KEB COMBIVIS 6

The new operating program for KEB COMBIVERT F5/B6/G6/H6/P6 and KEB COMBICONTROL C5/C6

Version: 6.1.2.1
Datum: 27.01.2012
Author: Bernd Tünnermann

Inhaltsverzeichnis

1. Overview

1.1. Properties

- Based on CoDeSys V3 of 3S-Software GmbH and Microsoft's ".NET-Framework".
- Upgraded project handling compared to COMBIVIS 5.6
- Upgraded and enhanced COMBIVIS-Scope
- History for errors and messages
- Possibility to integrate start-up assistants (wizards)
- 16-channel oscilloscope
- Serial communication via serial protocol DIN 66019II or TCP/IP
- IP-addressing for several devices
- Searching on several serial interfaces in parallel
- HSP-5 service via USB-serial converter or port expander
- Update function via Internet
- Config.-IDs available from generation 5 and 6
- No visualization of CP-Menu and operator parameter of KEB F5 InterBus-Operator
- Can be used to COMBIVIS 5 in parallel, but no service of the same COM-Port

Enhancements version 6.1.2.x compared to Version 6.1.1.x amongst others:

- Comparison of parameter lists
- Several scopes in a project
- Data storage list storable directly with project
- Proxy adjustments for update function
- Pre-adjustments for parameter lists
- Fixing of Y-axis in scope as an option
- Improvement of function handling

1.2. Types

- Parameterization version "COMBIVIS 6" (issue of this manual)
  - For free
  - Registration welcome

- Programming version „COMBIVIS studio 6"
  - Additionally:
    - SPS programming in IEC 61131-3 (C6 controllers)
    - Bus configuration (e. g. EtherCAT, CAN, Profibus, ...)
    - Configuration of Remote I/Os
    - Other additional components
  - Licensing requested with costs
  - Demo version for free, time-constrained

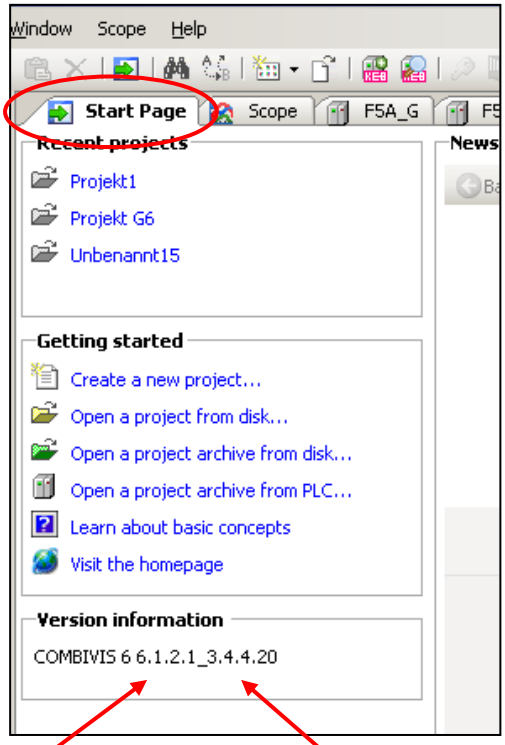
1.3. System requirements

Minimum equipment for smaller projects:

- 1 GB RAM
- MS-Windows 2000, Windows XP, Windows Vista, Windows 7 32-bit and 64-bit version
- 1 GHz Pentium
- 1 GB hard disk storage free
- Screen resolution min. 1024 x 768

1.4. Version information

The version information is displayed at the start page also by menu: “Help” → “About….”



Version of COMBIVIS 6, here: 6.1.2.1

Version of subjacent CoDeSys-software, here: 3.4.4.20 (not shown at every version)

1.5. Interface hardware

1.5.1. Connection of COMBIVERT F5

Connection COMBIVERT F5-inverter – PC

HSP-5 interface D-SUB 9-pole X4A:
USB-serial-converter Part No. 00.58.060-0020

By using an interface operator connection at
D-SUB 9-polig X6C:
RS-232 cable PC / operator
Part No. 00.58.025-001D
Alternative:
USB-serial-converter
Part No. 00.58.060-0020

HSP5 diagnostic interface X6B in field bus-operators and interface-operators
USB-serial-converter
Part No. 00.58.060-0020
Additionally:
HSP5-adapter D-SUB 9-pole / RJ45
Part No.: 00.F5.0C0-0020

Connection also via TCP/IP-operator
Part No.: 00.F5.060-8000

1.5.2. Connection of COMBIVERT B6

Connection COMBIVERT B6-inverter – PC

HSP5 diagnostic interface X6B

Connection by: USB-serial converter
Part No.: 00.58.060-0020
+
HSP5-adapter D-SUB 9-pole / RJ45
Part No.: 00.F5.0C0-0020

1.5.3. Connection of COMBIVERT G6

Connection COMBIVERT G6-inverter – PC

Connection to D-SUB 9-pole X4A

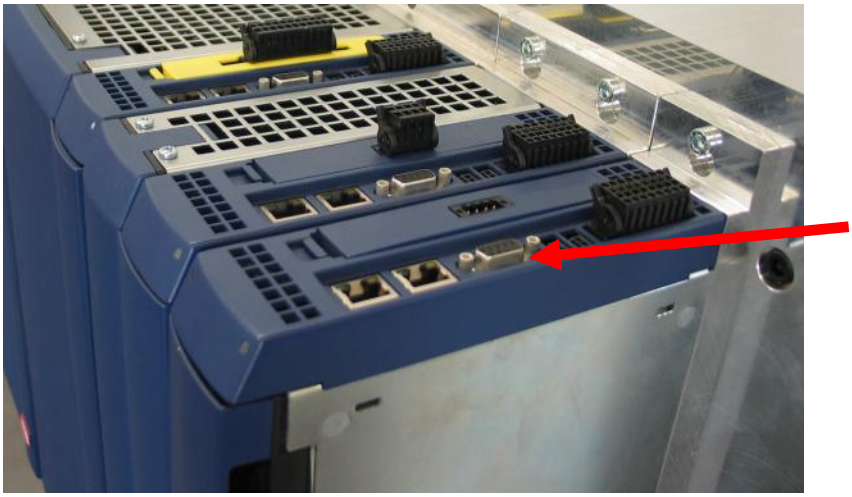
Protocol DIN 66019 II:

RS-232 cable PC / operator
Part No.:00.58.025-001D

Alternative:
USB-serial converter, Part No. 00.58.060-0020

1.5.4. Connection of COMBIVERT H6

Connection COMBIVERT H6-inverter – PC



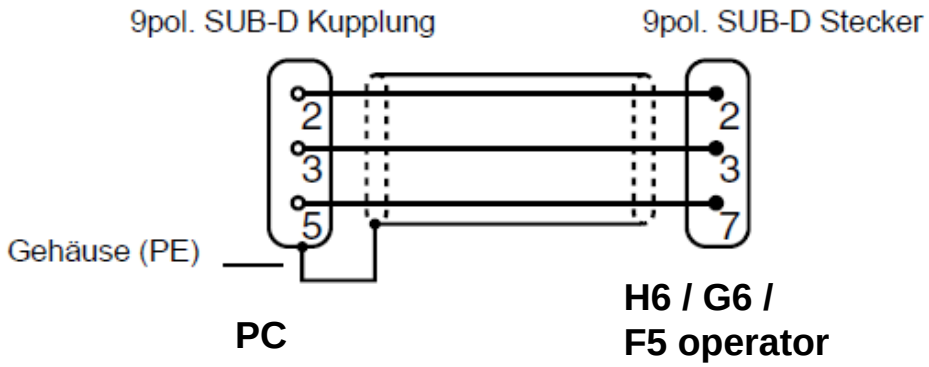
Connection drive units directly to serial D-SUB 9-pole protocol DIN 66019 II:
RS-232 cable PC / operator
Part No. 00.58.025-001D
Alternative:
USB-serial converter
Part No. 00.58.060-0020

Access to drive units also via control unit by TCP/IP UDP

1.6. Accessories

1.6.1. DIN 66019II - RS-232 cable, PC / operator

Part No. 00.58.025-001D



1.6.2. KEB-USB-serial converter

Part No. 00.58.060-0020

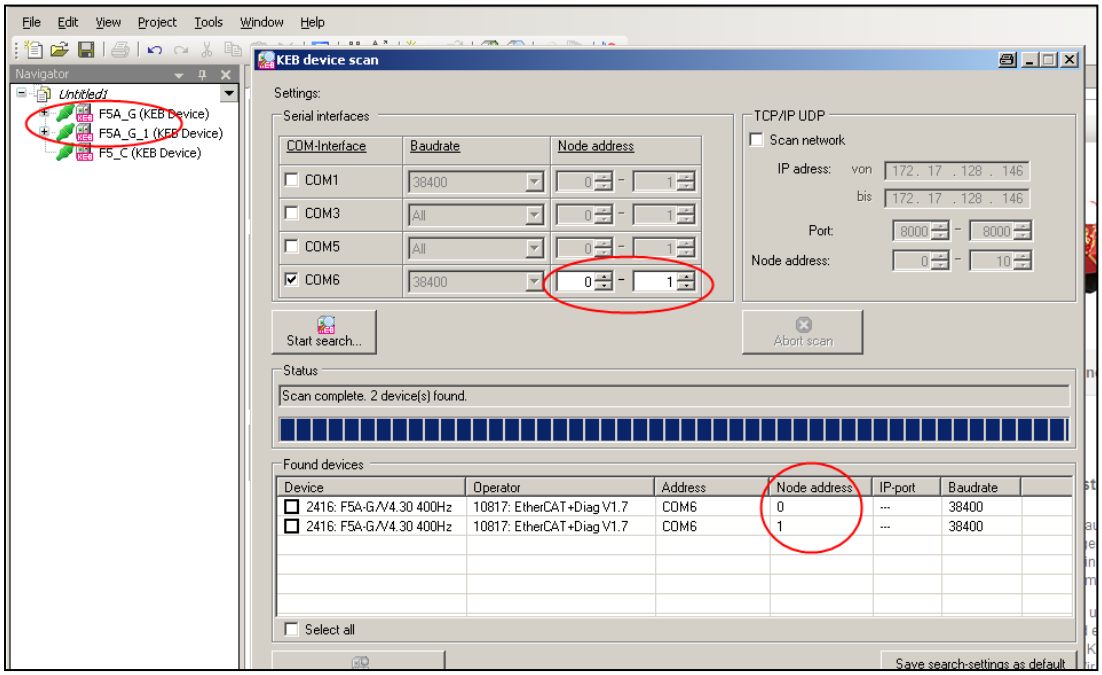
Converts USB into serial DIN 66019 II and HSP5 D-SUB 9-pole

- The USB-serial-converter represents a virtual COM interface.
- It is not a customary USB serial converter, because the serial protocol is not transferred completely.
- On USB‘s side always DIN66019II is running
- A connection of several USB-serial-converters, each with a serial- or HSP5-unit, is possible.
- The 9-pole serial side supports with auto detection:
  - DIN66019 based on of RS 232
  - HSP5 (TTL level)
- 38.4 kBaud should be used as baud rate.
  - Max. baud rate is 115,2 kBaud
  - No support for automatic adjusting of baud rates
  - Baud rate can be adjusted with COMBIVIS 6
- USB INF file “kebcdc_win7.inf” has to be installed separately for each PC-USB interface
- ATTENTION! The USB-serial converter cannot be used for software flashing!

Driver installation
From version 6.1.2.1 you will find the USB driver “kebcdc_win7.inf” in the COMBIVIS 6 installation folder “C:\Programs\KEB\COMBIVIS_6\Drivers”.
At some Windows7 versions a driver of STElectronic is installed automatically. This can be used with COMBIVIS 6 without limitations. But in the name “KEB device” is not given in the “W7- control panel”. For this the KEB driver has to be installed manually.

Please note:

Node addresses are not specified in HSP5 interface of the USB-serial converter. So COMBIVIS 6 will find a device on each scanned address!
E.g.: While scanning address 0 and 1 the same device will be found and included twice, regardless of which current node address is adjusted.
So, search for connection by HSP5 only on address 0!



1.6.3. HSP5-adapter

D-SUB 9-polig / RJ45
Part No. 00.F5.0C0-0020

Use for B6 and F5 bus operators (HSP5) only with KEB-USB-serial converter!

1.6.4. Port Expander

Ethernet / USB – HSP5 converter
Part-No. 00.F5.025-0080

- Input: TCP/IP or USB protocol DIN 66019II
- Output: 4x HSP5 or 3x HSP5 + 1x RS485
- Allows the connection of up to 4 COMBIVERT B6 or F5 bus operators to HSP5
- Alternatively at port X4D a RS485 bus can be connected
- External 24V supply is necessary
- For searching the devices the node addresses 0 to 5 have to be adjusted (node 0 = Port Expander, node 1-4= the HSP5 ports X4A – X4D).

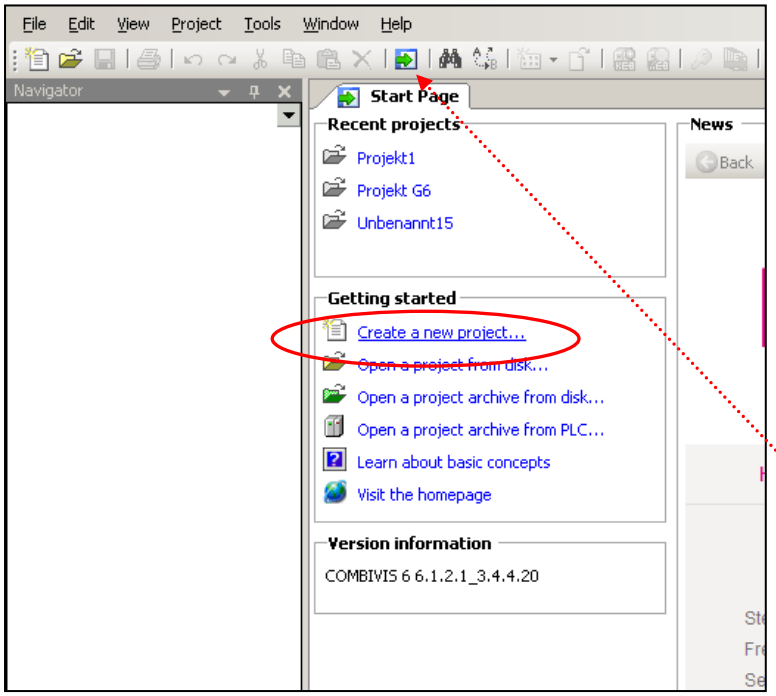
Driver installation
From version 6.1.2.1 you will find the USB driver “FTDI_USB_Serial_Converter” in the COMBIVIS 6 installation folder “C:\Programs\KEB\COMBIVIS_6\Drivers” (please unpack before installation)

2. Start-up

Communication set-up online via project assistant (basic setting)

2.1. Start page

Handling of a KEB device requires at every time generating or starting an existing project.



Via icon  the starting page can be activated again at any time.

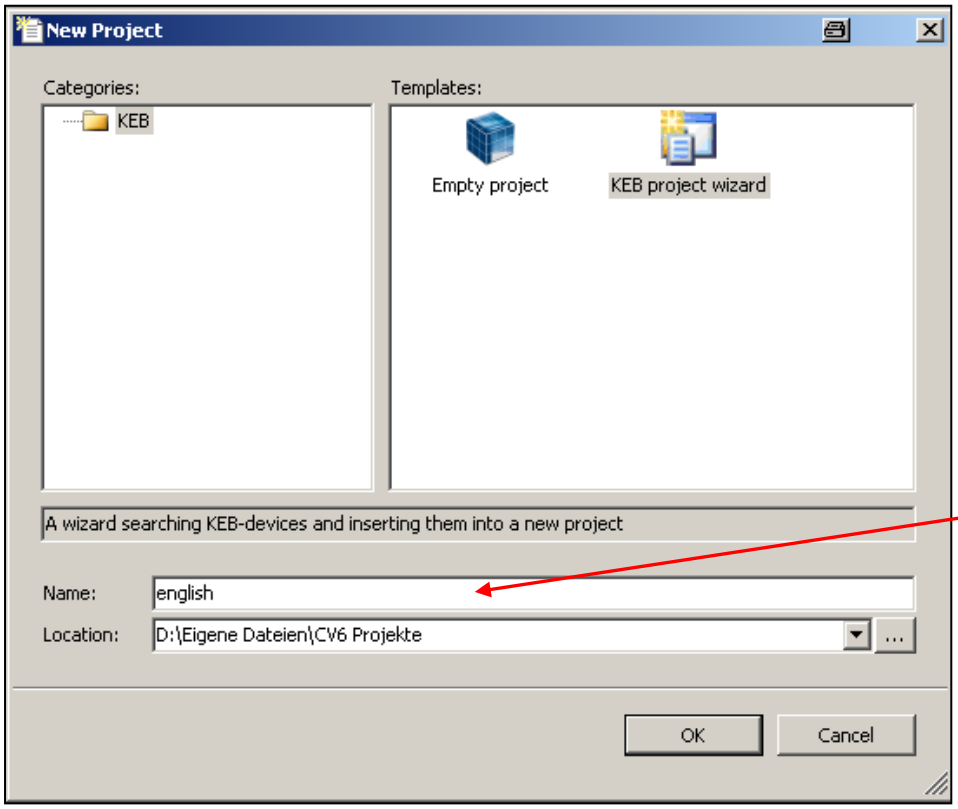
After that the window “project assistant” / “empty project” will be shown.

2.2. Start-up online

2.2.1. Starting via project assistant

The automated project wizard (assistant) opens a new project, operates a predefined searching for connected devices and integrates the located devices into the project.

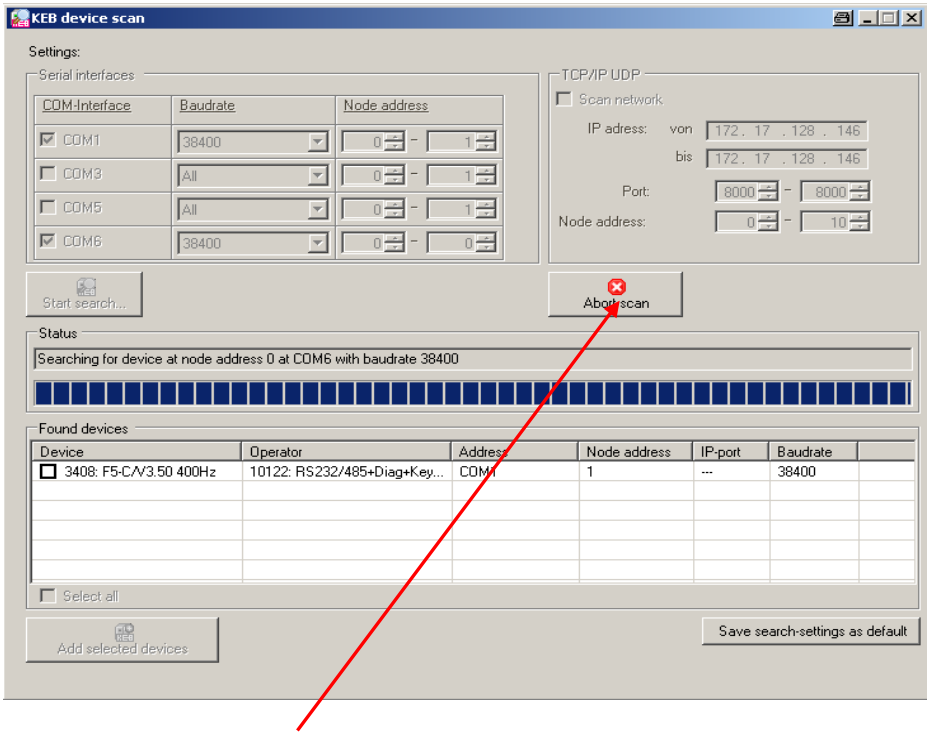
By selection “Empty project” the searching / integration of devices have to be done manually.



Input of project’s name and storage location

2.2.2. Searching for devices

The searching for devices depends on the presetting and goes on automatically.



Searching can be interrupted; the adjustments can be changed and reconfigured.

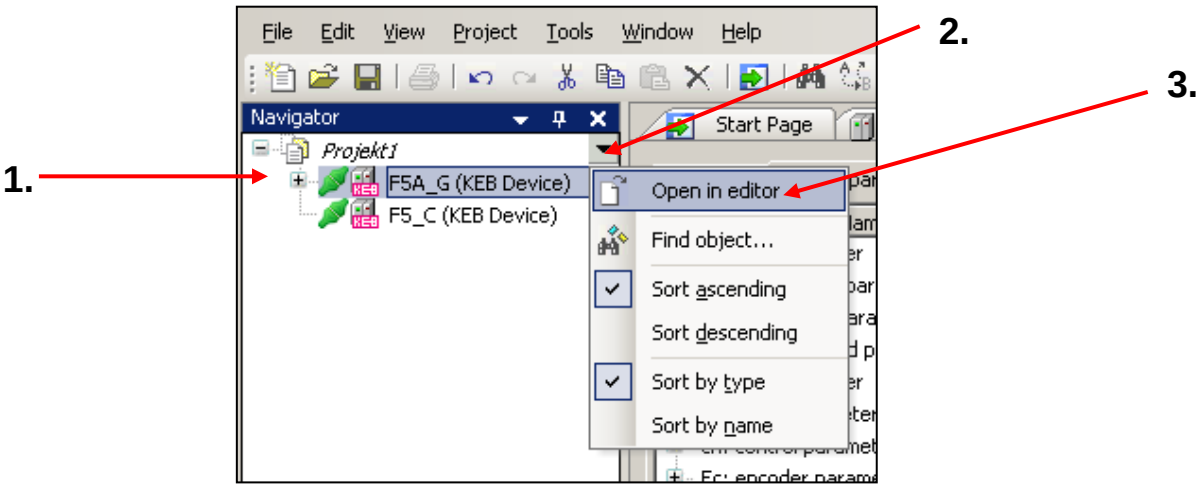
Please note: Inverters connected by RS485 need to have different node addresses!

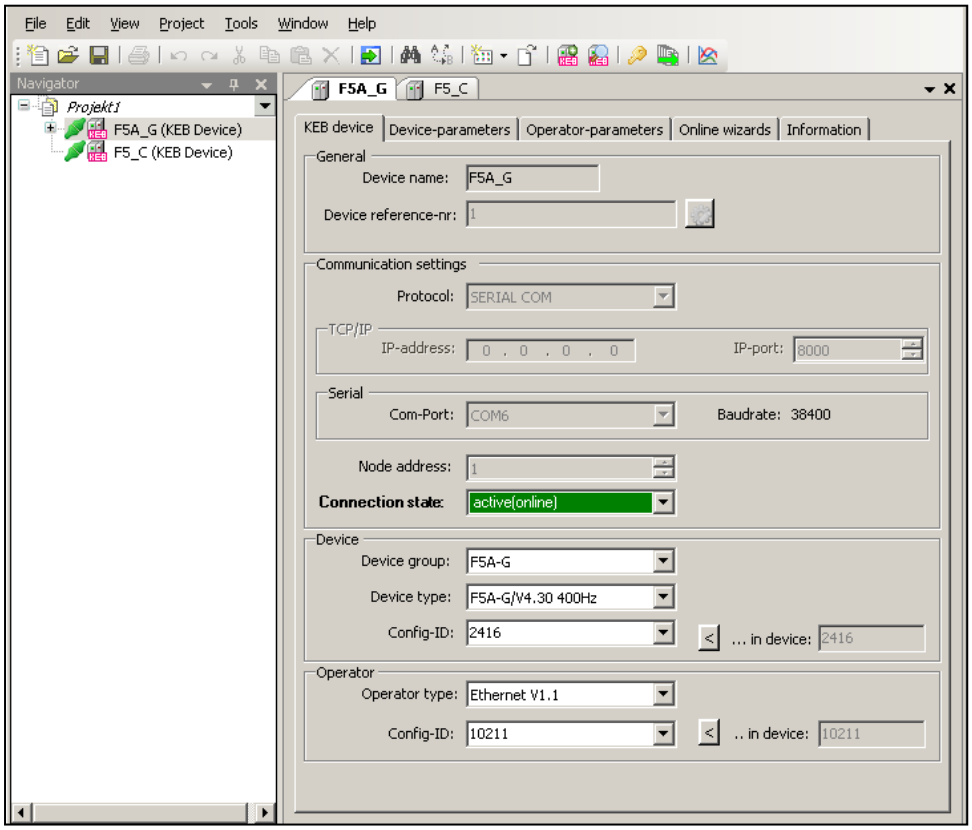
Attention!
In case of device-searching in a network all connected devices with permitted addresses will be found. Also those, which are in other rooms or buildings!

2.2.3. Open device editor

There are two ways to open the device editor:

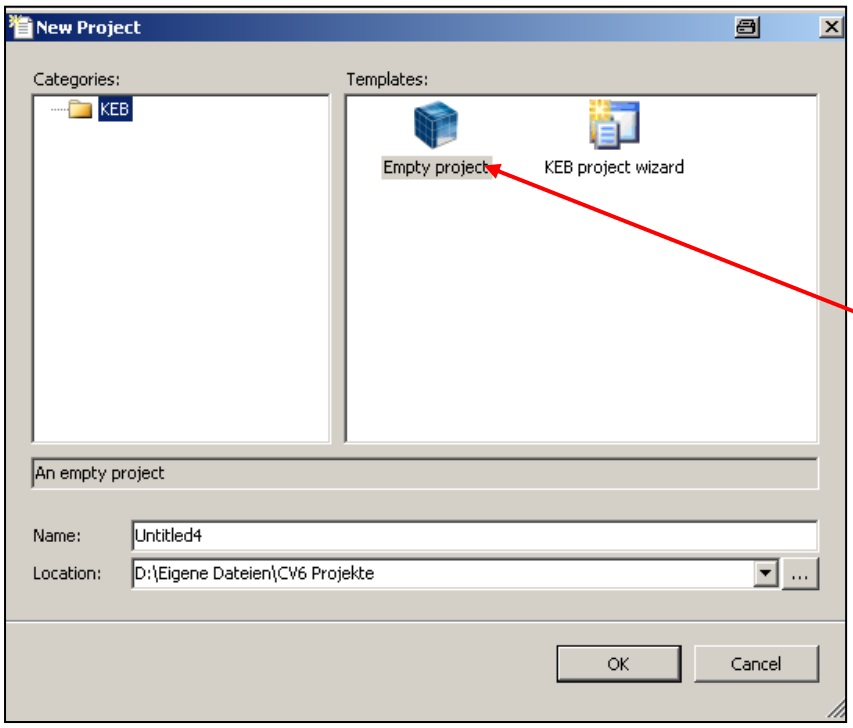
- Via double-click on the name of the device(s) which is/are to edit, or:
- Marking the name of the device(s) (1.)
  → click on “down arrow” (2.)
  → “open in editor” (3.)





For continuing please see: 3. Device editor

2.2.4. Start-up with empty project



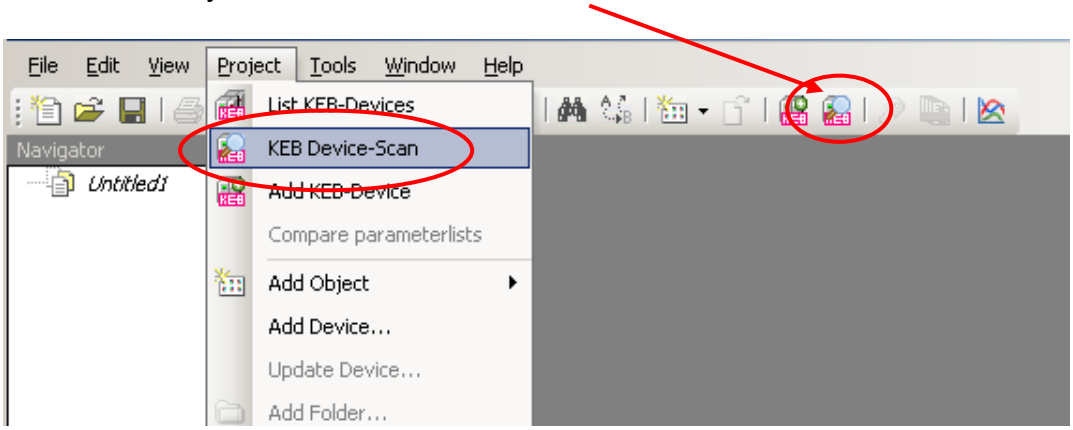
Start with an empty project

With an empty project it is possible to start a specific scan with connected devices or without connected devices they can be integrated manually.

2.2.5. Searching for devices – manually

Open an empty project – or from an existing project – click on:
“Project” → “KEB device scan”.

Or another way: Click on button “KEB device scan” in the tool bar.



The scan run can be controlled in the window “KEB device scan”.
Differing to the standard setting other COM-interfaces, addresses, baud rates or IP-addresses can be scanned temporary.

Scan area TCP/IP

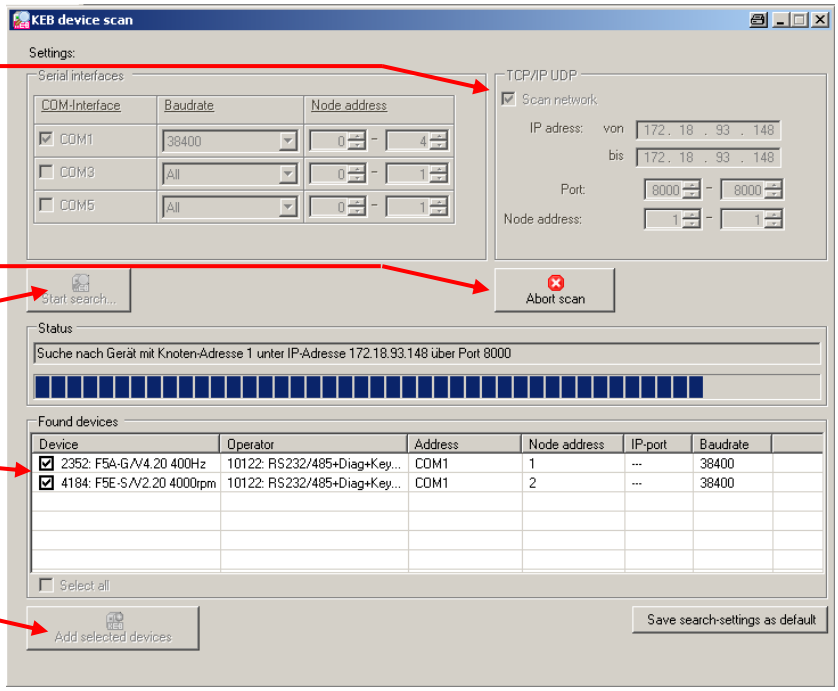
Scan area COM-interfaces

Stop searching

Start searching

Select devices, which are to add on (☑)

Adding the located devices to the active project

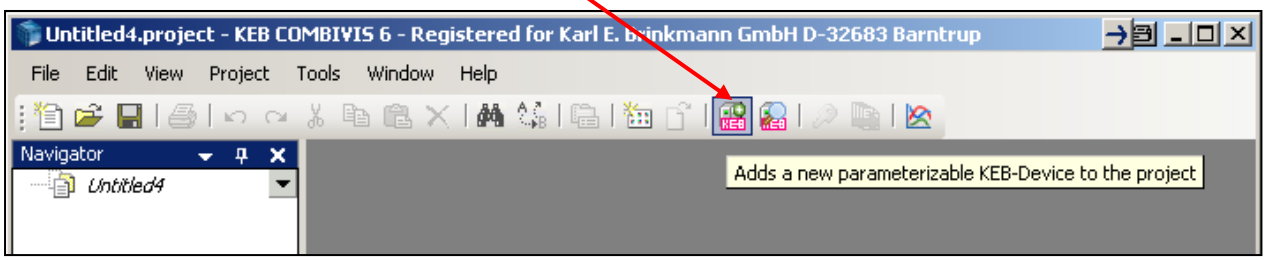


If searching via USB serial converter at F5/B6 please read the notes in "1.6.2. USB-serial converter"!

2.3. Start-up offline (without inverter)

If COMBIVIS 6 shall be opened without a connected device, then it must be added manually. So for example a parameter list can be manually generated offline.

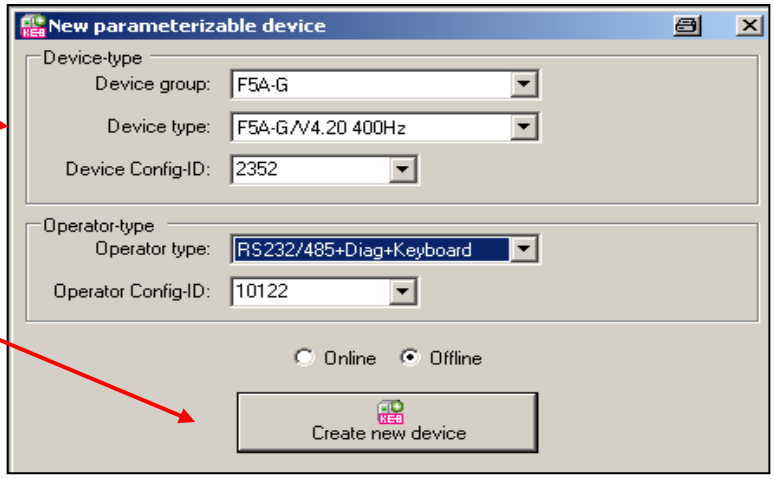
- Open an empty project
- Left mouse click on button: "Add a new parameterizable KEB device to the project"



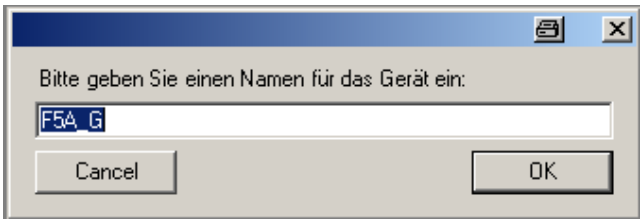
- Choose device group and -type respectively device config-ID.

