ServiceBus-Comm

Communication software
for Stepper Motor Power Stages
with ServiceBus

phytron

customized solutions in motion

Manual 1239-A007 GB

ServiceBus-Comm®

**Communication Software for
Stepper Motor Power Stages
with ServiceBus**

ServiceBus-Comm®

Contents

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1 What is ServiceBus-Comm® ?

ServiceBus-Comm is WINDOWS software for simple parameterizing and operating of phytron stepper motor power stages with ServiceBus by means of a PC.

The operating parameters like run current, stop current, step resolution, current delay time or other power stage parameters are set up on a PC, saved and transmitted to the power stage via ServiceBus.

ServiceBus-Comm supports during operation for example the monitoring of run current, motor or power stage temperature. The status display informs about the input states and allows setting outputs or displaying error messages.

Up to 32 stepper motor axes can be managed simultaneously by ServiceBus-Comm.

The Main Features of ServiceBus-Comm® in One View

- Desktop with drop-down menus and graphical user interface

- Hotkeys for frequently used commands

- Menu dialogue in 2 languages (German and English)

- Dynamic allocation of PC resources means, ServiceBus-Comm will only occupy the memory space needed at that time.

- Simple and fast parameter settings of the power stages

- Parameter saving in a file or a project file

- Old power stage parameters are comparable with new ones

- Upgradable for new power stage developments

2 System Requirements

ServiceBus-Comm can be used on PCs with at least the following features:

- Pentium 100 MHz

- Operating system Windows ® 95, 98, 2000, NT, ME or XP

- At least 32 MB RAM free memory

- Windows Explorer 5 (or later)

- Mouse

- CD-ROM drive, in case of CD program installation

- Free interface RS485 (4-wire connection), USB or CAN (2-wire connection)

3 Software Installation

1. Put the program CD into the CD-ROM drive.

2. If the autostart program doesn't start automatically, open the phytron installation program [CD-ROM-address]\Autostart.exe by mouse click.

3. Phytron's installation program opens the following menu:
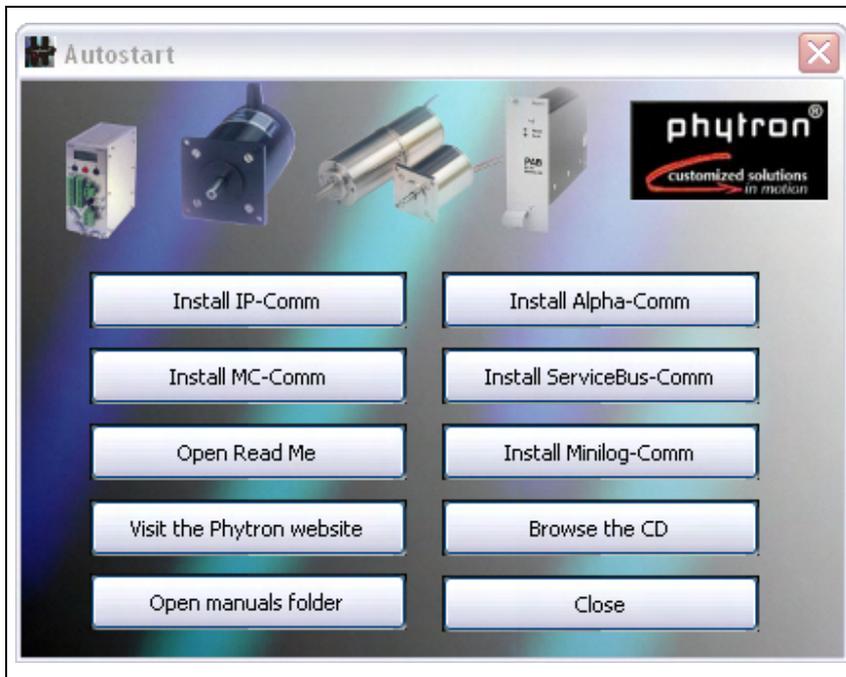
4. Start the ServiceBus-Comm installation program by mouse click on **Install ServiceBus-Comm**

5. The installation program copies the files into the RAM after program start.

6. The screen shows the following information:

Fig. 1: Setup program for ServiceBus-Comm

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7. The following information is on screen after click on [Next >]:
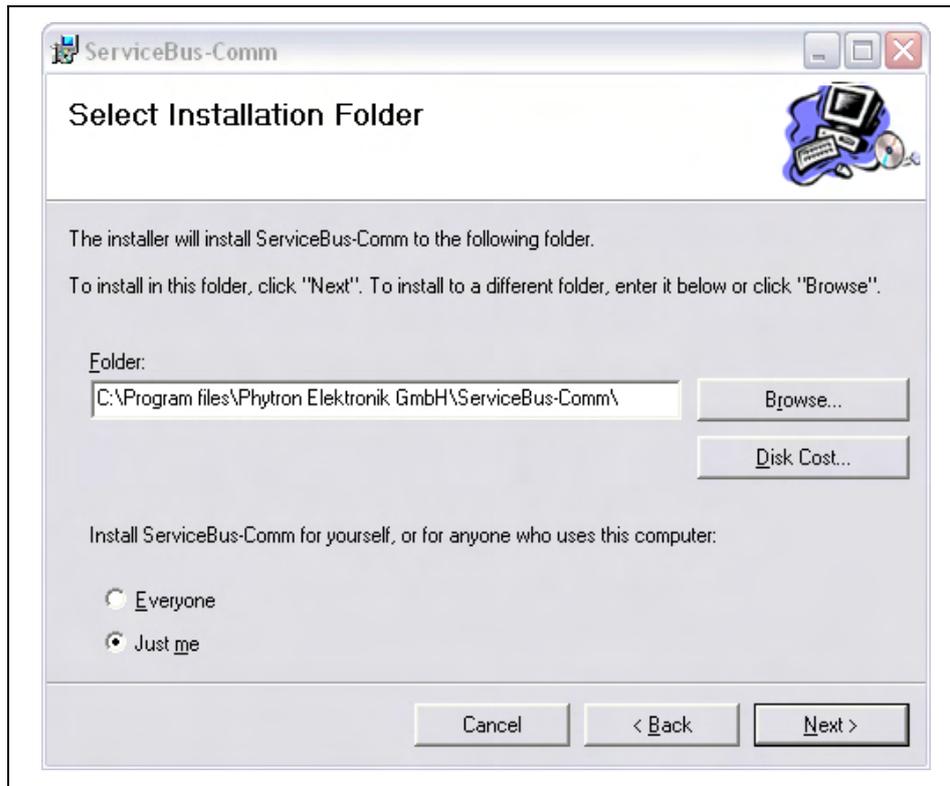
Fig. 2:   Setup start for ServiceBus-Comm

8. ***C:\Program files\Phytron GmbH\ServiceBus-Comm***
    is the standard directory of ServiceBus-Comm. Another directory can be selected
    with [Browse ...]. Click on [Next >] to start the installation.

9. The files will be stored into the defined directory, some files will be stored into the
    Windows directory.

10. When the message Service*CommVX successfully finished* is on the desktop, the
    installation is successfully finished. Finish by [Close].

11. Remove the CD from the CD-ROM drive.

12. Select: All Programs –> Phytron Elektronik GmbH –> ServiceBus-Comm for
    starting ServiceBus-Comm.

    Remark:
    If you have the ServiceBus-Comm files by another way (i. g. e-mail), the
    program installation can be done like in chapter 3.1 (beginning at item 2).
    Instead of CD-ROM drive select the corresponding directory, in which the file
    SETUP.exe is stored.

