- Supplied software:
  Configurator for setting the XpressNet address
  PC control panel
  CV editor for easy configuration of decoder settings

Digital
plus
by Lenz

Information
USB Interface
Software

2nd edition, 10 08

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Contents

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Important advice, please read first!

The USB interface is a component of the *Digital plus by Lenz*® system and was submitted to intensive testing before delivery. Lenz Elektronik GmbH guarantees fault-free operation if you follow the advice below:

The USB interface may be used only with components of the *Digital plus by Lenz*® system. Any use other than the one described in this operating manual is not permitted and all guarantees shall become null and void if the USB interface is used inappropriately.

Only connect your USB interface to devices which are designed for this purpose. This operating manual will inform you which devices are suitable. Even if other devices (including those of other manufacturers) use the same connectors, you must not operate the USB interface with these devices. *The fact that the connectors are similar does not automatically mean that you may use them for operation*, even if you are dealing with devices for controlling model railways.

Do not expose the USB interface to damp or direct sunlight.

If you have any questions which this operating manual does not answer, please contact us:

|		
Postal address:	Lenz Elektronik GmbH Hüttenbergstraße 29 D-35398 Gießen	
Telephone:	++49 (0) 6403 900 133	The recorded message will inform you of times when we are available
Fax:	++49 (0) 6403 900 155	
E-mail:	info@digital-plus.de	

If you experience any problems with the USB interface, just contact us, stating the following information:
- The devices you are using (LZ100, Compact etc.)
- The version numbers of these devices and your USB interface

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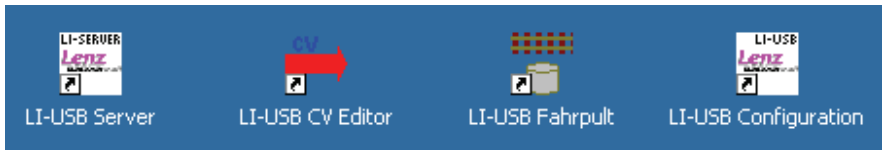
Application software for the USB interface

The programme "LI-USB Server"

The programme "LI-USB Server" provides a TCP/IP server for the other applications. It ensures secure communication between these applications and the USB interface. It is automatically started together with any of the three applications.

If the interface is correctly connected to the USB port of your PC and the *Digital plus by Lenz*® system is active, communication between the interface and the PC is automatically established.
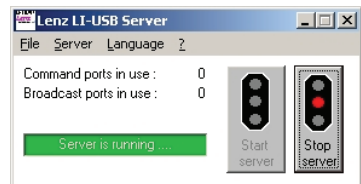
If the interface is not connected or the USB driver is not installed, you will receive an error message.
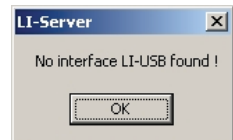
In this case, check all connections between the PC and the interface and vice versa.

The USB server allows two applications to simultaneously access the interface and therefore the *Digital plus by Lenz* ® system. This feature is particularly useful if you want to use the control panel to test decoder settings that you have changed with the CV editor.

The programme "LI-USB Configuration"

The programme "LI-USB Configuration" serves to check the communication between your PC and the *Digital plus by Lenz* ® system as well as to set the interface's XpressNet address.

Start the programme by double-clicking the icon "LI-USB Configuration" on your desktop.

Once the programme has been started (the programme "LI-USB Server" is started automatically at the same time), your PC will try to establish communication with the command station of the *Digital plus by Lenz* [®] system via the interface.

If the connection is correct, the programme window will display the basic information of the *Digital plus by Lenz* [®] system and the interface:
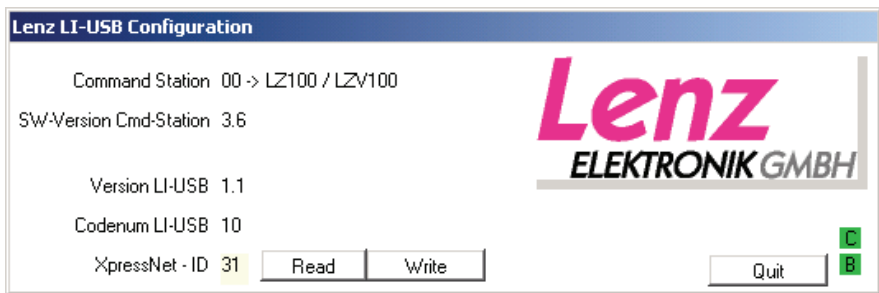

Figure 1: The programme window

(Depending on the command station used and its software version, this information may differ.)