  If necessary also choose an operator

- Enter “Create new device”



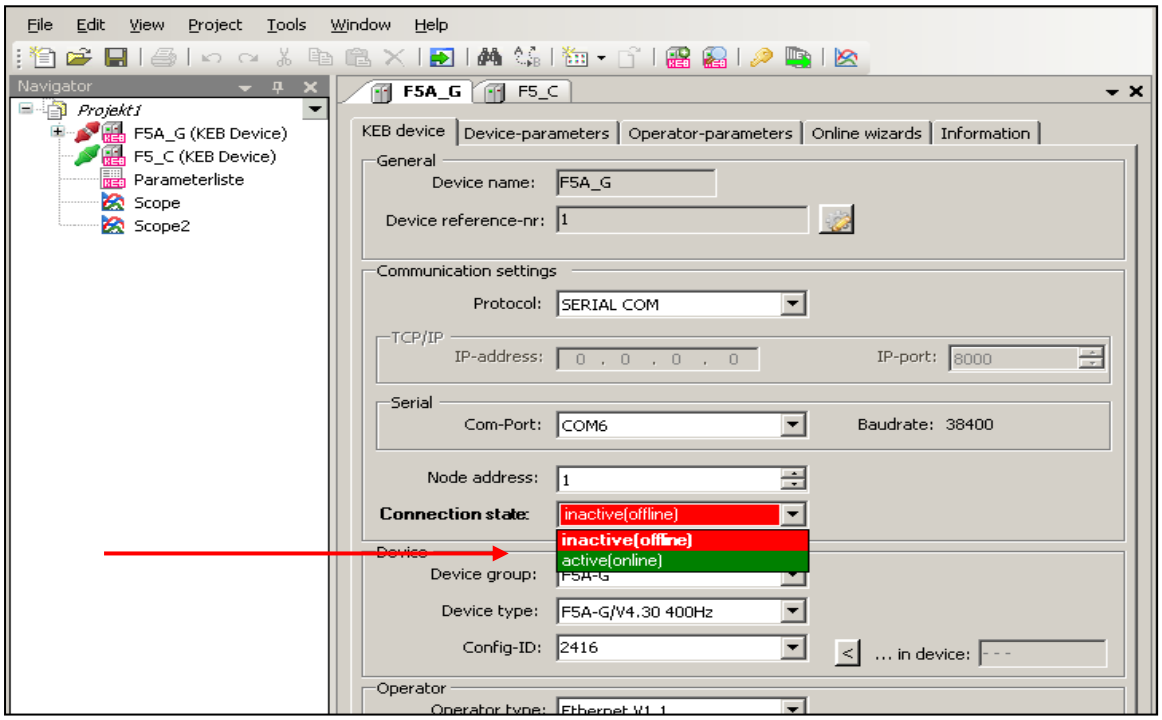
Fill in the name of the device which is to add.



Offline device will be added and the window “device editor” opens.

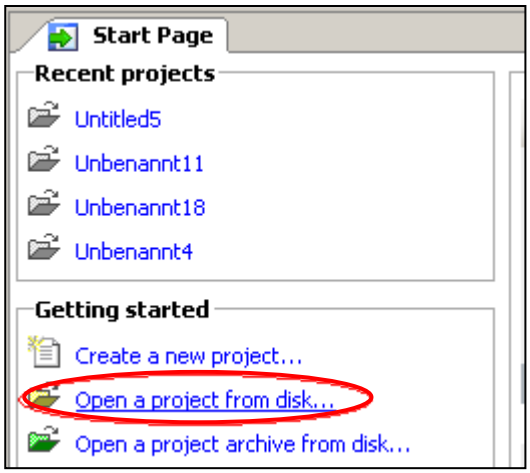
→ Continue like “online” mode

Connection status “inactive” will be activated when device is connected with current communication adjustments.



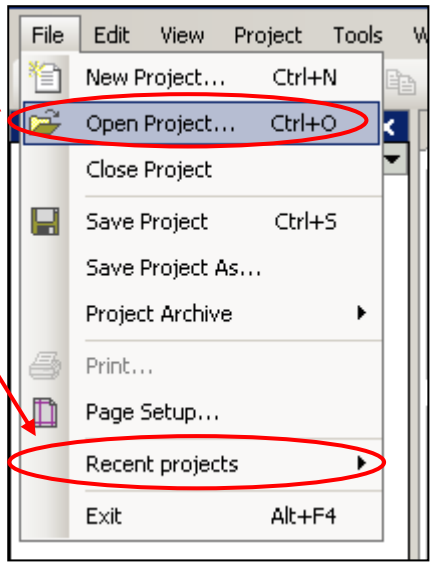
2.3.1. Open an existing project

On start page → “open a project from disk”



Or:

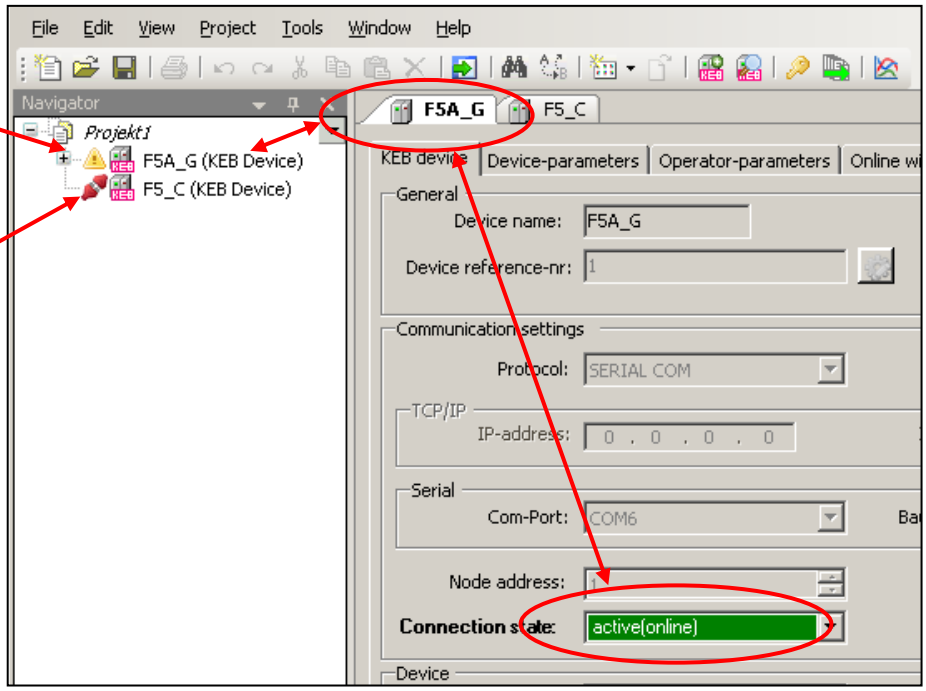
- Open an existing project with “File” → “open project”
- Or open an existing project with “File”→ “recent projects”



After opening an existing project without connected devices:
When saving the project the status of the devices will remain

Device active, but no connection

Device inactive, but no control of communication



3. Device editor

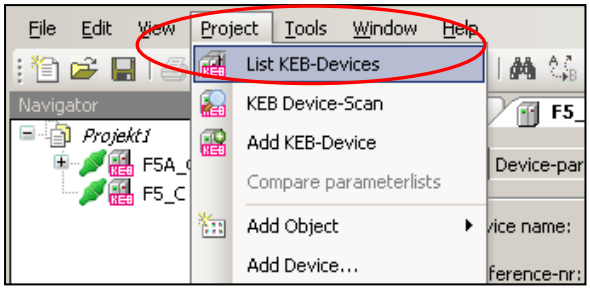
- The device editor corresponds to COMBIVIS 5.x project explorer.
- Online data communication, all parameter values will be modified online in the device.
- Parameter storing has to be effected by a separate parameter list (see: “Tools” / “Parameter backup”
- Each device has got its own device editor.

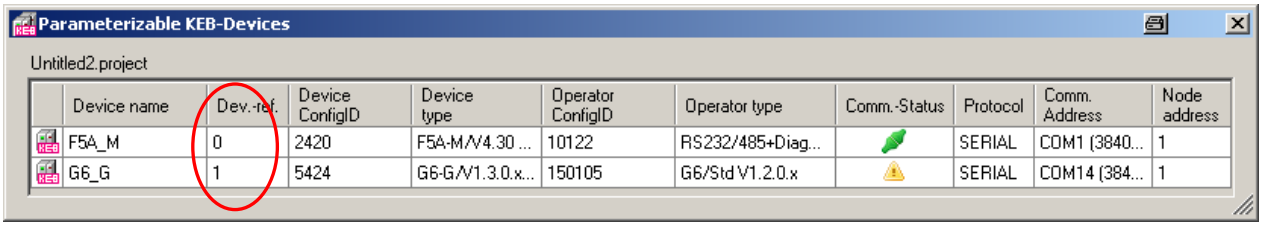
3.1. Device reference

The device reference number is the instrument to distinguish precisely all devices in the project. This number will be assigned in order of locating during device scan and describes the position of the drive in data bus. It is independent from device node address. That means it can change after modification of the wiring and a new scan! Each device reference can only exist once. It can be changed manually after switching the device communication into “inactive”.

A reference list with all devices can be displayed:

- Right mouse click in navigation window → “List KEB-Devices”
- In menu bar; “project” → “List KEB-Devices”

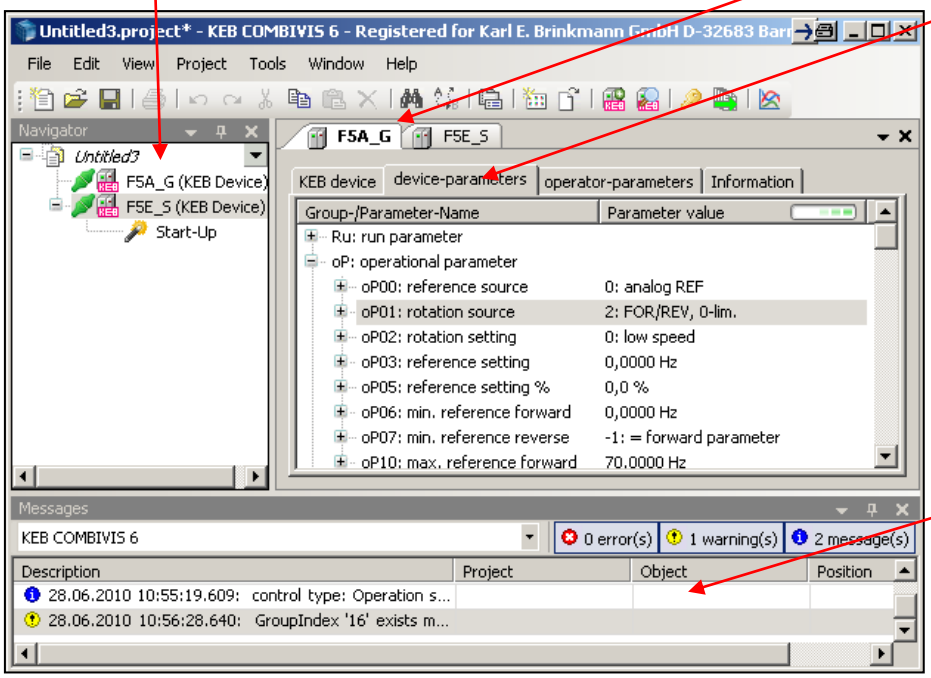




3.2. Screen layout

Navigator: presentation and activation of the project's particular objects and devices.

Editor: Editing objects and devices, brake down in tabs according to: a) device and b) range.

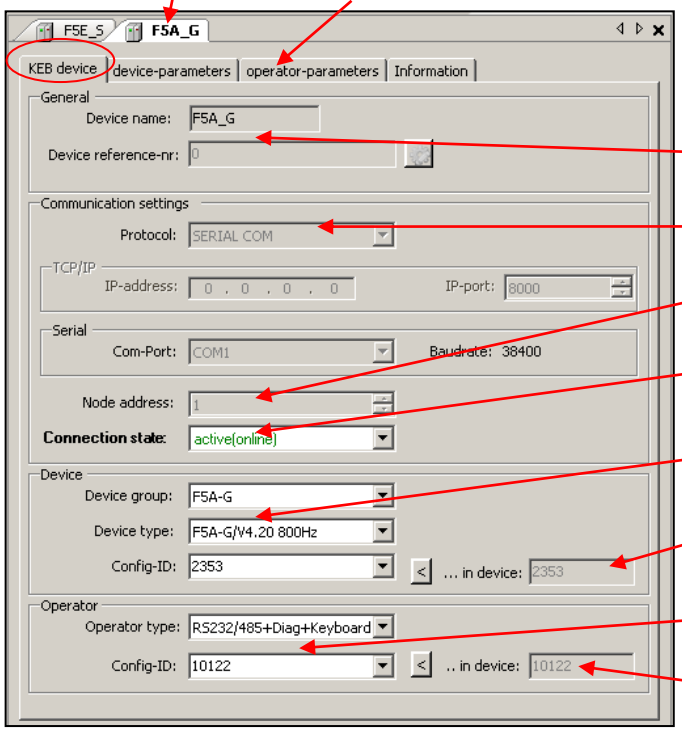


Messages: Status, alarm- and error information will be indicated and journalized.

3.3. KEB-device

Selection of device or object

Selection of device's or object's function tables



KEB-device:

Device reference number in the project (not device address!)

Communication data

Node- / device address

Status of the device (online / offline)

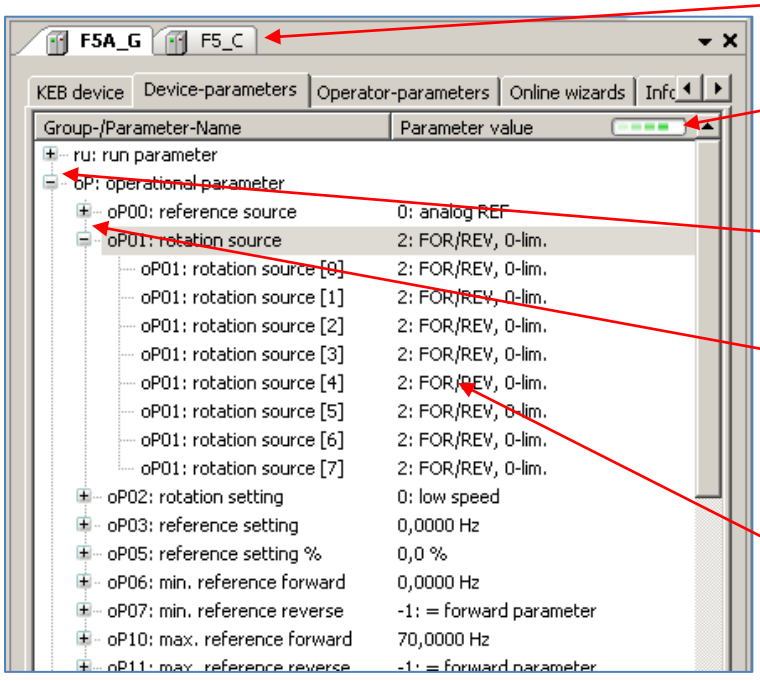
Software ID stored in the project

Device's current software ID

Operator ID stored in the project

Operator's current software ID

3.4. Inverter parameters



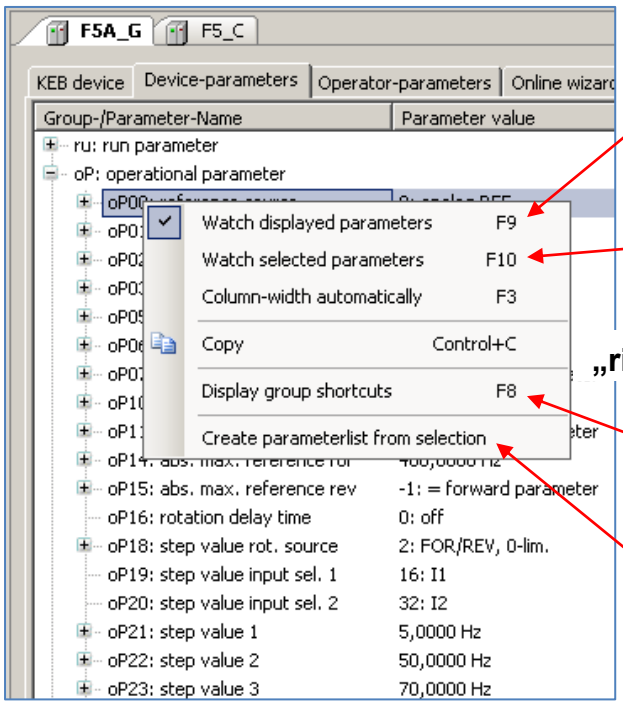
All indicated values are online = active in device

Control of communication

Parameter groups:
Open via click on "+" / "-" or tab key "Enter" / "Space"

Set-programmable parameters

Edit parameter values:
Left mouse - double click, or marking parameter and press key: "Enter" or:
Double click → modify value in property editor



All in monitor indicated parameters will be updated

Only selected parameters will be indicated and updated

„right mouse click“

Open parameter groups, possible with keys r, o, p, c… (F8), close with “space”-key

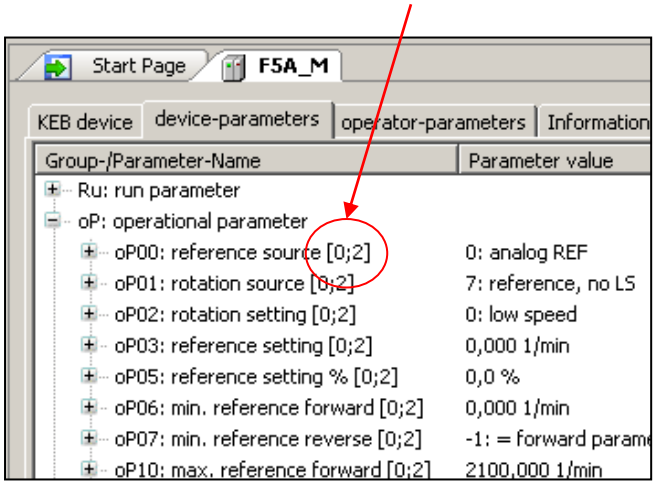
Create a new parameterlist with selected Parameters. Multiple selections by “Shift” and “Ctrl” –key. At first open all parameter groups from which parameters may be selected.

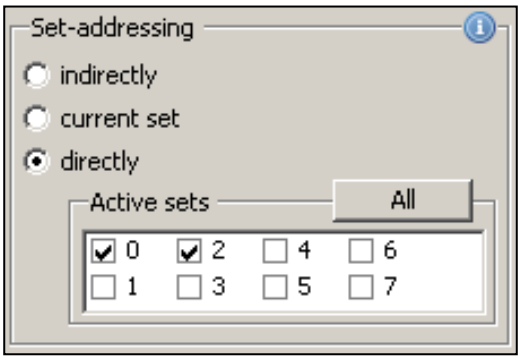
3.5. Set addressing

In standard setting the selection of those parameter sets which are to edit is done indirectly via parameter index Fr.09. The values which are displayed in the 1st under-layer belong to set which is preset in Fr.09 (not set programmable parameters are equal in all sets).

Active set: the parameter of the set which currently drives the inverter is displayed in the 1st under-layer (please see ru.26, active set).
With direct set addressing the set’s belonging will be displayed in [ ] directly behind the parameter’s name.
In the 2nd under-layer (2nd „+“) always all 8 parameters will be displayed

For example: Direct set addressing with set 0 + 2:

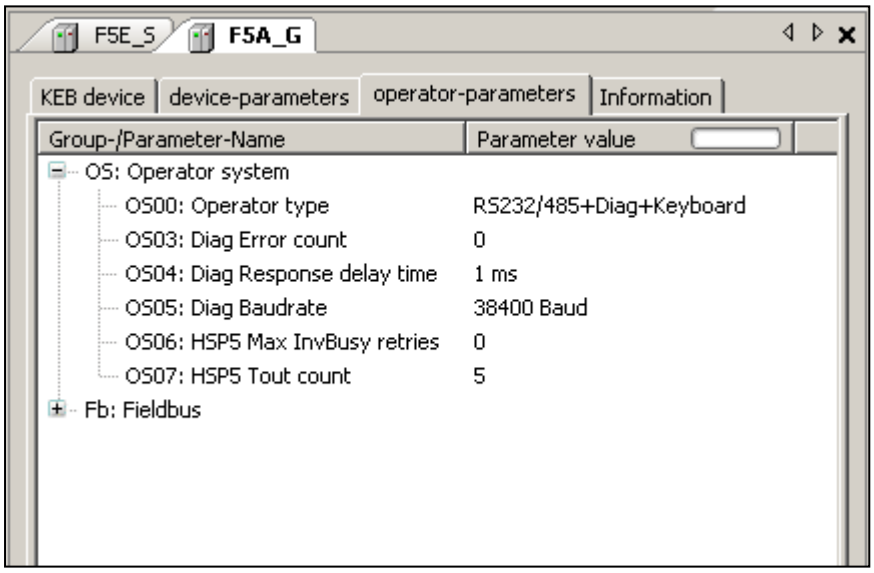




Please see: “Tools” → “Options” → “KEB-settings” → Tab: “Parameter”

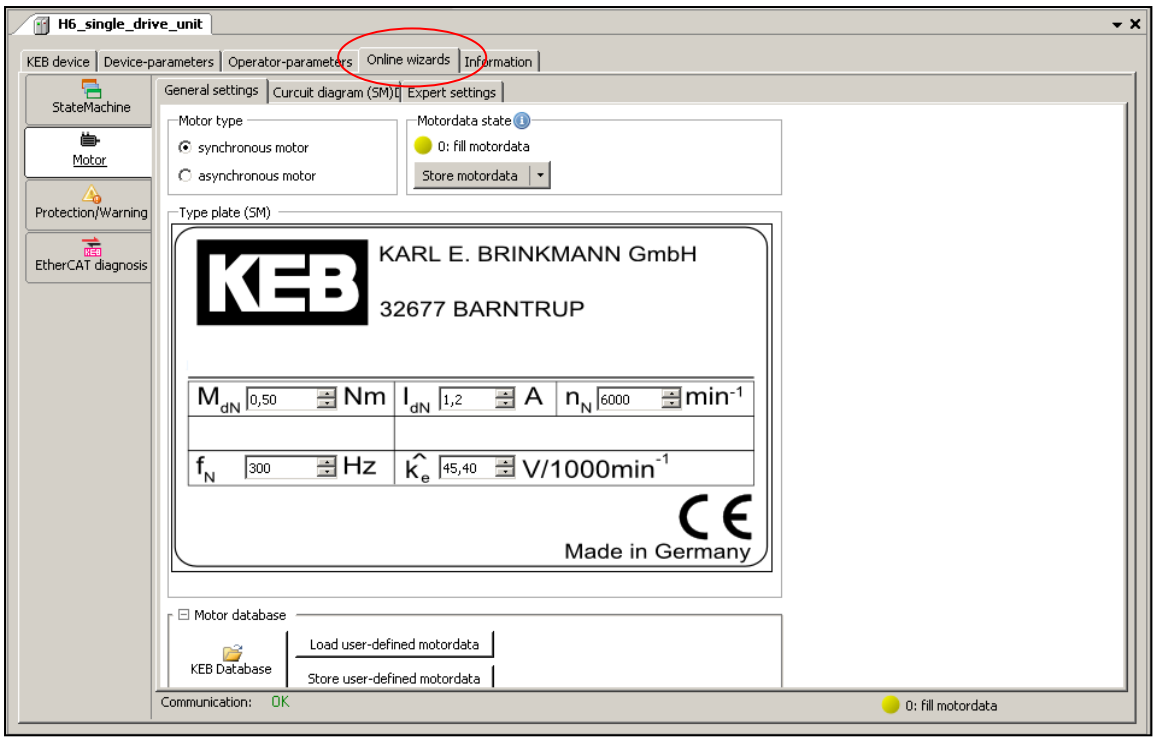
3.6. Operator parameters

Same behaviour like in tab „inverter parameters“



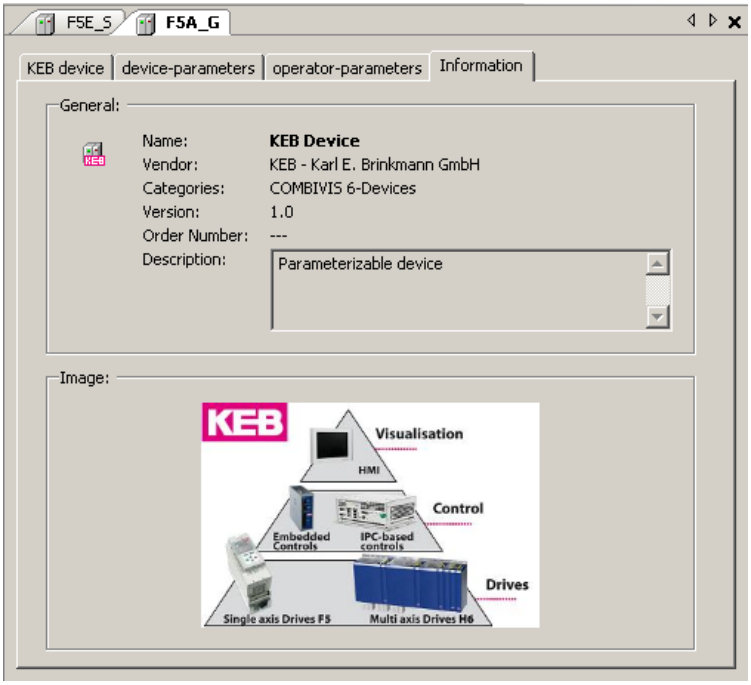
3.7. Online wizards

Online wizards are a start-up and adjustment help. Parameters and adjustments are done direct in the device. See 9.1. Online start-up wizard



3.8. Information

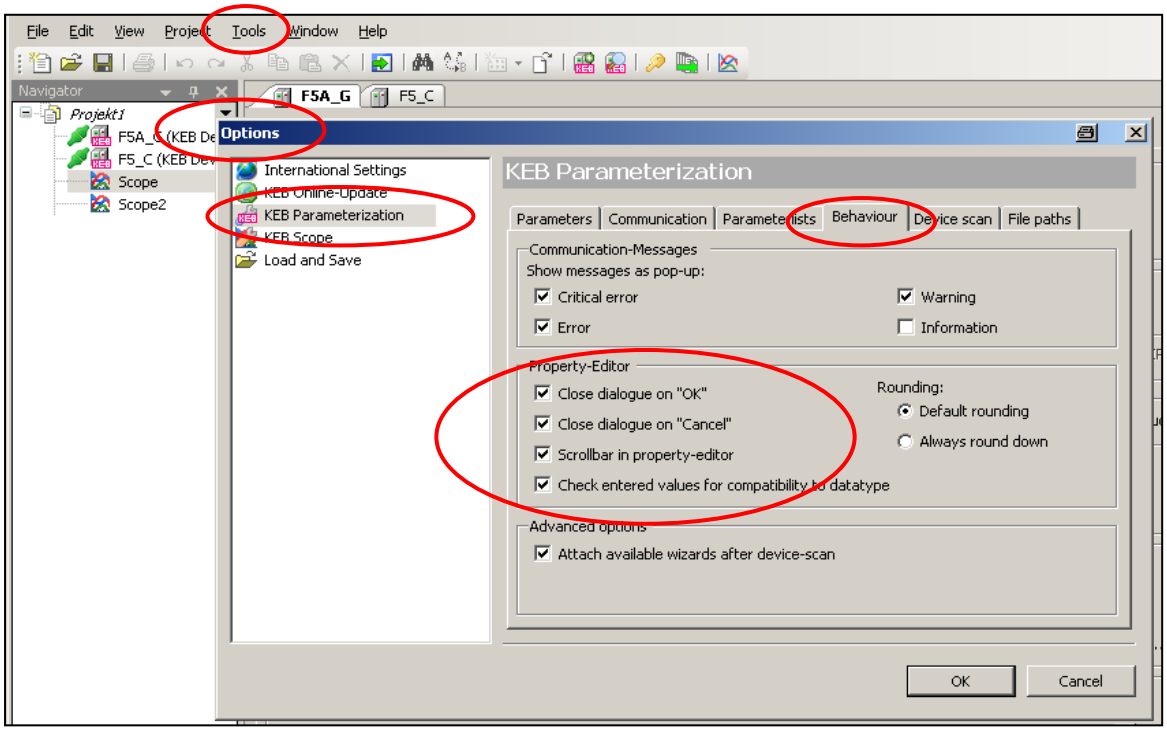
Information: General information about the device.



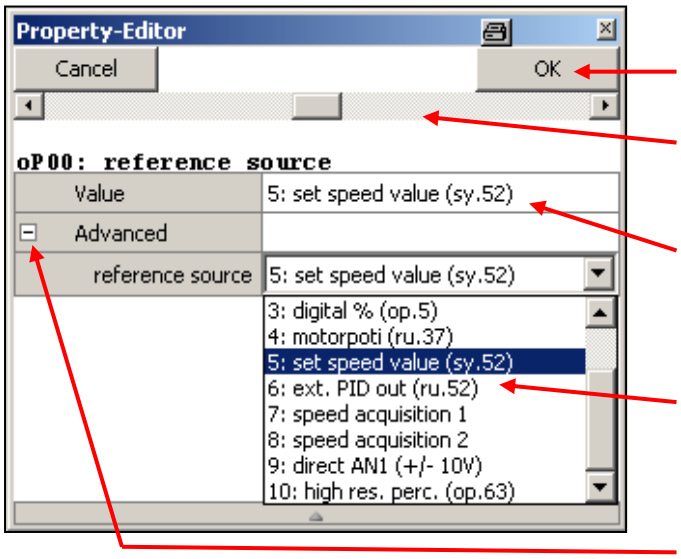
4. Property Editor (input window)

4.1. Basic setting

In area “Property editor” can be adjusted if input window should be displayed sequential or permanently. Please click on: “Tools” → “Options” → “KEB Parameterization” → “Behaviour“.



4.2. Feature selection



"OK" takes the current value

Scrollbar

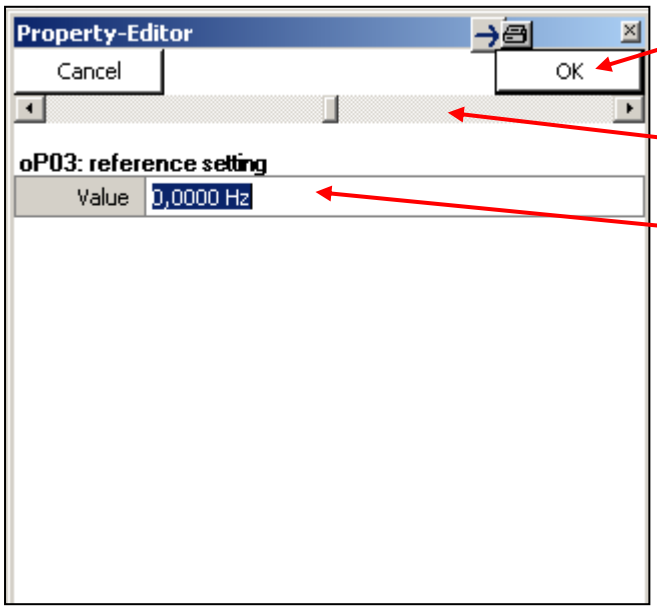
Input value. This value will be taken by "OK". (Can also be given directly as a number)

Selection list

Selection list viewable / hidden

Selection list and scrollbar can be used in parallel.

4.3. Numerical value input



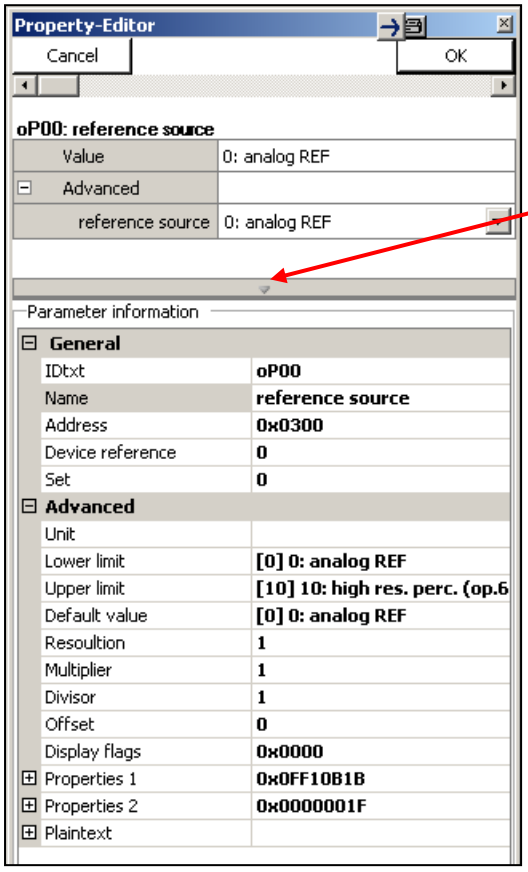
"OK" takes the current value

Scrollbar

Direct input of number.
This value will be taken with "OK"

Direct input and Scrollbar can be used in parallel.

4.4. Basic information

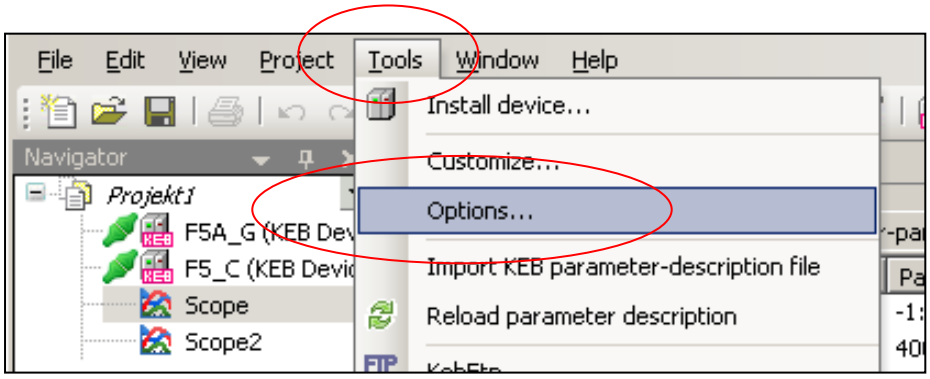


Via click on this arrow a window will be opened which displays basic data of the parameter:

- hex. -address
- Limits
- Default value
- Resolution
- Data length
- …..

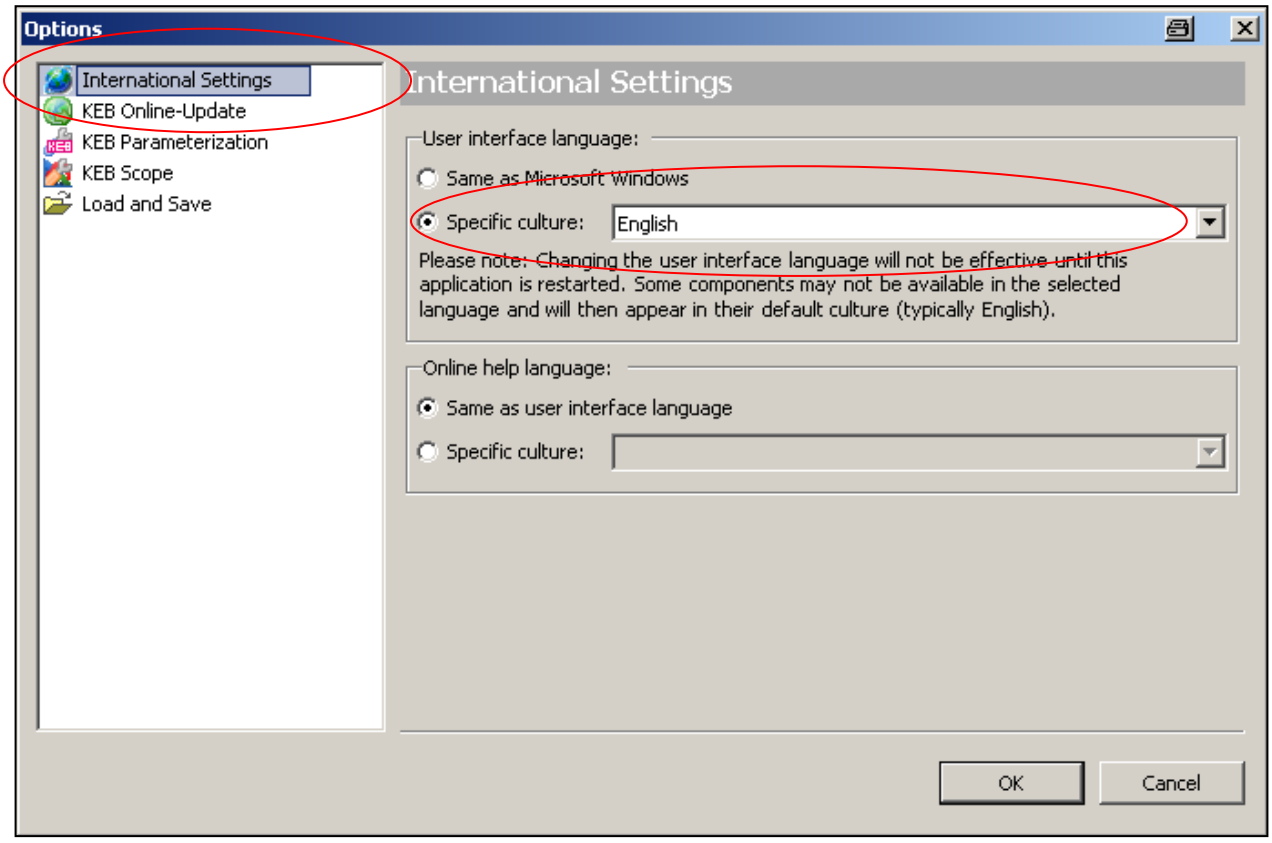
5. General adjustments

General and special options can be indicated and adjusted in “Tools” → “Options”….