3.1 File Names

After installation the following files are stored in the directory:

ServiceBusComm.exe	Software ServiceBus-Comm
comdlg32.dll	Software library
oledlg.dll	Software library

3.2 Update of ServiceBus-Comm®

If you want to install an update in case of an existing ServiceBus-Comm copy, the installation program automatically deletes the old version before installing the new.

3.3 USB Driver

When the power stages are connected to the PC by USB interface, the USB drivers of the phytron-CD have to be installed on the PC (see chapter 7).

Important:
Administrator authorizations are required for driver installation.

3.4 CAN Bus

The CAN bus USB interface of softing company is necessary for ServiceBus-Comm in CAN bus mode to parameterize the ZMX+ power stage via PC:

Fig. 3:   Softing' s CAN Bus USB interface

See www.softing.com for more information for installation and configuration.

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4   The Working Environment Used by ServiceBus-Comm

The desktop will show the following work environment after the successful program start of ServiceBus-Comm.
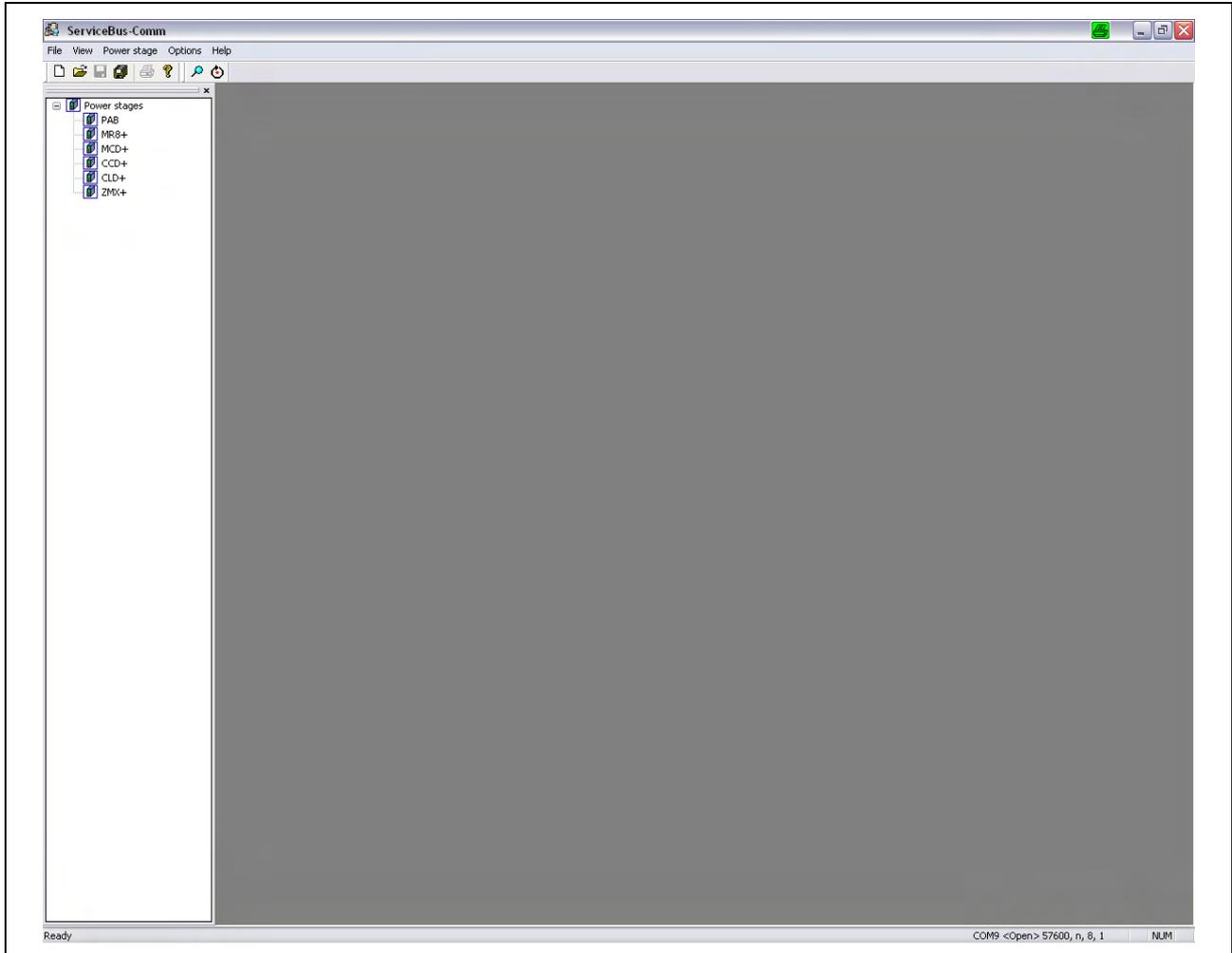
Fig. 4:   Desktop after program start

The working environment of ServiceBus-Comm consists of six main components:

1. Program name (ServiceBus-Comm)

2. The selection menu in the top line on the desktop:
   File, View, Power stage, Options, Windows, Help

3. Tool bars: Selection of some commands with icons (see table)

4. The working area

5. TreeView of all open power stage files

6. The status line at the bottom of the desktop: Interface parameters (COM port, baud rate)

Icon	Meaning
⬜	Write new parameter file .spc
📂	Open parameter file
💾	Save parameter file
🗗	Save project parameter file
🖨	Print parameter file
❓	Open help menu
🔍	Search connection to the power stages (axes)
⟳	Power stage reset (axis)

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5   The ServiceBus-Comm® Menus

In this chapter you will find all you need for starting and leaving ServiceBus-Comm as well as a detailed description of each menu command, dialogue box, switch etc.

5.1   Starting and Leaving ServiceBus-Comm®

Select **Start / All Programs / Phytron GmbH/ ServiceBus-Comm** by clicking to program start with the left mouse key.

Use **File / Exit** to leave ServiceBus-Comm. ServiceBus-Comm will display a warning message if there is are unsaved data in one of its editor windows.

5.2 The Menu *File*

In the menu **File** you will find commands to open parameter files, to create new files, to save changed files, to print files and to leave ServiceBus-Comm.

File is the parameter file of a power stage (axis), e.g. MCD1.sdf (**s**ervicebuscomm **d**ata **f**ile).

A data packet of several parameter files (axes) can be pooled as **Project**, e.g. MR8-1.spf (**s**ervicebuscomm **p**roject **f**ile).

5.2.1 New

In the sub menu **File / New** you select a parameter file for one axis or a new project file.

In **File** you enter the power stage type and the axis name (0 to 15 or 0 to 31) to create a new parameter file.

In **Project** all open parameter files are closed.

5.2.2 Open

In the sub menu *File / Open* or *Project / Open* you can open saved parameter files or project files.

Project / Open:

When opening the project file SB-Comm compares the state of power stages connected to the axes with the saved values in the project file (e. g. MR8-1.spf).
The result is shown in the TreeView by a coloured marking of the address
(=ok,   =differences,   =not connected/no entry in the project file).
The power stage parameters of the project file are listed at the desktop.