The first line shows the identification number of the command station next to "Zentrale". This number indicates which command station (LZ100, LZV100, SET02 or Compact) is used.

The second line shows the software version of the command station (3.6 in the above example).

The two lines below show the version and the code (service) number of the USB interface.

Below you will find the set XpressNet address. This setting can be changed.

Setting the XpressNet address of the USB interface

The interface has an XpressNet (XBUS) address, just like any other *Digital plus by Lenz* ® input device. This is the address used by the command station to call up the interface. The default address is 31.

If you want to change the interface address, click on the field showing the set address. You can change the value via your keyboard.

Please note that you may only enter values between 1 and 31. Moreover, you may not use an address which is already used by another XpressNet device.

When you have set the new value, click the "Write" button and the new XpressNet address will be entered into the USB interface. Afterwards, the USB interface data will be reread to ensure they are correct.
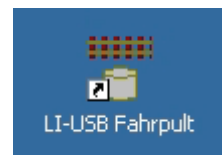
Terminating the programme:

Click the "Quit" button to close the USB interface tool.

The programme "LI-USB Throttle"

This programme enables you to control locomotives on the *Digital plus by Lenz* ® layout via your PC.

Start the programme by double-clicking the icon "LI-USB Fahrpult" on your desktop.

Once the programme has been started (the programme "LI-USB Server" is started automatically at the same time), you will see the programme window. Please refer to the following page for more information.

Click here and enter the desired locomotive address via your keyboard. Don't forget to press the "Enter"-key afterwards!

Use the slider for speed control. The running notch and running-notches mode are shown above the slider.

Use these buttons to activate or deactivate functions. Activated functions are highlighted.

This button triggers a STOP for all locomotives. Click and the locomotives will move again.

These buttons determine the direction of travel.

You may open up to two control panels simultaneously if no other LI-USB application is running (the USB server does not count!).

Exit the programme via the menu "File" and "End" or by clicking the cross in the top right corner of the programme window.

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The programme "LI-USB CV Editor"

This programme enables you to program locomotive decoders on the programming track or in operational mode via your PC. While programming on the programming track, it is possible to read out CV values.

"Decoder descriptions" ensure that you do not have to remember which CV is responsible for which feature. These descriptions can be loaded into the CV editor in which case the CVs and their respective features will be displayed.

You can also save decoder values. In combination with the decoder descriptions, you can save the CV settings for each decoder used on your PC and reload them into the decoder, if required.

Start the programme by double-clicking the icon
"LI-USB CV Editor"
on your desktop.

Once the programme has been started (the programme "LI-USB Server" is started automatically at the same time), the decoder description "Standard decoder" is loaded.
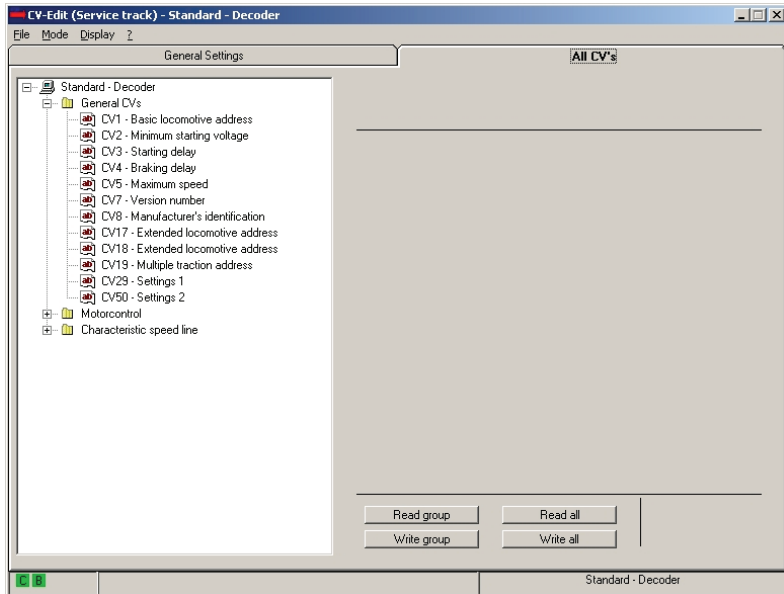
This window is displayed once the programme has been started

The menu "File"

Open decoder description file…

Here, you can select and open a decoder description file.