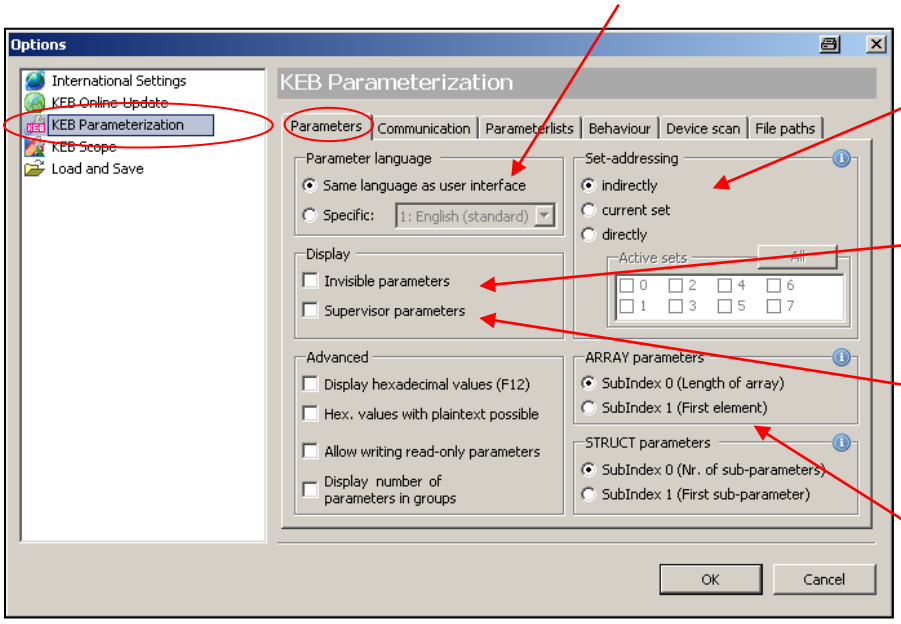
These adjustments will be saved automatically non-volatile.

5.1. Language settings



5.2. Parameter view

Parameter language,
if language file is not available, English will be used.



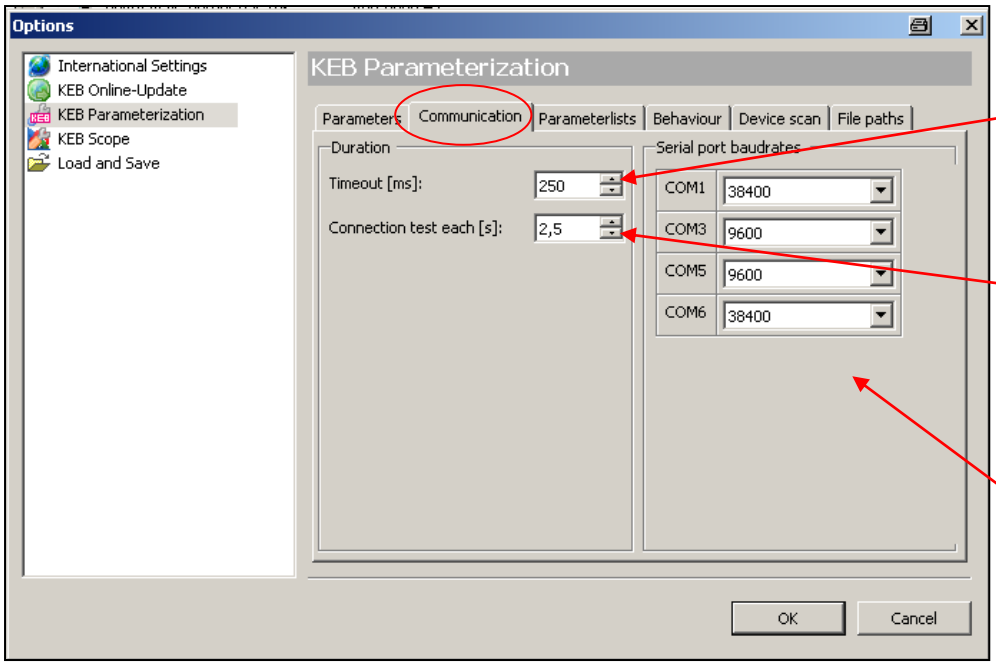
Set addressing of parameters when generating a parameter list

Display of normally invisible service parameters

Display of service parameters with special password protection

Adjustments for drive profiles according to DS402 (only COMBIVERT H6)

5.3. Communication



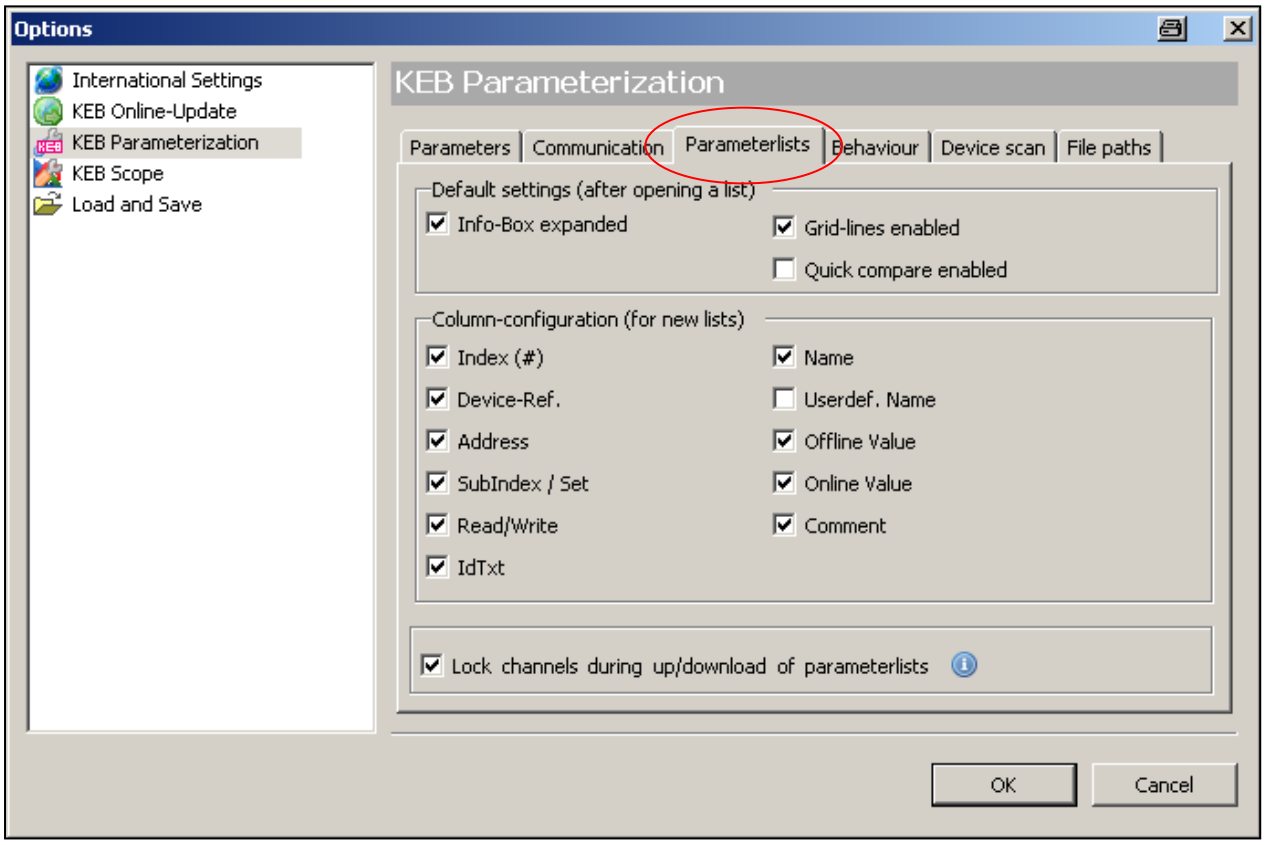
Max. waiting time for reply

Control of circuit status after each x seconds

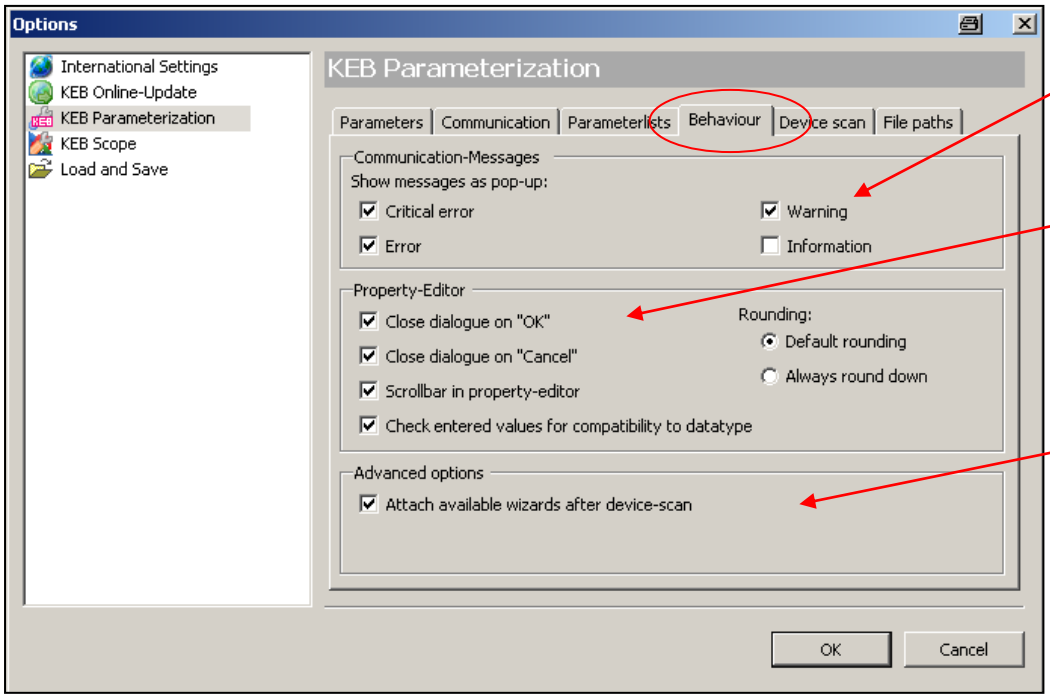
Active attribution of interface and respective transfer rate. The number of COM interfaces depends on the PC hardware.

5.4. Parameter lists

Default settings of new opened parameter lists



5.5. Behaviour



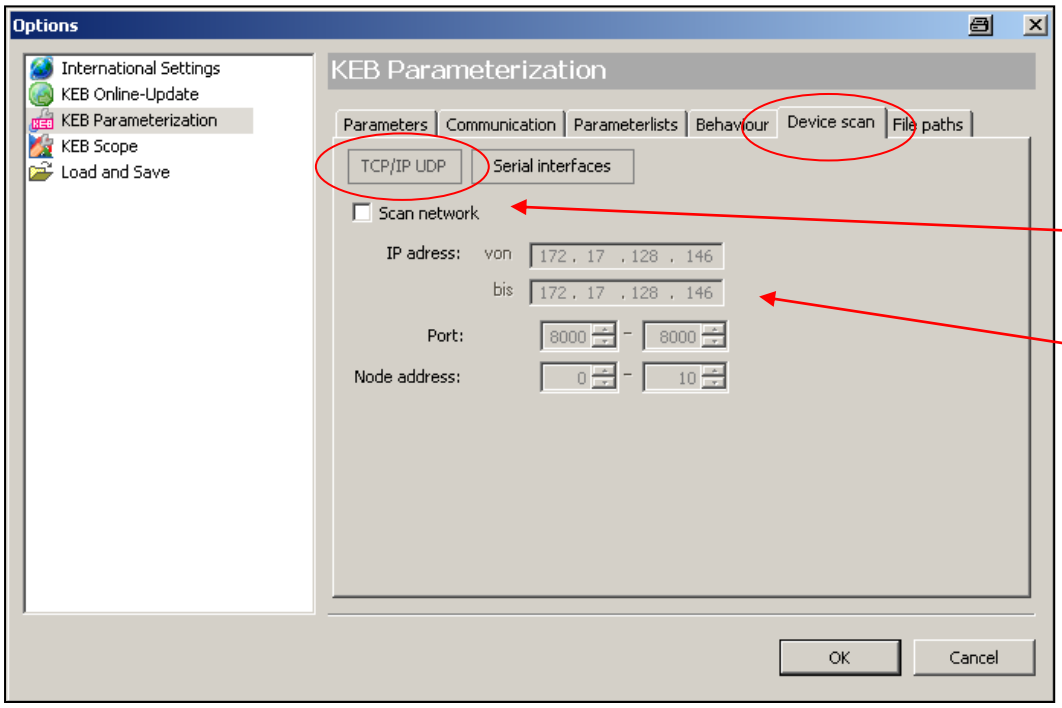
Behaviour at error messages

Behaviour of the property editor (input window)

Available assistants will be directly attached to the located device

5.6. Device scan

Pre-settings for device scan

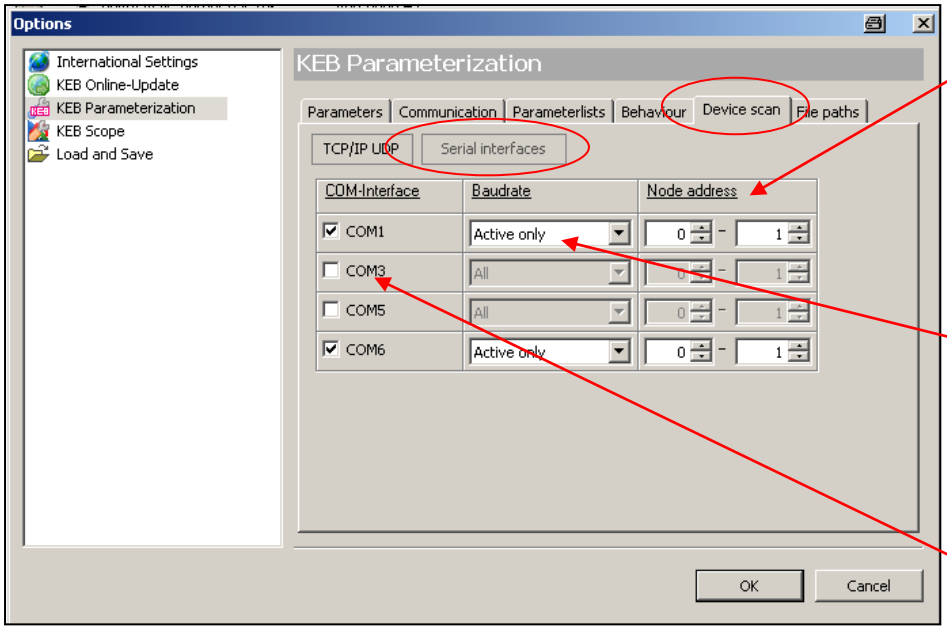


Activates searching in the TCP/IP network

IP address range

With KEB Port-Expander search minimum at node addresses 0 - 4.
0 = Port Expander
1-4 = HSP5-Ports

The pre-setting for the device scan will be directly assumed in the project assistant. When scan is started manually it is still adaptable by “Project” → “KEB-device scan”.



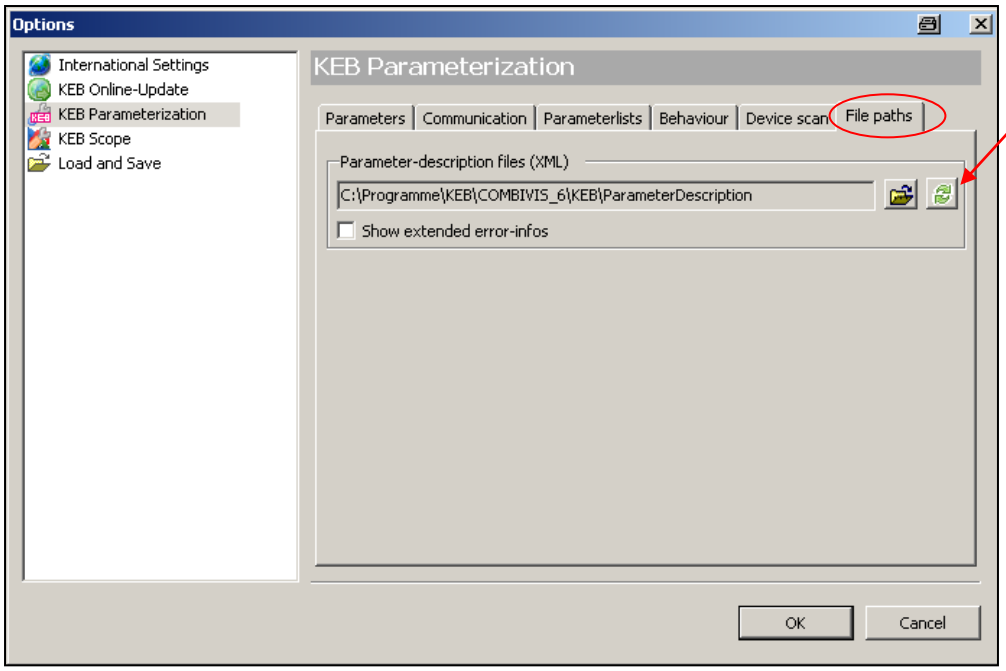
Search range for node- (device-) addresses

All: Search on all baud rates, beginning with the fastest.
Active only: Only the baud rate of the (active) standard setting (see tab communication).

Selection of the interfaces, which should be scanned

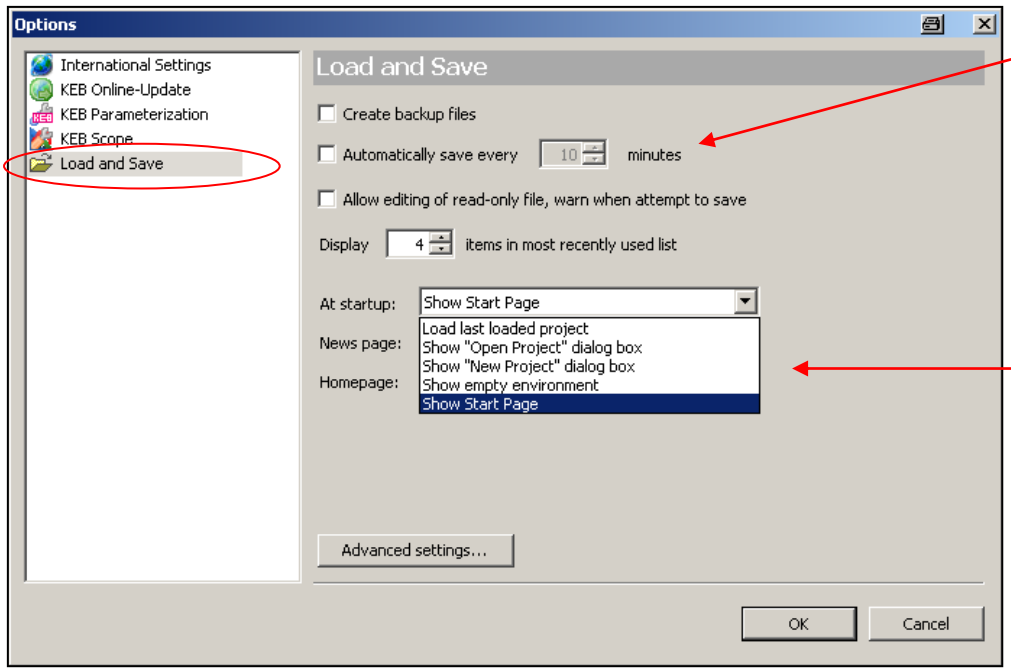
5.7. Data paths

Data path for the parameter description file (xml-file).
Here are stored xml-files of all addressable devices.
This folder can be placed elsewhere but the data path has to be achieved here.



5.8. Loading and saving

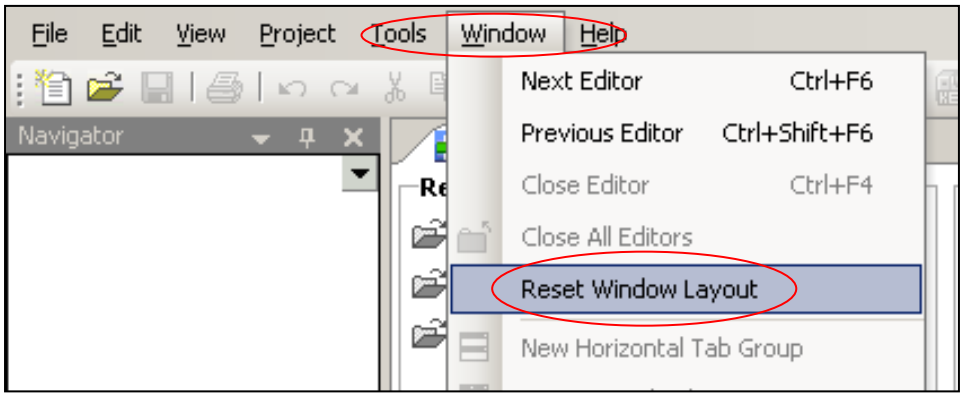
Settings for loading, saving and for the start-window



6. Window layout

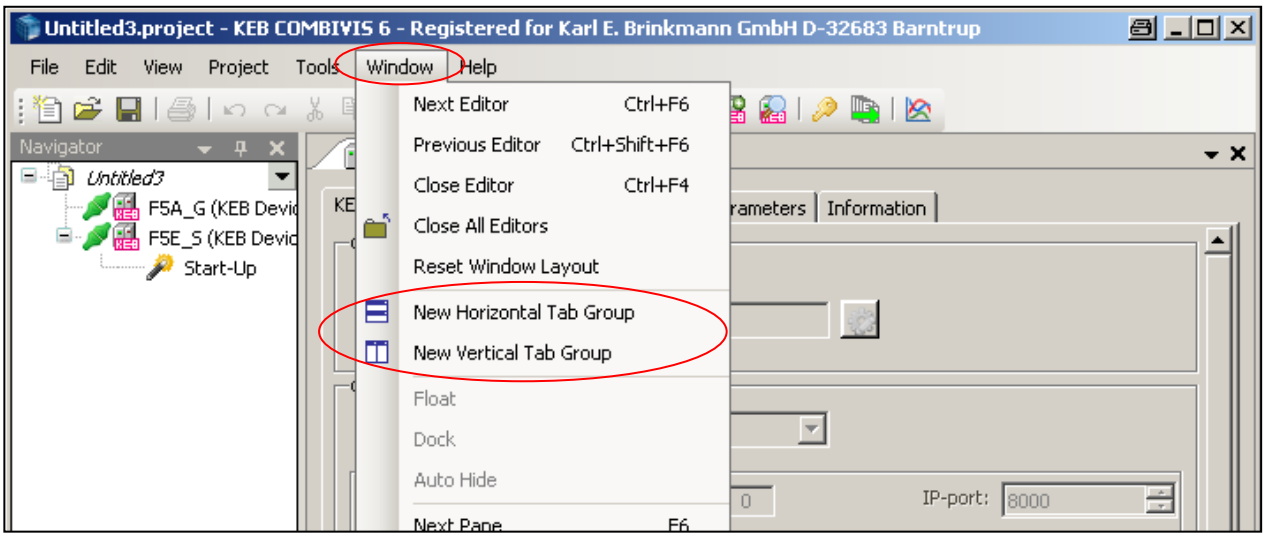
Reset Window layout:

All changes in the window layout can be reset by: Menu bar: “Window” → “Reset Window Layout”

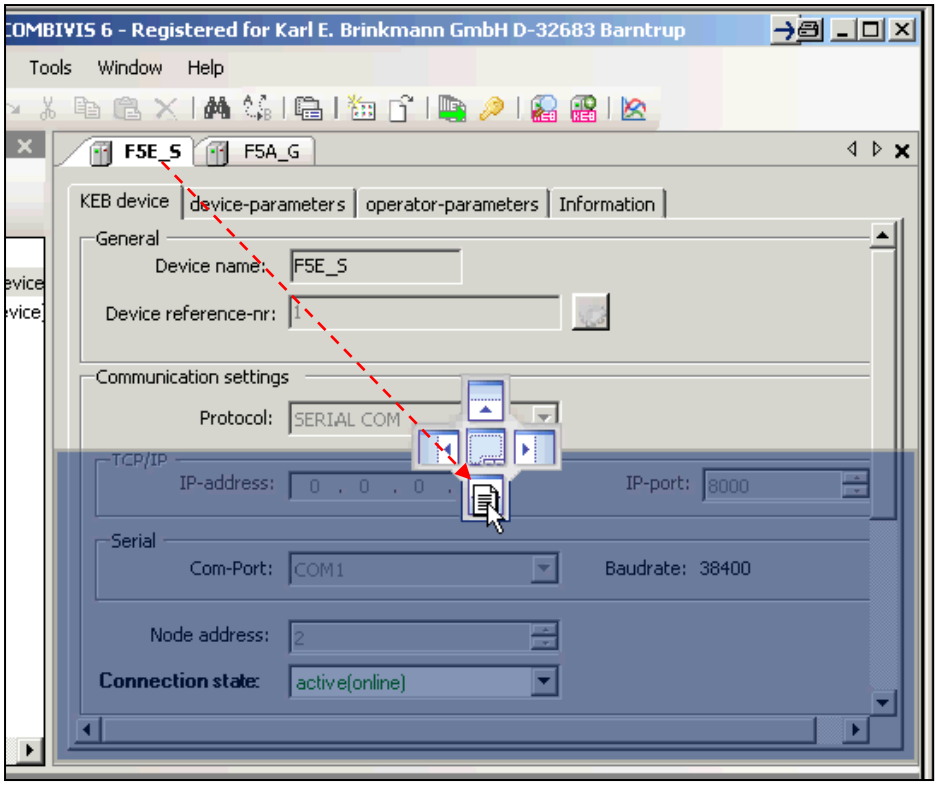


Change window layout manually:

The data tabs (editor-window, scope, parameter list…) can be displayed one below the other or side by side:
Activate the data tab group which is to relocate – choose task menu “Window” → “New Horizontal or Vertical Tab Group”.

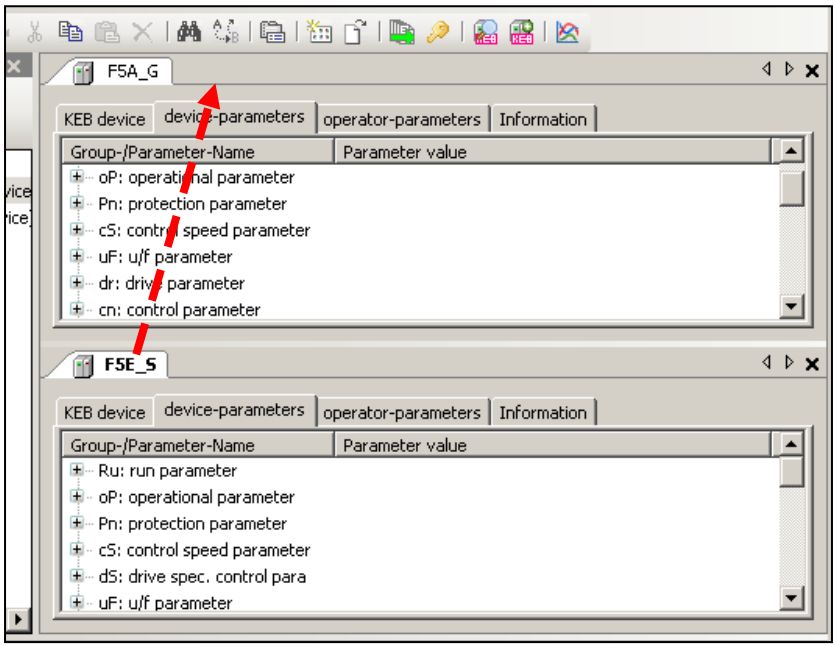


Alternative:
Click on data tab which is to relocate and put it to the middle of the screen. A cross for the orientation will appear. If the data tab will be arranged above, below, on the right or on the left side depends on the selection (blue deposited area).



Data tabs which are arranged one below the other or side by side can be rearranged by drag and drop to be placed as flags.

Same behaviour when the flag is pulled to the center of the orientation cross (see before).



7. Parameter lists

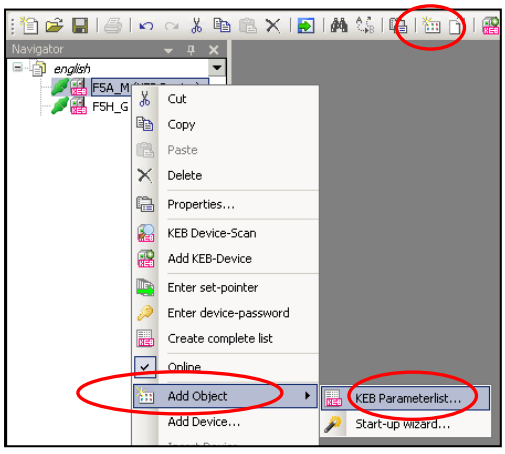
7.1. Properties

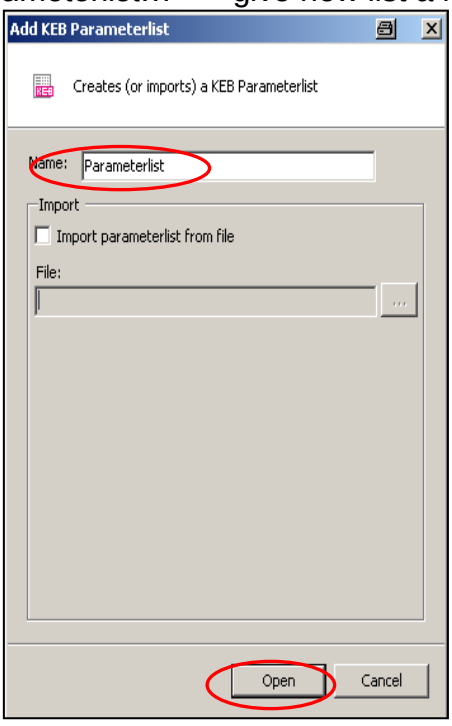
- Parameter lists can be attached to projects or devices
- Parameters of different devices can be filled in one list and can be up- and downloaded in parallel
- On- and offline data will be indicated in the list at the same time
- Direct and indirect set addressing of the parameters
- “Drag and drop function” for parameters out of the device editor
- Direct copying of direct and indirect addressed parameters
- Parameter lists will be saved with the project
- Export / import of .dw5 and .wr5 (=COMBIVIS 5) lists
- Printer functions
- Parameter can get user-defined names
- Parameter lists can be exported individually in CV6 or CV5 format
- Parameter lists can be compared with actual device adjustments or with other parameter lists
- Online and offline values can be compared directly

7.2. Open a blank list

Attach a parameter list to a device or project: Respective device/project
Right-mouse-click → choose “Add Object” → “KEB Parameterlist…” → give list a name → “Open”, <u>or:</u>

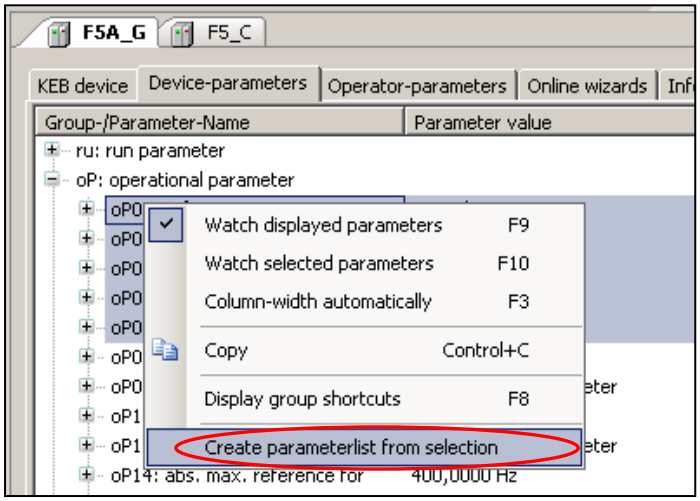
In tool bar click on icon  → “KEB Parameterlist…” → give new list a name → “Open”





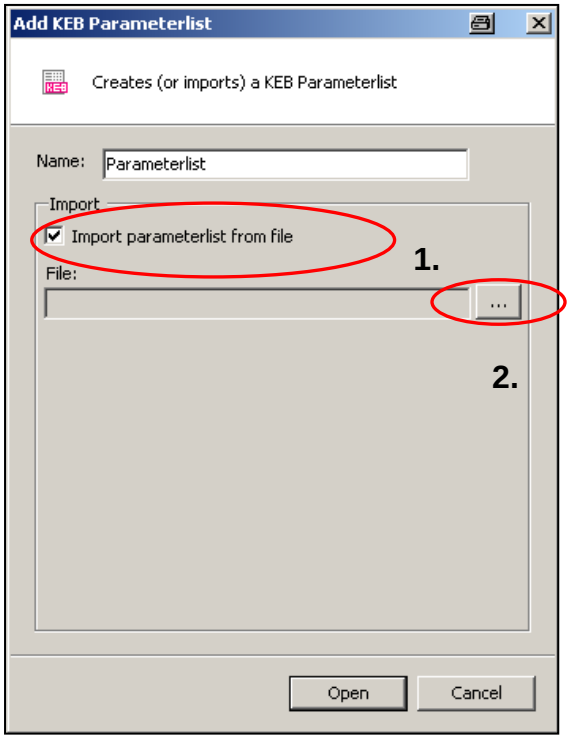
7.3. Open a list with marked parameters

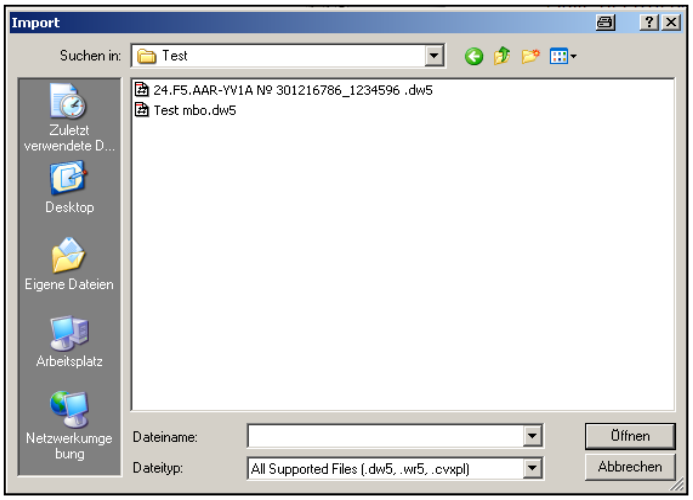
When some parameters are marked, a new parameterlist can be opened by: “right mouse key” → “Create parameterlist from selection”.
With key “shift” and “Ctrl” several parameters in different groups can be marked at the same time. But all used groups have to be opened before marking the parameters.