Example:
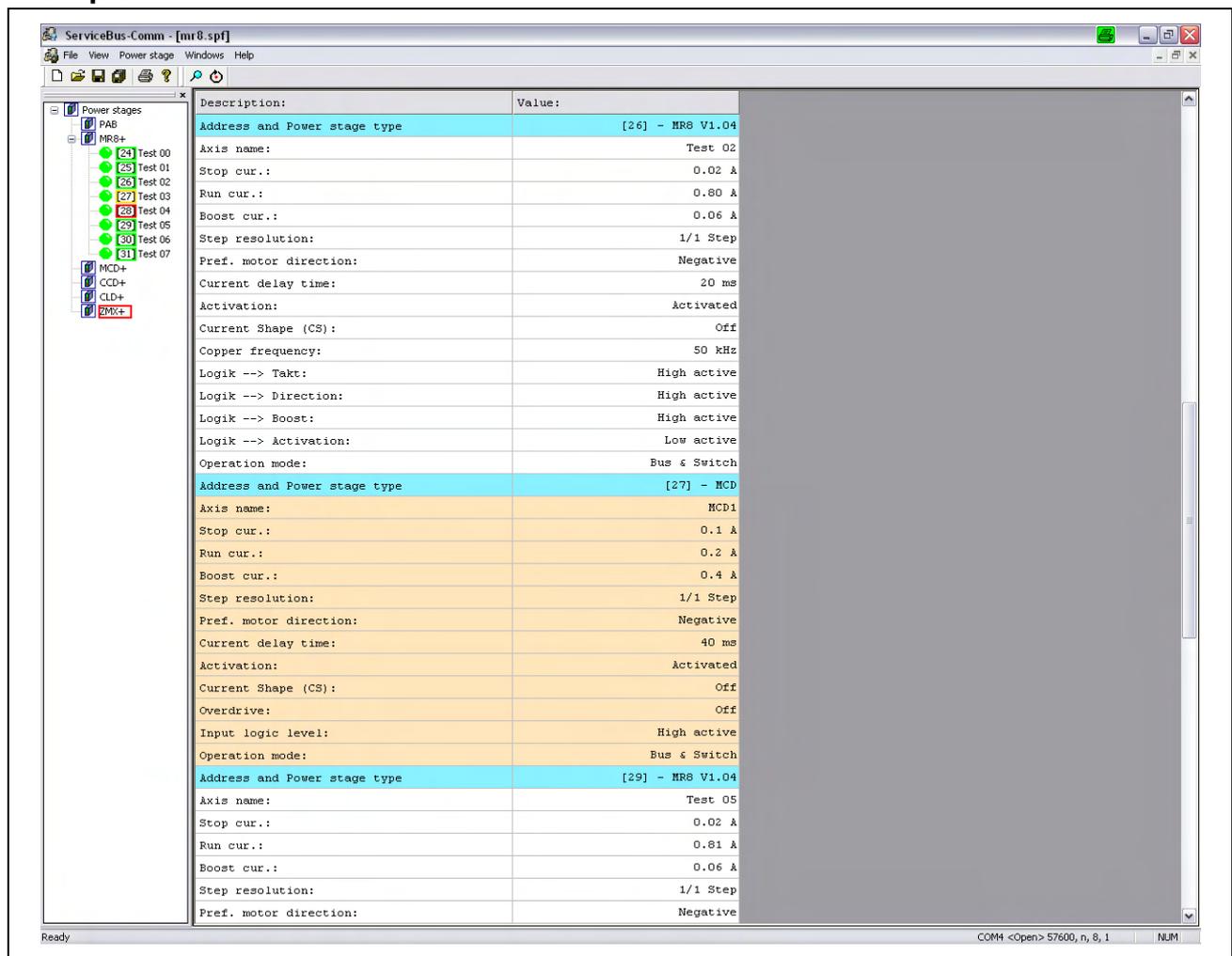
Fig. 5:   Example for an open project file

ZMX+	The project file has an entry for this axis but no power stage is connected.
26	The entry in the project file accords with the connected power stage.
27	Differences occur between the connected power stage and the entries in the project file for this address.
28	The axis is connected but no entry in the project file.

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5.2.3 Save 🖫 🗐

File / Save or *Project / Save* stores the parameter file or the project file from the active editor.

5.2.4 Save as

File / Save as or *Project / Save as* saves the data with another file name into another directory.

5.2.5 Close

File / Close closes the file in the active editor. ServiceBus-Comm remains open.

5.2.6 Print 🖨

File / Print opens the Windows specific print sub menu where you can select the printer type and the print properties.

5.2.7 Exit

File / Exit finishes ServiceBus-Comm. If files are open which are not yet saved, ServiceBus-Comm will ask you to save them.

5.3 The Menu *View*

In menu *View* you can define the bars for display.
The displayed bars are marked by ✓ .

Tool bar	🗋 🖿 🖫 🗐 🖨 ？ 🔎 🕑
Status bar	Ready COM2 <Open> 9600, n, 8, 1
Power stages	TreeView in the leftmost position: display the open power stage parameter files or blank them.

5.4   The Menu *Power stage*

5.4.1 Search 🔍

ServiceBus-Comm searches for the connected power stages from axis 0 to 15 or 0 to 31. The power stages names are listed by coloured control lamps in the TreeView after a successful search:

grey	⬤	Parameter file of the axis is off line
green	🟢	Axis of the power stage is connected
yellow	🟡	Axis of the power stage is connected and a parameter file with the same axis number is open and off line
red	🔴	Axis failure: short circuit, over temperature or over voltage

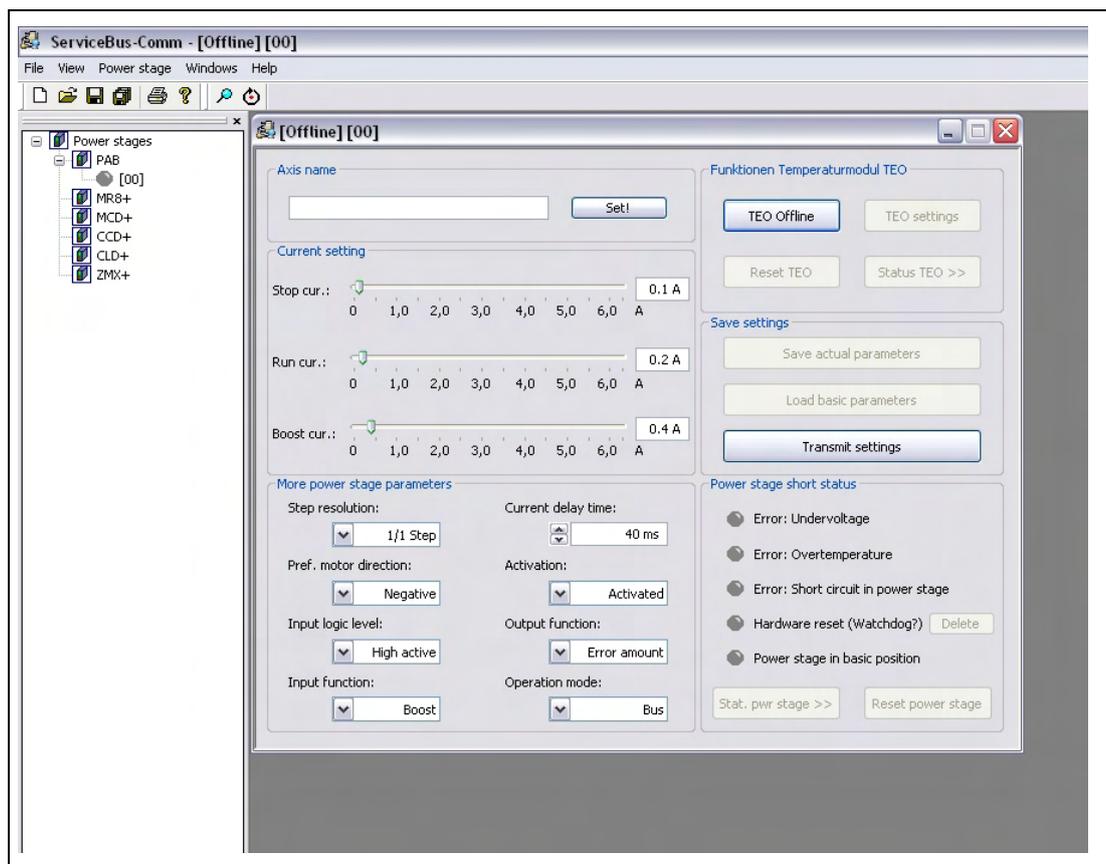The window with power stage files opens by a double click on the axis name in TreeView:

Fig. 6:   Example 1: Parameter axis file is off line (control lamp: grey)
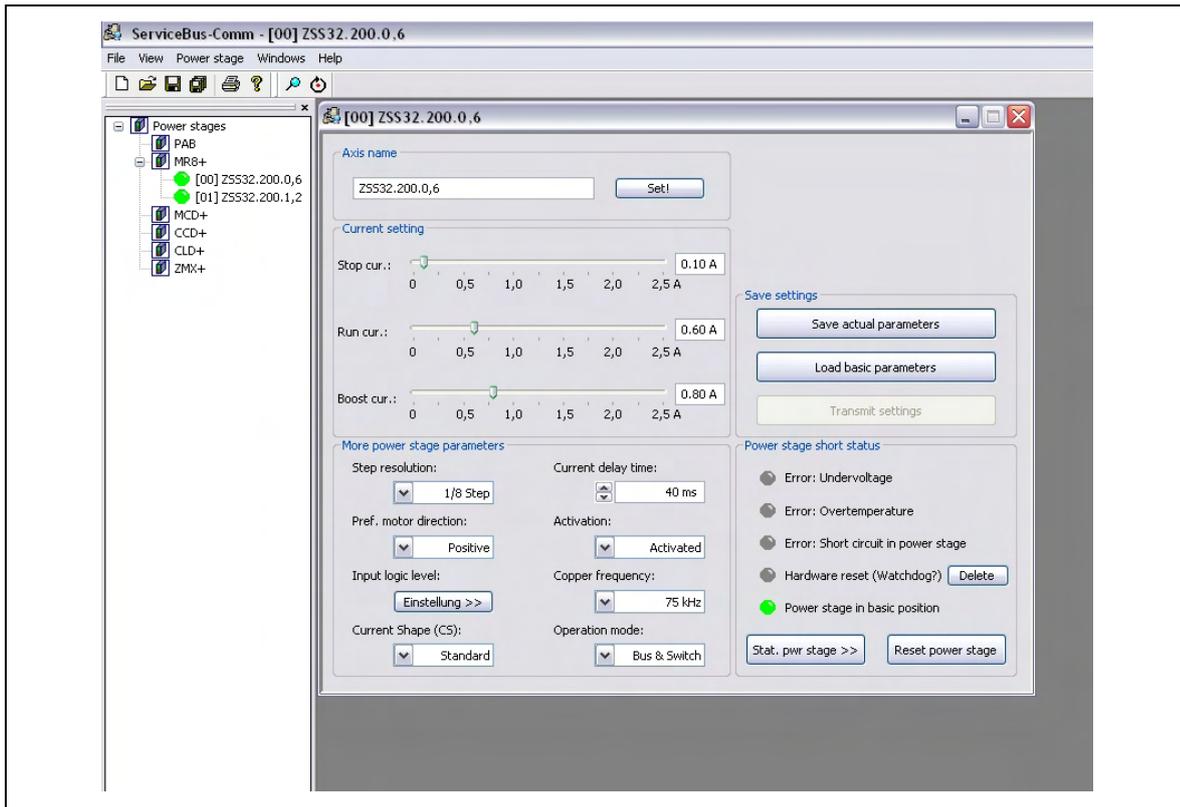
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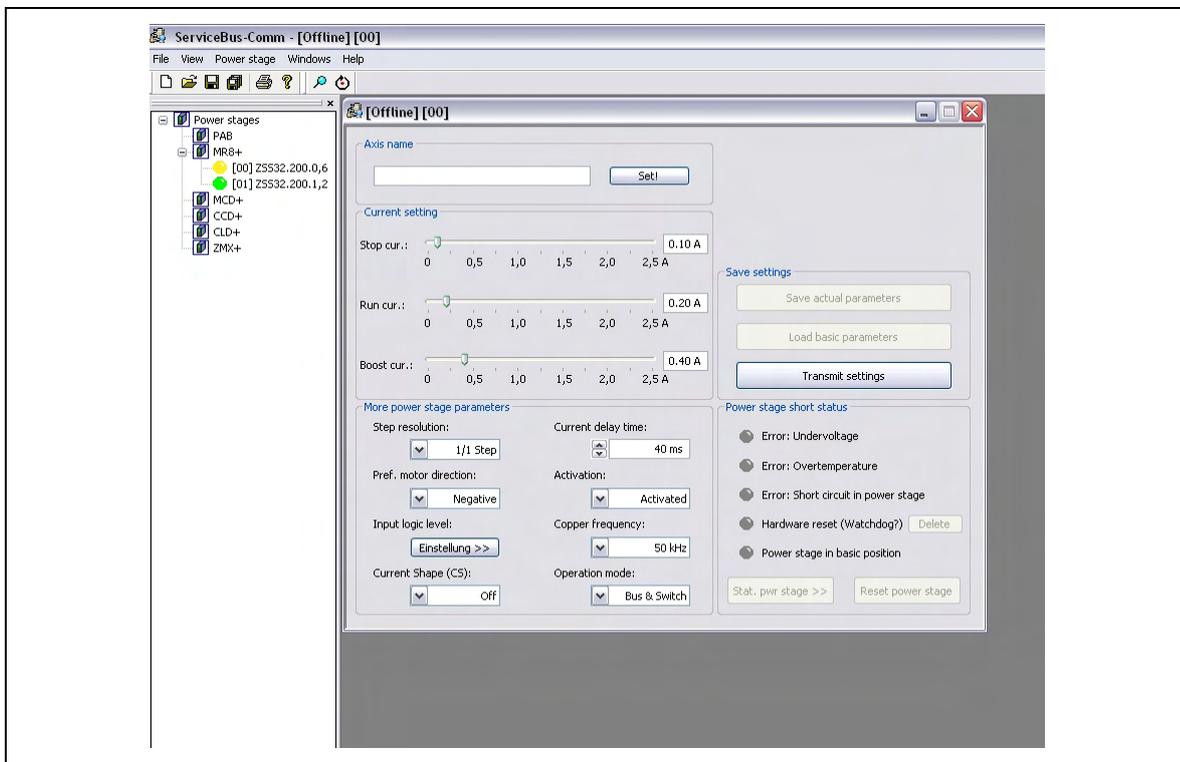Fig. 7:   Example 2: Power stage axis is connected (control lamp: green)