By default, decoder description files are stored in the folder where the programme files are installed. Unless you have chosen a different folder during installation, this is "C:\Programme\LI-USB", but you may also choose any other folder.

You will find further information on decoder descriptions in the section 'Decoder descriptions' on Page 14.

Load decoder values…

This command enables you to load a value file for a decoder. This file contains the CV values. Load the appropriate decoder description first.

Save decoder values…

This command enables you to save the values which have been read out of the decoder or entered into the CVs of the decoder in a file.

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End   Strg+Q

This command terminates the programme. Alternatively, you can use the key combination "Ctrl+Q" or click the cross in the top right corner of the programme window.

The menu "Mode"

Programming on the service track

Programming on the Main

Use these two commands to select the programming mode. It is impossible to read out CV values when programming in operational mode.

Finish programming mode automatically

When programming on the programming track, choose this option to exit the programming mode of the command station after each read-out or programming procedure.

End programming mode now")

Use this command to exit the programming mode of the command station if the option "Programmiermodus automatisch beenden" ("Exit programming mode automatically ") is deactivated.

The menu "Display"

Show CV Values in categories

You can view decoder CVs in the programme window either according to categories or according to the order of the CVs. The decoder description defines which CVs are displayed in which category.

Show bit values conforming to the Lenz standard

This (default) option displays bits starting with 1. Untick this option to display bits starting with 0.

The tab All CVs

The left side of this tab shows a list of CVs defined in the respectively loaded decoder description. During the initial start, the description "Standard decoder" is loaded and displayed; the CVs

are shown according to categories. CVs are displayed and used as in the Windows© Explorer.
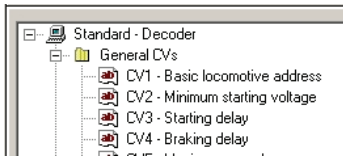
Click '-' to hide the list of CVs under the category and keep the overview simple and clear.

Click a CV to see "Alle CVs" ("All CVs") on the right-hand side of the tab:

Read button

Write button

Value field

Value range

CV description
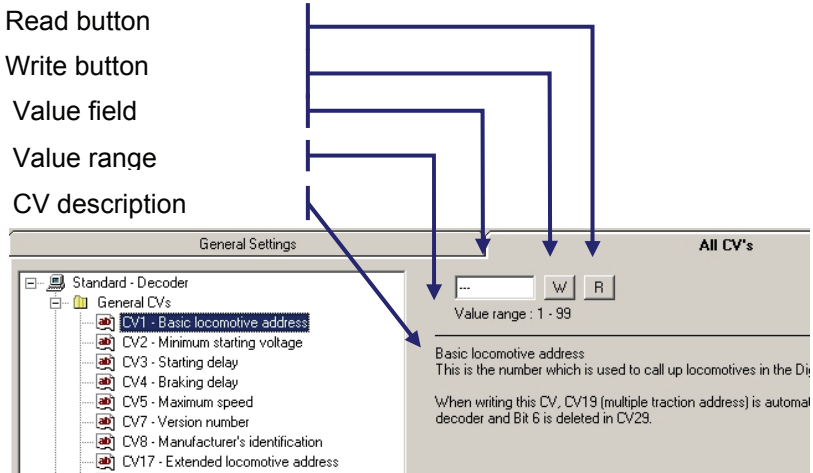
"Read" button

Click "L" to read out the selected CV (only possible if "Programmieren auf dem Programmiergleis" ("Programming on the programming track") is selected in the menu "Modus" ("Mode")). The read-out value will be displayed in the value field.

"Write" button

Click "S" to enter the numerical value shown in the value field into the respective CV. The programme will automatically reread the value to ensure that it is correct (if "Programmieren auf dem Programmiergleis" ("Programming on the programming track") is

selected). The programme detects and reports errors made when entering the value.[1]

Value field

The value field shows the read-out value of a CV. When loading a value file, the value contained in the file for this CV will be displayed. You can change the value by clicking on the field and entering a different value via the keyboard. Click the "S" button to enter the value into the CV.

