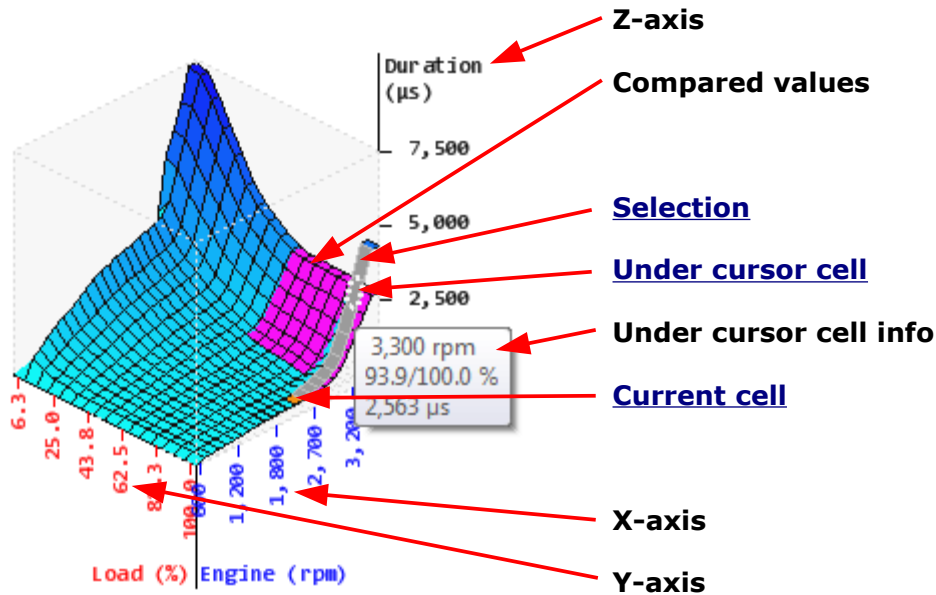
8.6.6.1 Keyboard and mouse buttons

Contextual menu: **Right Mouse**

Navigation:
    Pan   **CTRL** + **Right Mouse**
    Rotate   **Right Mouse** + drag mouse
    Zoom   **SHIFT** + **Right Mouse**

Selection:
    Single   Click **Left Mouse** over map cell
    Sequential   Press **Left Mouse** and drag mouse over map cells
    Zone   **SHIFT** + Click **Left Mouse** over start and end map cells
    Multiple add/remove   **CTRL** + Click **Left Mouse** over map cells
    Remove all   **ALT** + Click **Left Mouse** or Click **Left Mouse** in the
                                                       background of the map
Editing:
    Change   **CTRL** + **SHIFT** + Press **Left Mouse** and Drag Mouse
    Manual entry   **F2** or **Digits**

See **Edit menu** and **View menu** for other key combinations.

To customize the appearance of the documents please see **Document Appearance**.

8.6.7 Selection

Several cells may be selected at the same time. To do this, select the initial cell with the mouse (left click) then keep the left click pressed and drag to the last cell of the selection of choice. When a selection has been made, the values of the selected cells can be changed all at the same time. By how much the value will be changed depends upon the selection made in the **Unit Changes** window.

It is also possible to "echo" the selection to the previous or next load range(s)

Please see also the **Edit menu** menu or the **Main commands panel**.

The color of the selection can be customized. Pleas see also **Selection Color**.

There are several possible ways to make a selection:
Single	Click **Left Mouse** over map cell
Sequential	Press **Left Mouse** and drag mouse over map cells
Zone	**SHIFT** + Click **Left Mouse** over start and end map cells
Multiple add/remove	**CTRL** + Click **Left Mouse** over map cells
Remove all	**ALT** + Click **Left Mouse** or Click **Left Mouse** in the background of the map

8.6.8 Current cell

The current cell (or point) is part of a selection.

The current cell (or point) can be the first or the last point in a selection. This depends upon the setting made in the options: **Last Cell Selected Is Current**. This again depends upon if the highest or lowest value in a selection needs to be displayed and analyzed.

It is possible to customize the color of the current cell (or point) with the option **Current cell Color**.

The information about the current cell (or point) are displayed in the first column of the **Info cell Current Cursor** windows.

8.6.9 Cell under the mouse cursor

Used to visualize the information of one cell. Even when a selection has been made it is still possible to move the mouse cursor over the active graph. A pop up window will display the information about the selected cell.

The information about the cell under the mouse cursor are displayed in the second column of the **Info cell Current / Cursor** windows.