7.4. Open existing list

Attach parameter list to the device → hook at “Import parameter list from file” → file extension: “.cvxpl”= CV6-format / “.dw5” + “.wr5” = CV5-format → “Open”

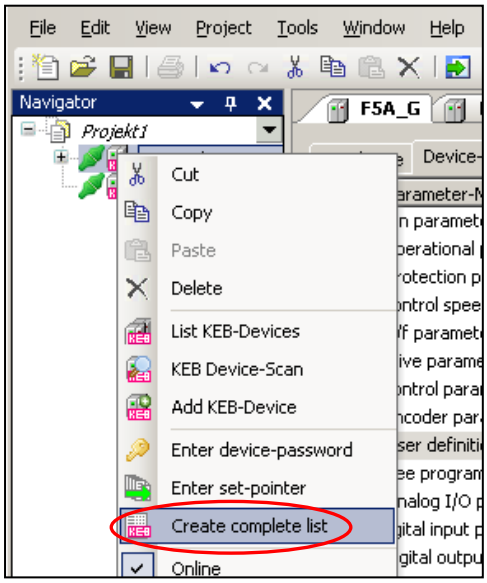




3.

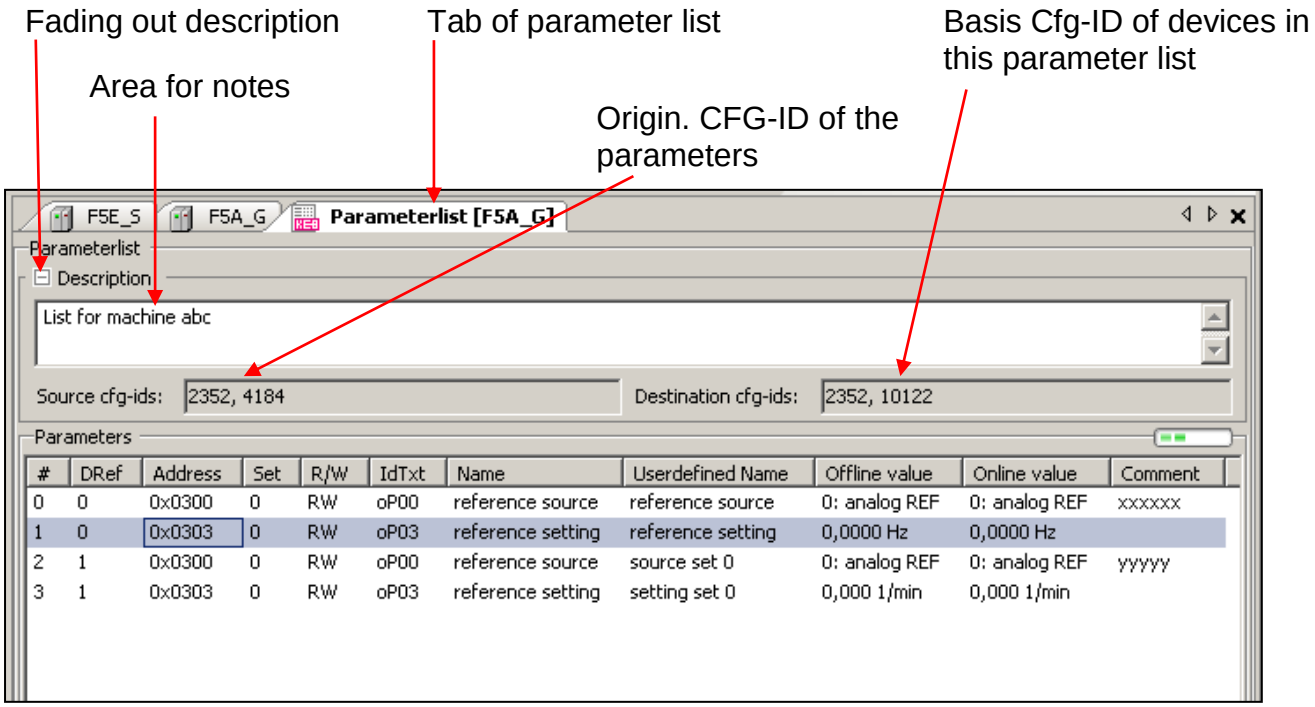
7.5. Create complete list

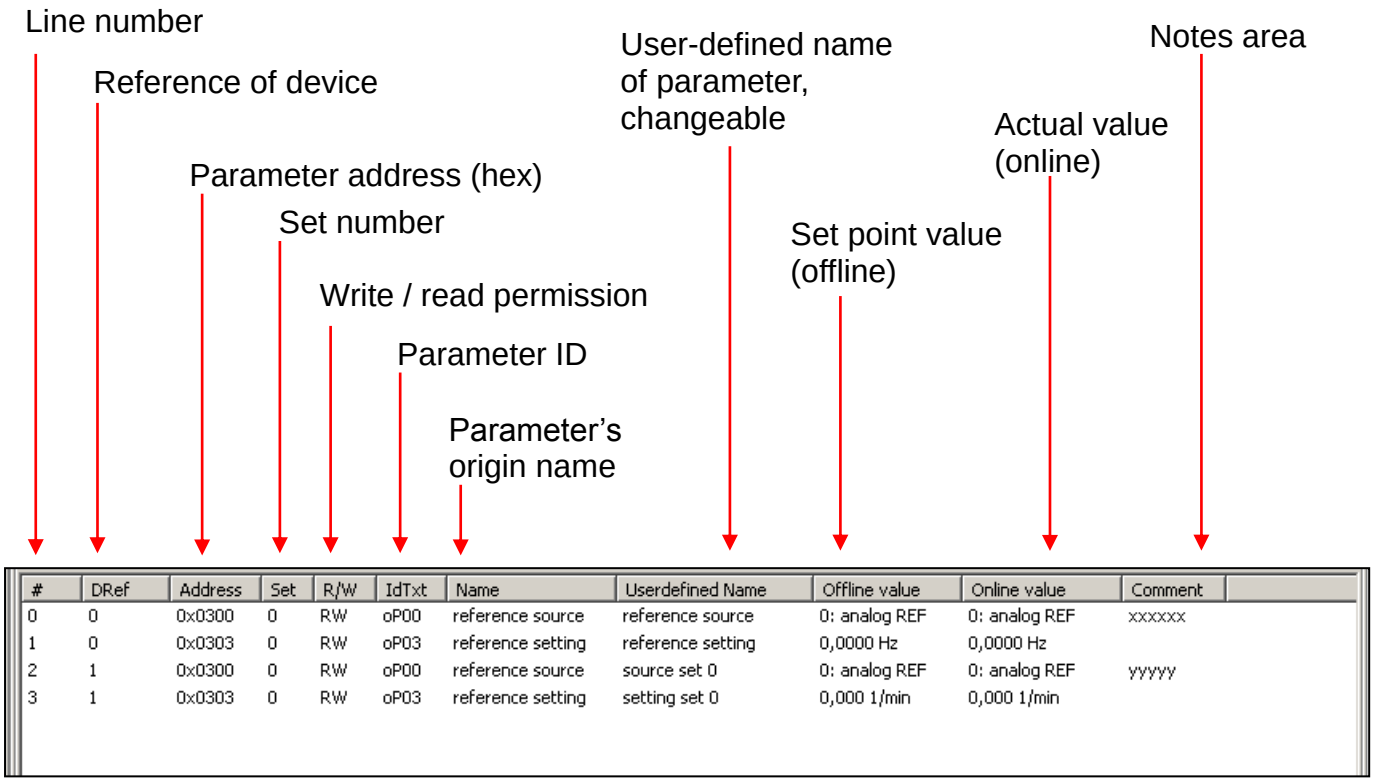
Open choice box by right click on the respective device → Choose “Create Complete List” → A parameter list with all device parameters will be created.



Attention:
This complete list is filled in column “offline” with COMBIVIS-default values and does not include yet the actual values of the device. For data storage it is essential to take an up-load from the device before saving!

7.6. Fragmentation

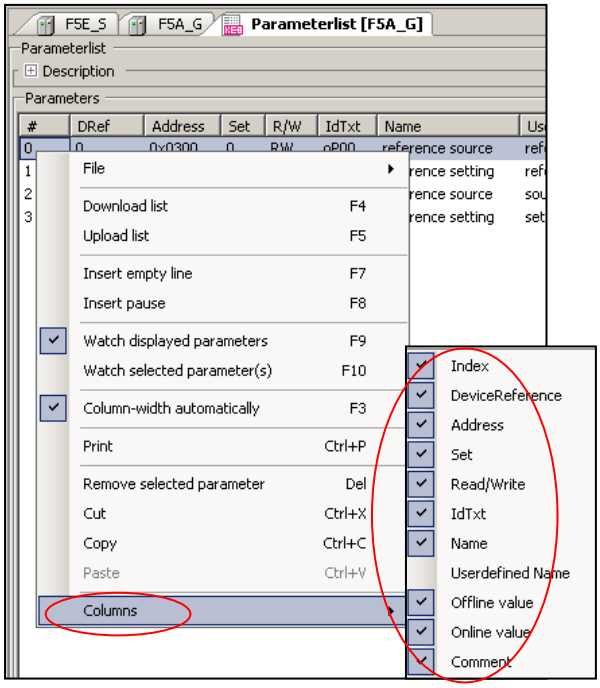




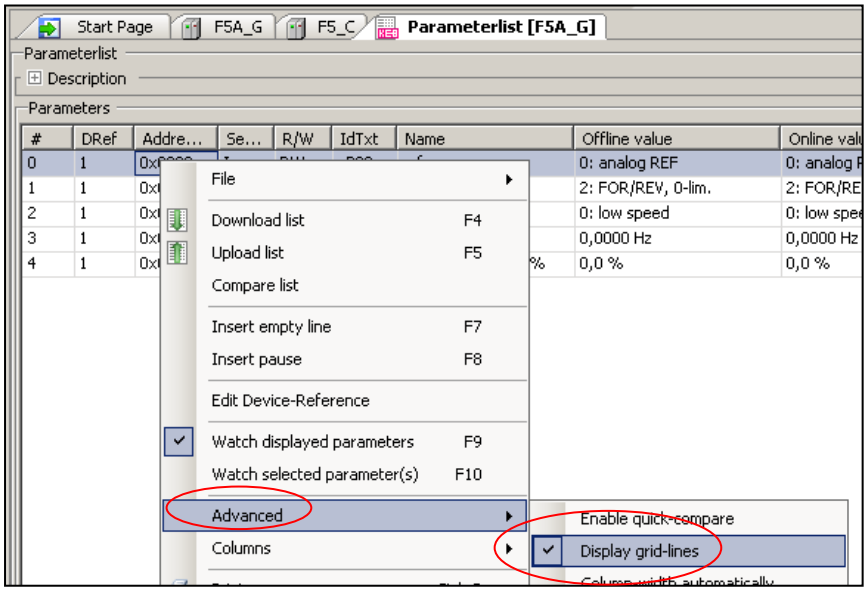
#	DRef	Address	Set	R/W	IdTxt	Name	Userdefined Name	Offline value	Online value	Comment
0	0	0x0300	0	RW	oP00	reference source	reference source	0: analog REF	0: analog REF	xxxxxx
1	0	0x0303	0	RW	oP03	reference setting	reference setting	0,0000 Hz	0,0000 Hz	
2	1	0x0300	0	RW	oP00	reference source	source set 0	0: analog REF	0: analog REF	yyyyy
3	1	0x0303	0	RW	oP03	reference setting	setting set 0	0,000 1/min	0,000 1/min	

Display of columns in the parameter list

The columns which may be shown can be chosen by pulling up and close with mouse or: "right mouse click" → "columns" → "set hook"

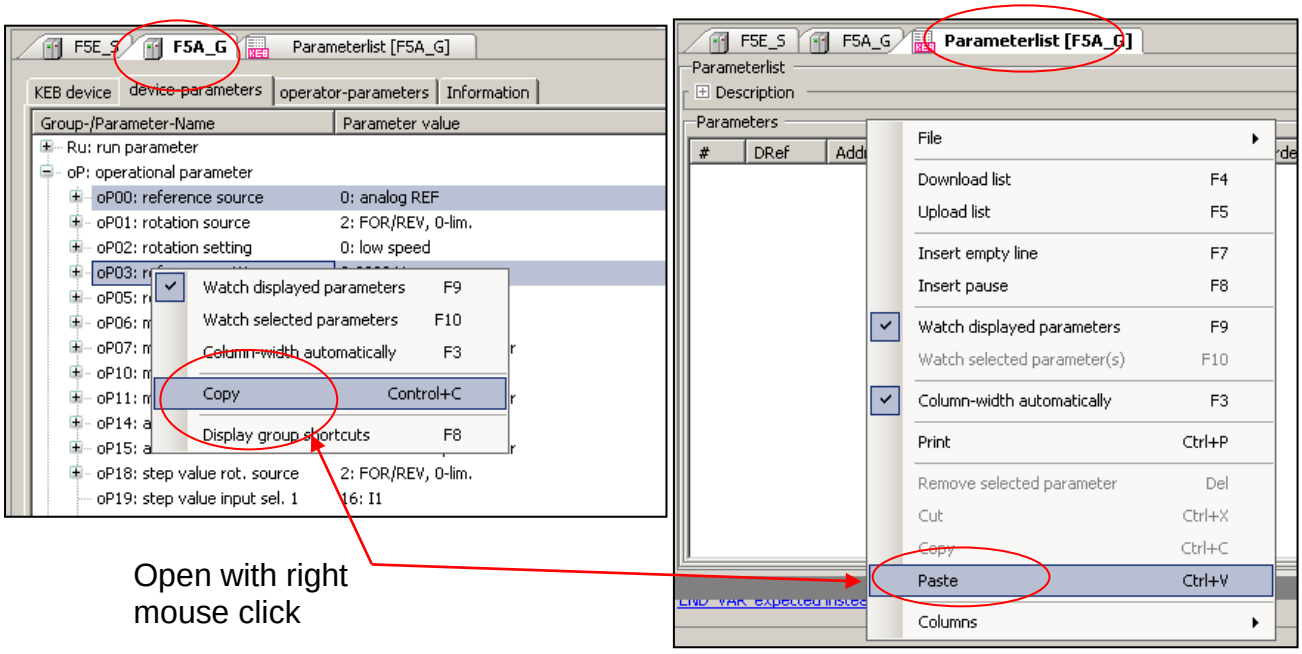


Display grid lines:
The grid lines can be activated by: “right mouse key” → “Advanced” → “Display grid lines”

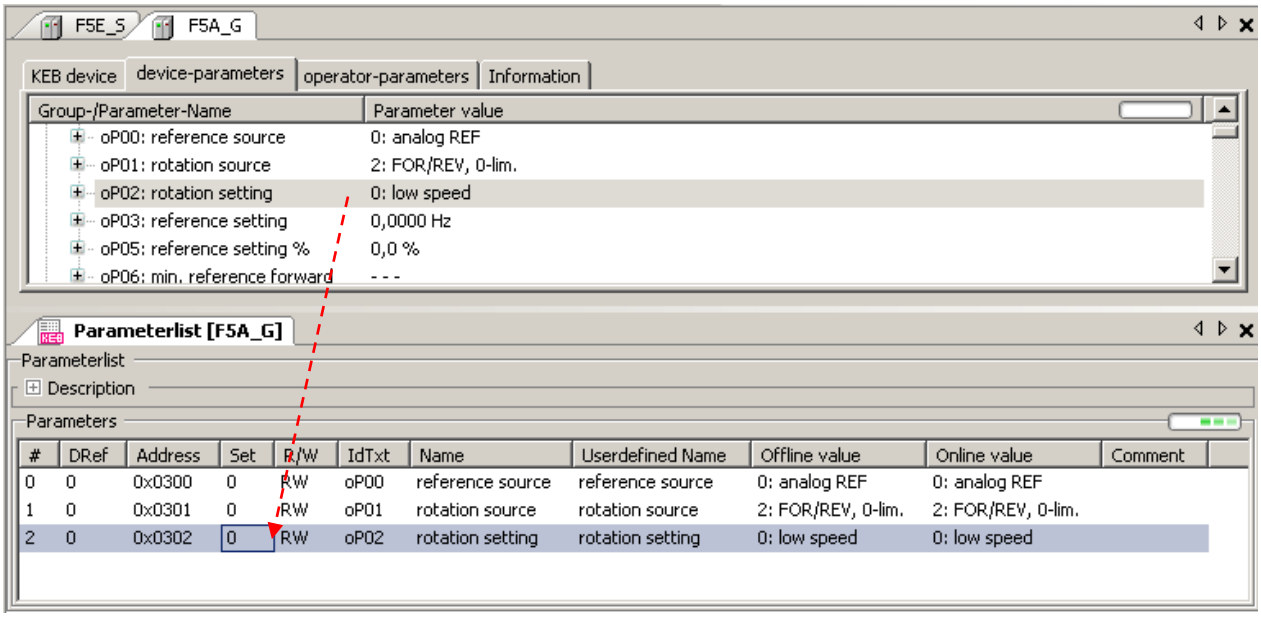


7.7. Self-created parameter list

Open blank list → mark and copy the parameter in the device editor → insert into the parameter list.

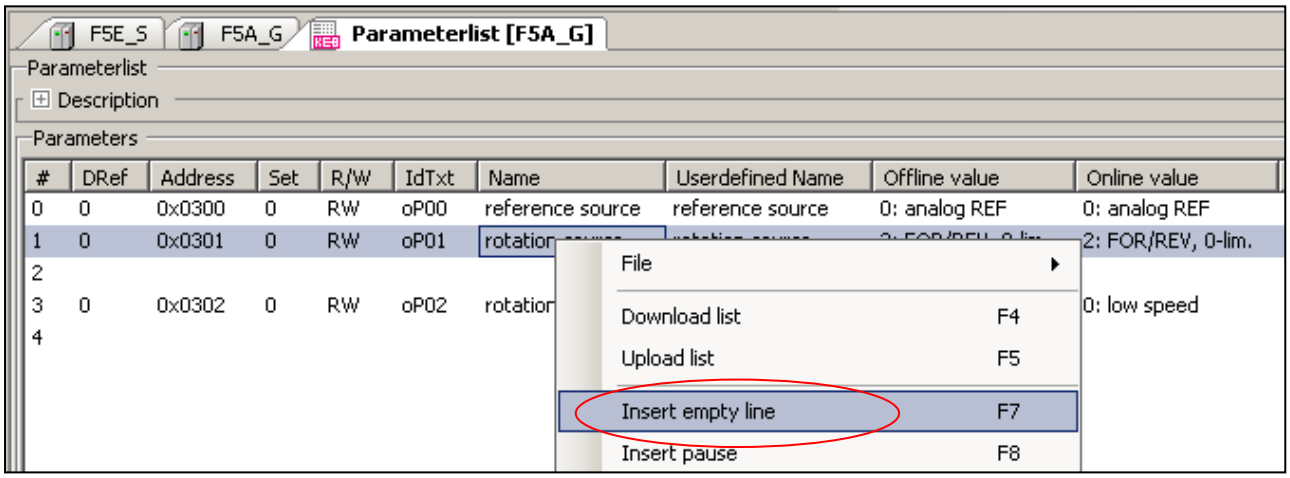


Open list → mark the parameter in the device editor with left mouse key → hold the key → pull the parameter into the parameter list (Drag and drop).



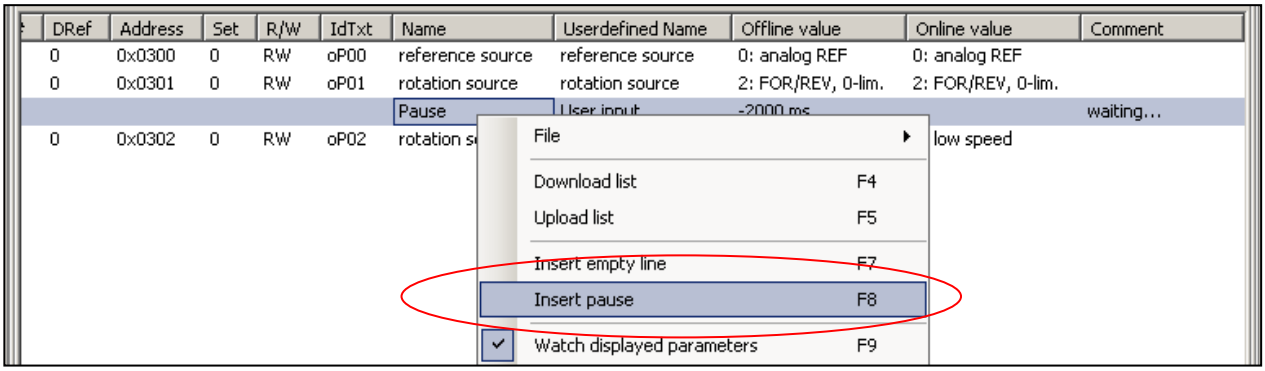
7.8. Inserting an empty line

To insert an empty line “right mouse click” → “Insert empty line”

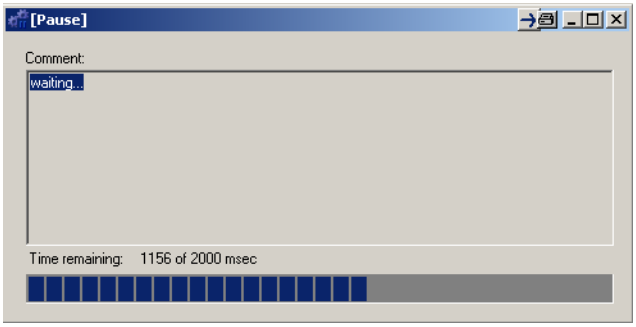


Empty lines have no influence. They are used only for structuring.

7.9. Inserting a transfer pause



Transfer pause (at download to the device):



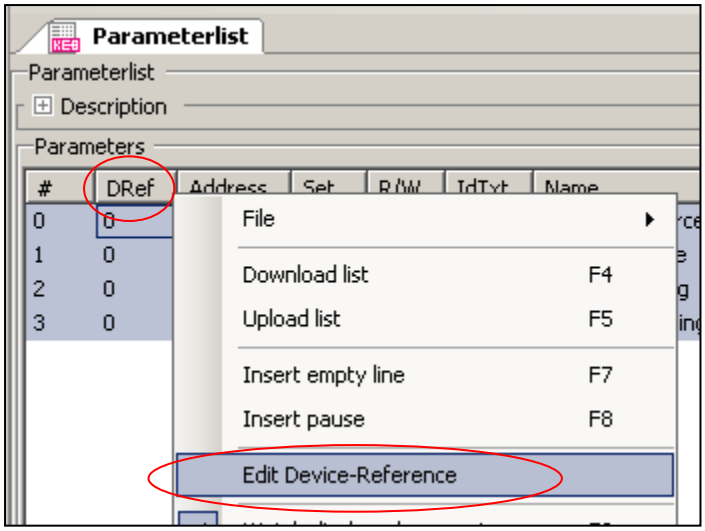
- Offline value: -2000 ms: 2sec pause, the remark text will be shown, after that the download goes on automatically.

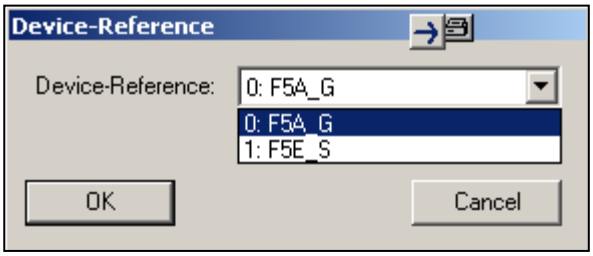
- Offline value: (+) xx ms: unlimited pause and display of remark text. Download goes on after click on “OK”.

7.10. Changing of device reference

The device reference of a parameter can be effected by double-click on the device reference number.

The change of one or more device references can be effected by:
Marking of the corresponding lines in the column “DRef” → “right mouse click” → “Edit Device-Reference” → choose new device reference → “OK”.

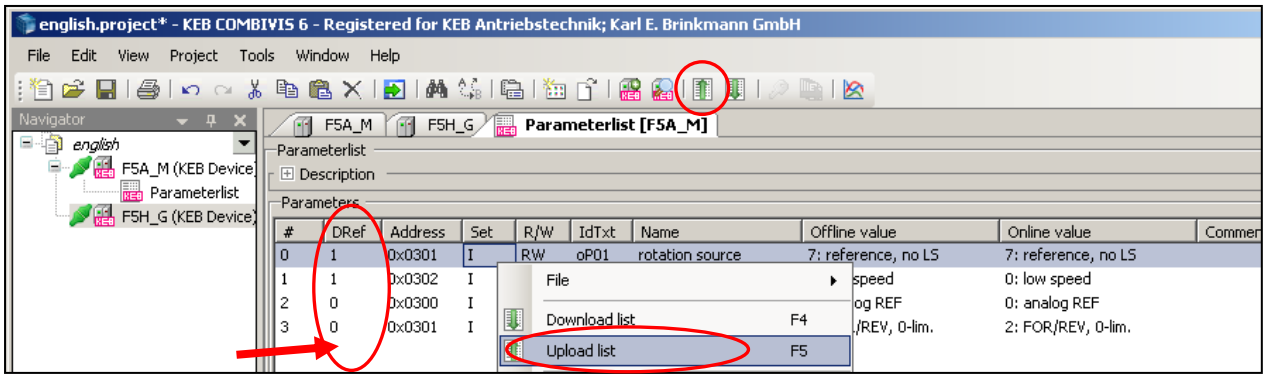




7.11. Upload from the inverter into a parameter list

a) Click on icon  in the tool bar, or:
b) Right mouse click in the parameter window, choose “Upload List”, or:
c) Tap key “F5” and answer the following questions with “Yes”.

The column “Offline value” will become overwritten with the values (online values) which are adjusted in the device.



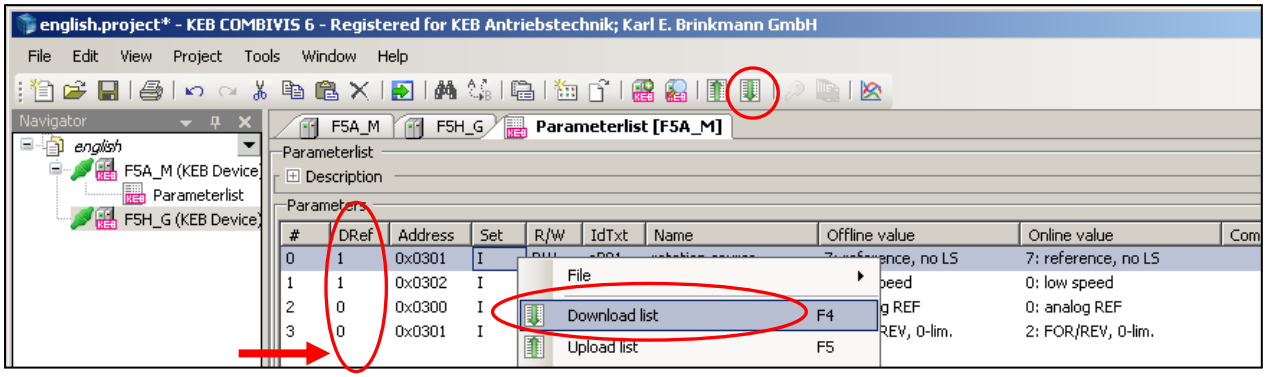
Be sure that the device reference in the list matches the target device´s reference!
Otherwise adapt the reference of the list or of the device.

7.12. Parameter download

Open the terminal control release before download of parameter list into the device, because some parameters can be written only at open control release terminal.

a) Click on icon  in the tool bar, or:
b) Right mouse click in the parameter window, choose “Download List”, or:
c) Tap key “F4” and answer the following questions with “Yes”.

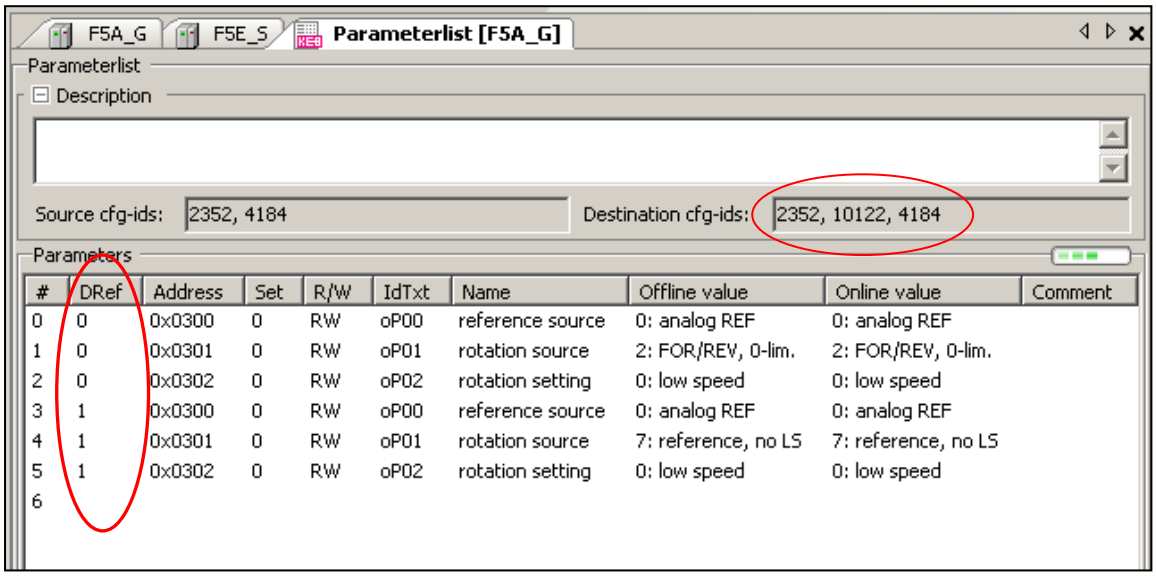
The values, which are adjusted in the device, will become overwritten with the values of the column “Offline Values”. Only the writeable parameters which are actually in the list will get overwritten. All the rest will remain unaffected.



Be sure that the device reference in the list matches the target device´s reference!
Otherwise adapt the reference of the list or of the device.

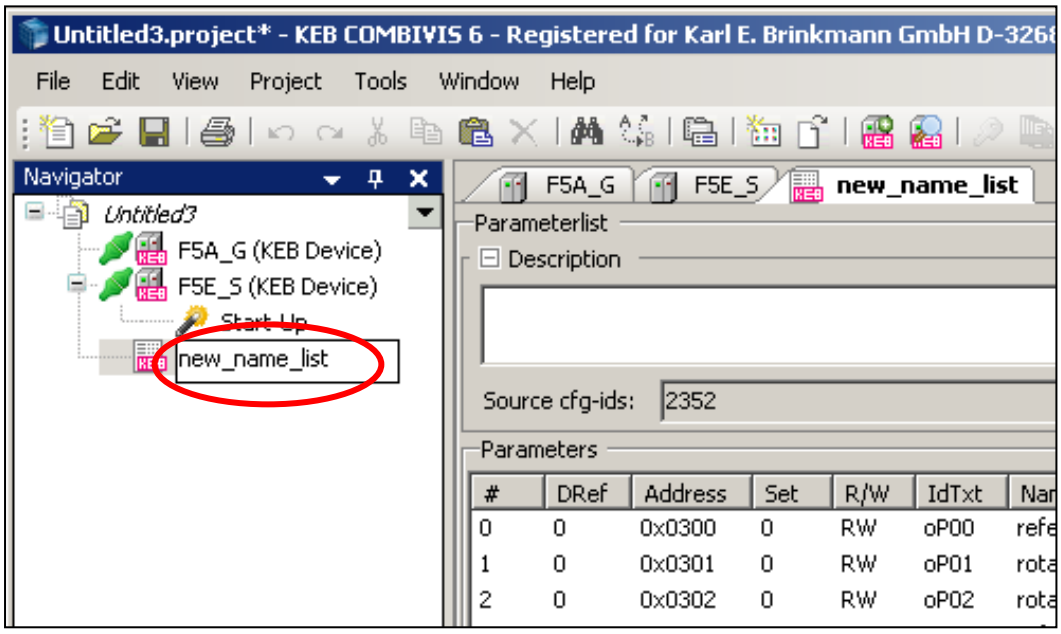
Parameter-Download from a parameter list to several devices:

Parallel up-/download from/to several devices (here: DRef 0 and 1) from a list is possible. Each parameter is dedicated to one special device. Therefor the suitable target-CFG-IDs have to be registered. Missing CFG-IDs will be added at up/download optionally.



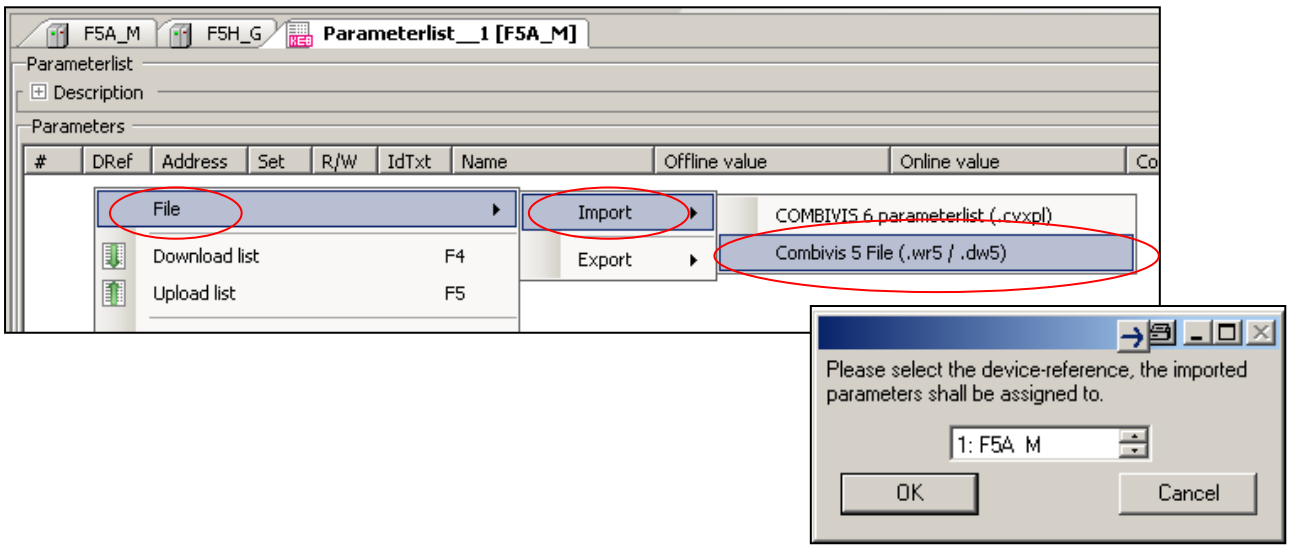
7.13. Renaming parameter list

Double-click slowly in the navigator on parameter list's name and rename.