Value range

The value range permitted for the selected CV is shown here.

CV description

This text contains information about those decoder features that can be changed with the selected CV.

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[1] When resetting a decoder by changing CV8, the manufacturer ID will be reread during the following read-out. Of course, this does not correspond to the value which you have entered for the decoder set. You will receive an error message which you can ignore.

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At the bottom right of the tab "All CVs", you will find a maximum of five more buttons:
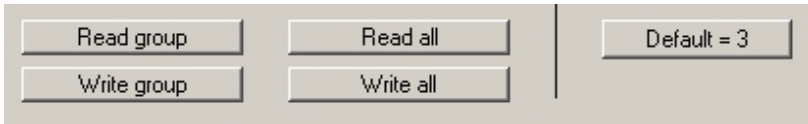
Read/Write group

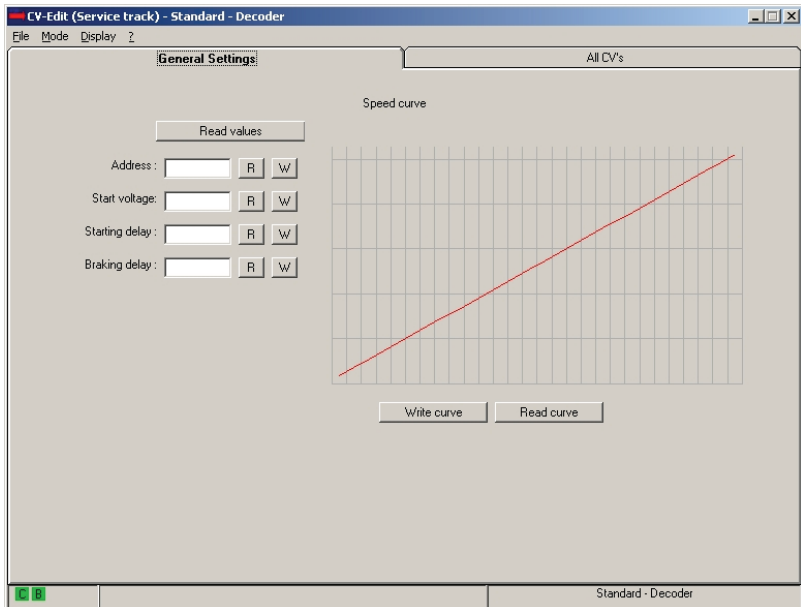Click this button to read/write all CVs of the selected category.

Read/Write all

Click this button to read/write all CVs defined in the decoder description.

Default= [value]

Click this button to enter the default value stored in the decoder description into the selected CV.

The tab "General settings"

Use these buttons to read out and change the decoder features used most often.

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Programming the locomotive address is particularly easy here. You do not have to choose between a 2 or a 4-digit address; simply enter the address in the address field. The settings of CV1, CV17, CV18 and CV29 are automatically taken over by the programme.

Read / Write curve

Use these buttons to adjust the characteristic speed line.

Click "Read curve" to read out the appropriate values and to display the resulting speed line graphically.

Use the mouse to edit the speed line (click and draw). The programme automatically calculates the related values. Click "Write curve" to enter the values into the locomotive decoder.

Decoder descriptions

These decoder descriptions are supplied with the CV editor:

- 'LENZ Gold-Decoder_DE': Decoder description for GOLD series decoders.

- 'LENZ SILVER_DE.dec': Decoder description for SILVER series decoders.

- 'Standard_DE.dec': Decoder description for STANDARD series decoders.

You can also create decoder descriptions yourself.

Creating decoder descriptions

A decoder description file is a text file that can be edited with any simple editor. If you want to create your own or edit existing description files, make sure that the file extension remains 'dec' when saving them.

It is easiest to use the Windows® program 'Notepad' to create or edit description files.

Please do not forget to make backup copies of the descriptions supplied with the CV editor!

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Open an existing description file or create a new file with 'Notepad'.

Edit the file to suit your preferences.

Assign a file name and add the file extension '.dec'.