9 Basic options details

9.1 Foreword basic options

The customer information are saved in the file: ApplicationOptions.dat which can be found in the folder: <User Application Data>\SmartyUDCsw on your computer.

During the installation a link to the folder is created which contains the ApplicationOptions.dat **Start\All programs\SMARTY Performance King\SmartyUDCsw\Link to User settings**.

Any value that has been changed is in evidence as a **bold** text, except the the font options.

9.2 Generic Application Behavior

9.2.1 Activation Application Tips

If set to "true" the application tips are active. Set to "false" disables the application tips.

9.2.2 Display Application Tips (ms)

Time the tips are shown in milliseconds.

9.2.3 Active Application LOG

When True, the software produces a log file in the folder ...\Documents\SmartyUDCsw.

9.2.4 Auto Update 'UDC settings'

When true, checks for the presence of updates to the "**UDC settings**'' and eventually downloads and installs the most recent version.

9.3 Document file Behavior

9.3.1 Auto Open File

Allows to define which document has to be opened at the next start of the UDC software. The possible options are:
  None   no document will be opened;
  ActiveWhenWindowsClose the document that was open when the UDC software

	has been closed;
LastOpened	the last document which has been opened;
LastSaved	the last document that has been saved.

9.3.2 Folder Automatic Saving

The documents will be saved in the path specified in this field. By default the documents will be saved in: **<MyDocuments>\SmartyUDCsw**. When this field is blank there will be no automatic saving for the new documents and the customer needs to specify a folder where to save a document every time he wants to save a file.

This option also determines which folder will be used to open .sample documents. By default it is set to: **DefaultFolderForSavingAutomatic**.

9.3.3 File Name Numbering

There are two different ways to save a document automatically:

Sequential	the suffix of the file name is numbered sequentially, see also **File # Length**;
DateAndTime	suffix of the file name with date and time.

9.3.4 File # Length

The number of digits used for the suffix with the automatic-sequential file name numbering.

9.3.5 Mode Of Default Folder Of Document Compare

There are two different ways to choose from which folder a comparison file is opened:

DefaultFolderForSavingAutomatic	the same folder as the automated file saving;
CurrentDocumentFolder	the folder of the active document.

9.4 Document Behavior

9.4.1 Activation Cursor On Maps Tips

If set to true the tips for the cursor on the maps are displayed.

9.4.2 Display Cursor On Maps Tips (ms)

The time in milliseconds for displaying the tips for the cursor on the maps.

9.4.3 Activation Hardware Acceleration

If true the hardware acceleration for the views (Table, 2D & 3D) is active. If set to false no hardware acceleration is used. Without the hardware acceleration the view refresh rate will become slower.

9.4.4 Maximum # of undo

Max number of undo for every table in the document.

9.4.5 Last Cell Selected Is Current

When set to true the last cell of a selection will be used as the current point and displayed in the values windows. If set to false the first point in the selection will become the current point and it's values will be displayed.

9.4.6 Shift Direction

Set to standard the direction of the movement of the maps will be in the same direction as the mouse is moved. When this option is set to Reversed then the movement of the maps will be in the opposite direction of the mouse.

9.4.7 Rotation Direction

Set to standard the direction of the rotation of the maps will be in the same direction as the mouse is moved. When this option is set to Reversed then the rotation of the maps will be in the opposite direction of the mouse.

9.5 Document Appearance

9.5.1 Layout Viewports Map

The way the three different windows are arranged on the screen:
    Horizontal_Table_Left_Top_3D_Right_Top_2D_Bottom;
    Horizontal_2D_Top_Table_Left_Bottom_3D_Right_Bottom.

9.5.2 Actual Color

The text color used in the tables.

9.5.3 Shows Original in 1D

When set to true shows the original map in the table window.

9.5.4 Shows Original in 2D

When set to true shows the original map in the 2D window.

9.5.5 Shows Original in 3D

When set to true shows the original map in the 3D window.

9.5.6 Original Color

The color in which the original values (values of the table when it has been opened) of a table are displayed. This color is used for the text and for the lines of the original values in the 2D and 3D views.

9.5.7 Original Thickness Proportions

The thickness of the lines used to show the original values.

9.5.8 Shows Comparative 1D

When set to true, shows the values of the file in comparison in the 1D (table) window.

9.5.9 Shows Comparative 2D

When set to true, shows the values of the file in comparison in the 2D window.

