

PacDrive™ Sercos Firmware-Assistent V2.0 -> V2.6



IMPRINT

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1 V2.0 -> V2.1

1.1 New Functions

No new functionalities were added with the change of the Sercos Firmware Assistant from version 2.0 to version 2.1.

There are only some changes with regard to the communication for direct firmware download via the serial RS 232 interface.

1.1.1 Change of Communication via RS 232 Interface

Due to an unexpected signal at the COM interface of some PCs (to date this has only been observed in a few laptops) the PC cannot establish a serial connection with servo amplifiers of the types MC-4 and PS-4. Both the **Sercos Firmware Assistant (up to version 2.0)** and the **Bootloader Launcher V3.2** are affected and therefore cannot execute any programming.

The reason is the output level on the COM interface of some PCs, which is changed just by opening and closing the serial interface.

To enable serial programming even with those PCs, the communication concept of the Sercos Firmware Assistant was changed. Once a communication has been established between PC and motor controller (MC-4 / PS-4) it will no longer be interrupted.

If the controller has to be reset to ensure communication, the user is requested to reset the controller manually at the appropriate point in the program sequence.

This ensures that serial programming of the controller is possible irrespective of the firmware or bootloader version.

2 V2.1 -> V2.2

2.1 New Functions

No new functionalities were added with the change of the Sercos Firmware Assistant from version 2.1 to version 2.2.

There was only a change in the supported communication protocol for the MC-4 bootloader V1.1.

2.1.1 Support of MC-4 Bootloader V1.1

As of version 2.2, the SERCOS Firmware Assistant also supports MC-4 Bootloader version 1.1. In the previous version, the MC-4 Bootloader was only supported for versions ≥ 1.2 .

Now firmware of older MC-4 servo amplifiers can be programmed via the serial interface.

MC-4 servo amplifiers produced before April 2000 have Bootloader V1.1. As most devices from that time have already been exchanged, only a small number of MC-4 servo amplifiers are affected.

3 V2.2 -> V2.3

3.1 New Functions

3.1.1 Automatic Serial Device Detection

SCR 4702 The "COM" button on the start page leads to the firmware download page via the serial interface as usual. Now automatic device detection is executed. It remains active until either the button "Back" or "Connect" is selected.

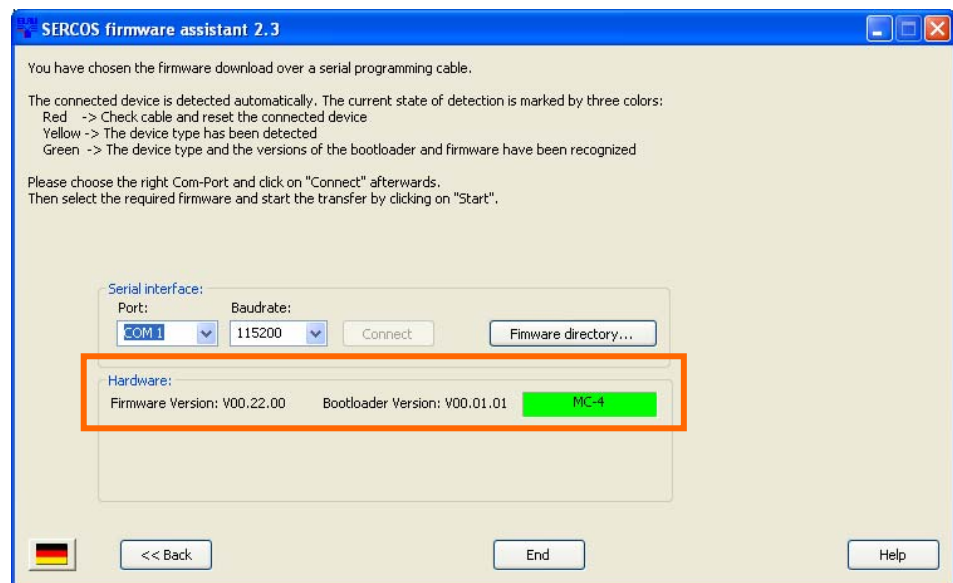


Fig. 1 The actual state of device detection is shown in the "Hardware" area

During this time, the serial interface cable can be connected to a device and disconnected again. The detection takes place in three color-coded steps. The actual state is shown in the "Hardware" area (see Fig. 1):

Color	Meaning
Red	No device found. If the cable is already connected, press the reset button on the device. If the device is still not detected, check if the cable is connected properly to the device and the PC.
Yellow	A device was found, but the exact type will be detected after a short delay. During this time, cable failures can still be easily detected due to a color change between red and yellow. In the yellow phase, you can activate the "Connect" button at your own risk. Then you have to decide yourself for which device you wish to execute the firmware download.