Make sure that 'Dateityp' ('Files of type') is set to 'Textdokumente' ('Text documents') when saving the file.
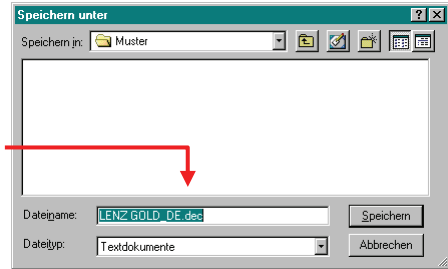
Advice:

To see the file extension, the box 'Dateinamenerweiterung bei bekannten Dateitypen ausblenden' ('Hide extensions for known file types') in the Folder Options of the Windows® Explorer must be unchecked!
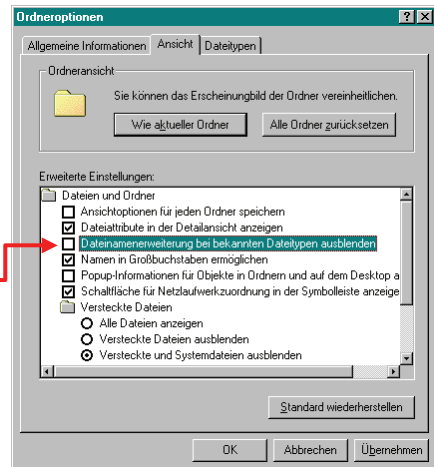
Description files MUST BE saved in the folder that contains the program file 'CVEdit.exe'. After installation this is the folder Programme\LI_USB\CV-Edit. Here you will also find the description files supplied with the CV editor.

It is easiest to picture the structure of a description file if you open an existing description to view its entries.

Structure of a description file:

(Explanations in blue)

*****Lenz GOLD decoder

This is the name of the decoder as shown in the heading of the editor. Syntax 5 stars, then an L for Lenz bit depiction or a blank for other bit depictions, then the name

+++++0,General CVs / Address

Below are the category names for the depiction of CVs in the program by category.

Syntax: 5 +, then the category number (0-99), then the category name

+++++2,Motor control

+++++3,Speed parameter

+++++4,Speed characteristic,G

This is the category of CVs that are used to depict the speed characteristic. This is the only category with a 'G' after the category name. It may only be assigned to one category!

+++++7,Shunting mode

+++++8,Function mapping

+++++9,Function outputs

+++++12,ABC functions

+++++20,SUSI programming

#####1,1,127,0,0,3,Basic locomotive address

This is the entry for a CV (here CV1), its syntax is shown on the next page.

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(Isolator)

the CV number (here 1)

the lower value threshold (here 1)

the upper value threshold (here 127)

the flag whether the bit depiction is activated for this CV (0=active, 1= inactive)

The number of the category to which the CV belongs (here 0).
Attention: If the category itself (see above) is not defined, this CV will not be displayed by category.

Default value of the CV

Description. Additional lines with explanatory texts may follow.

1,1,127 ,0,0,3,Basic locomotive address

Important: Do not forget the commas between the values!

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Updating the USB interface firmware

Please note that an update of your USB interface firmware is only necessary if you are operating your LZV100 with software version 3.6. Do not carry out a firmware update when using version 3.5 or smaller!

Along with the new application software for the USB interface, the software required to update the firmware was also installed on your computer. It can be found in the Start menu.
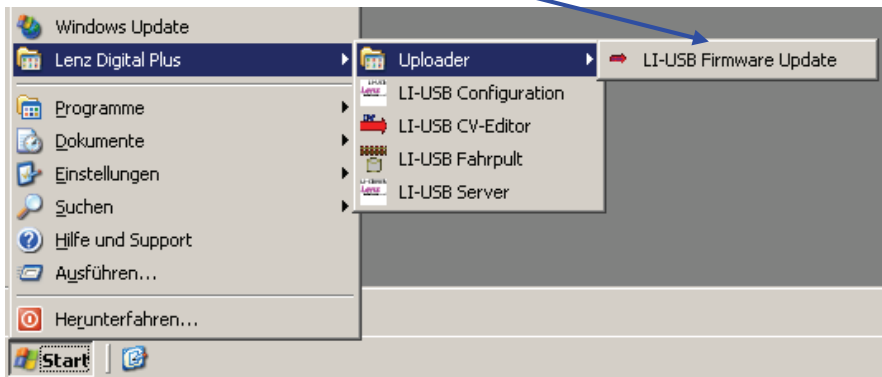
Connect the interface to both the *Digital plus by Lenz* ® system and the USB port of your computer.