7.14. Insertion of parameter list

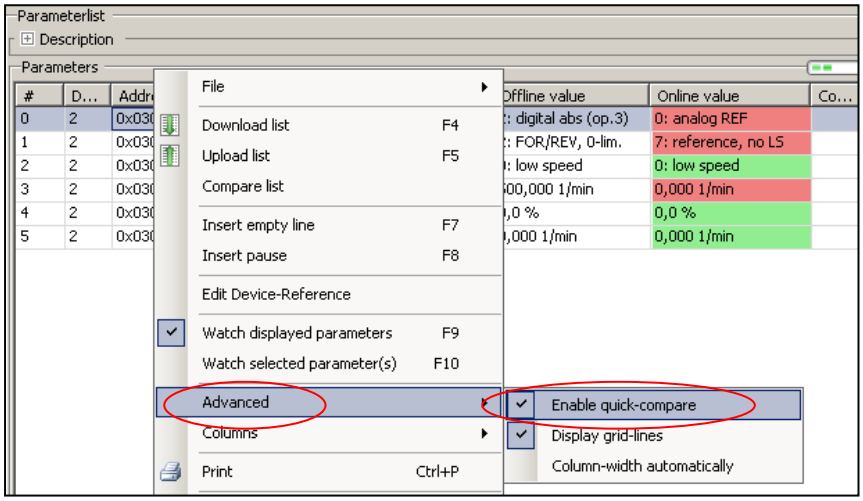
External parameter lists can be integrated completely in already existing lists. Existing parameters will still kept. The new parameters will be added at the end of the actual list.
Click with right mouse key in the parameter list → "File" → "Import" → "COMBIVIS 5 / 6 Files".
At .dw5- or .wr5-lists allocate the device reference of the new parameters. At .cvxpl-lists the device reference is still kept: Check and change if needed.



7.15. Comparing parameter lists directly

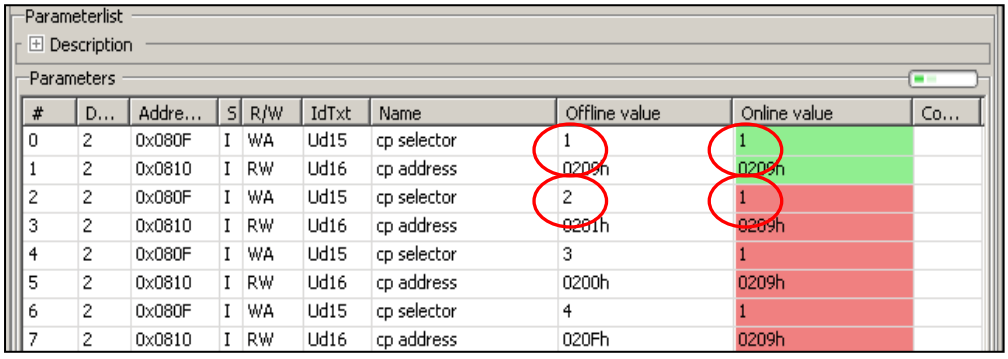
On- and Offline values can be compered in a parameterlist directly:
Right mouse click → “Advanced” → “Enable quick-compare”

In column “Online value”:
Green: On- /Offline values equal
Red: On- /Offline values unequal
Yellow: Parameter not existing



Please note:
If the parameter list is designed with indirect set pointer, all parameters in all sets will be compared only with 1 set (the set to which the set pointer fr.09 is adjusted). For an expedient comparing use direct set addressing for the parameter list. (See 7.17. Parameter back-up)
Some parameter values depend on pointer positions (e.g. ud.16, ud.22, In.24 …). Online (in the device) these parameters are shown only once. In a complete data saving list these parameters are shown each by each with the related pointer. So the different list parameters are compared every time with the same device parameter!

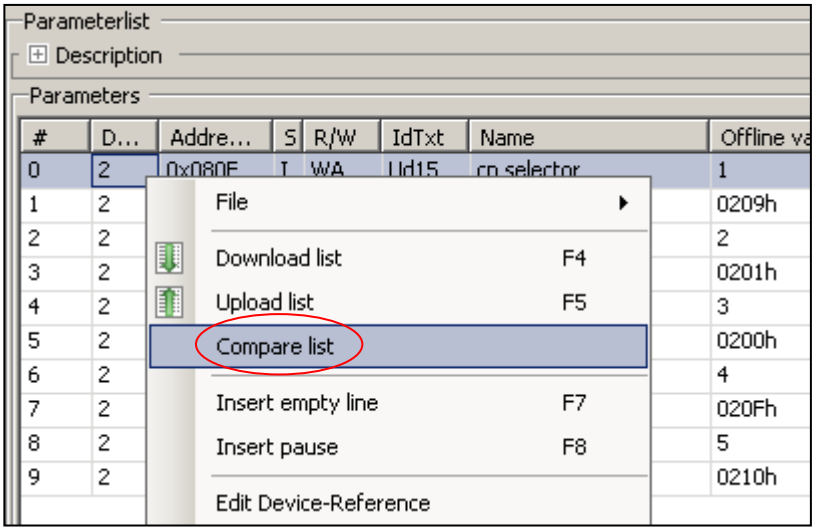
Example: ud.15 (CP-selector) is the pointer for ud.16 (CP-Address). In ud.15 one of 36 possible parameters and in ud.16 the related (application-) parameter address can be chosen. In a data saving list all 36 „ud.15“ and „ud.16“ must be listed, but online, in the device, ud.15 shows every time the same value. That gives at comparing once an equal and 35x an unequal value.


Parameterlist
Description
Parameters

#	D...	Addre...	S	R/W	IdTxt	Name	Offline value	Online value	Co...
0	2	0x080F	I	WA	Ud15	cp selector	1	1	
1	2	0x0810	I	RW	Ud16	cp address	0209h	0209h	
2	2	0x080F	I	WA	Ud15	cp selector	2	1	
3	2	0x0810	I	RW	Ud16	cp address	0201h	0209h	
4	2	0x080F	I	WA	Ud15	cp selector	3	1	
5	2	0x0810	I	RW	Ud16	cp address	0200h	0209h	
6	2	0x080F	I	WA	Ud15	cp selector	4	1	
7	2	0x0810	I	RW	Ud16	cp address	020Fh	0209h	

7.16. Comparing parameter lists

A parameter list can be compared with an actual device adjustment or with the offline values of another parameter list.
Right mouse click → “Compare list”

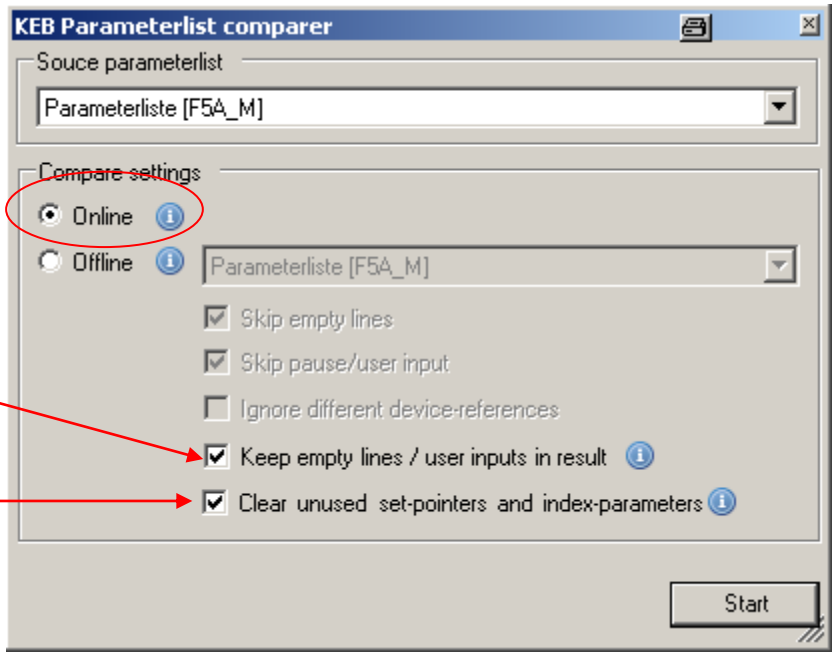


Online – Offline

Comparing of a parameter list’s offline values with actual online values in a device generate a new parameter list with the different values of the device.

Empty lines will be kept

Useless set pointer and index parameter are cleared in the result list



It is possible to compare one list with parameters of several devices in parallel.

Offline – Offline

Comparing of a parameter list's offline values with another offline parameter list creates a new list with the unequal values of the 2nd list.

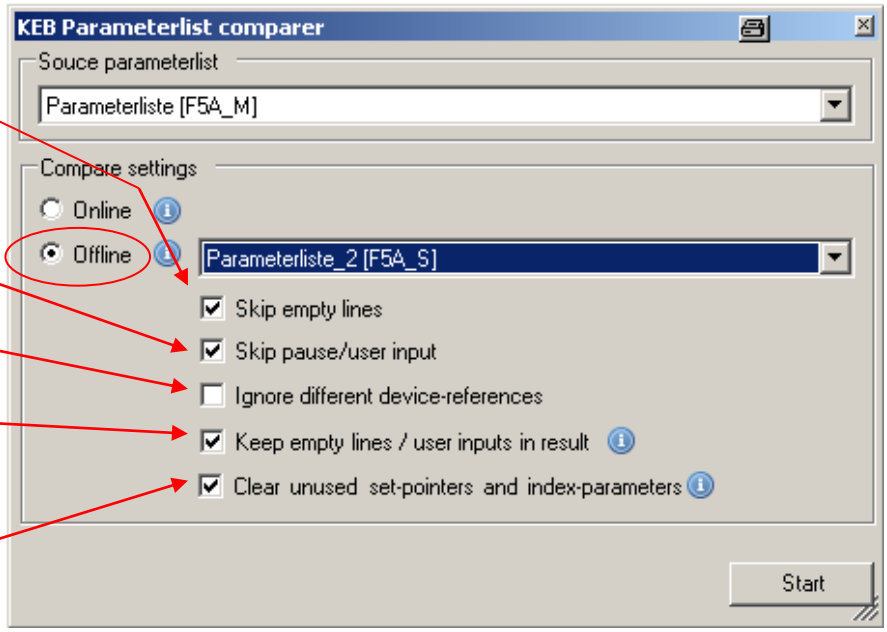
Ignore empty lines at comparing

Ignore lines with pause and user input at comparing

Ignore different device references

Empty lines and user inputs are kept in the result list

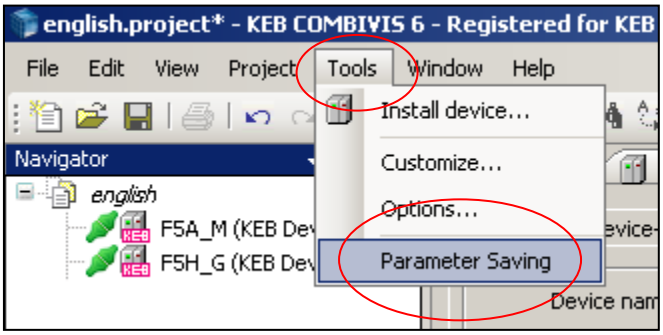
Useless set pointer and index parameter are cleared in the result list



Please note:
Only the values in the same lines will be compared, independent which parameter is in this line! Displacements in the list, e.g. by additional parameters will cause in a wrong result!

7.17. Parameter backup

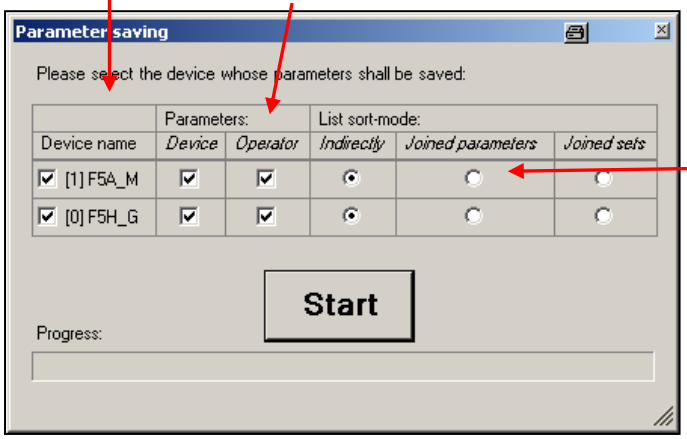
Open → "Tools" → "Parameter Saving"



All parameters of all devices will be saved in one list!

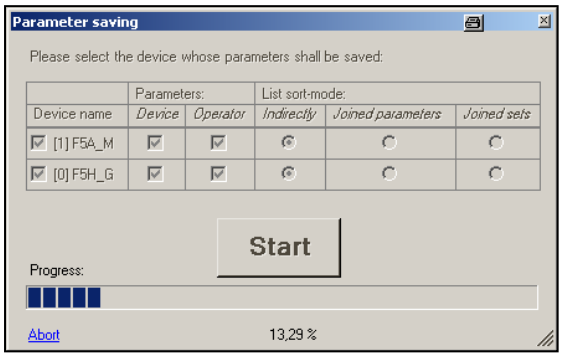
Choose devices you want to save from

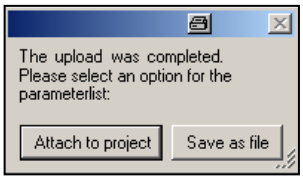
Choose if device- and/or operator parameters are to save



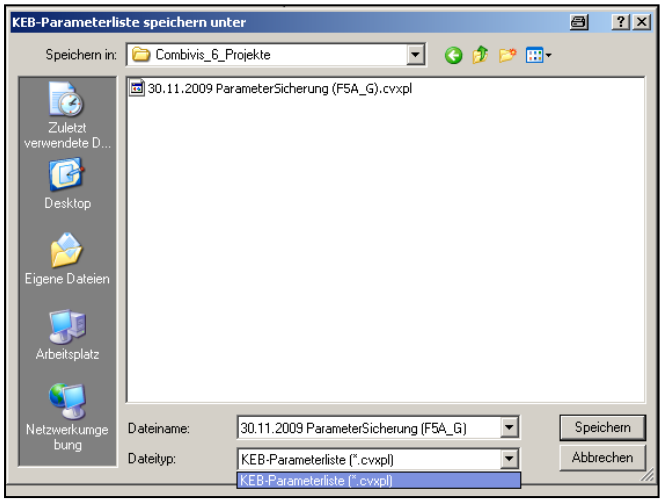
Choose how to list the parameters (with regards to content completely equal). For description see below

"Start"→ Upload starts.
An interruption is possible with "Abort".
After upload is finished a window for adjustment of storage location will open.
This list can be integrated in the project or it can be stored externally.





An external storage is only possible in COMBIVIS6-format (.cvxpl).
With reopen and "export" function it is also possible to generate a list in .dw5-format.



Parameter list design with indirect set addressing:

Design of the list:

- Set pointer Fr.09 = 0
  All set programmable parameters of set 0 and all not set programmable parameters
- Set pointer Fr.09 = 1
  All set programmable parameters of set 1

…..

- Set pointer Fr.09 = 7
  All set programmable parameters of set 7
- Operator parameters

If the inverter works in contouring mode (synchronous bus mode) the indirect set addressing has to be used!

Parameter list design with direct set addressing, joined parameters:

Without set pointer, each parameter belongs direct to one set or several sets

Design of the list:

- Parameter X of set 0
- Parameter X of set 1
- Parameter X of set 2
- Parameter X of set 3

……

- Parameter X of set 7
- Parameter Y of set 0
- Parameter Y of set 1
- Parameter Y of set 2
- Parameter Y of set 3

……

- Parameter Y of set 7

…….

- Operator parameters

All not set programmable parameters are written in set 0

Parameter list design with direct set addressing, joined sets:

Without set pointer, each parameter belongs direct to one set or several sets.

Design of the list:

- All set programmable parameters of set 0 and all not set programmable parameters
- All set programmable parameters of set 1

…..

- All set programmable parameters of set 7
- Operator parameters

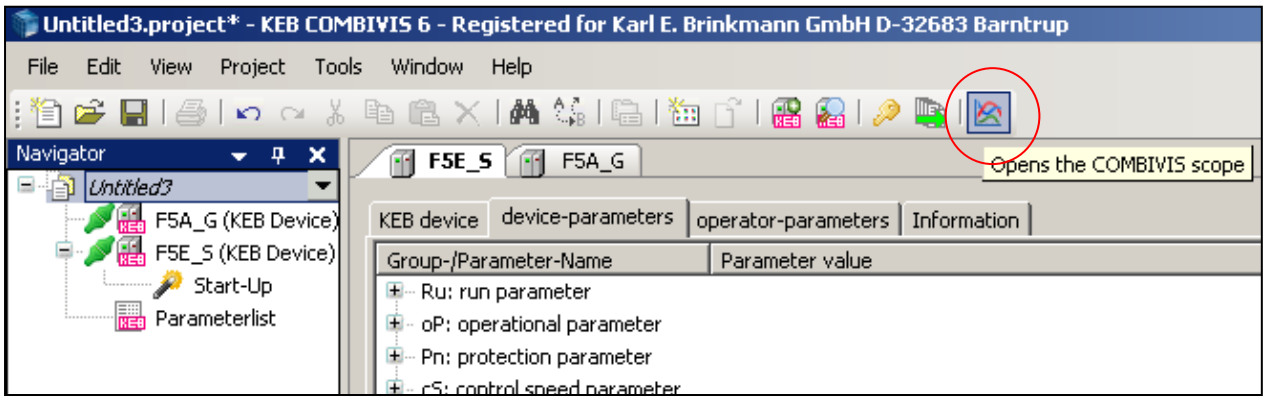
8. Scope

8.1. Characteristics

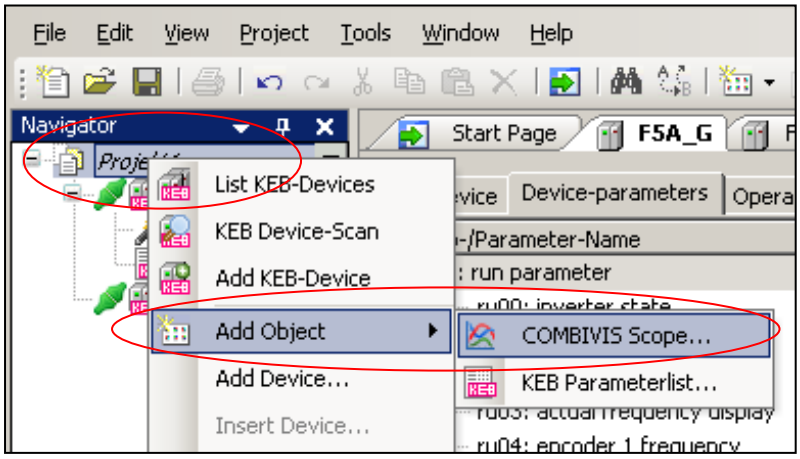
- Activation of 1x Scope per project possible, but several scope can be added
- Direct attach and save with the project
- Total up to 16 channels per scope
- The first 4 channels of each device work in synchronous mode
- (2x32-bit + 2x16-bit) or (1x32-bit +3x16-bit) or (4x16-bit) parameters automatically reserved, regardless sequence
- Display as dot, line, step curve or interpolated curve
- It is possible to record channels in all devices of the project at the same time
- Export in Excel-compatible .csv-format
- Offline-Mode (4 channels buffer in a device)
- Online-Trigger mode
- 2 horizontal and 2 vertical cursors at the same time
- Extensive zoom-functions
- Auto scaling function (splaying of the curve to the whole X- and Y-range)
- Basic adjustment in % of the parameter value range
- Additionally display of the parameters unit value at the Y-axis
- *Ex- and import individual channels (planned function)*
- *Import of sc5-files (COMBIVIS 5) (planned function)*

8.2. Open scope

Open first scope: Click on icon  in the tool bar.

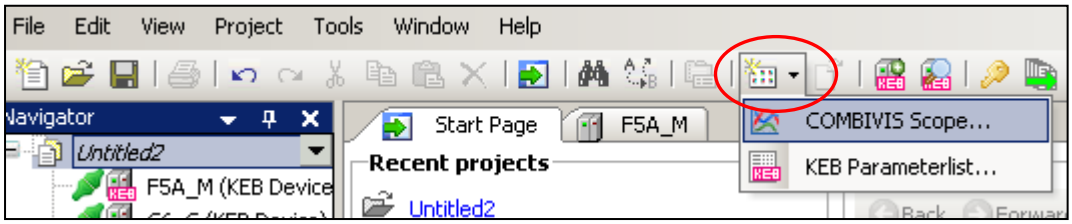


Open first or additional scope: Right mouse click on “Project” → “Add Object” → “COMBIV-IS Scope”



Or: In the “Navigator”: Scope copy and paste

Or: In the tool bar: Icon “Add Object”→ “COMBIVIS Scope”

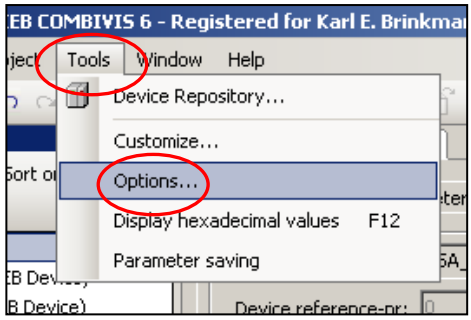


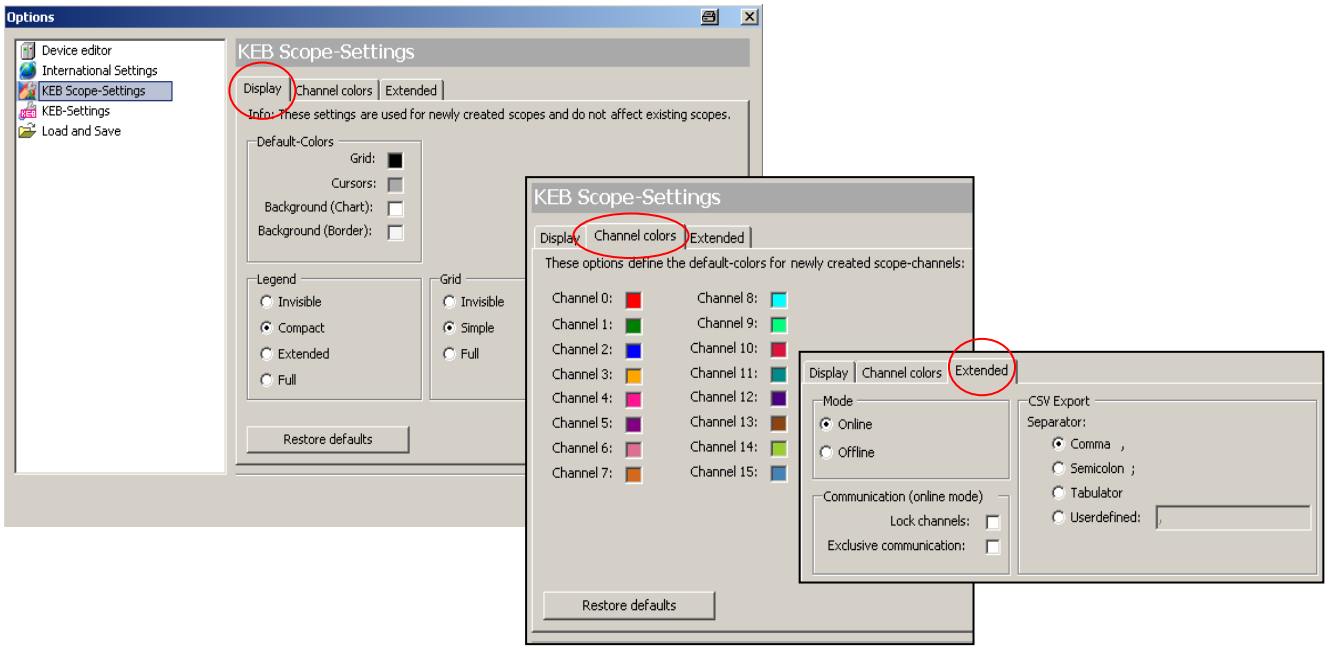
.
Note: Only one scope can be active at the same time!
With each scope one recording can be saved with the project.
Channels and adjustments can be different in each scope.

8.3. Basic settings

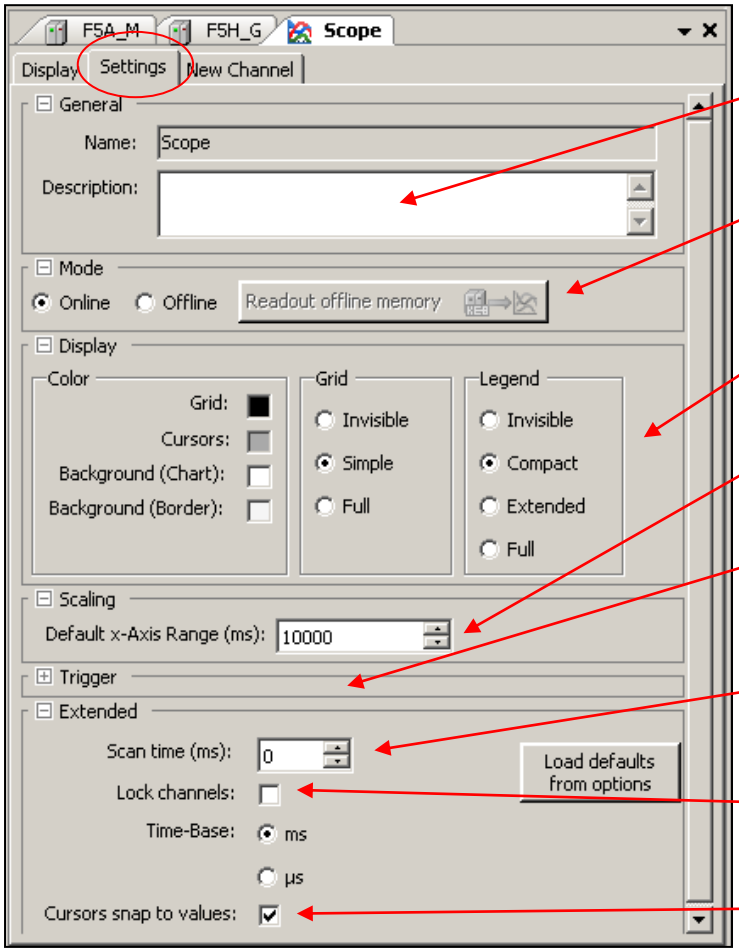
It is possible to configure basic setting in window “KEB Scope-Settings”. These adjustments will be pre-set always when scope will be opened.

Menu bar → “Tools” → “Options” → in window “KEB Scope-Settings”





In window “Settings” in scope itself settings can be adjusted which are valid only for this special scope.



Description for scope

Online (direct display of recorded values in CV6) / Offline mode (see there)

Display / design of cursor, grid and legend

Basis of time axis (X-axis)

Trigger option (Identification of special occurrences in recording – see there)

Time gap between 2 measuring points: 0 = shortest possible time

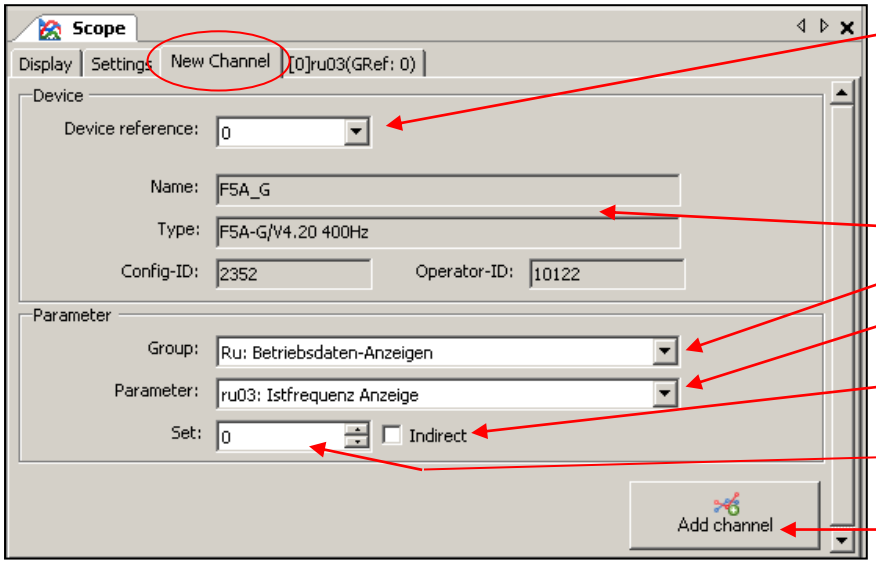
Data channel is reserved only for scope

Cursor s into measuring value

8.4. Channel configuration / new channel

Channel allocation

In window “New Channel” you can choose a parameter directly for this channel.



Device reference (-selection) (doesn‘t mean device‘s bus address!!). I.e. from which device the channels shall be recorded

Control data of device

Parameter group selection

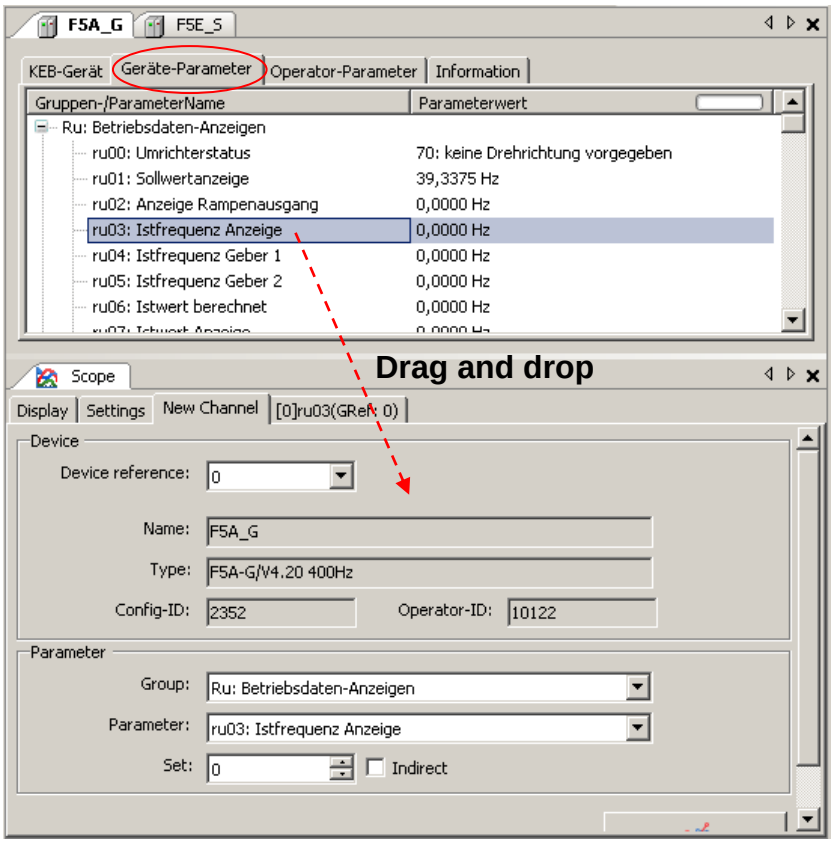
Parameter selection

Set addressing mode (directly or indirectly)

Set selection

Acceptance and activation of the channel

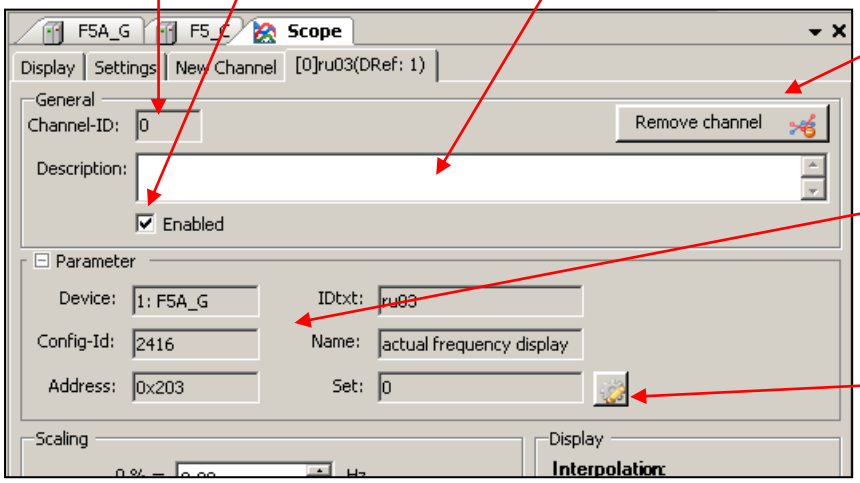
Alternative:

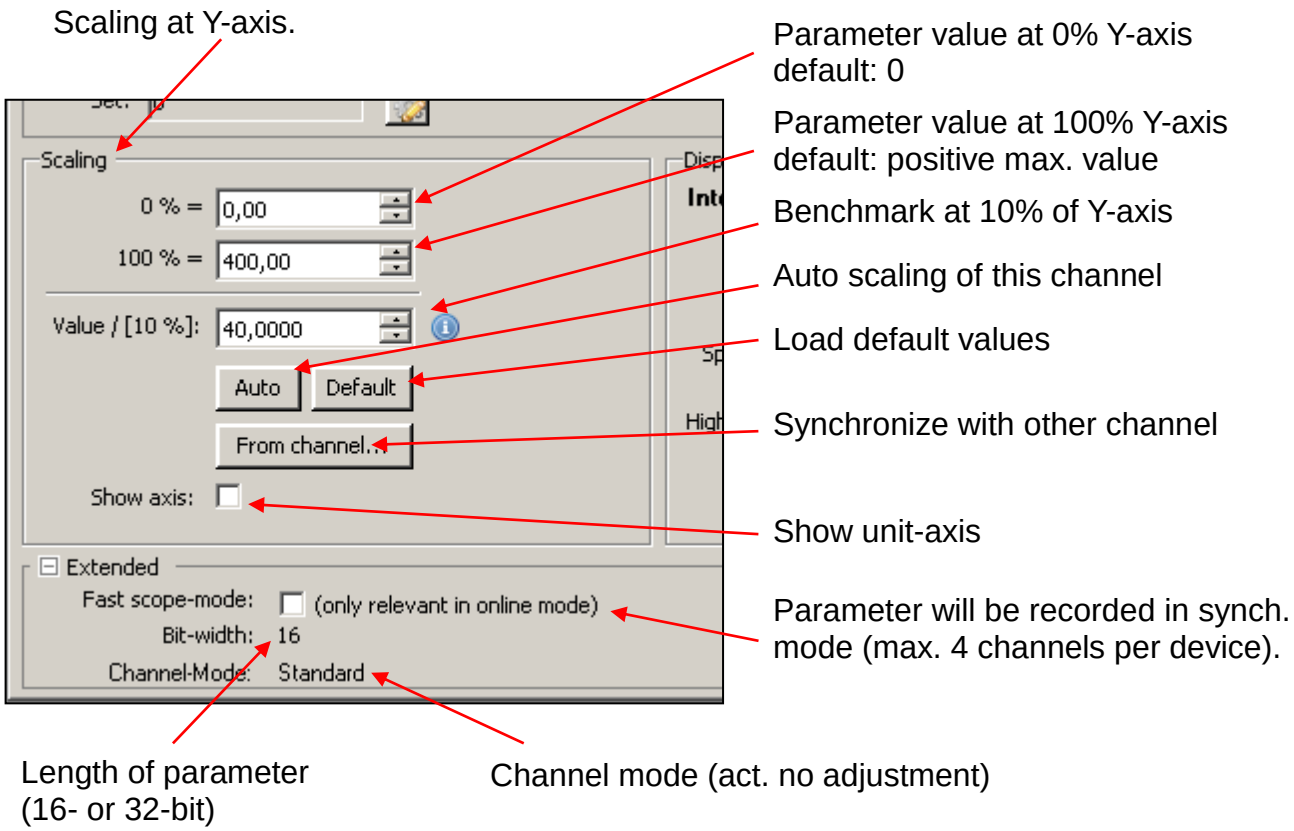


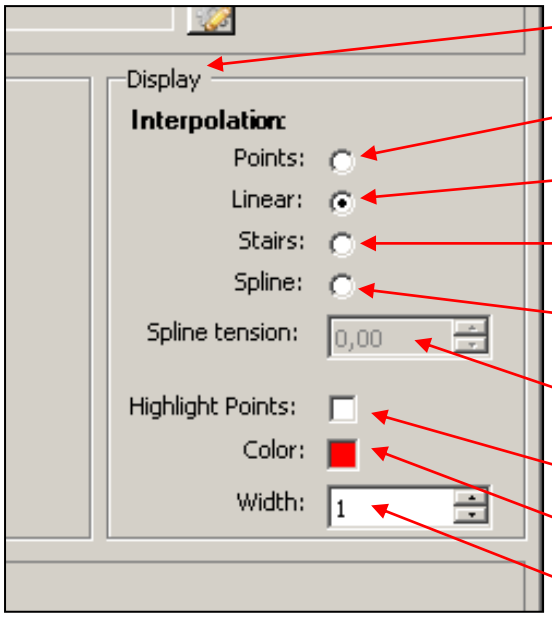
Select parameter in device-editor and pull it to the window “scope”. (Doesn´t matter if scope is in tab “display”, “settings” or “new channel”)

Please don’t forget acceptance and activation!

