Firmware

Operation manual

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1 Introduction

This manual contains information that you require to replace the firmware for an inverter from the 5th generation of STOBER inverters.

Note particularly that replacing the firmware for a SDS 5000 is performed with the *live firmware update* function in POSITool. For MDS 5000 and FDS 5000, you require the download program that is saved in a separate directory when installing POSITool. You can find more detailed information and the firmware files in section 3.

The section 4 shows how to replace the firmware for MDS 5000 and FDS 5000. The live firmware update for the SDS 5000 is described in section 5.

1.1 About this manual

This manual provides you with information on the basic operation of the inverter. Here functions in the inverter independent of the standard applications defined by STOBER are explained.

Original version
The original language of this documentation is German.

1.2 Further documentation

Manual	Contents	ID
Commissioning Instructions FDS 5000	Reinstallation, replacement, function test	442293
Operating manual FDS 5000	Set up the inverter	442281

You can find the latest document versions at www.stoeber.de.

Manual	Contents	ID
Commissioning Instructions MDS 5000	Reinstallation, replacement, function test	442297
Operating manual MDS 5000	Set up the inverter	442285

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Manual	Contents	ID
Commissioning Instructions SDS 5000	Reinstallation, replacement, function test	442301
Operating manual SDS 5000	Set up the inverter	442289

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1.3   Further support

If you have technical questions that are not answered by this document, please contact:
- Phone: +49 7231 582-3060
- E-mail: applications@stoeber.de

If you have questions about the documentation, please contact:
- E-mail: electronics@stoeber.de

If you have questions about training sessions, please contact:
- E-mail: training@stoeber.de

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2 Notes on safety

2.1 Product maintenance

The obligation to maintain refers to the two latest software versions created by STÖBER ANTRIEBSTECHNIK GmbH & Co. KG and approved for use.

STÖBER ANTRIEBSTECHNIK GmbH & Co. KG will either correct software errors or will provide the customer with a new software version. This choice will be made by STÖBER ANTRIEBSTECHNIK GmbH & Co. KG. If, in individual cases, the error cannot be immediately corrected, STÖBER ANTRIEBSTECHNIK GmbH & Co. KG will provide an intermediate solution which may require the customer to comply with special operation regulations.

A claim to error correction only exists when the reported errors are reproducible or can be indicated with machine-generated outputs. Errors must be reported in a reconstructable form and provide information which is useful to error correction.

The obligation to correct errors ceases to exist for software which the customer changes or edits in any way unless the customer can prove that such action is not the cause of the reported error.

STÖBER ANTRIEBSTECHNIK GmbH & Co. KG will keep the respective valid software versions in an especially safe place (fireproof data safe, bank deposit box).

2.2 Using the software

The POSITool software package can be used to select the application and adjust the parameters and signal monitoring of the 5th generation of STOBER inverters. The functionality is specified by selecting an application and transmitting these data to an inverter.

The software is the property of STÖBER ANTRIEBSTECHNIK GmbH & Co. KG and is copyrighted. The software is licensed for the user.

The software is only provided in machine-readable form. STÖBER ANTRIEBSTECHNIK GmbH & Co. KG gives the customer a non-exclusive right to use the software (license) provided it has been legitimately obtained.

The customer is authorized to use the software for the above activities and functions and to make copies of the software, including a backup copy for support of this use, and to install same.

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The customer is not authorized to use, copy, change or pass on/transmit the software for purposes other than those in these regulations. The customer is also not authorized to convert the software (i. e., reverse assembly, reverse compilation) or to compile it in any other way. The customer is also not authorized to issue sublicenses for the software, or to rent or lease it out.

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2.3 Component part of the product

As this documentation includes important information for the safe and efficient handling of the product, always keep it in the immediate vicinity of the product until product disposal and ensure it can be accessed by qualified personnel at any time.
Also pass on this documentation if the product is handed over or sold to a third party.

2.4 Presentation of notes on safety

NOTICE

Notice

means that property damage may occur

▶ if the stated precautionary measures are not taken.

⚠ CAUTION!

Caution

with warning triangle means that minor injury may occur

▶ if the stated precautionary measures are not taken.

⚠ WARNING!

Warning

means that there may be a serious danger of death

▶ if the stated precautionary measures are not taken.

⚠ DANGER!

Danger

means that serious danger of death exists

▶ if the stated precautionary measures are not taken.

Information
refers to important information about the product or serves to emphasize a section in the documentation to which the reader should pay special attention.