Then, start the software by clicking 'LI-USB Firmware Update'.

Click on the 'Open file' symbol at the top left.

Select the file 'LI-USB Firmware Version 1.1-10.hex' and click 'Öffnen' ('Open').
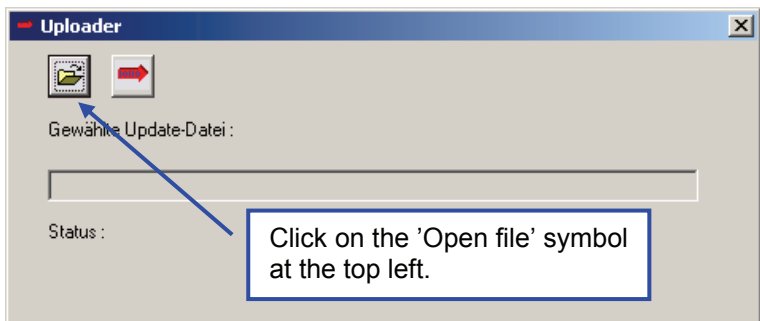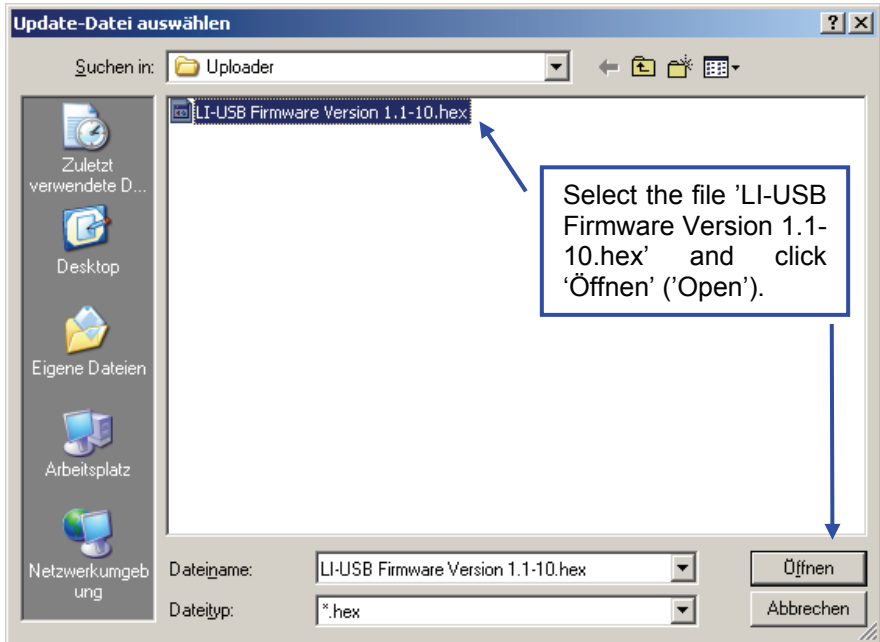
Start the firmware update by clicking on the upload symbol and follow the instructions on the screen.

The upload of the new firmware starts. The progress bar indicates the status of the upload.
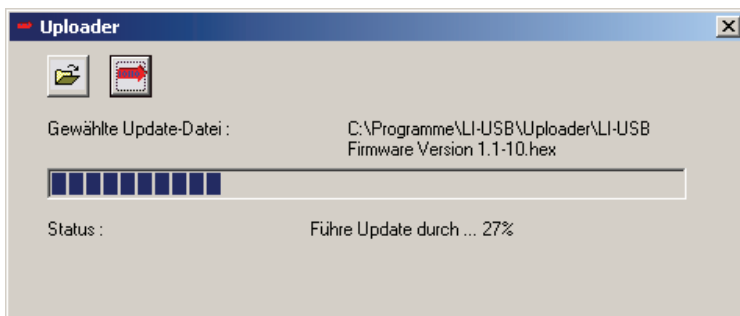
Confirm the successful upload with 'OK'.

The firmware update is complete; end the uploader.

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