Fig. 8:   Example 3: Power stage axis is connected (control lamp: green) and a parameter file
with the same axis number is open and off line
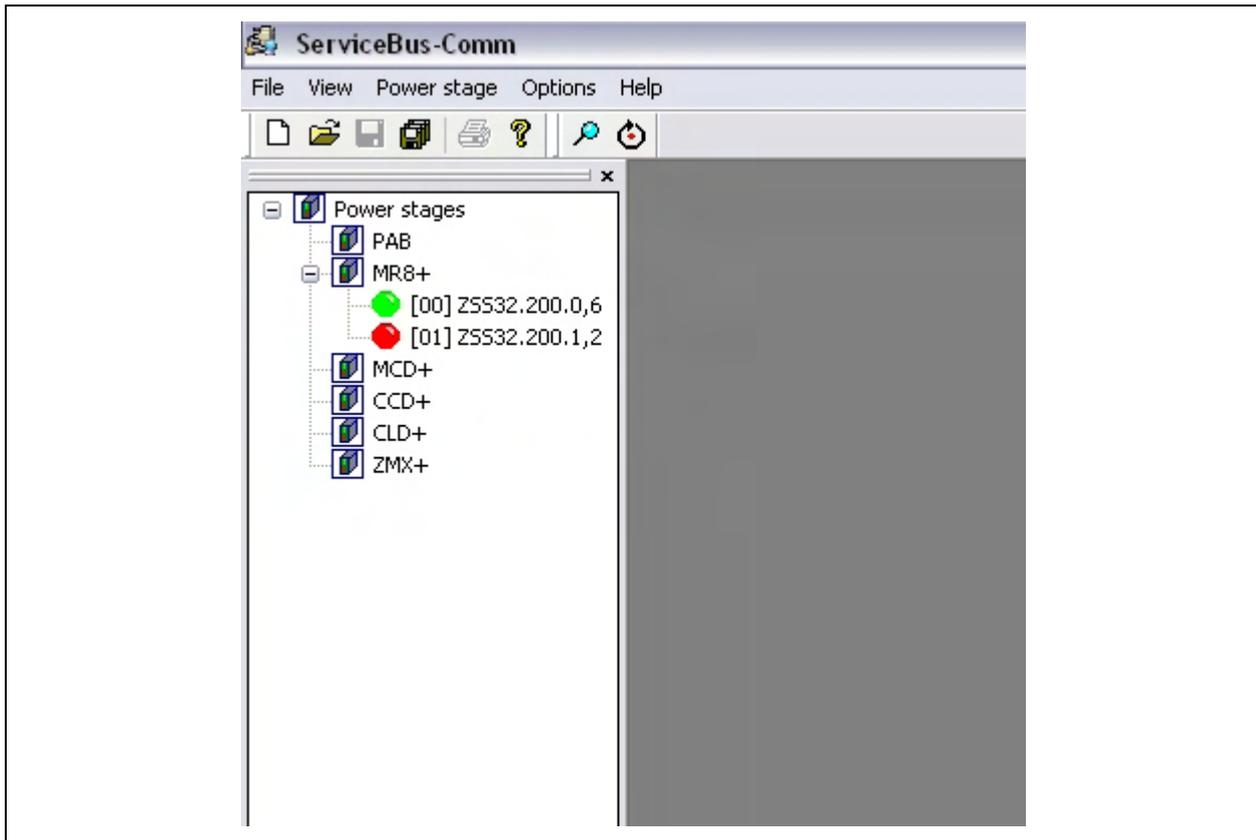(control lamp: yellow)

Fig. 9: Example 4: Axis failure (control lamp: red)

The name of the axis is displayed in **Axis name**. The defined axis name is saved in the EPROM of the power stage by [**Set!**].

Run, Boost and stop current can be set in **Current setting** by the sliding switch, while the preset value is shown as a number on its right hand side.

In **Save settings** the 3 buttons fulfil the following tasks:

Save actual parameters	The power stage parameters set on screen are saved to the power stage EPROM
Load basic parameters	The power stage is set to default values
Transmit settings	The power stage values which are set on screen are temporarily transmitted to the power stage (in off line mode only!).

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It is possible to select different operating parameters in **More power stage parameters**:

Parameters	Adjustable for power stage type						Setting
	PAB+	**MR8+**	**MCD+**	**CCD+**	**CLD+**	**ZMX+**	
Step resolution	**1/1 to 1/256**	**X**	**X**	**1/1 to 1/20**	**X**	**X**	1/1 to 1/512 step
Pref. motor direction	**X**	**X**	**X**	**X**	**X**	**X**	Negative/Positive
Input logic level	**X**	**X**	**X**	**X**	**–**	**X**	High / Low active
Current shape (CS)	**–**	**X**	**X**	**–**	**–**	**–**	MR8: Off / Standard Mode / Expert Mode MCD: On / Off
Input function	**X**	**–**	**–**	**–**	**–**	**–**	Boost / Activation
Current delay time	**X**	**X**	**X**	**X**	**X**	**X**	1 to 1000 ms
Activation	**X**	**X**	**X**	**X**	**X**	**X**	Activated / Deactivated
Overdrive	**–**	**–**	**X**	**X**	**X**	**X**	Off / On
Chopper frequency	**–**	**X**	**–**	**–**	**X**	**X**	50 kHz, 75 kHz or 100 kHz
Output function	**X**	**–**	**–**	**–**	**–**	**–**	Checksum / Basic position / Ready
Operation mode	**–**	**X**	**X**	**X**	**X**	**X**[1]	Bus&Switch / Bus exclusive
	X	**–**	**–**	**–**	**–**	**–**	Bus / Stand alone
Display menu	**–**	**–**	**–**	**X**	**X**	**–**	

The parameter values depend on the power stage type and are specified in the corresponding power stage manual.

---

[1] The switch status can only be read on ZMX+. The ServiceBus mode is set by the "SB active"

Explanation of the parameter operation mode:

Bus&Switch   Settings are possible both in rotary switch mode and in ServiceBus mode.

Bus exclusive   Settings only in ServiceBus mode, the rotary switches are ignored.

Bus   Bus operation mode up to 16 axes

Stand alone   Single device mode

Five axes status values are displayed in **Power stage short status** by the control lamps ⬤:

Color of ⬤		Signification
🟢	green	active / o.k.
🟡	yellow	warning
🔴	red	Error
⚫	grey	not active / not available

Status	Control lamp ⬤ shines	
Error: Under voltage	🔴	red
Error: Over temperature	🔴	red
Error: Short circuit in power stage	🔴	red
Hardware reset (Watchdog?)	🟡	yellow
Power stage in basic position	🟢	green

Remark: Watchdog is monitoring software, which activates a reset in case of certain error status: Then, the control lamp shines yellow.

The error message is reset by   [**Delete**].

The active power stage is reset by   [**Reset power stage**].

The sub menu for advanced power stage status values is started by   [**Stat. pwr stage >>**].

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Functions Temperature module TEO is subdivided (for PAB+ only):

[**TEO online**] / [**TEO offline**]	The temperature module TEO is operated on line or off line
[**TEO settings**]	The parameters of the temperature module TEO are defined.
[**Reset TEO**]	The temperature module TEO is reset.
[**Status TEO >>**]	The sub menu for the temperature module TEO is open.

5.4.2 Reset Power Stage

The **active** power stage axis is reset.