Color	Meaning
Green	Firmware and bootloader versions were detected and are shown in the "Hardware" area (see Fig. 1). The firmware download is possible without any restrictions.

Table 3-1: Hardware state

Thanks to the automatic detection, you can now find the desired device and detect any connection problems faster and more easily.

3.1.2 Serial Selection of Port and Baud Rate

SCR 4353 COM port and baud rate for the serial firmware download can now be
SCR 4703 selected on the serial firmware download page. The settings can be made in the area "Serial connection" (Fig. 2).

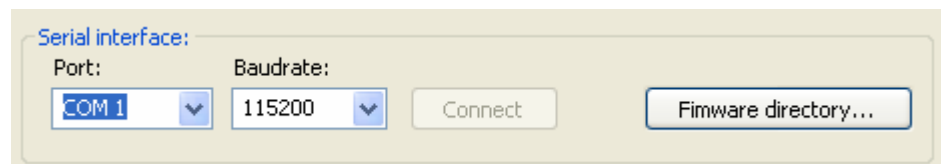


Fig. 2 Port and baud rate for the serial download can be selected in the "Serial connection" area

All ports that are actually available and not blocked by other programs are shown in the "Port" selection list.

It is no longer necessary to set the baud rate via the Windows registry, as was the case in previous versions.

3.1.3 Adding External Firmware

SCR 4767 The firmware pertaining to a certain device is shown in a selection box as usual. By default, the firmware of the global firmware directory (default installation path: c:\Programs\ELAU\PacDrive Firmware) is shown.

A new feature is the opportunity to add an additional firmware stored in another location to the global firmware directory.

The external firmware can be selected by activating the button "... " to the right of the firmware selection field. The firmware files are automatically copied to the global firmware directory and immediately shown in the selection box.

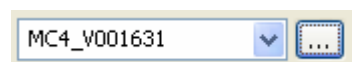


Fig. 3 Additional firmware can be added to the global firmware directory by means of the button "... " to the right of the firmware selection box

3.1.4 Sercos Error Detection before Scanning

SCR 3799 Before scanning the Sercos bus for devices, the SERCOS ring is checked. Possible errors and information on how to solve them is shown in a message window (see Fig. 4).

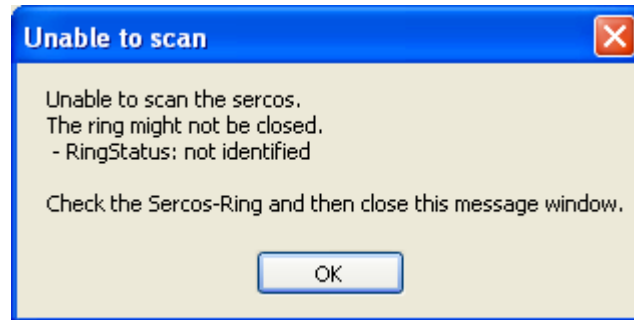


Fig. 4 Errors are shown before scanning

This facilitates the detection of any errors.

3.1.5 Version Restriction for MC-4 with 1.5 Ampere

SCR 4455 MC-4 devices with a rated current of 1.5 ampere require a firmware version $\geq V00.22.xx$. This is checked when the devices are added to the list of "Pending SERCOS downloads". If an invalid combination is detected, a warning is triggered. You can raise the firmware version of all devices or alternatively select the MC-4 with 1.5 ampere and install a higher firmware version for this device only.

3.2 Modifications

The operating logic was revised and improved.

3.2.1 Progress Bar for Serial Download

SCR 4755 The display of the progress bar during serial firmware download was improved. It always shows the actual development. The download can now be cancelled. After that, the state of the device is no longer defined. Nevertheless, another complete serial firmware download is possible at any time.

3.2.2 Display of an Unknown Firmware Version

SCR 4686 Previously a cryptic value (e.g. V00.-01..00) was shown if a firmware version was not recognized during a serial firmware download. Now it is shown correctly in all messages and the firmware version displays -unknown firmware version-.

4 V2.3 -> V2.5

4.1 General

SCR 4871 Besides smaller Bugfixes, mainly the operation in the range of the
SCR 4999 firmware download via SERCOS has been improved. Now for example, a note dialog appears at the end of the firmware download, to clearly identify the end.