9.5.10 Shows Comparative 3D

When set to true, shows the values of the file in comparison in the 3D window.

9.5.11 Comparative Color

The color in which the original values (values of the table when it has been opened) of a comparison file are displayed. This color is used for the text and for the lines of the original values in the 2D and 3D views.

9.5.12 Comparative Thickness Proportions

The thickness of the lines used to show the values of the file in comparison.

9.5.13 Load Map Colors

The possible colors for the single load ranges are:
Alternate	alternating colors, CyanoToBlue and YellowToRed;
CyanoToBlue	from cyan to blue (minimum to maximum value);
YellowToRed	from yellow to Red (minimum to maximum value).

9.5.14 Current Cell Color

Color of the cell selected as the current one. Depending upon the setting in **Last Cell Selected Is Current** it can be the first or the last point of a selection.

9.5.15 Selection Color

The color in which a selection is displayed.

9.5.16 Font of Maps Labels

The Font used for the labels.

9.5.17 Font of Table Map Values

The Font used for the values in the tables.

9.5.18 Ratio Threshold Values Clear Text

The ratio used for the passage of the colors from dark to light in regards of the values of the table.

10 Shortcuts

10.1 File

CTRL + **N**   Read stock from Smarty
CTRL + **O**   Open...
CTRL + **S**   Save
CTRL + **SHIFT** + **S**   Save as...

10.2 Edit

CTRL + **Z**   Undo
CTRL + **Y**   Redo
ALT + **Left**   Backward selection echo
ALT + **Down**   Full selection echo
ALT + **Right**   Forward selection echo
CTRL + **C**   Copy
CTRL + **V**   Paste
F2 or **Digits**   Manual entry
CTRL + **Up**   Large increase
CTRL + **SHIFT** + **Up**   Small increase
CTRL + **Space**   Restore original values
CTRL + **SHIFT** + **Space**   Paste from compared values
CTRL + **SHIFT** + **Down**   Small decrease
CTRL + **Down**   Large decrease
CTRL + **Add**   Increase ramp
CTRL + **Subtract**   Decrease ramp

10.3 View

CTRL + **D**   Default view
CTRL + **F**   Zoom fit

10.4 Smarty

CTRL + **N**   Read stock from Smarty
CTRL + **W**   Write file to Smarty...

10.5 Comparison

CTRL + **K**   Compared with file...
CTRL + **SHIFT** + **K**   Remove comparison

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11 Mouse and keyboard in the map views

11.1 Map table view

Right Mouse	Contextual menu
Right Mouse + drag mouse	Pan
Click **Left Mouse** over map cell	Single selection
Press **Left Mouse** + drag mouse over map cells	Sequential selection
SHIFT + Click **Left Mouse** over start and end map cells	Zone selection
CTRL + Click **Left Mouse** over map cells	Multiple selection
ALT + Click **Left Mouse** or Click **Left Mouse** in the background	Remove selection
CTRL + **SHIFT** + Press **Left Mouse** + drag mouse	Change values
CTRL + **C**	Copy
CTRL + **V**	Paste
F2 or **Digits**	Manual entry

11.2 Map 2D view

Right Mouse	Contextual menu
Right Mouse + drag mouse	Pan
Click **Left Mouse** over map cell	Single selection
Press **Left Mouse** + drag mouse over map cells	Sequential selection
SHIFT + Click **Left Mouse** over start and end map cells	Zone selection
CTRL + Click **Left Mouse** over map cells	Multiple selection
ALT + Click **Left Mouse** or Click **Left Mouse** in the background	Remove selection
CTRL + **SHIFT** + Press **Left Mouse** + drag mouse	Change values
CTRL + **C**	Copy
CTRL + **V**	Paste
F2 or **Digits**	Manual entry

11.3 Map 3D view

Right Mouse	Contextual menu
CTRL + **Right Mouse**	Pan
Right Mouse + drag mouse	Rotate
SHIFT + **Right Mouse**	Zoom
Click **Left Mouse** over map cell	Single selection
Press **Left Mouse** + drag mouse over map cells	Sequential selection
SHIFT + Click **Left Mouse** over start and end map cells	Zone selection

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CTRL + Click **Left Mouse** over map cells — Multiple selection
ALT + Click **Left Mouse** or Click **Left Mouse** in the background — Remove selection
CTRL + **SHIFT** + Press **Left Mouse** + drag mouse — Change Selection

CTRL + **C** — Copy
CTRL + **V** — Paste
F2 or **Digits** — Manual entry