5.4.3 Sub menu S*ettings TEO* (for PAB+ only)

Settings for the temperature module TEO can be entered:
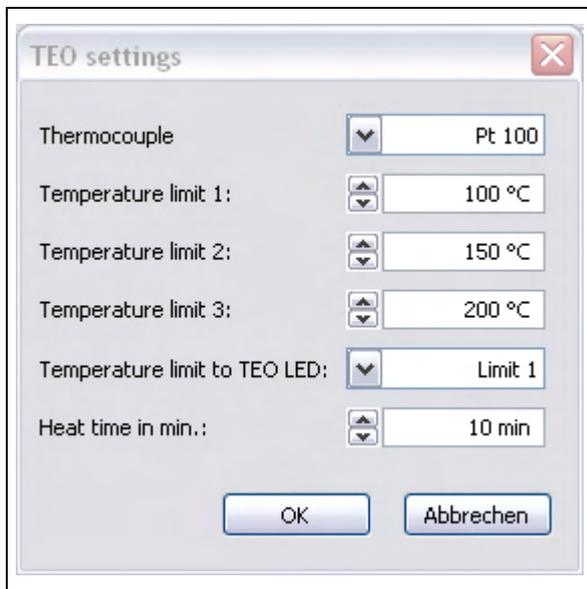
TEO settings

Thermocouple	Pt 100
Temperature limit 1:	100 °C
Temperature limit 2:	150 °C
Temperature limit 3:	200 °C
Temperature limit to TEO LED:	Limit 1
Heat time in min.:	10 min

[OK] [Abbrechen]

Settings	Description	Values
Thermocouple	Select thermo element type	PT 100 / K-Element
Temperature limit 1	Define temperature range 1	-200 to 300 °C
Temperature limit 2	Define temperature range 2	-200 to 300 °C
Temperature limit 3	Define temperature range 3	-200 to 300 °C
Temperature limit at TEO LED	Allocate temperature limit 1,2 or 3 to the red LED	Limit 1 to Limit 3
Heat time in min.	Define the heat time of the thermocouple	5 to 300 minutes

5.4.4 Sub menu *Status Power stage>>*
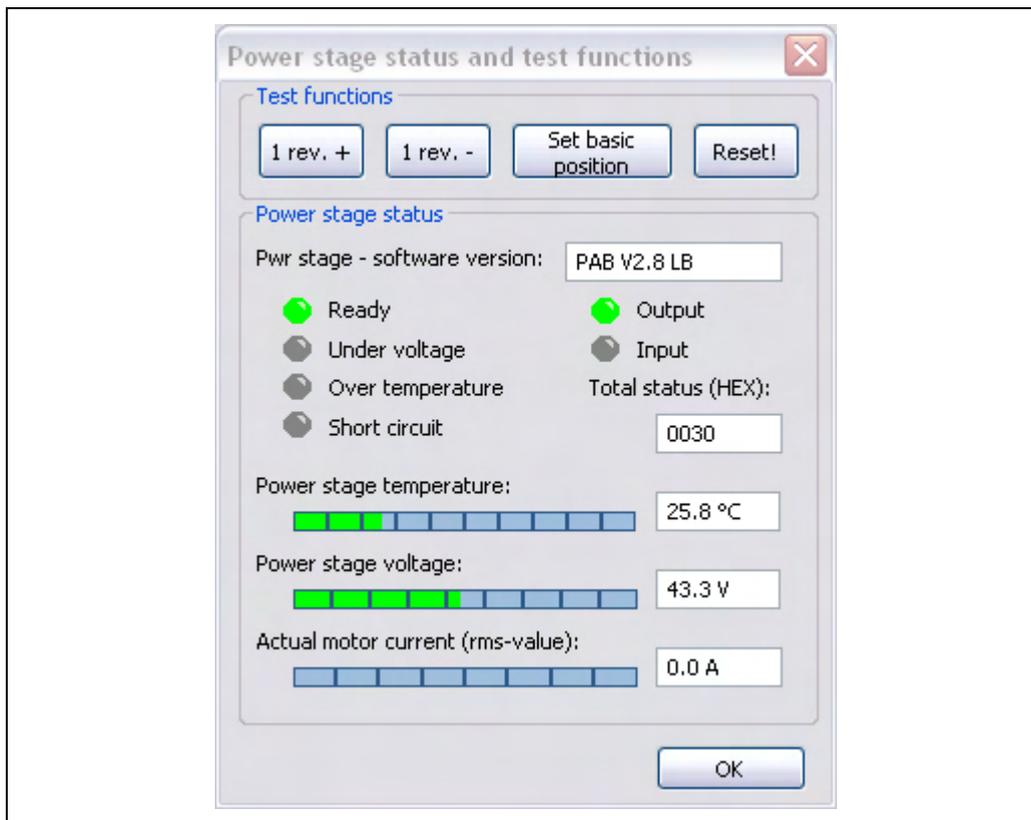
The view of this sub menu depends on the type of power stage:

Fig. 10: Example: Sub menu Power stage status and test functions for PAB+

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Test functions of the axis can be started by this sub menu:

1 rev. +	Turn the motor by 1 rotation clockwise
1 rev. –	Turn the motor by 1 rotation counter clockwise
Set basic position	Set the axis to basic position
Reset!	Reset the power stage

The power stage status is displayed by control lamps:

Status	Control lamp shines	
Ready	🟢	green
Unter voltage	🔴	red
Over temperature	🔴	red
Short circuit	🔴	red
Output	🟢	green
Input	🟢	green

The sum of all status values is hexadecimal coded in **Total status**.

The actual software version of the power stage is displayed in **Pwr stage - software version**.

The power stage temperature, voltage and the actual motor current are displayed in a bar chart and numerically.
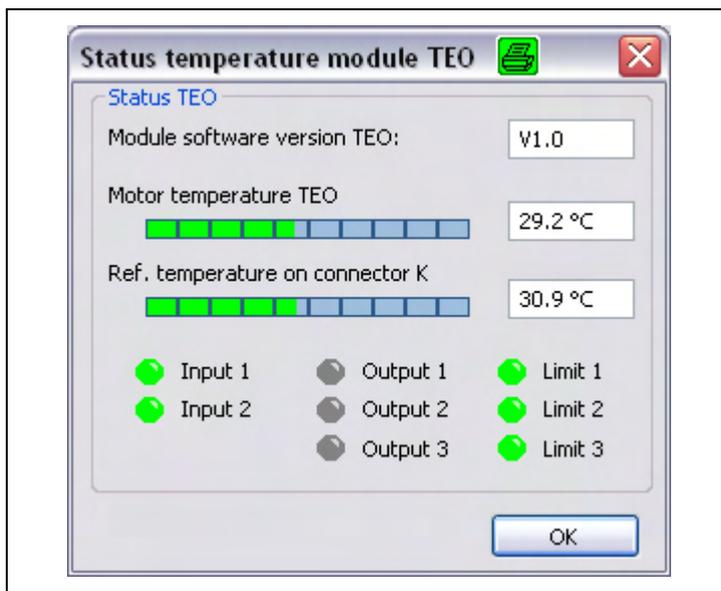
5.4.5 Sub menu *Status TEO>>* (for PAB+ only)

Fig. 11: Sub menu Status temperature module Status TEO

5.4.6 Status Overview

The axis status is shown clearly arranged:

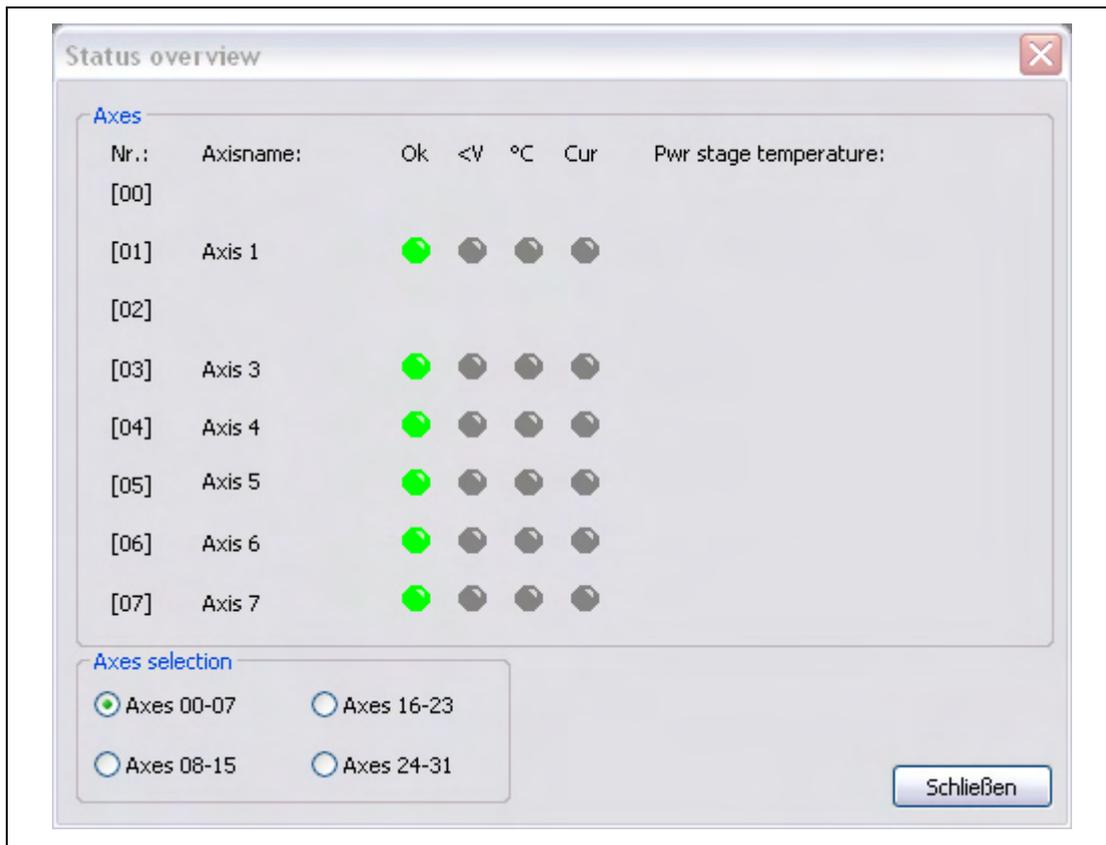| OK	Ready
<V	Under voltage
°C	Over temperature
Cur	Short circuit/over current
Power stage temperature	in °C

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Fig. 12: Menu Status overview

32 axes can be divided in **Axis selection** into 4 ranges.

5.4.7 Project

All axes files which are set on screen are saved in the corresponding power stage files by *Project*.

5.5   The Menu *Options*

The menu *Options* is only available, if <u>no</u> power stage axis is open.

5.5.1 Interface Parameters

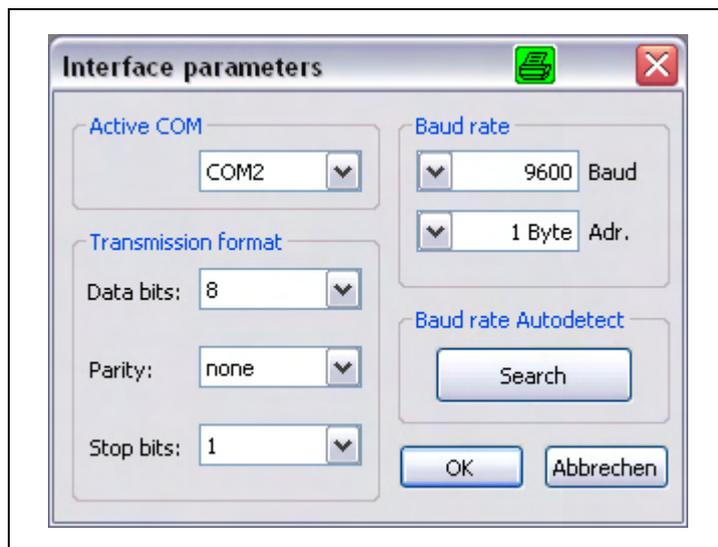Several interface parameters can be set in this menu.

<u>**RS 232/RS 485 inteface:**</u>

Fig. 13: Interface parameter settings

Active COM

Here, the power stage that is connected to the interface, is set.
ServiceBus-Comm searches automatically for available PC interfaces (up to 32). Installed
USB --> RS converter interfaces are also found and displayed.

Transmission format

Here, you can set the transmission format of the interface.

Important: These settings must not be changed! They are designed for additional power
stages.

Baud rate & Adr.Byte(s)

The **Baud rate** (data per second in KBits) can be selected by clicking the drop down arrow
of the box *Baud rate* (values from 9600 to 115200). The value must be compatible with
the power stage's baud rate.

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The value of the power stage address should be selected in **Adr.**:

Power stage	Address Byte(s)
MCD**+**	2
PAB**+**	1
MR8**+**	2
CCD**+**	2
CLD**+**	2
ZMX**+**	2

Baud rate Autodetect

In **Baud rate Autodetect** ServiceBus-Comm searches for the connected power stages with the preset interface in all possible baud rates (9600 to 115200) and all addresses (0 to 15 or 0 to 31): Search .

Remark: This search can take some minutes. We recommend to open the function **Search** , if you want to search for the connected power stages with the same baud rate and the same address bytes.

The changes are accepted by OK and the interface is initialized with the new parameters.
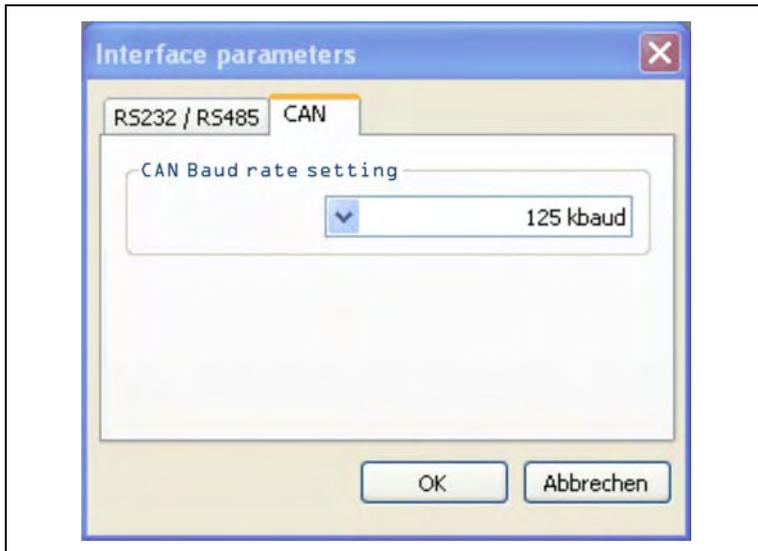Cancel aborts the changes.

CAN Interface:

Fig. 14: Interface parameter settings for CAN

CAN Baud rate setting

The baud rate of the CAN controller (data per second in baud) can be selected by clicking the drop down arrow (125, 250, 500 or 1000). The value must be compatible to the power stage's baud rate.

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5.5.2 Monitor

Important:
The menu *Options / Monitor* is a program for the service department. If you want to use *Options / Monitor*, please call phytron's service in any case.

This program menu is used for testing the power stage. You can directly send commands to the connected power stage.