8.5. Channel settings







Display of

Display in points

Display as line, linear connection between points

Display as stairs

Display as line, interpolated connection between points

Interpolation value

Measurement value point highlighted

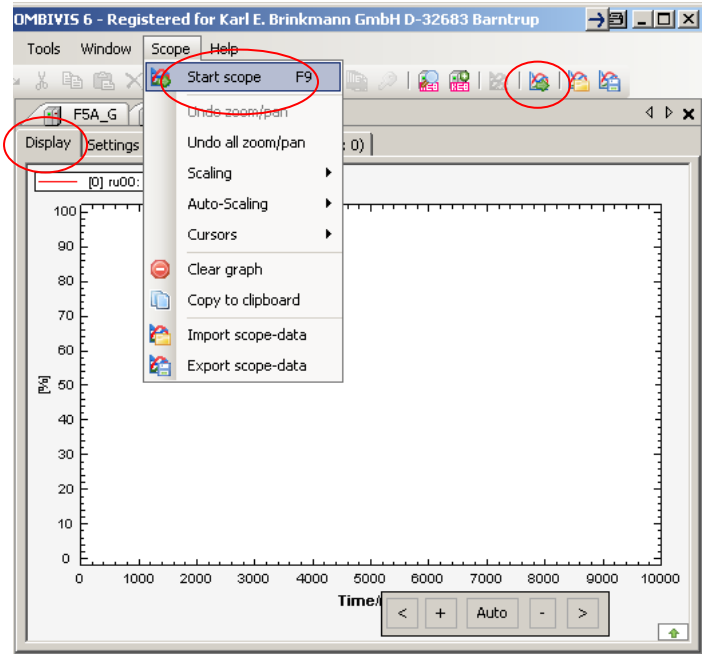
Color of curve

Width of curve.

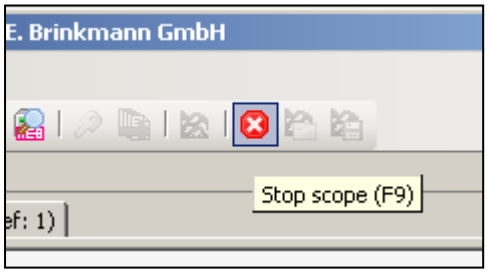
8.6. Recording

Start recording in window “Display” as follows:

- Menu: “Scope” → “Start Scope” or
- “Right mouse click” → “Start scope” or
- Tap key “F9” or
- Click on Symbol 



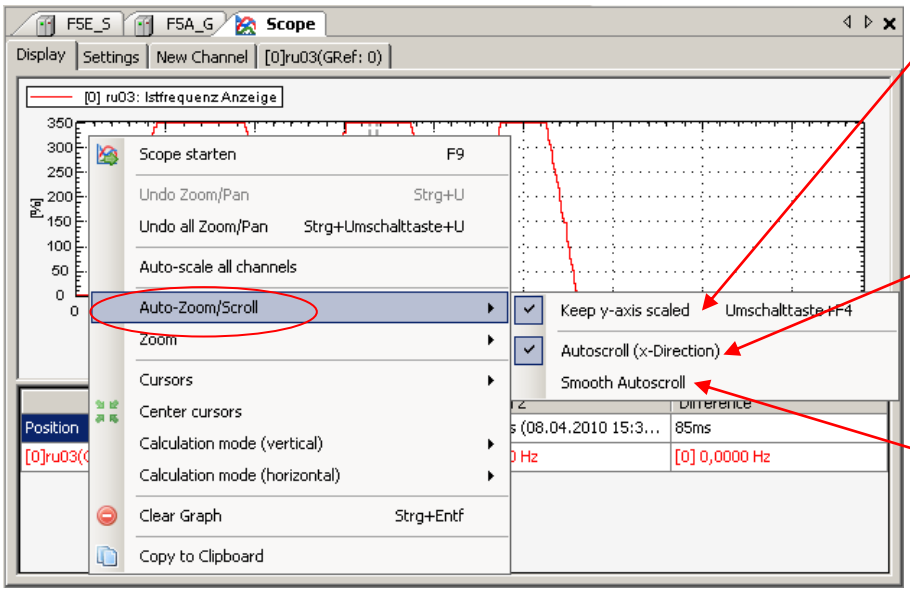
Stop with same functions but a stop-icon will be shown:



Recording time is not limited. Per hour you can calculate approx. 90 MB with 4 channels.

8.7. Display window

Behaviour of the display while recording:
"Right mouse click"→ "Auto-Zoom/Scroll":



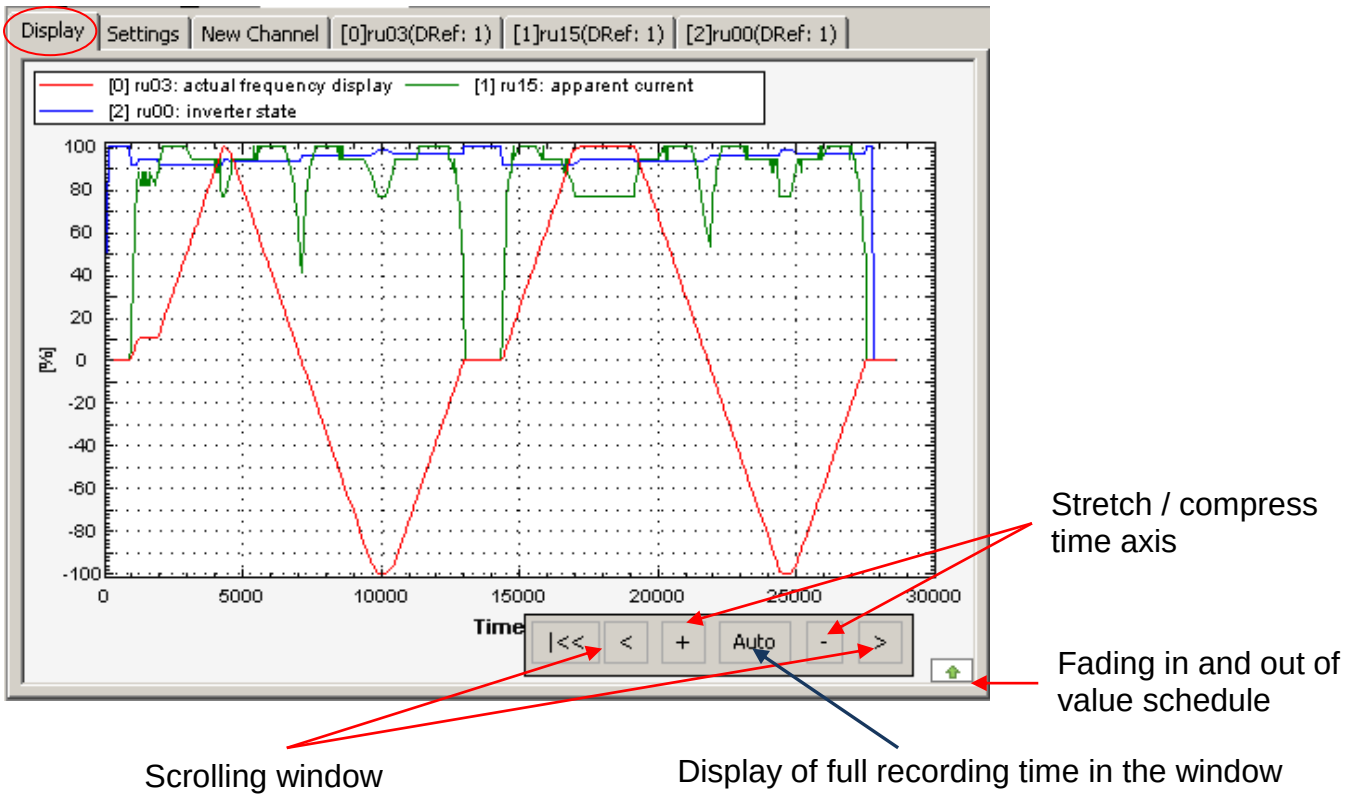
Saves the current Y-axis proportioning for a new recording

At recording the displayed window jumps with the recorded value to the next window width

The window runs synchronous with the actual recorded value

8.8. Adapt display

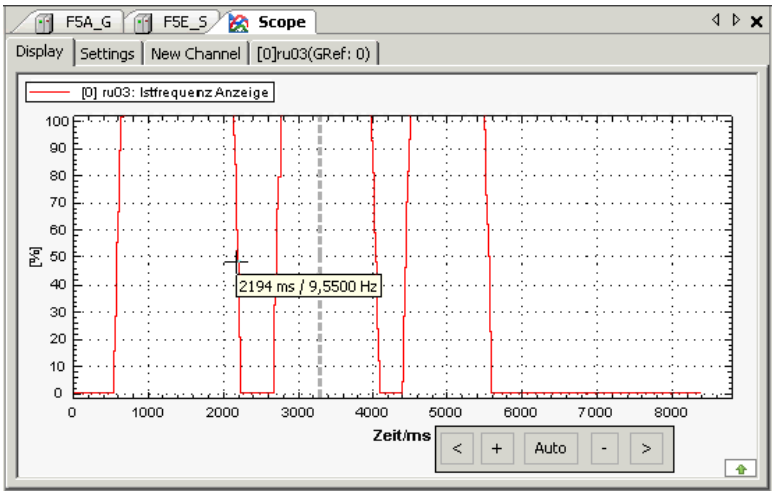
Time axis (X-axis)



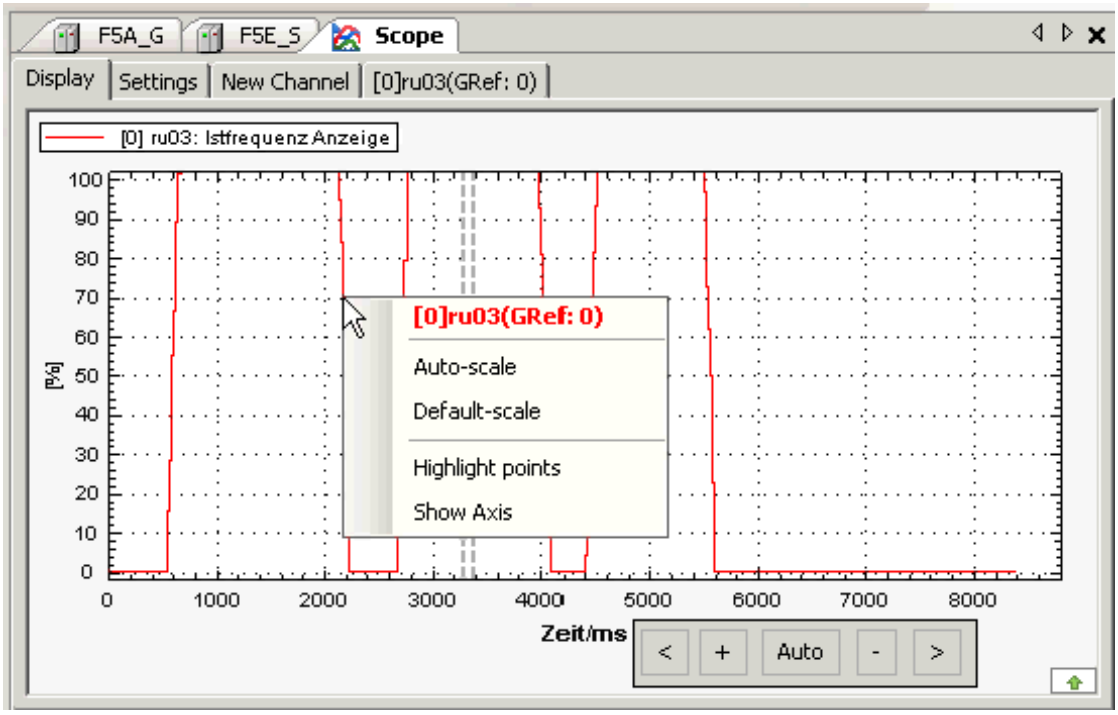
X-Axis: Recording time in ms or µs

Y-Axis: Parameter value in basic setting refers to
100% = max. value range
0% = 0
-100% = min. value range

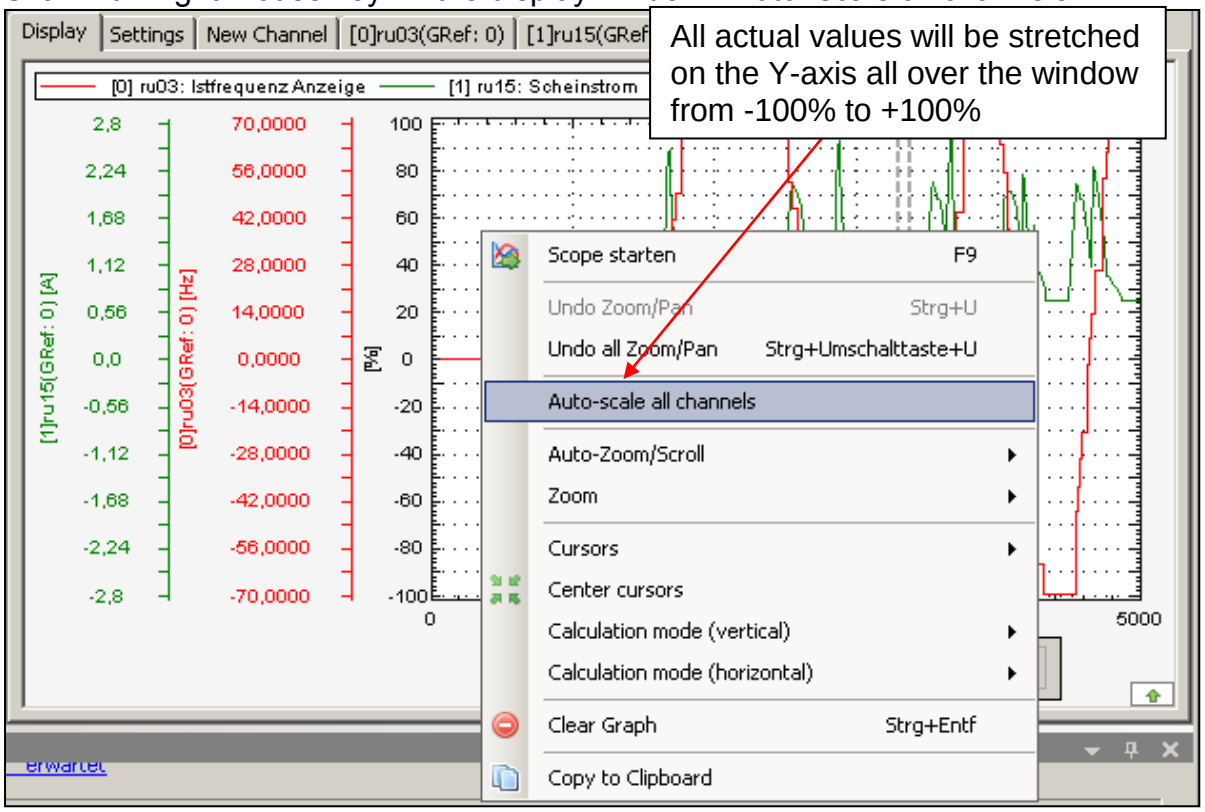
By passing the curve with the mouse, the actual value will be displayed.



By right mouse click on the curve a window opens with adjustment possibilities.



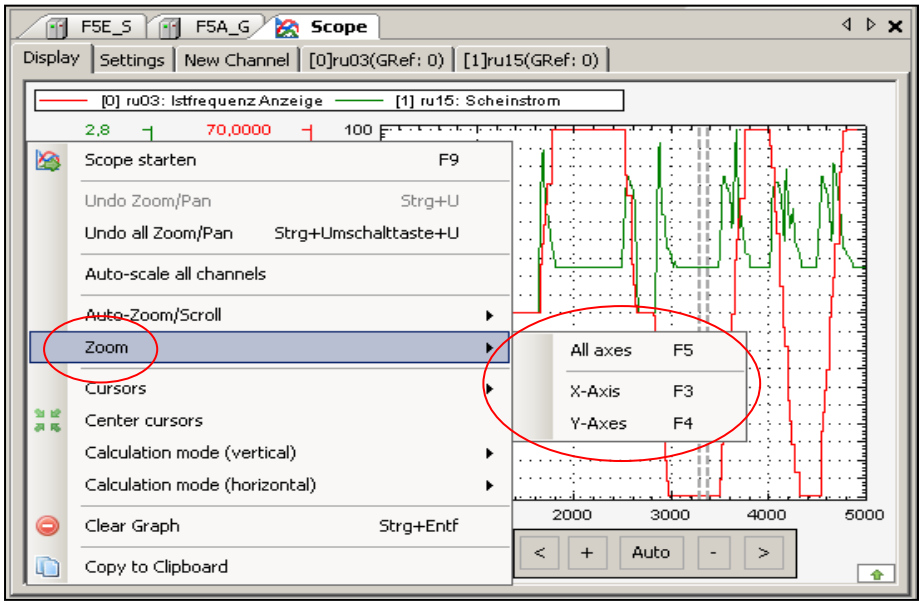
Stretching / compressing of display after recording:
Click with “right mouse key” in the display window: “Auto–scale all channels”:



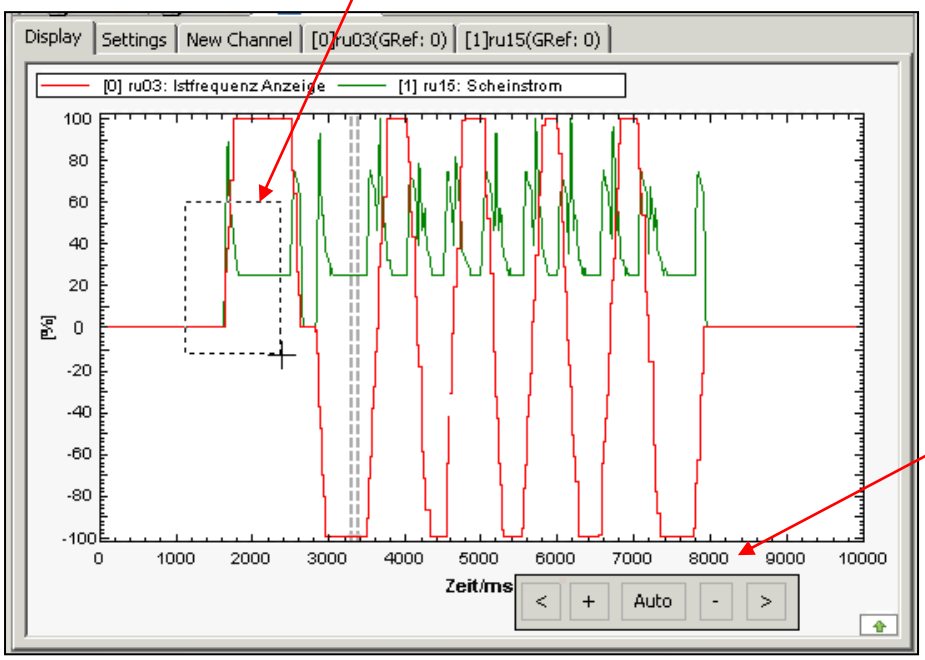
8.9. Display – Zoom

At zooming the relation between the curves is still kept.

Zoom to display 0-100% (or rather -100- +100%):
- "Right mouse click" → "Zoom" → "All axes" (or only "X- or Y-axis")
- Tab key F5 (F3 / F4)



Zoom by mouse:
- Whole display with mouse wheel or keys "+" and "-"
- Parts of display: mark with left mouse key



The view in the window can be displaced by using the buttons "← ↑ → ↓"

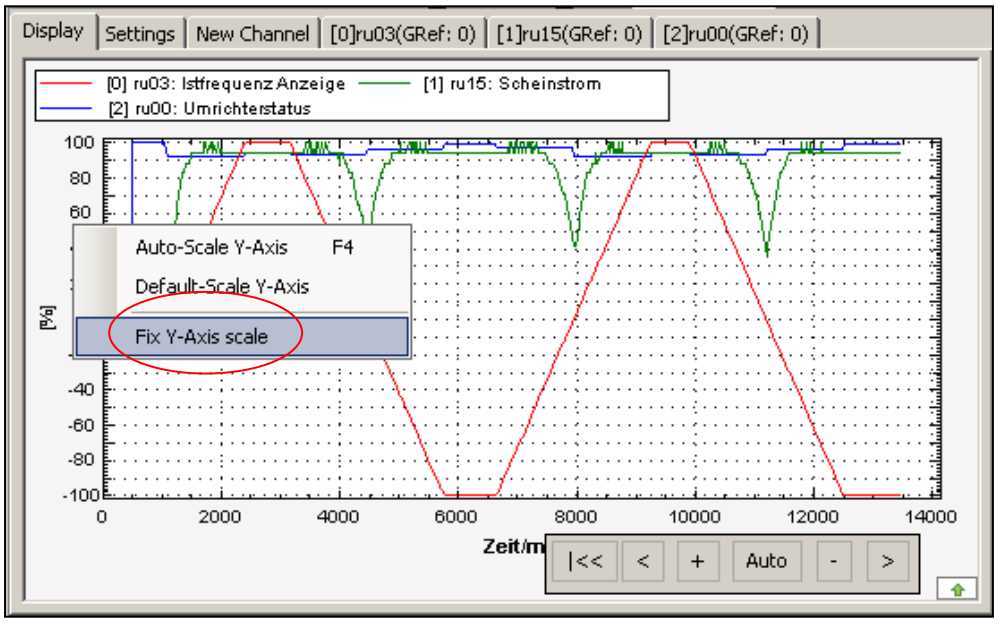
or:
tap key "Strg" and left mouse key in parallel

or:
with pressed mouse wheel

or:
Only the time (X-) axis: click and hold with mouse and scroll to right or left side

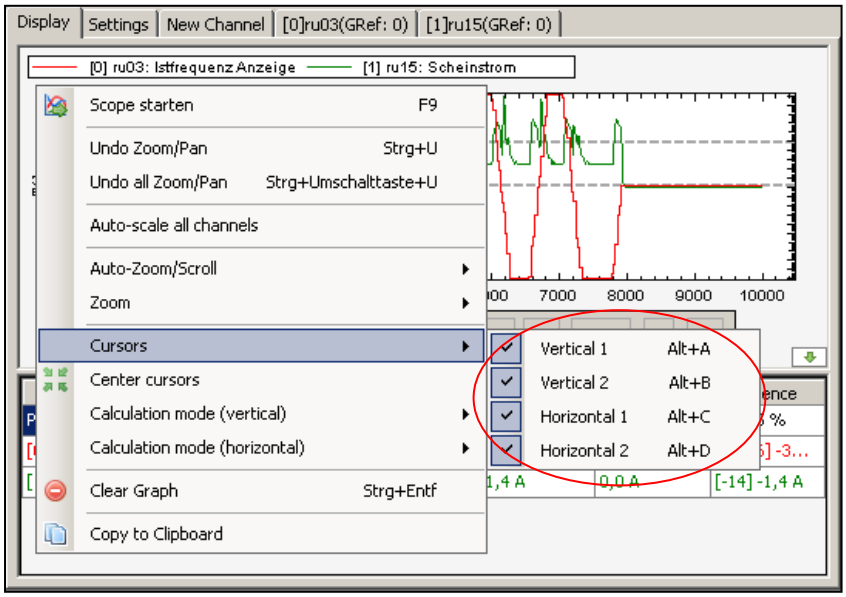
or by: 

Fixing of Y-axis:
Zooming will be done only at the time- (X-) axis by mouse
Point to the Y-(%-) axis → “right mouse key” → “Fix Y-axis scale”

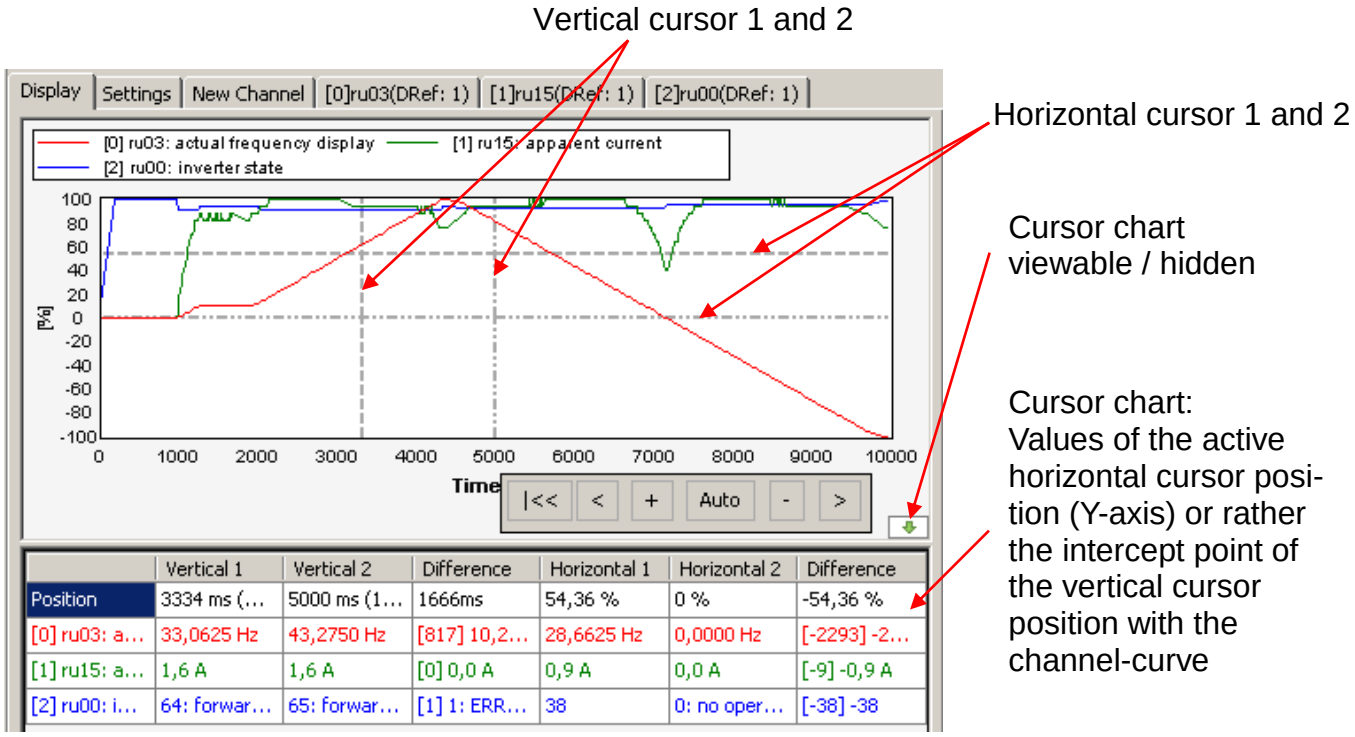


8.10. Display – Cursor

There are 2 vertical and 2 horizontal cursors:
To integrate: “Right mouse click” → “Cursors” → “Vertical 1 or 2 and horizontal 1 or 2”
The cursors will be placed in the center of the display. Displace them by picking with the left mouse key.



Alternative with keys:
Alt+A: Vertical 1
Alt+B: Vertical 2
Alt+C: Horizontal 1
Alt+D: Horizontal 2



	Vertical 1	Vertical 2	Difference	Horizontal 1	Horizontal 2	Difference
Position	3334 ms (...	5000 ms (1...	1666ms	54,36 %	0 %	-54,36 %
[0] ru03: a...	33,0625 Hz	43,2750 Hz	[817] 10,2...	28,6625 Hz	0,0000 Hz	[-2293] -2...
[1] ru15: a...	1,6 A	1,6 A	[0] 0,0 A	0,9 A	0,0 A	[-9] -0,9 A
[2] ru00: i...	64: forwar...	65: forwar...	[1] 1: ERR...	38	0: no oper...	[-38] -38

On the basis of vertical cursor values it is possible to realize several calculation types: difference, integral or average. On basis of horizontal cursor values only difference is possible.

	Vertical 1	Vertical 2	Difference	Horizontal 1	Horizontal 2	Difference
Position	1990 ms (0...	3193 ms (0...	1203ms	48,85 %	0 %	-48,85 %
[0]ru03(GR...	70,0000 Hz	-70,0000 Hz	[-11200] -...	34,2000 Hz	0,0000 Hz	[-2736] -3...
[1]ru15(GR...	0,7 A	0,7 A	[0] 0,0 A	1,4 A	0,0 A	[-14] -1,4 A

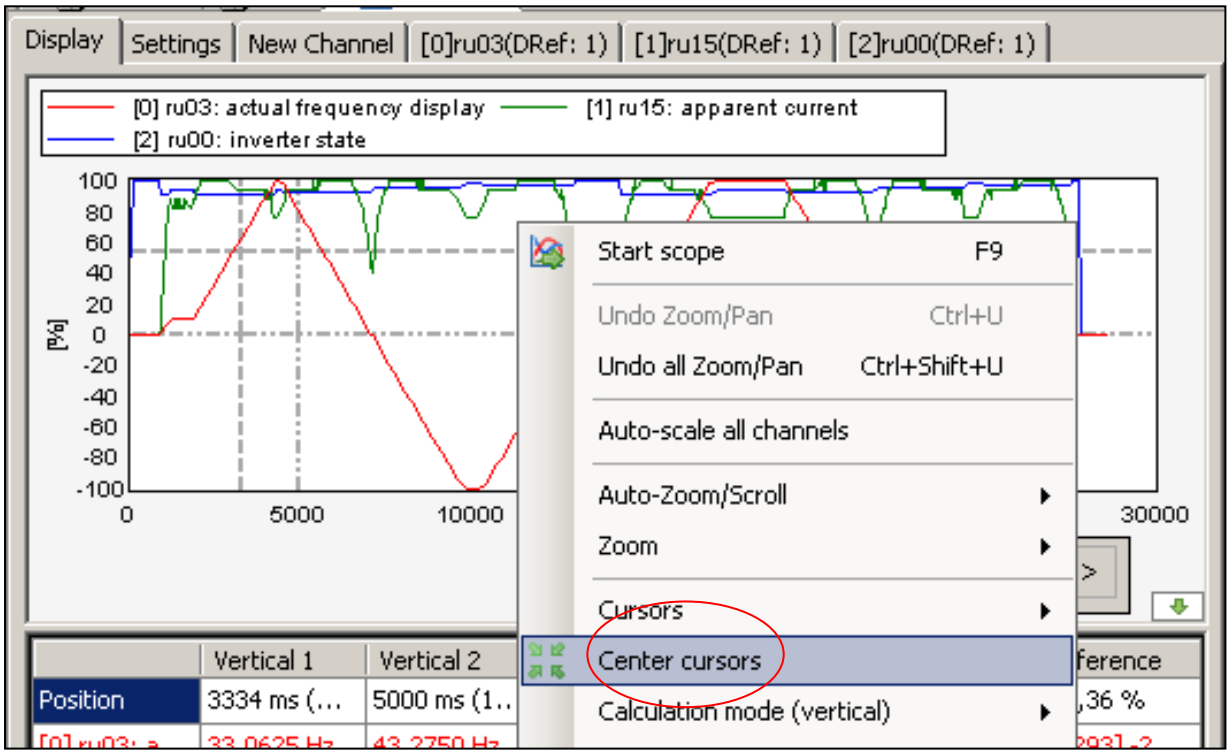
	Vertical 1	Vertical 2	Integral	Horizontal 1	Horizontal 2	Difference
Position	1990 ms (0...	3193 ms (0...	Diff.: 1203ms	48,85 %	0 %	-48,85 %
[0]ru03(G...	70,0000 Hz	-70,0000 Hz	19,162375...	34,2000 Hz	0,0000 Hz	[-2736] -34...
[1]ru15(G...	0,7 A	0,7 A	0,98725 A*s	1,4 A	0,0 A	[-14] -1,4 A

	Vertical 1	Vertical 2	RMS	Horizontal 1	Horizontal 2	Difference
Position	1990 ms (0...	3193 ms (0...		48,85 %	0 %	-48,85 %
[0]ru03(G...	70,0000 Hz	-70,0000 Hz	57,474 Hz	34,2000 Hz	0,0000 Hz	[-2736] -34...
[1]ru15(G...	0,7 A	0,7 A	,956 A	1,4 A	0,0 A	[-14] -1,4 A

For changing click onto the name with left mouse key.