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3 Firmware files

A folder named Download is created in the POSITool directory when POSITool is installed:

The following files are saved in the folder:

- Download.exe: Use this file to download the firmware for MDS 5000 and FDS 5000. Observe section 4 for the download procedure:
- fx..x.mot: Firmware files for FDS 5000.
- mx..x.mot: Firmware files for MDS 5000.
- SDS5000x..x.fli: Firmware files for SDS 5000.

> **Information**
> You can read the hardware version (HW version) from a label that is stuck under the removable front cover at the side walls.

File	Available FW versions	HW version	
		199 or lower (FDS 5000)	**200 or higher (FDS 5000A)**
f01...	5.2 – 5.6-D	X	—
f16...	5.6-A or later	—	X

File	Available FW versions	HW version (size 0 to size 2)			HW version (size 3)		
		65 or lower (MDS 5000)	**66 to 199 (MDS 5000)**	**200 or higher (MDS 5000A)**	**35 or lower (MDS 5000)**	**36 to 199 (MDS 5000)**	**200 or higher (MDS 5000A)**
m05...	5.0 – 5.5-C	X	—	—	X	—	—
m08...	5.3 – 5.6-N	—	X	—	—	X	—
m15...	5.6-A or later	—	—	X	—	—	X

Available FW versions	HW version	
	199 or lower (SDS 5000)	**200 or higher (SDS 5000A)**
5.4 – 5.6-N	X	—
5.6-A or later	—	X

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The correct .fli file version is assigned to the existing SDS 5000 by POSITool. If the files saved on your PC can not be combined with the inverter connected with POSITool, you will receive a message. This can occur when an .fli file of version V 5.4 or V 5.5 is saved in your download folder but you have an A-device available that requires an .fli file of version V 5.6.

You can find different versions of firmware files on the STOBER Electronics CD. This CD is supplied with the inverter.

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4 MDS 5000 and FDS 5000

⚠ **WARNING!**

Danger of injury or property damage due to unsecured loads.

During the firmware download, the control and the power unit of the inverter are switched off. This means that unsecured loads on the drive may slip through.

▶ Secure the drive load before beginning the firmware download.

NOTICE

Unexpected inverter behavior!

If a firmware download is carried out, the previously saved firmware will be deleted initially. If the firmware download is a tear stopped too early, the inverter will not start as normal. The display will remain empty, the LEDs will only illuminate briefly.

▶ Avoid any early stoppage of the firmware download.

▶ If an interruption took place, carry out the firmware download again and ensure that it completes. After this, the inverter can be operated normally.

Prerequisites:
- At least the control unit of the inverter is powered (24 V on terminal X11). The power may only be switched off during the download when the software displays an appropriate instruction.
- You have connected the inverter to the PC via serial interface X3.
- POSITool is not communicating with the inverter via serial interface X3.

You will need:
- The program *Download.exe* which is stored in the *Download* folder in the directory of POSITool. Note that you require V 5.6 or higher of the Download.exe program for A-devices (HW version 200 or higher).
- The mot files which are stored in the same directory.

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Proceed as shown below:

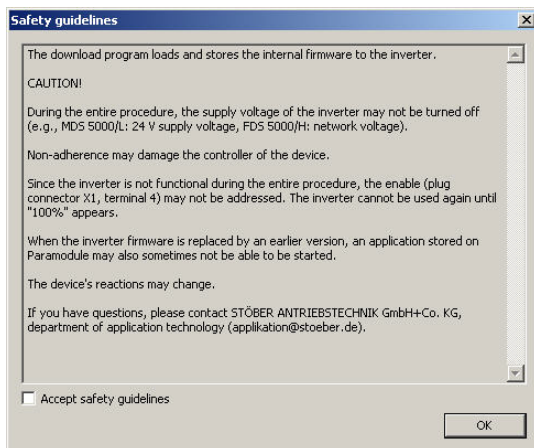**Replacing the firmware**

1. Start the program *Download.exe*.
   ⇨ The following dialog screen appears:

2. Select the language in which the download is to be presented by pressing one of the flag buttons.
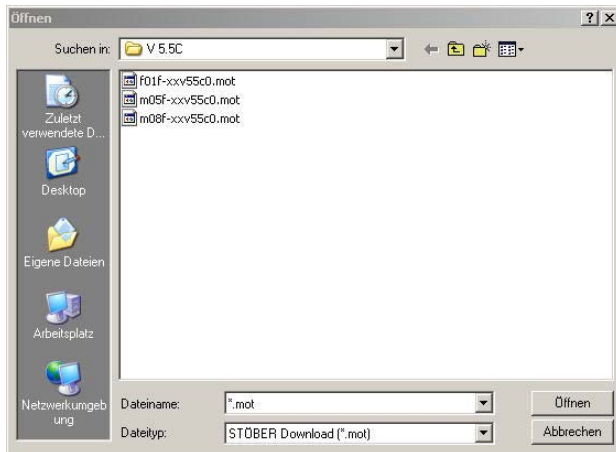3. Press the button *Next*.
   ⇨ The following dialog screen appears:

4. Read the safety guidelines.
5. If you accept the safety guidelines, check the box *Accept safety guidelines*.
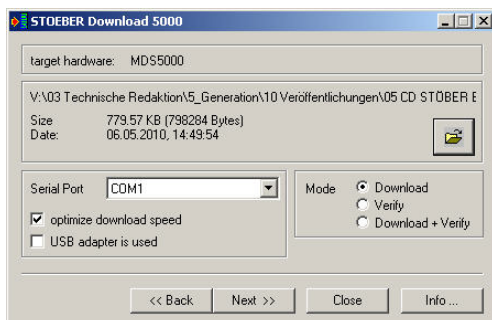
6. Press the *OK* button.
    ⇨   The following dialog screen appears:

7. Select the mot file which is to be loaded to the inverter.
8. Press the *Open* button
    ⇨   The following dialog screen appears:

9. In the lower part of the screen set the options with which the download is to be executed.
10. Confirm the check box *Next >>*.
    ⇨   The following dialog screen appears:

11. Press the button *Download per Software start*....
    ⇨   The firmware download is started.

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12. Wait until a dialog message reports that the firmware was saved to the inverter.

⇨ You have performed the firmware download.

If the download failed, check the following points:

1. After you pressed the button *Download per Software start...*, the following instruction appears after a certain amount of time:

Switch off and on again the control section of the connected inverter...

Switch the power supply on X11 off and on again to continue with the download. Then proceed with step 12.

5　SDS 5000

> ⚠ **WARNING!**
>
> **Danger of personal injury or material damage due to unsecured loads.**
>
> The firmware must be activated after the download for a live firmware update. The control part and power stage of the inverter are switched off during activation. Unsecured loads on the drive can therefore slip.
>
> ▶ Secure the drive load before activation.

During a live firmware update the firmware is loaded to the firmware download memory without affecting running operation. The firmware does not become active until it is accepted. The firmware stored in the firmware download memory is kept as redundant firmware to increase safety.
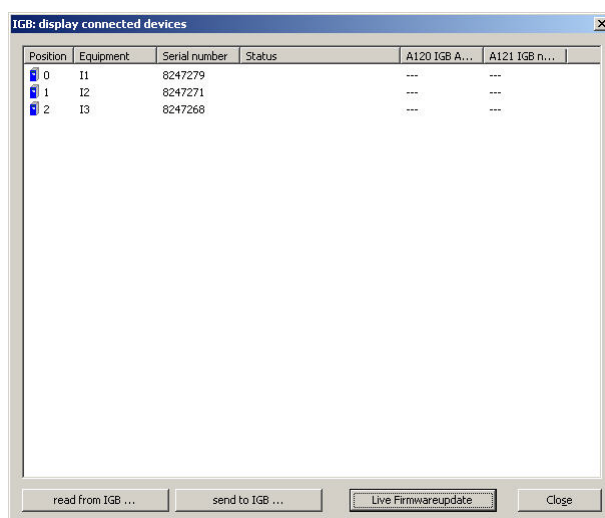
Requirements:

• The inverter controller is powered as a minimum (24 V at terminal X11). The power may only be switched off during download if the software gives an appropriate instruction. You can also carry out the live firmware update during ongoing operation.
• You have connected a PC to the SDS 5000 or an IGB network.
• You have configured at least one IGB network in POSITool.

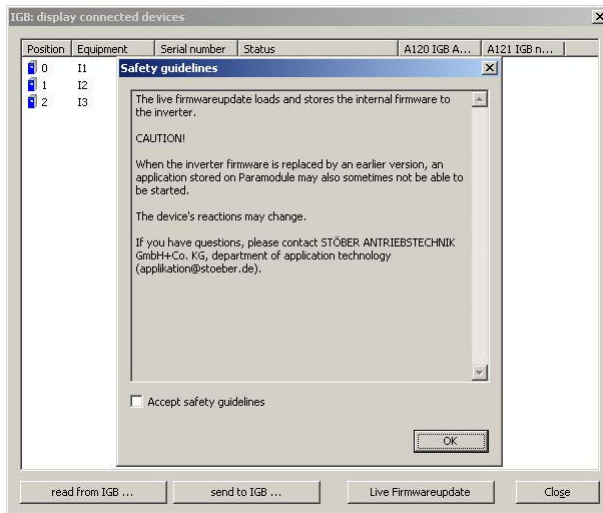You need:

• POSITool version 5.4 or higher

Carrying out a live firmware update

1. In POSITool, open the *IGB: display connected devices* menu entry in the File menu.
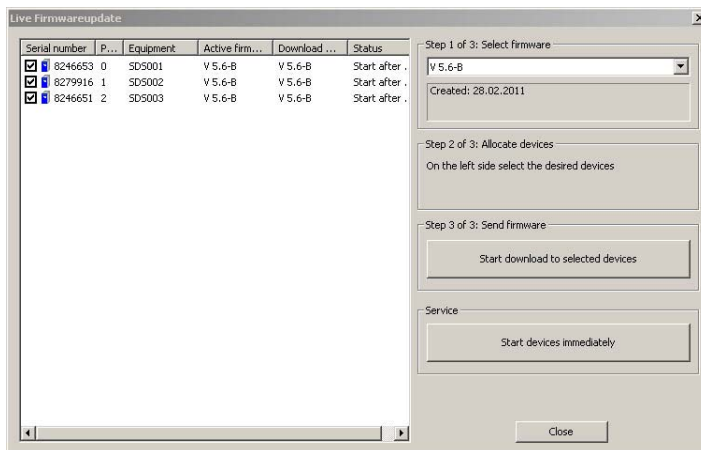   ⇨ You will see the following dialog screen that displays all devices connected to the PC:

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2. Click the *Live Firmware update* button.
   ⇨ The following dialog screen is displayed:

3. Read the safety information.
4. If you accept the safety information, select the *Accept safety guidelines* checkbox.
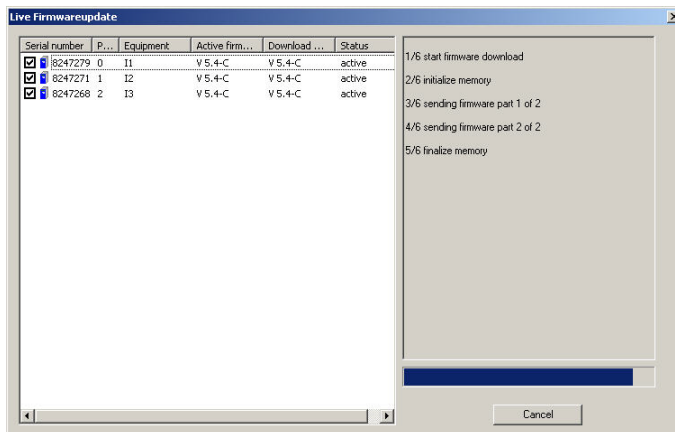5. Click the *OK* button.
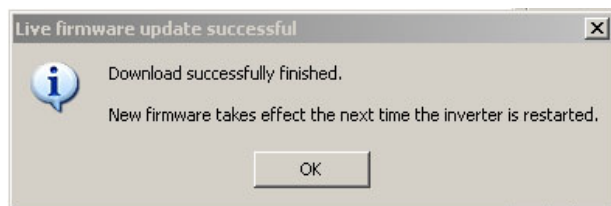   ⇨ The following dialog screen is displayed:

6. Select the firmware that you want to save on the inverter in the list on the right-hand side (steps 1 to 3).
7. Select the inverter to which the chosen firmware is to be transferred by selecting the checkbox on the left-hand side. Note that the inverter is displayed with your serial number for unique identification.

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8. Click the *Start download to selected devices* button.

⇨ The firmware download starts. Progress is displayed on the right-hand side of the firmware download dialog screen:

⇨ Once the download has completed, the following dialog screen is displayed:

9. Click the *OK* button to return to the *Firmware update* dialog screen.

⚠ **WARNING!**

Danger of personal injury or material damage due to unsecured loads.

The firmware must be activated after the download for a live firmware update. The control part and power stage of the inverter are switched off during activation. Unsecured loads on the drive can therefore slip.

▶ Secure the drive load before activation.

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10. If you want to activate the firmware immediately, click the *Start firmware immediately* button. Observe the above safety information. Follow the POSITool instructions to carry out activation. If you do not carry out this step, the firmware is automatically activated the next time the device is switched off and on.

11. Close the dialog screen by clicking the *Close* button.

12. For each inverter, check that the correct firmware is entered in the *E51* software version parameter.

⇨ You have completed the live firmware update.

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