5.5.3 Language

With *Options / Language* you can select the program dialogue in German or English.
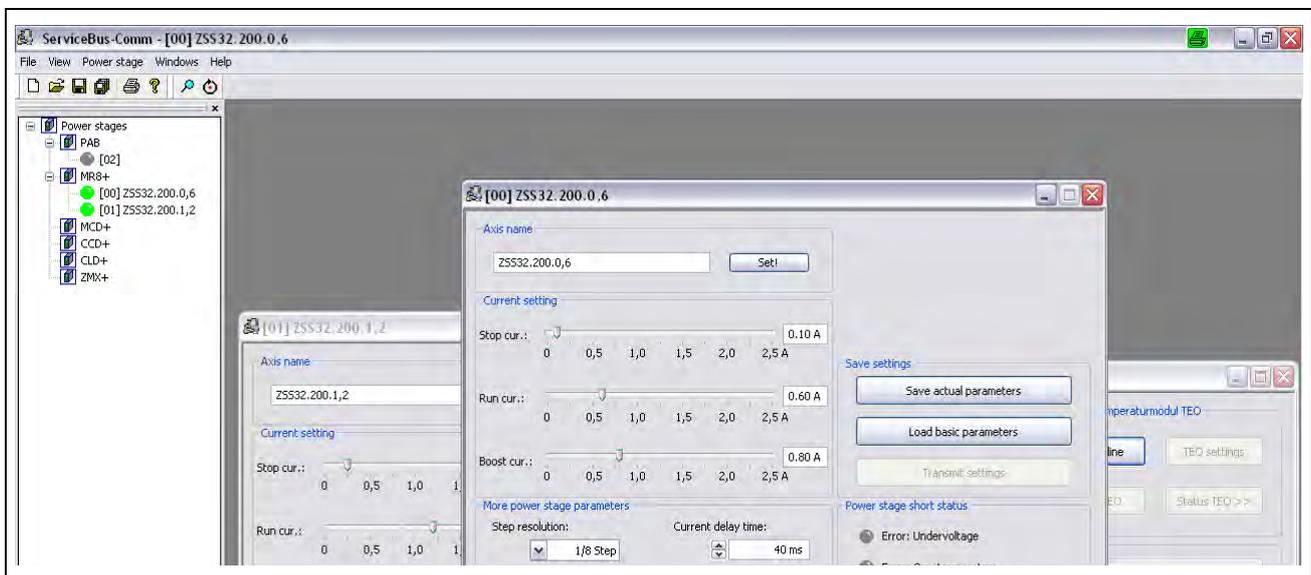
5.6 The Menu *Windows*

You can arrange optically the displayed axes windows by the menu *Windows*. The directories of all files are listed after clicking on *Windows*. You can select the active window on screen by mouse click. The active window is marked by ✓.
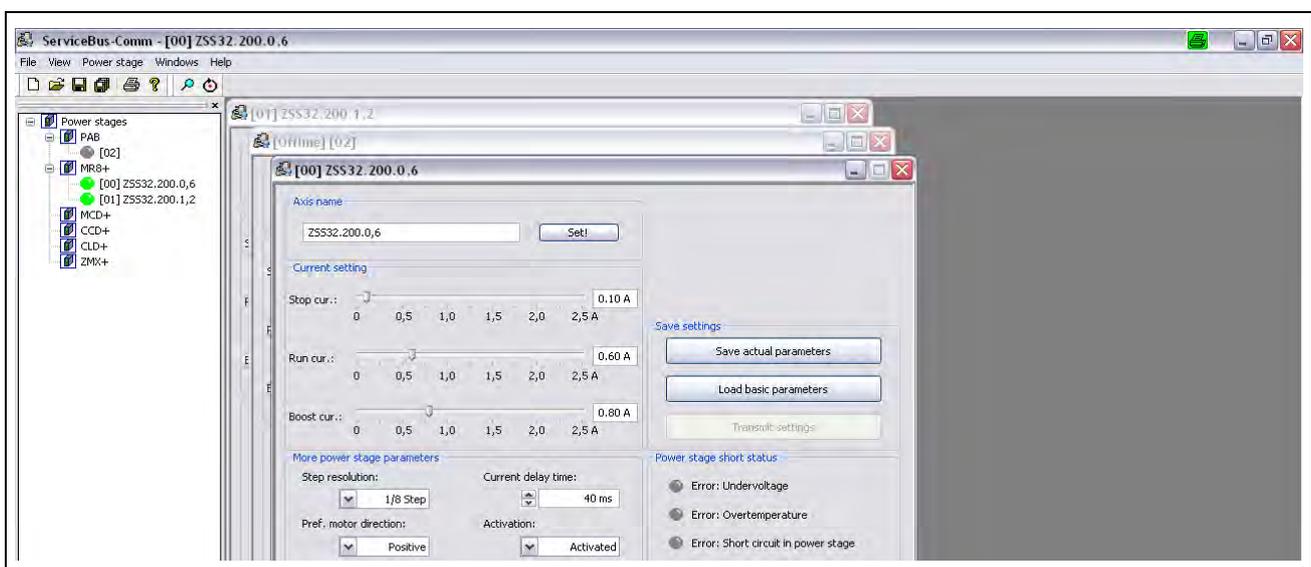
5.6.1 Cascading Windows

Several open axes files are arranged in a cascading mode by clicking on *Cascading Windows*.
The order of the axes remains unchanged.

Before:

Afterwards:

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5.6.2 Tile Windows

The open axes files are placed horizontally by clicking on *Tile Windows*.

5.6.3 Place Symbols

Here, the minimised program windows on the lower screen edge are placed in a row side by side.

5.7 Menu *Help*

5.7.1 About ServiceBus-Comm®

The menu *Options / About ServiceBus-Comm* gives you important information about the program version of ServiceBus-Comm, copyright and phytron's contact info (Fig. 15:):

Fig. 15: Information about ServiceBus-Comm

5.7.2 Help

The menu *Options / Help* opens the help function of ServiceBus-Comm.

6 Error Messages

In this appendix are hints on how to handle error messages of ServiceBus-Comm. Messages which do not need any additional information are not contained in this appendix.

Remark:

Error messages resulting in problems with any peripheral device are very often caused by trivial facts like: device is not switched on, cables are missing, cable is defective and so on. Please check these items.

Interface Problems

An interface time out has occurred

Reasons for this problem may be:

- The cabling is wrong (RD and TD pins interchanged).

- The cabling is defective or interrupted.

- The time out selected in ServiceBus-Comm is too short.

- The interface parameters selected in ServiceBus-Comm do not match the power stage type used.

- No power stage connected

Interface cannot be opened

Reason: The interface is already used by another program.

Troubleshooting: Select another interface in menu *Interface parameters*

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7 USB Driver Installation

⚠️ - Administrator authorizations are required for the driver installation.

- Use a USB cable with a maximum length of 2 metres!

- To test several USB devices, which are identical in construction, use the same USB port on the PC to avoid changing the COM port number.

- Insert the phytron CD and open the folder **USB Treiber** with Windows Explorer. Select the .**exe** program which goes with your system software and start it by double clicking. The following window is shown on the desktop after a successful installation:

FTDI Driver Installation

ℹ️ FTDI CDM Drivers have been successfully installed.

OK

- Connect the power stage directly or via USB converter to the USB port of your PC by USB cable.

- For checking the correct USB driver installation, continue as follows:

Start the device manager by clicking **Start→Settings→System control** and double-click on **System**. Then select the **Device manager** tab. The USB components can be found in **Computer→ Ports** and in **Universal Serial Bus Controller**. Here the new USB component is shown: **USB Serial Port (Com X)**

- You'll also find information about the driver installation for the chip FT232R on http://www.ftdichip.com.

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The software ServiceBus-Comm and any documentation delivered with it are protected by copyright law. The manual must not be copied, reproduced, put into machine readable form, neither complete or in parts, without the prior written permission of Phytron-Elektronik GmbH.

ServiceBus-Comm as a freeware product will only give you the right to make backup copies for personal use. However, the program must not be changed nor sold.

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- Microsoft is a registered trade mark and WINDOWS is a trade mark of the Microsoft Corporation in the USA and other countries.

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