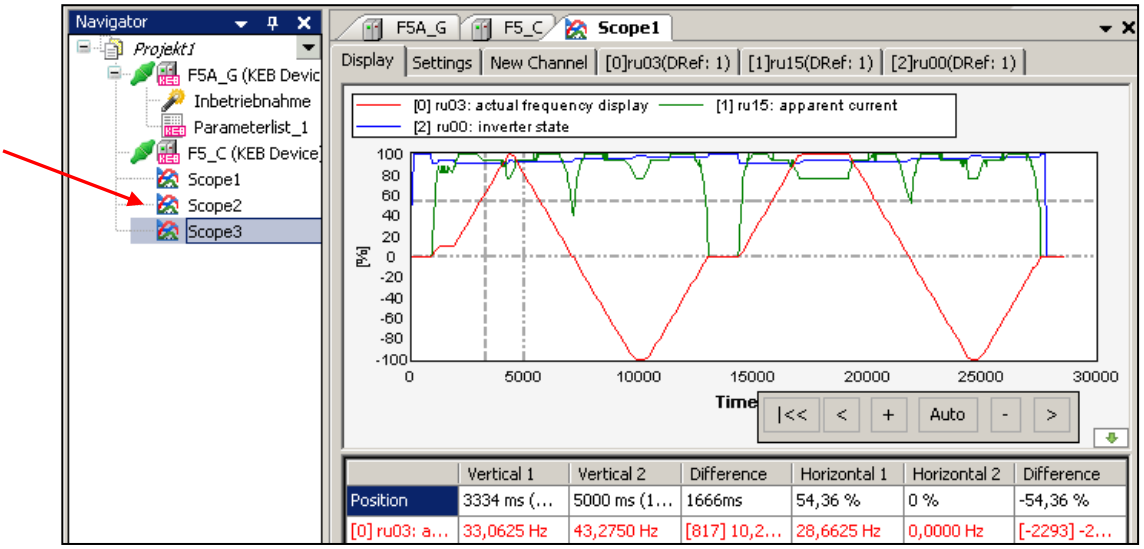
With this it is possible to get very easy the average current of a drive unit over a running circuit.

If the cursors as a result of zooming are not viewable, it is possible to bring them back to the center of the display as follows:
“Right mouse click” → “Center cursors”.

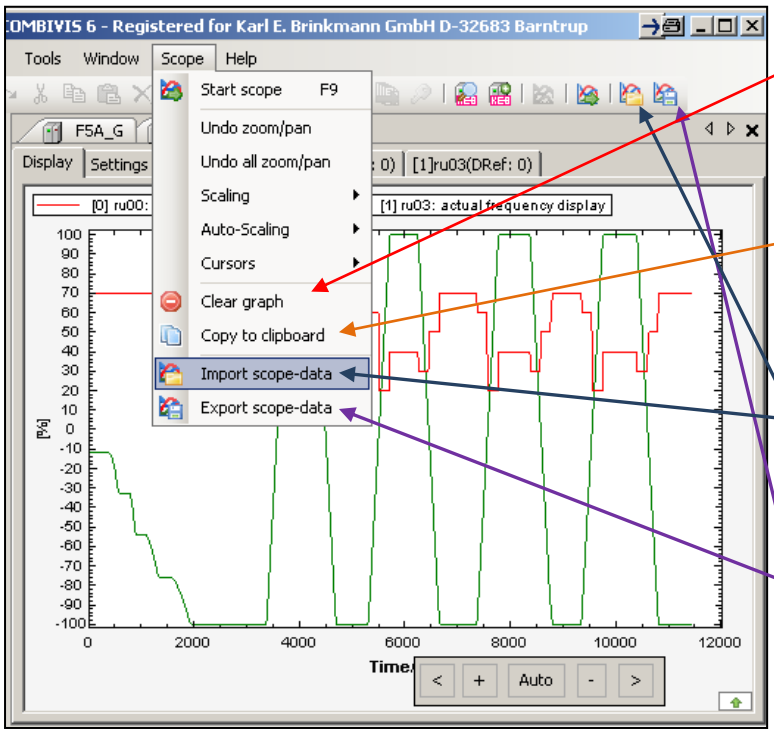


8.11. Save recording

Several scope recordings can be connected to the project and saved with it.
Each scope can save one recording. Please see 8.2. Open Scope



8.12. Import / Export



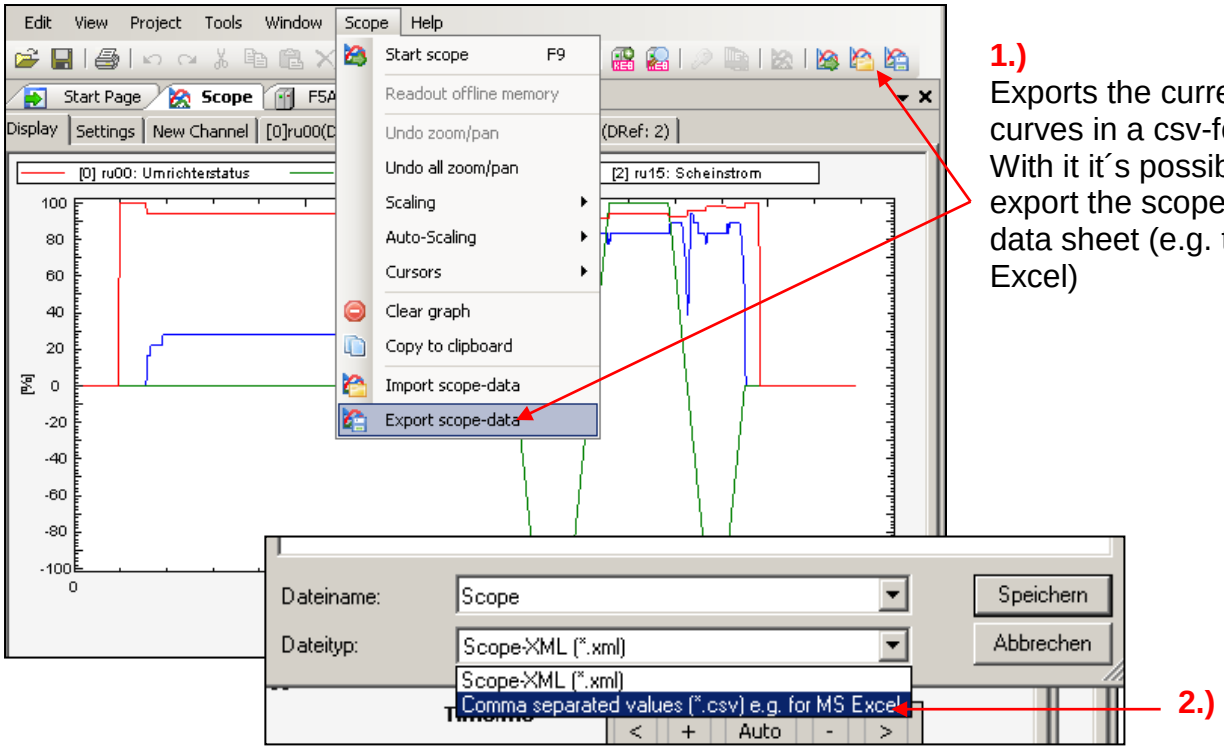
Clears the display

Copies the displayed picture to the clipboard. Can be used e.g. in MS-Office programs.

Imports a CV6 scope file, the actual displayed curves will be erased.

Exports the actual scope curves in a XML-format.
E.g. for saving. The project saves actual only the last recording!

8.13. Export to .csv-format



1.)
Exports the current scope curves in a csv-format. With it it´s possible to export the scope as a data sheet (e.g. to MS-Excel)

2.)

Adjustments of csv-format by: “Tools” → “Options” → “KEB-Scope” → “Extended”

8.14. Trigger function (online)

Trigger function in online mode

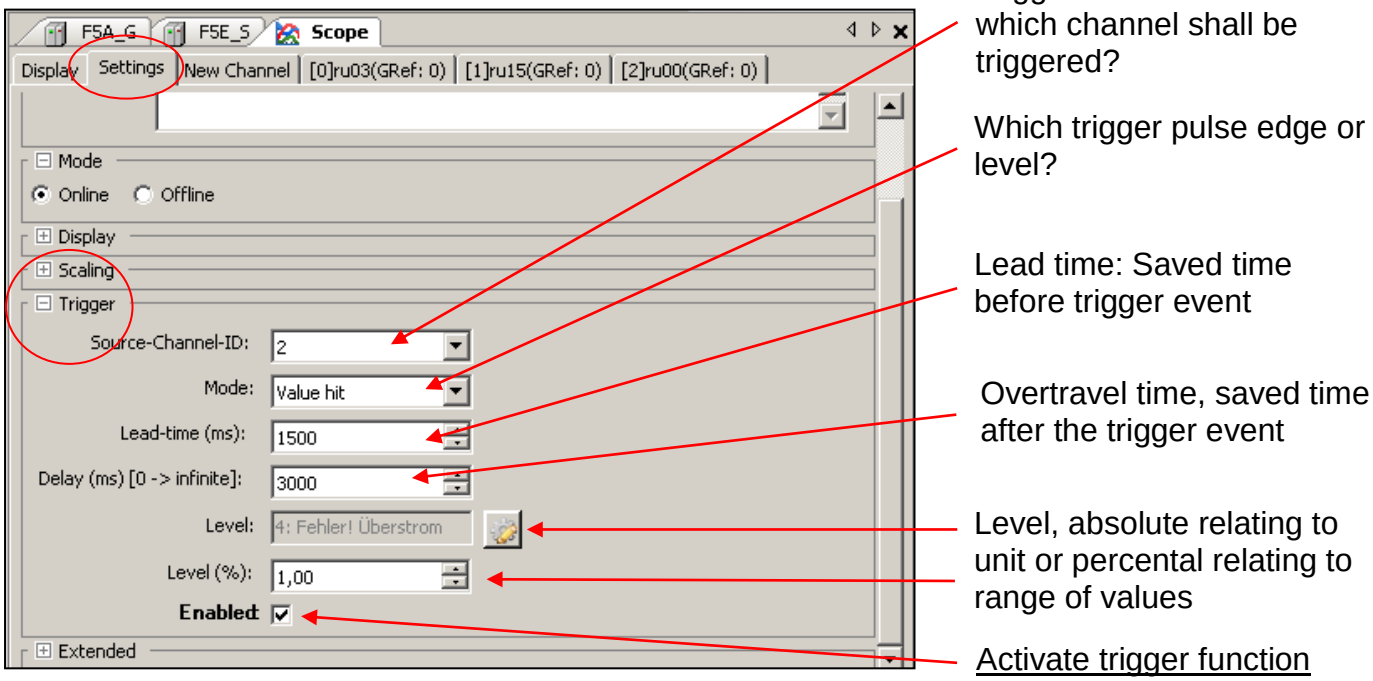
This function realizes in case of long-term recordings a limitation of the saved period (e. g. period around a defined error occurrence). Therefor a trigger event will be defined (e.g. a special inverter status or a reached current level).

Around this event a predefined time domain will be saved. That results in a compact scope-file also for long term recordings.

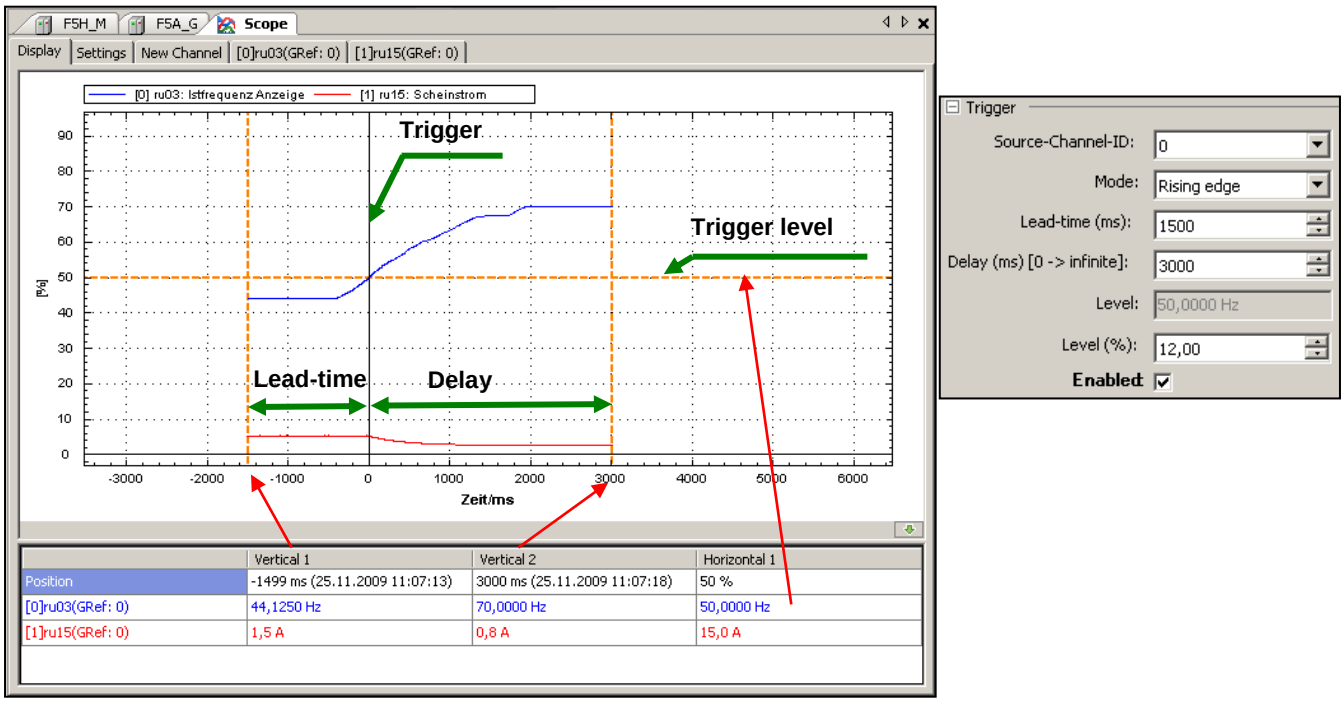
This function will be adjusted and activated in the window “Scope” → “Settings”.

The trigger event will be placed in scope display at 0 ms on the time axis.

Triggering (Online Mode)



Example:



8.15. Offline Mode

The Offline mode uses the function of the fast scope mode's 4 channels to buffer parameter values in the device. Therefor a part of the device's storage is reserved.
Via channel allocation recording and filling of storage will generated. The storage works like a drum store, each new value over writes the oldest one.
The store will be frozen by a trigger event and can be read-out by scope. Because of a faster data communication in the devices than to the PC it can be recorded with a shorter time period.
Useful for:

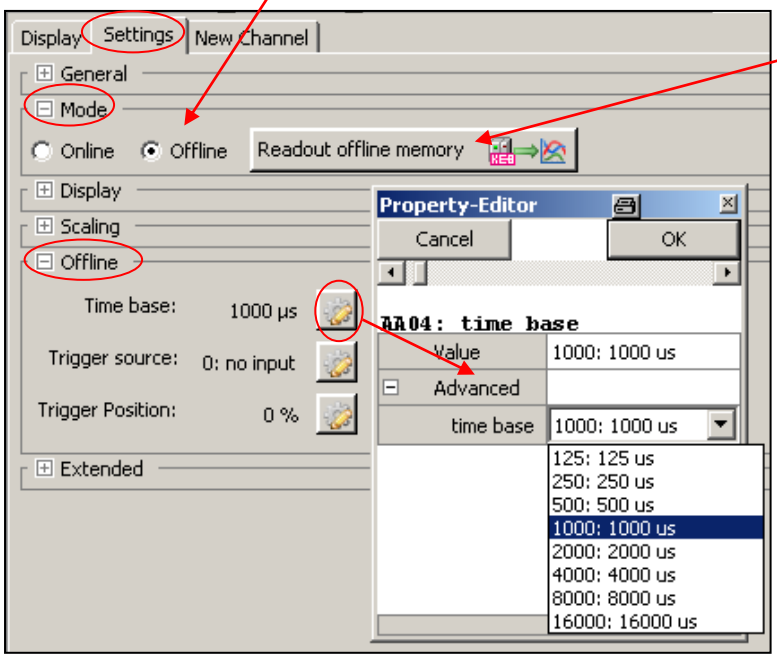
- Shorter time period, therewith better hit rate in short peaks
- Recording without PC
- Recording of sporadically events

Characteristics:

- Available for F5-C, F5-G, F5-A/M, F5-S, F5-H, F5-E, B6, G6, H6 and P6 inverters
- Contrary to online mode data won't be readout sequential from the inverter and displayed but internally saved in the inverter
- No dependency on communication time, therefore very short frames realizable
- Up to 4 channels in one device will be recorded with chronological synchronism and in a fixed frame (fast scope mode)
- For data recording a connection inverter to PC must not be active
- Flexible trigger conditions allow a selective recording of particular sequences
- Trigger will be released by a digital input
- Also after inverter's power-off the trigger requirement will remain unaffected (only F5-A/M, -S, -H, -K, -L, -P, -E ≥ D-housing). So it is possible to trigger intermittent effects over a long period

8.15.1. Switch on and adjustment of time basis

Activating of Offline Mode: “Scope” → “Settings” → “Mode”



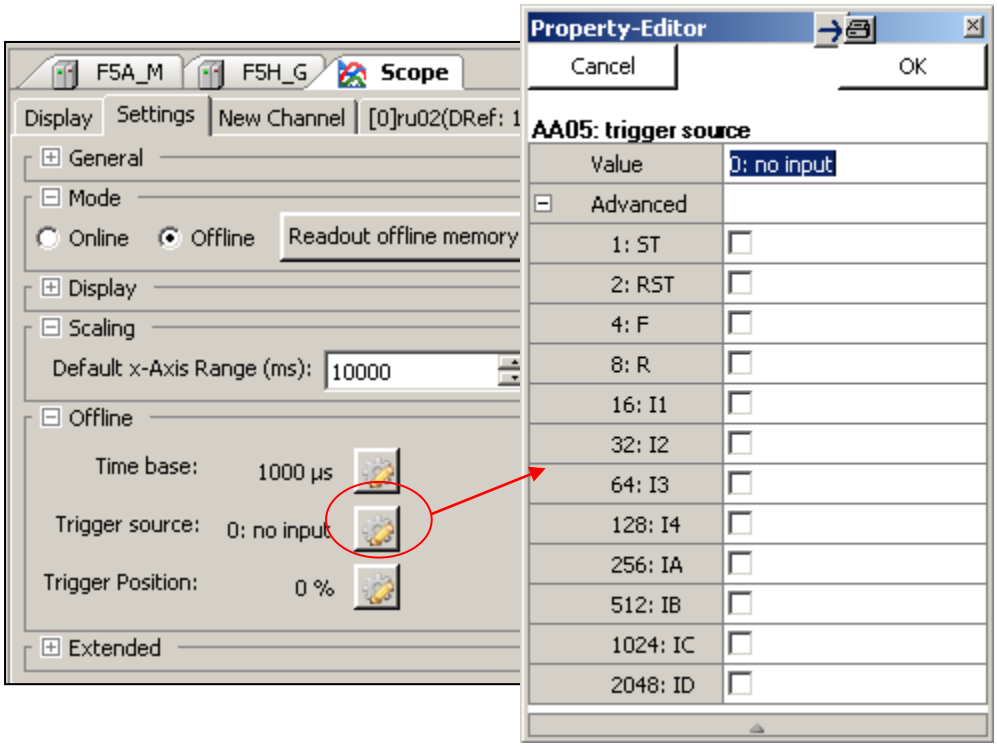
Read out of a stored recording. Channel allocation will be read out automatically

Adjust scanning-frequency:
Max. number of buffered values * scan time = stored time.
That means: the smaller time base the shorter recorded time.

Max. quantity of values depends on controller‘s data space.
(Please see: 8.15.5. Offline-storage capacity

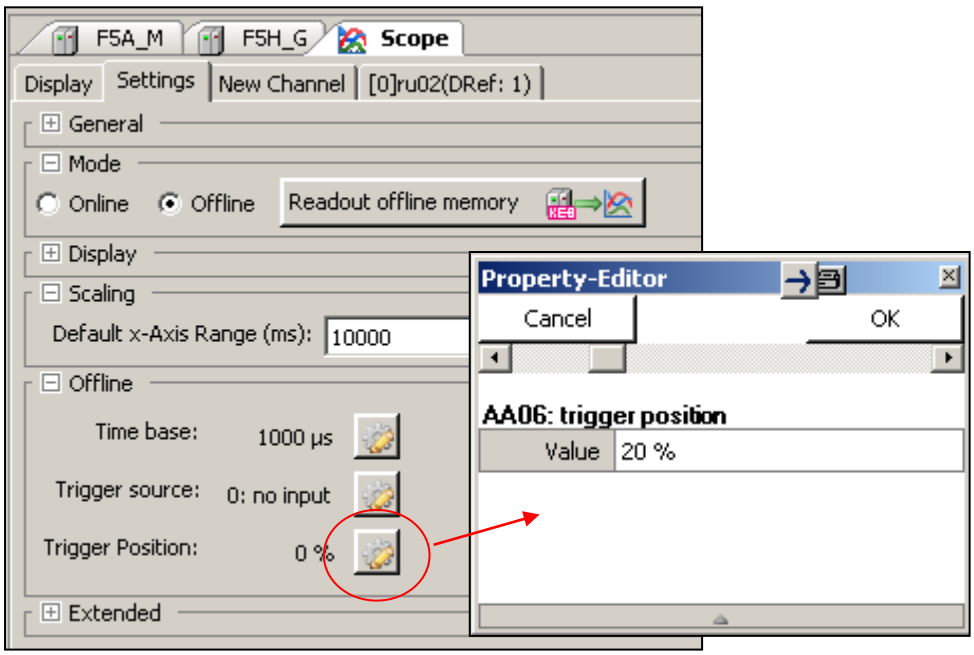
8.15.2. Adjusting of trigger source

Digital inputs act as trigger source.
The activation of inputs initiates a saving of the scope recording.
Via software inputs IA … ID complex trigger requirements can be indirectly realized by outputs OA … OD (COMBIVERT F5/B6/G6).
E.g. setting “F” for recording of acceleration
or: by OutA switching condition: “current > level” to input IA



8.15.3. Adjusting of trigger position

Trigger position defines how many percent of the complete recording period before trigger event shall be displayed.
Example 20%:
= 20% of recording indicate the period before the trigger event.



8.15.4. Practice

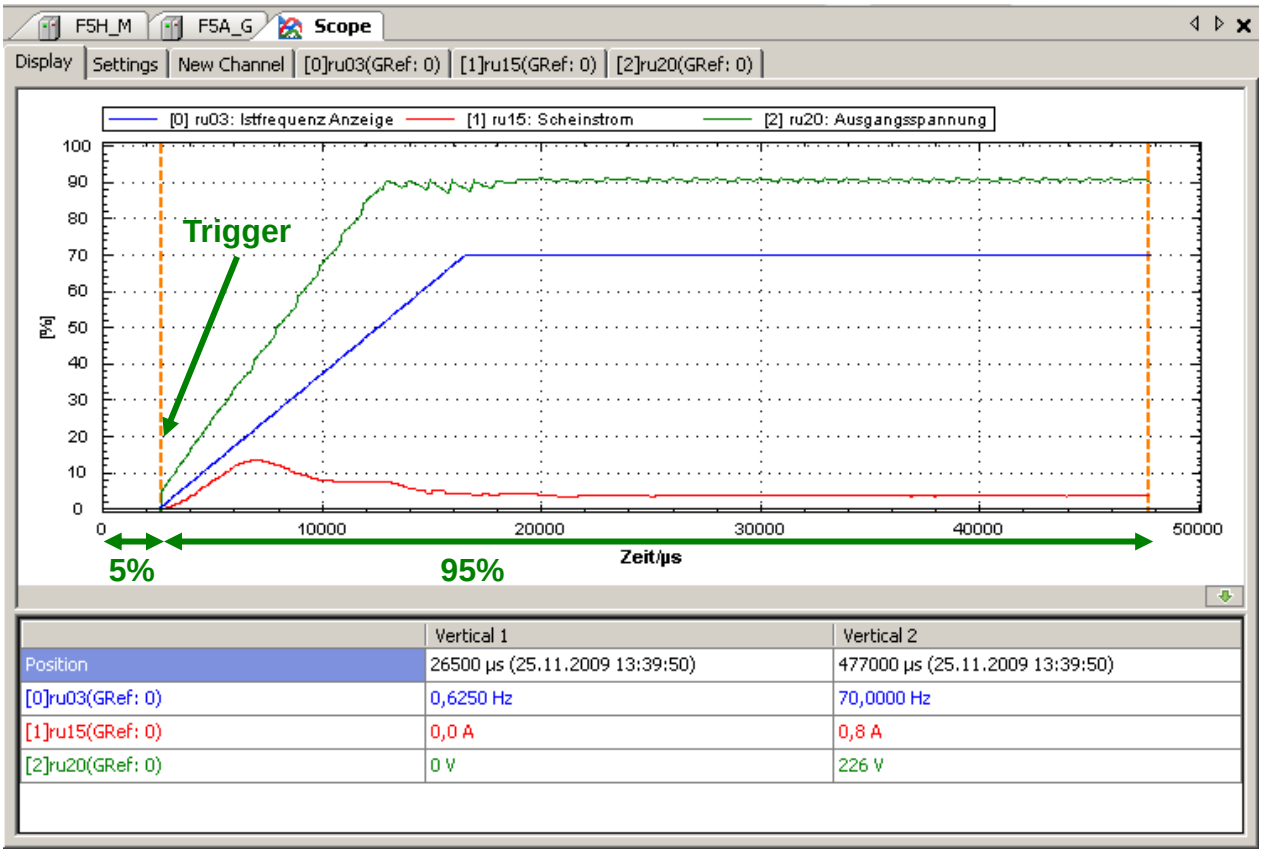
- Start offline recording via click on start/stop button  or tap key “F9”.
- In the bottom of the scope-window the flashing code “wait for trigger” appears. The inverter waits for the trigger event.
- The code will change into “data recording” as soon as the trigger event occurs. The recording will be realized and saved.
- If the saving process is finished, the code will change into “offline data readout”. The saved data will be readout by Scope and displayed.
- After readout the diagram can be handled like in online-mode.

Recording without connected PC and read out afterwards

- Start offline-recording by start/stop button  or tap key „F9“ → at the bottom of the display is shown blinking “Wait for trigger”→ the device is waiting for the trigger condition
- Close COMBIVIS 6 without stopping the scope, if applicable save project.
- When the first trigger condition occurs, the curves will be saved in the device´s storage. Further will be ignored.
- Connect cables as shown before → start COMBIVIS 6 with the respective or with a new project → if needed get connection to the device → at “Scope” → ”Settings” click on: 

→ the saved data will be read out of the device and displayed in Scope.
- The saved data will be erased at F5-A/-S/-E/-H; ≥D-housing only by a new starting of offline recording. Inverter can also be switched of in the meantime. At G6/ H6/ F5-A-Servo (A-Housing) trigger requirements and saved data will be erased also by switching off of the device or by overwriting.

For example:
Time base: 500µs / *trigger source:* F / *trigger position*: 5%



8.15.5. Offline-storage capacity

E.g. in KEB COMBIVERT F5.A Version 4.2: ≥ D-housing:
For 1x or 2x 16-bit-parameters: approx. 1900 values/channel
For 3x or 4x 16-bit-parameters: approx. 950 values/channel
For 1x or 2x 16- and 1x or 2x 32-bit-parmeters: approx. 470 values/channel
(32-bit-parameters are e.g.: position, torque, and control / status word long…)

Therewith 4 channels with 16-bit in 0.5ms time basis give approx. 0.47s recording time.
For the other inverters this might differ strongly.
For example: a KEB COMBIVERT G6 has approximately 20% more space. COMBIVERT F5-C has approx. 70% less and COMBIVERT B6 approx. 86% less.

9. Start-up assistants (wizards)

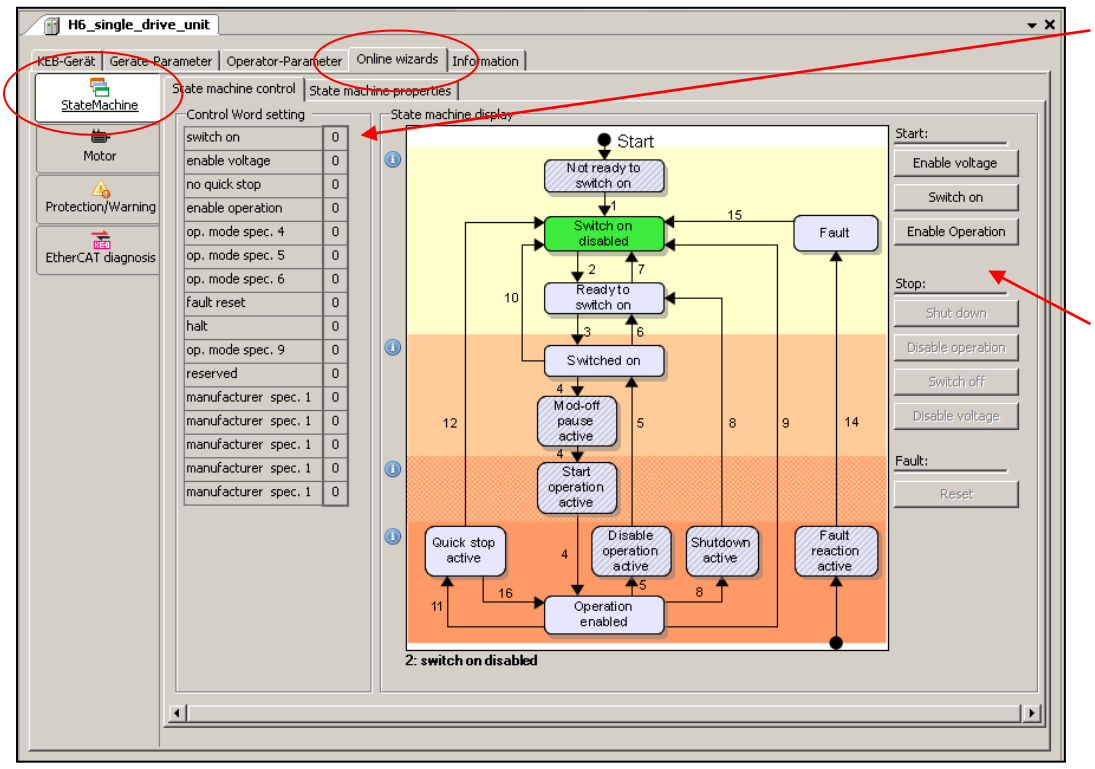
- Start-up wizards are tools for an easy creating of parameter lists and parameter adjustments.
- Only the compatible wizards will be offered in the project.
- Complete adjustments can be loaded directly to the device or saved as parameter list.
- Start-up wizards will be created or upgraded continuously. Currently available:
  - Process data allocation H6/G6
  - Motor data configurator H6, F5-S; (for F5/G6 also the motor data configurator is available on KEB's website).
  - Creation of EtherCAT device description files G6/F5
  - Velocity profiles H6

9.1. Online Start-Up wizard

9.1.1. Online Start-Up wizard COMBIVERT H6

9.1.1.1. State machine

With the State Machine start and stop of the axis can be done direct in the same way as by bus controller.

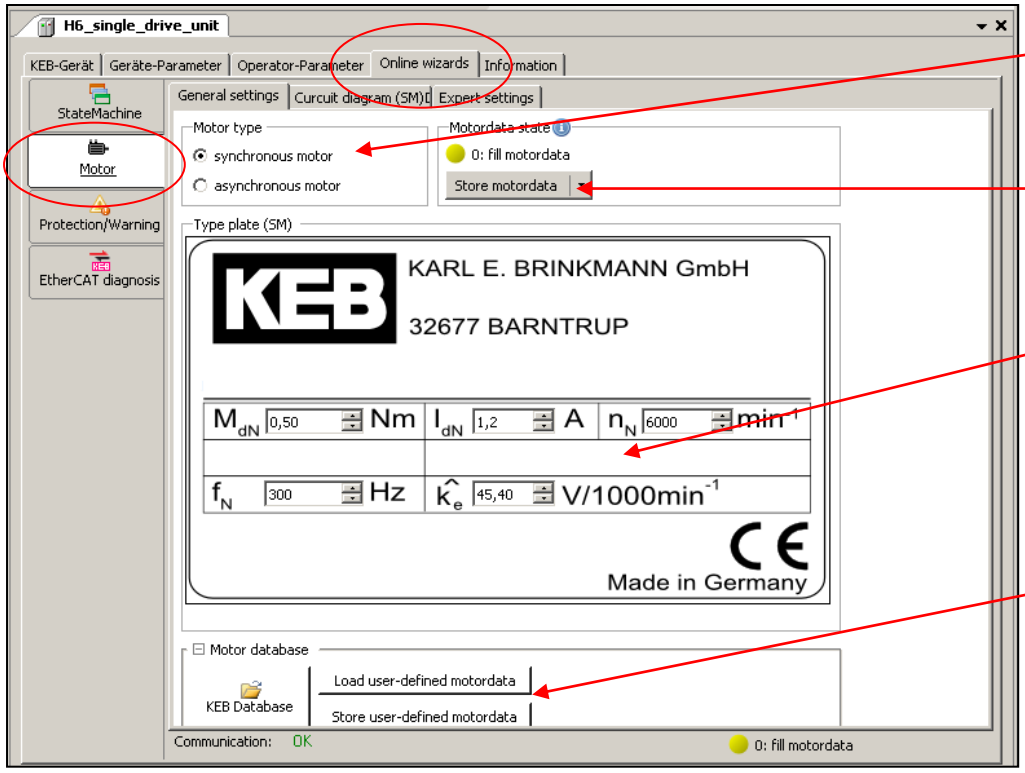


Display status

Handling

9.1.1.2. Motor data configurator

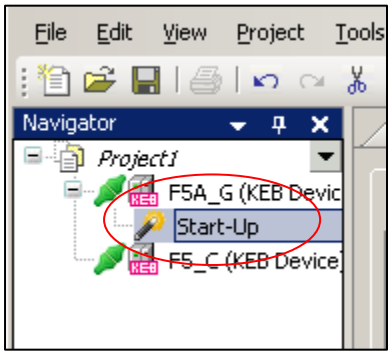
Open in device editor:



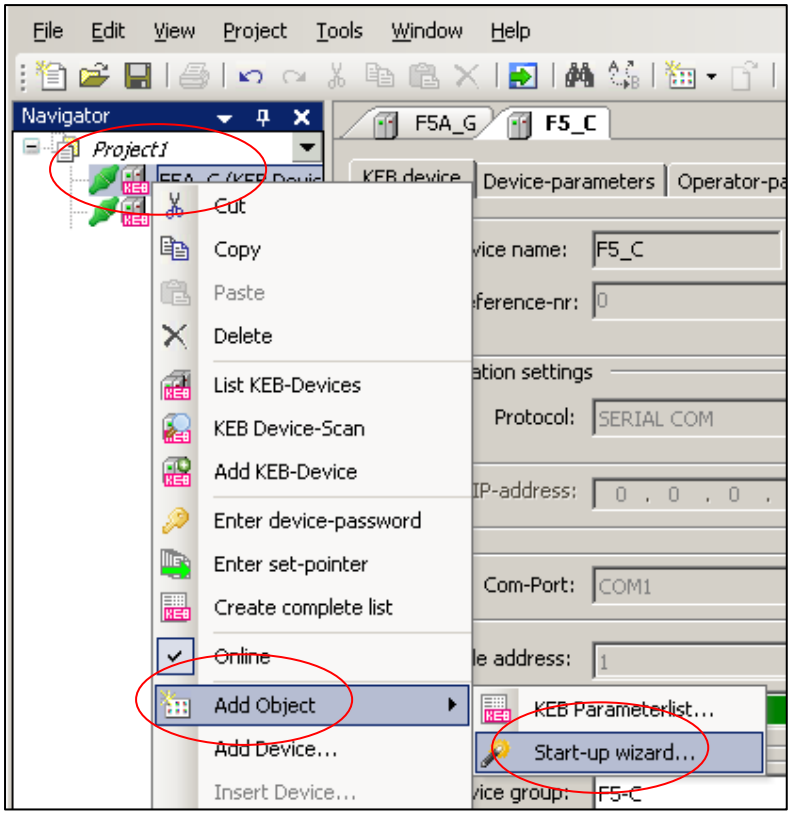
9.2. Offline Start-Up wizard

Open start-up wizards

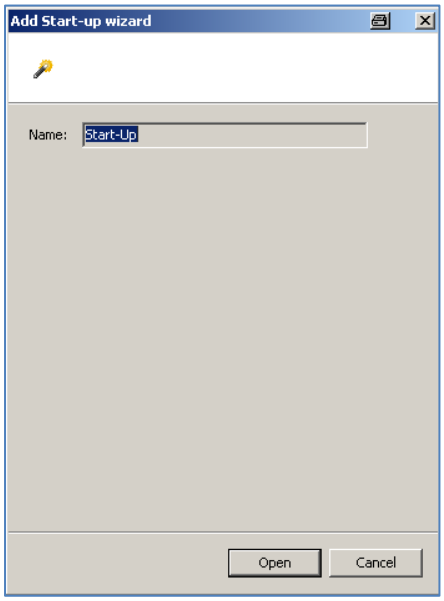
If there is a wizard for the device software offered, it will be shown direct in the navigator window.