4.2 New Functions

4.2.1 Support of new Devices

SCR 4736 The new PacDrive devices iSH and PS-5 are now supported.

4.2.2 RAM-Disk too small

SCR 4871 So far, the firmware data files have been transferred exclusively via the RAM-Disk. The size of a RAM-Disk however is limited in connection with the PacDrive controller. In the future it can lead to problems, where large firmware data files cannot be transferred anymore.

The present version verifies before the download the current available memory. Is it too small, then the firmware data files are automatically transferred via the flash disk (drive „ide0:“). Thereby, the following three reserved file names are required:

- SFAProg.out
- SFAProg.dat
- SFAStatus.txt

These file names are not allowed to be used by the IEC-Program, because during the firmware downloads they are overwritten and afterwards deleted.

4.2.3 FPGA Update

SCR 4869 A FPGA-Update for the SERCOS-Participants iSH and PS-5 is possible. The files have to be in the global firmware directory and are indicated in the firmware selective list.



Fig. 5 The FPGA-Version has the Prefix „FPGA_“.

Before the versions identification it has the prefix „FPGA_“.

4.3 Modifications

SCR 4818 The operator guidance has been improved.

SCR 4775

SCR 4816

SCR 4817

SCR 4998 The operator guidance inside the rear side of the SERCOS-Scan shows the current status of the SERCOS-Ring and the diagnosis message. Errors are displayed in red and extra bold type. In the top area information is given for error deletion.

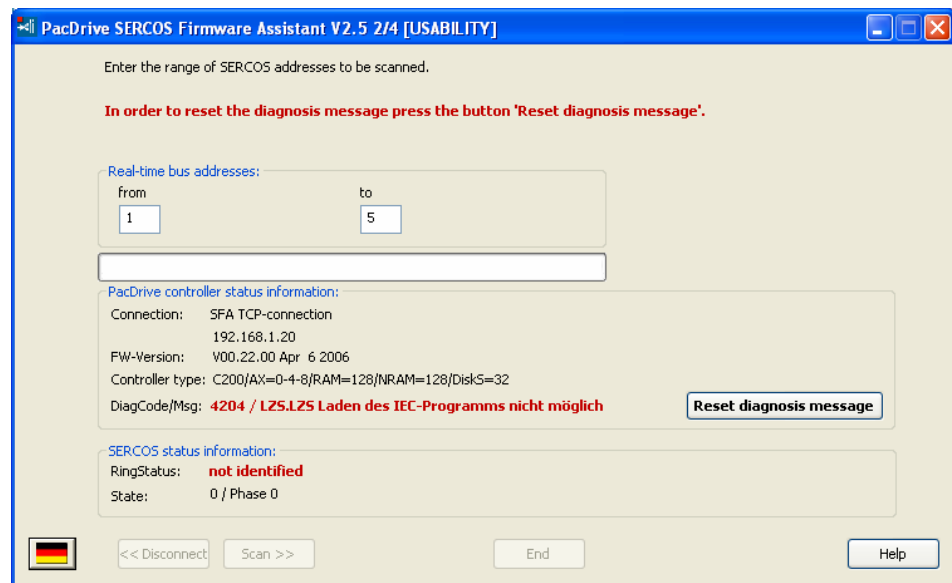


Fig 6 In the bottom window SERCOS-Scan the diagnosis messages are displayed in red and extra bold type.

The diagnosis message can be reset further on. For a long time this was only possible in addition with the program EPAS-4.



NOTE

Before calling the rear side of the SERCOS Firmware Assistant, the controller is stopped and SERCOS set to phase 0. The user has to confirm this in the previous step via the information dialog.

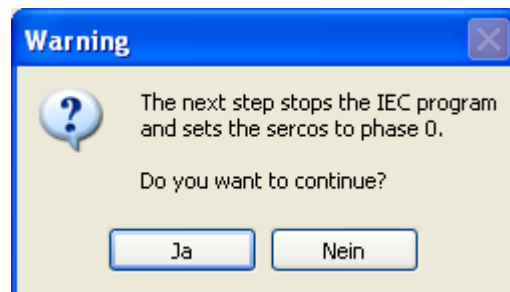


Fig 7 Before calling the rear side „SERCOS-Scan“, the IEC-Program is stopped and SERCOS is set to phase 0.

The scan itself can only be performed if the RingStatus displays „OK“.

5 V2.5 -> V2.6

5.1 General

SCR 5136 The error handling has been improved. Possible subsequent errors
SCR 5215 during the firmware download are displayed earlier and blocked.