If it isn´t shown because e.g. the software mode has switched, the start-up wizard can be opened manually: Mark device → right mouse key → “Add object” → “Start-up Wizard”



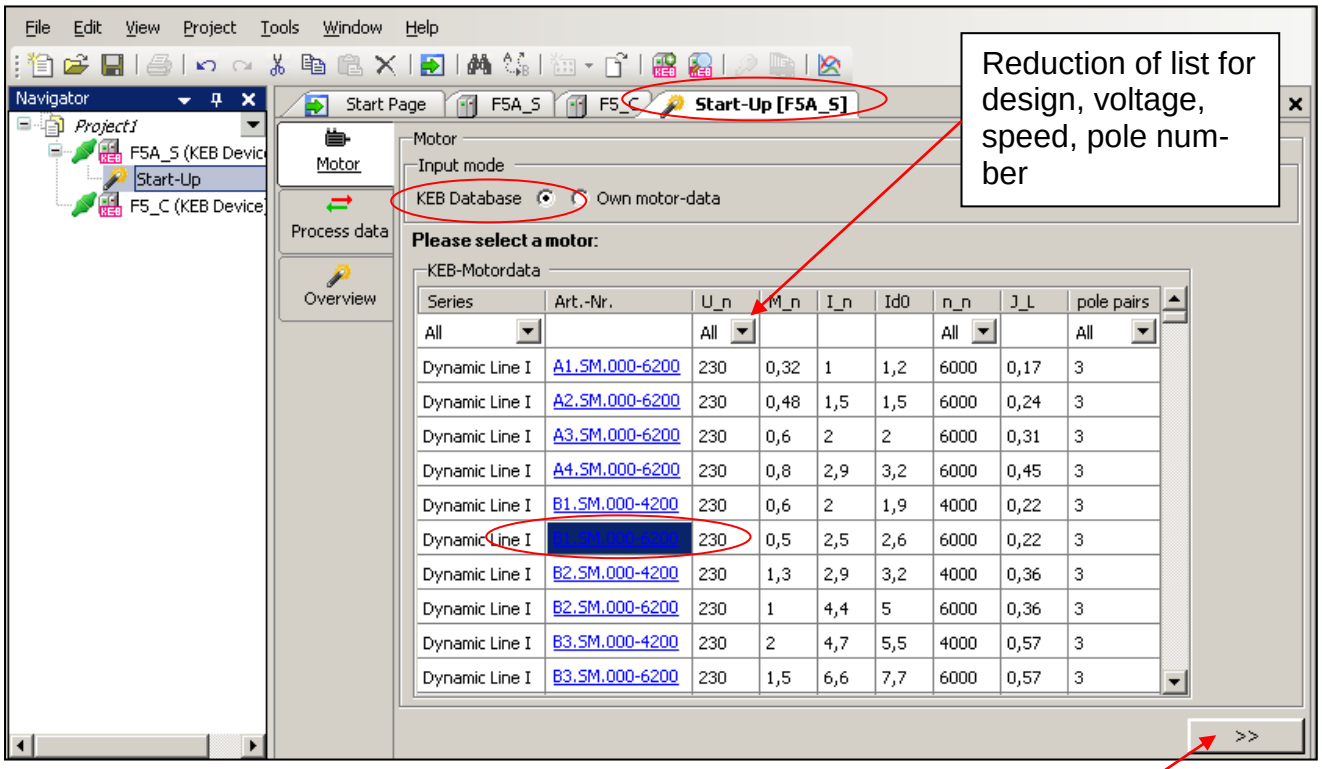
Or: mark device → Tool bar: Icon  → “Start-up assistant”



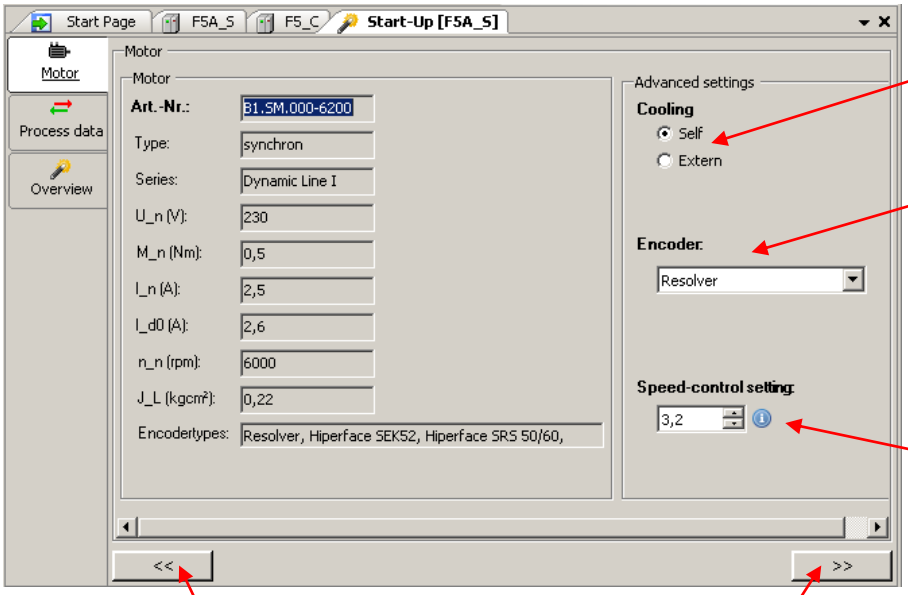
9.2.1. Offline start-up wizard for COMBIVERT F5

9.2.1.1. Motor configurator F5-S

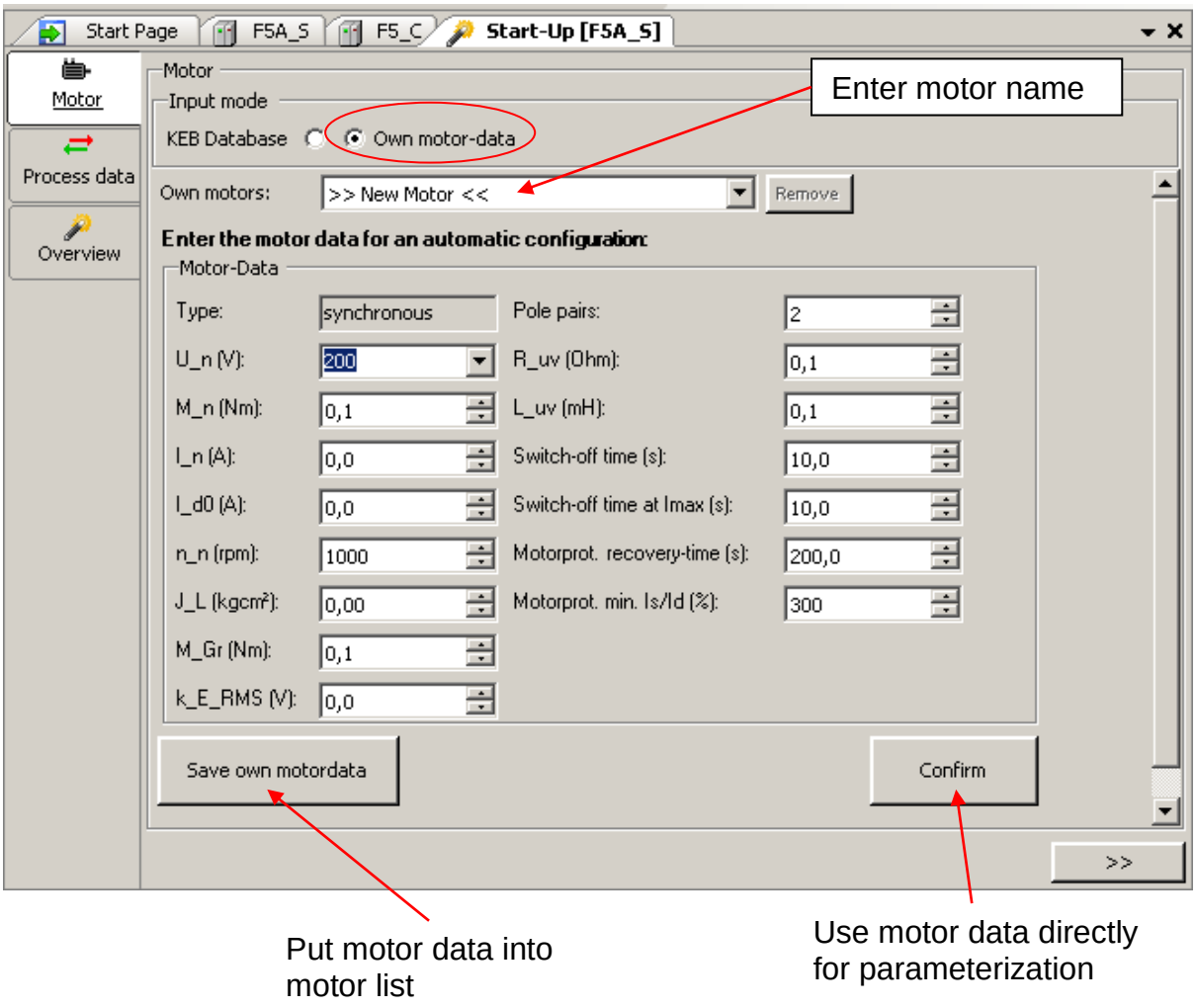
The motor configurator F5-S creates a parameter list with related motor data based on the KEB synchronous motors or self-defined data. This list can be stored or direct loaded to the F5-S. Actual only synchronous motors are available.



Choose motor, e.g.: B1.SM.000-6200:



Define your own synchronous motor:



In → Overview it can be chosen if the parameter would be load directly into the device or if a parameter list shall be created.

9.2.1.2. Process data adjustment of F5 bus operators

Follows later

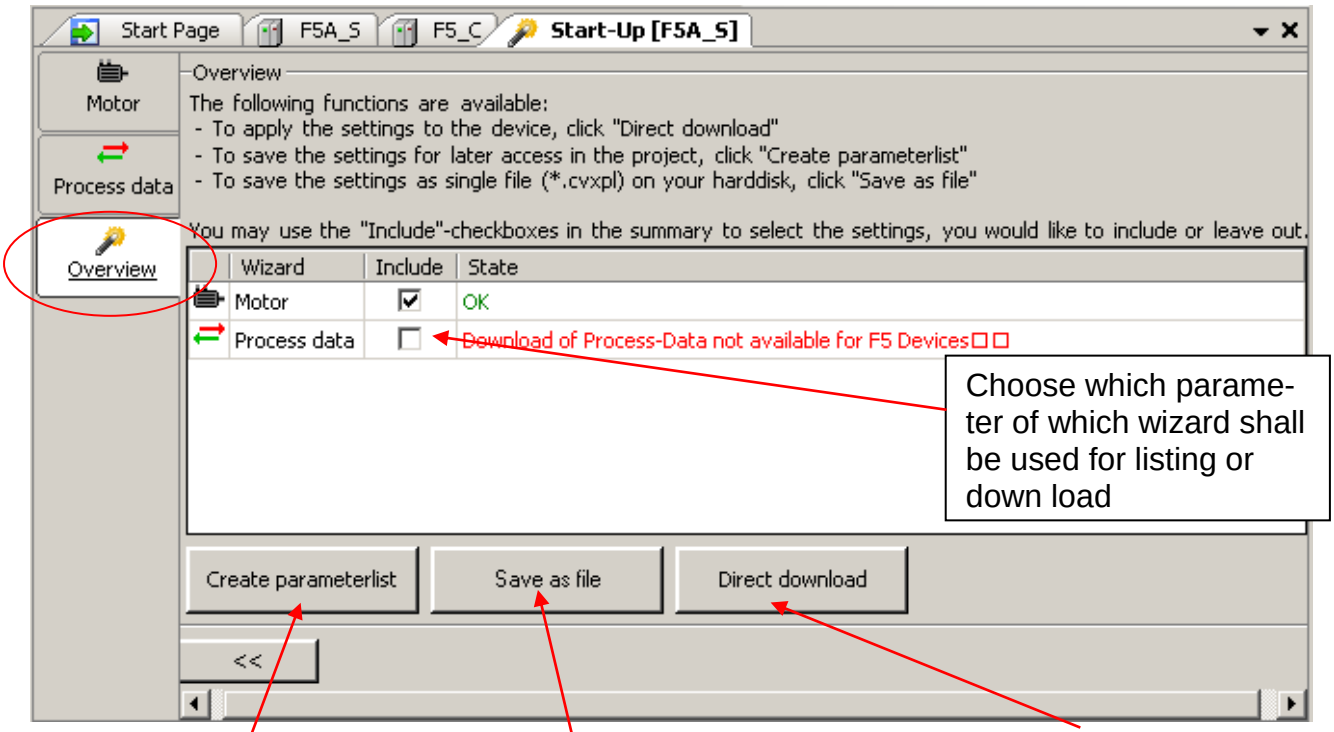
9.2.2. Offline Start-up wizard for COMBIVERT G6

Follows later

9.2.3. Offline Start-up wizard for COMBIVERT H6

Follows later

9.2.4. Offline start-up wizard overview



10. Frequently asked questions

a.) Is it possible to use COMBIVIS 5 and COMBIVIS 6 in parallel?
Both programs can be installed and opened at the same time. But each COM- and USB-interface can be used only by one of them. (e.g. CV5 by COM1/serial and CV6 by USB-COM6 will work)

b.) Is it possible to use COMBIVIS 6 twice at the same time?
CV6 can be open several times at same time. But each COM- and USB-interface can be used only by one of them.

c.) Is it possible to use parameter lists (.dw5), work lists (.wr5) and scope files (.sc5) of COMBIVIS 5 at COMBIVIS 6?
With COMBIVIS 6 .dw5- and .wr5-files can be opened and saved. Sc5-files cannot be handled actual.

d.) In case of device-searching and removing of the previous devices the device references won‘t be reserved new again. They will be added to the previous device references. (e.g. previous 0-3, then 4-6)
This is deliberate. Possibly it may happen that there are parameter lists in the same project which include the old reference. It will be very confusing if a new device would be included

with a previous reference. Therefore a reference will be automatically allocated only once. It is possible to adjust previous references (here: 0-3) manually but only if these references have been deleted before.

e.) Is it possible to parameterize older KEB inverters (e.g. F4) with CV6?
No, it is not intended.

f.) After inserting a parameter list into the project, there is shown: "channel closed" in the online values.
The device reference in the parameter list is not the same as in the actual device. → Adjust the device reference in the list or in the device.

g.) Is it possible to open several projects with CV6 at the same time?
CV6 can handle only one project at the same time. But CV6 can be opened several times with different projects (also in different languages).

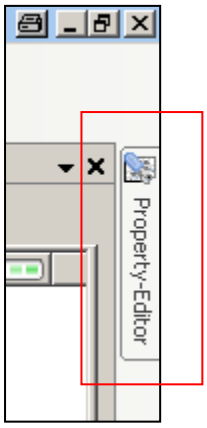
h.) Why asks CV6 for a device reference number at each opening of a CV5-list in .dw5-format?
The device reference in CV6 is used for assignment of parameters and scope channels to the devices. In CV6 it is possible to take parameters of several devices in one list, also channels of several devices to one scope file. With it the device addresses (SY.06) cannot be used for identifying like in CV5. At CV6 there can be connected devices with same addresses at different COM-interfaces.

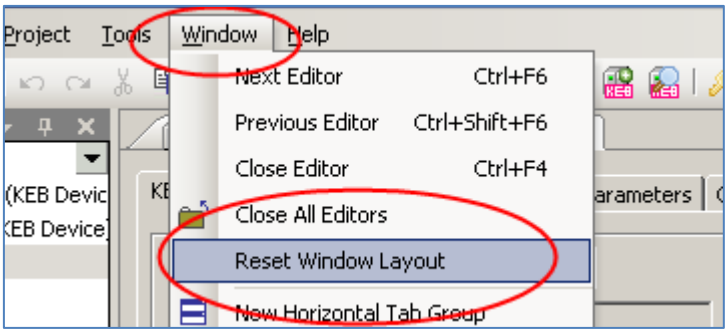
i.) Why asks CV6 during saving of a CV5-list in dw5-format for a node address?
In CV5 the identifying of the device is done by the node address (e.g. SY.06 at COMBIVERT F5/G6). This is in CV6 not used, so it is necessary to add it.

j.) Why will be found the same device several times by using the USB-Serial-Converter Part-No. 00.58.060-0020?
Because of the not specified node addresses at HSP5 the F5/HSP5 or B6 inverter will be found at each scanned node address. (HSP5 is a face to face communication with only 2 members) → search only at one node address or, at manually searching, mark and open only one device.

k.) By using USB-Serial-Converter at a HSP5-interface of F5/B6, the device will be not or only by searching several times found.
In default of CV6 the searching procedure starts with 9600 baud and counts up afterwards. This needs a little time, so that the device may not be detected. → use CV6 at searching on HSP5 with fixed 38400 baud.
Note: on serial interface DIN66019 other, smaller baud rates may be used (F5, default= 9600 baud)

l.) At handling of a parameter value the property editor window is not shown.
Please try to open the property editor window in the toolbar menu "view".
Afterwards search at the screen frame. May be the property editor window is collapsed.
If found, click into the property editor window and open it. Clicking on the pin symbol fixes the window open.
A complete restoring of all windows can be done by: toolbar: "Window" → "Reset window layout"





m.) Windows in screen are displayed incompletely, protrude from frame or overlap.
Please check DPI adjustment in the MS-Windows settings: “Start” → “Settings” → “Control panel” → “Display” → “Adjustments” → “Enhanced” → “General”. Adjustment must be 96 dpi (standard-size). Different values are as far as our experience goes not compatible with Microsoft .net framework

10.1. FAQ Scope

a.) Is it possible to record more than 16 channels?
Each scope can handle max. 16 channels, but Scope can be opened several times in a project, each with 16 different channels.

b.) If a channel which is in the fast mode will be disabled, does the 5th channel move up into the fast mode or does the previous reservation persist?
Yes. The channel “moves up”.

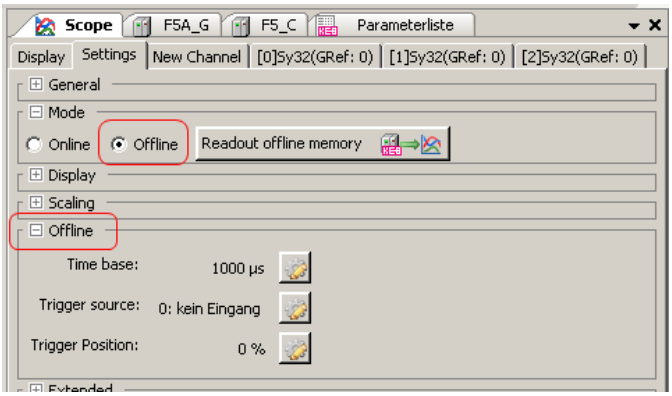
c.) Is it possible to save a CV6-scope in CV5 (.sc5) format?
No, because of different and upgraded structures it is not possible.

d.) Is it possible to merge channels from different scope recordings?
This is planned for a later COMBIVIS 6 version. Currently it is already possible, but only indirectly via export in an Excel-compatible format for example “.csv”. In Excel it is possible to merge curves as tables on the basis of time-axis and compare them directly via diagram function.

10.2. Realized effects/problems in Version 6.1.2.0/1

- **At renaming of a parameter list** the name cannot begin with a number (Message: name is still existing).

- **At switching from online mode to offline mode the window offline trigger is not shown.** The window (online-) trigger is shown instead of it.
  Solution: please switch again back to online mode and then back to offline mode again. After that the display is correct.

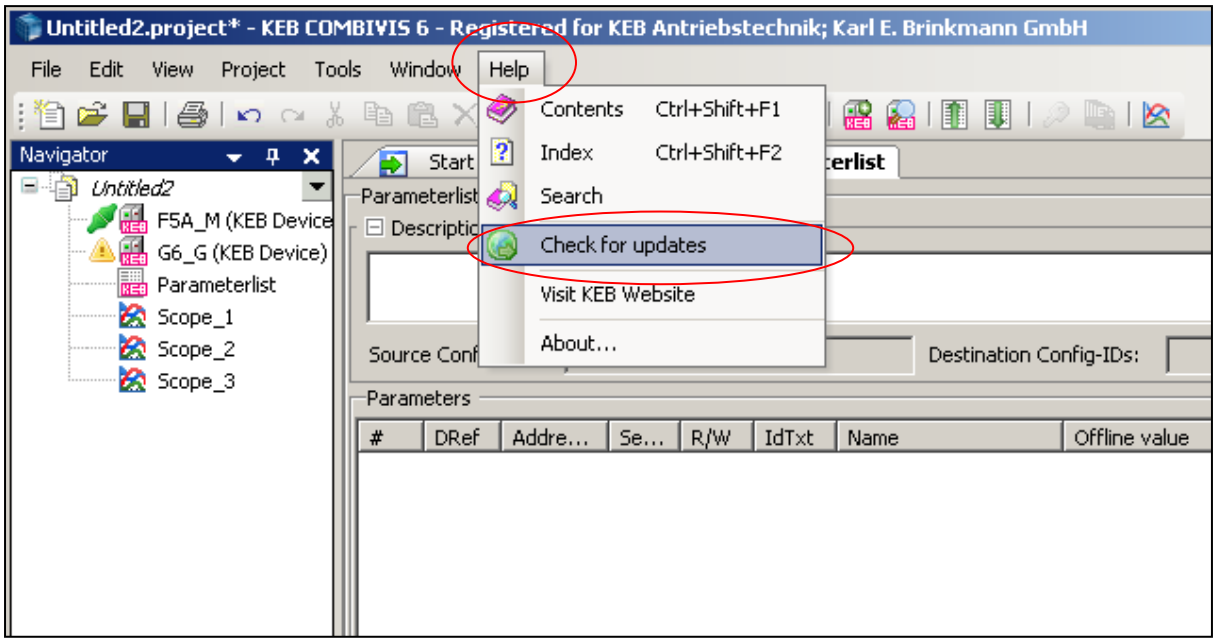


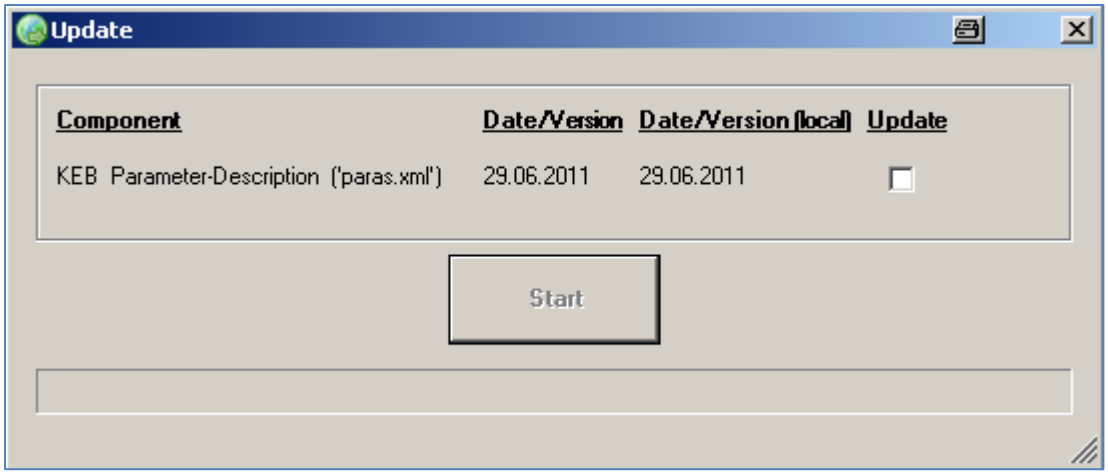
This error is corrected from version 6.1.2.1.

11. Update

Manually checking for updates

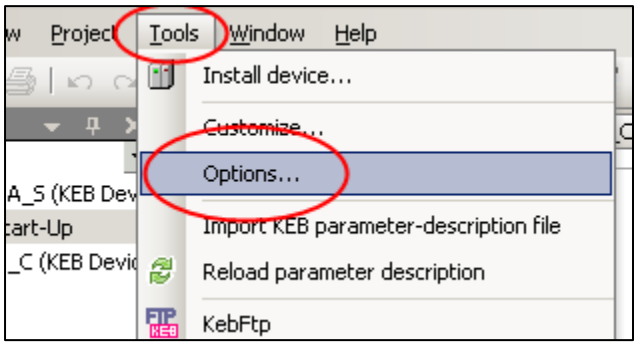
With function “Check for updates” in menu “Help” an automatically connection to the KEB-homepage is done if a connection to the internet is available. The parameter description file paras.xml is checked for a newer date and downloaded/integrated if desired. But currently program version can’t be checked!

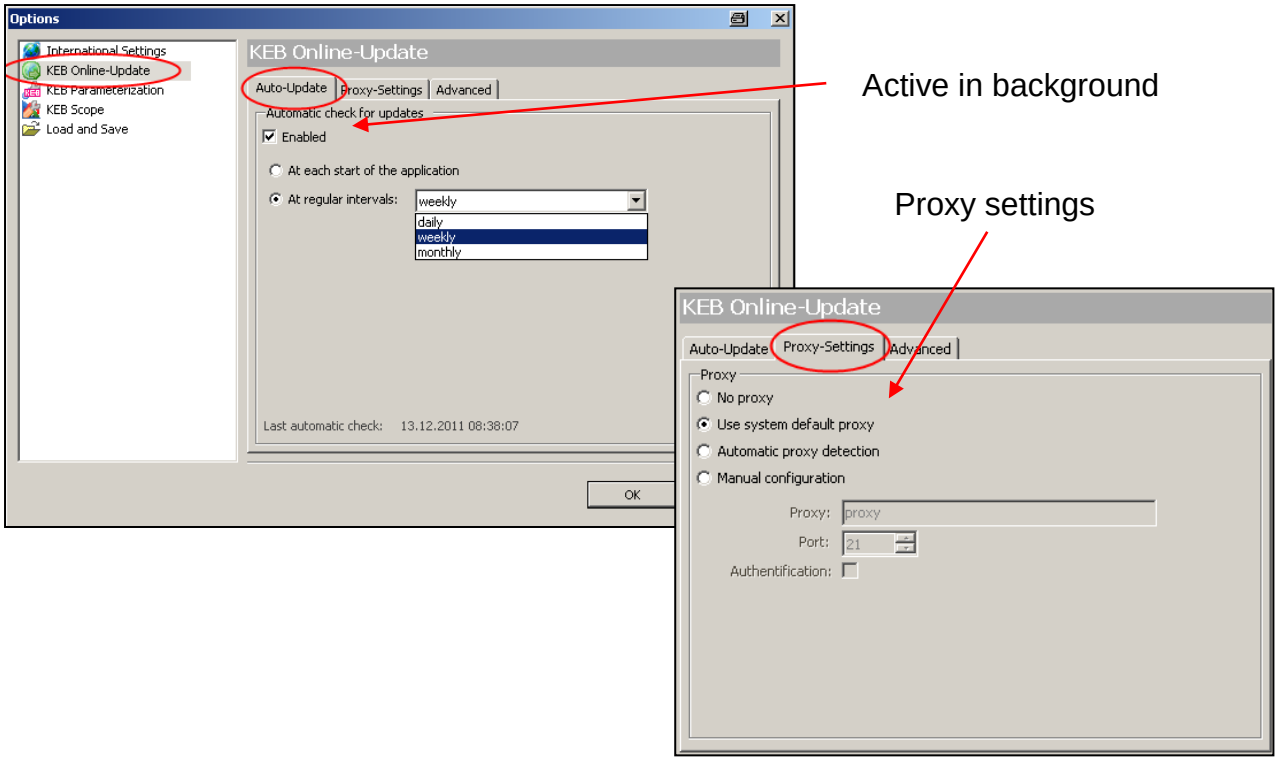




Automatically checking for updates

As background function COMBIVIS 6 can search automatically for an update if the internet connection is active.



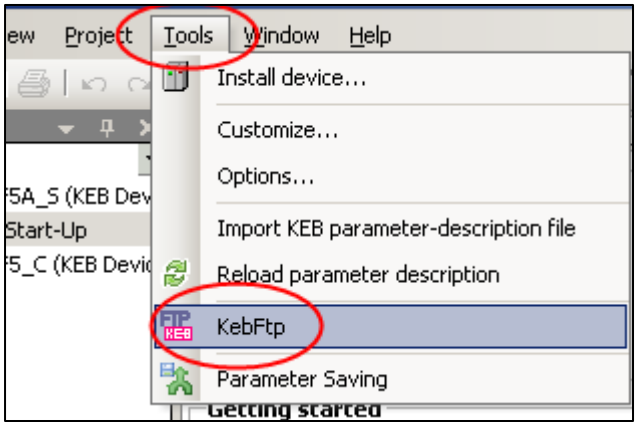


Automatic check for update weekly or monthly means: next check 7 or 30 days after the last one if internet connection is active or at the next connection after this date.

12. KEB-FTP file transfer program

With KEB File Transfer Program files can be exchanged between PC and KEB-Portable Operator (Part No. 00.58.060-1010 / -1110) or COMBICONTROL C5/C6.

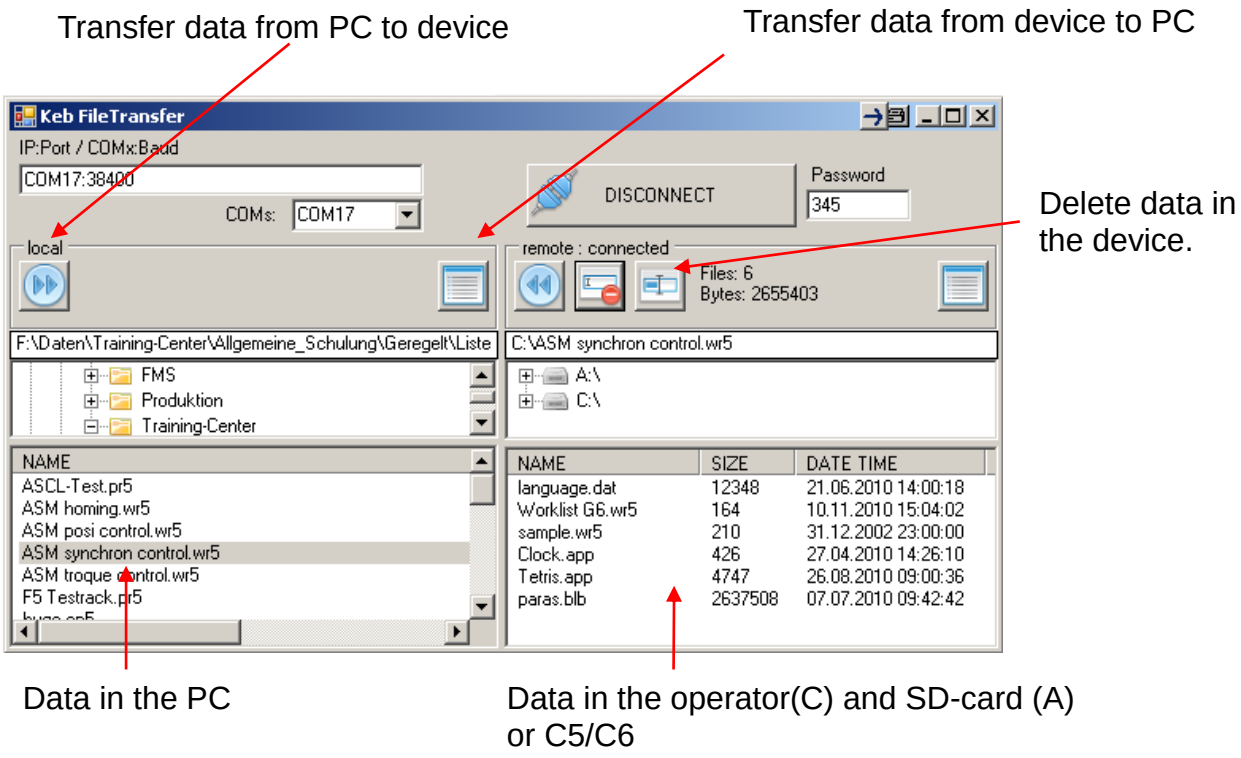
Open:
Menu bar “Tools” → “KEBFTP”



Note:
KEB-FTP is a separate program running parallel to COMBIVIS 6. It is not possible for KEB-FTP and COMBIVIS 6 to serve the same COM-Port. So the used COM Port in KEB-FTP must be inactive in COMBIVIS 6.

Adjustments:
IP-address or COM-Port and password if required (see device manual) have to be adjusted. Then click on Button “Connect”.
The password resets, depending on device, sometime after last serving.

The file length is limited compared to Windows Explorer
COMBICONTROL C5 = 8 digits + file extension
COMBICONTROL C6 = 32 digits + file extension
Portable Operator = 32 digits + file extension



13. Remark

The information contained in the technical documentation, as well as any user-specific advice in spoken and written, are made to best of our knowledge. However, they are considered for information only without responsibility. This also applies to any violation of industrial property rights of a third-party.
For description of properties are only considered the technical documentations (manuals) of the unit.
Application and use of our units in the target products is outside of our control and therefore lies exclusively in the area of responsibility of the user.
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Karl E. Brinkmann GmbH
Försterweg 36-38 • **D**-32683 Barntrup
fon: +49 5263 401-0 • fax: +49 5263 401-116
net: www.keb.de • mail: info@keb.de