



construction B35



hollow shaft design

# Configuration manual

## electronic overspeed switch

### EGS<sup>®</sup>41

### EGS<sup>®</sup>(H)41

certificated according IEC 61508 SIL2 and DIN EN ISO 13849-1 PL d

Read the configuration manual prior to assembly,  
starting installation and handling!  
Keep for future using!



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## Manufacturer / publisher

Johannes Hübner

Fabrik elektrischer Maschinen GmbH

Siemensstraße 7

35394 Giessen

Germany

Phone: +49 641 / 7969 0

Fax: +49 641 / 73645

E-Mail: info@huebner-giessen.com

www.huebner-giessen.com

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This document tells you how to adjust the program settings for EGS(H) 41 with the EGS41Pro software and transfer them to the device.



## PLEASE NOTE!

The documentation and the dimensional drawings will be copied in the installation folder in PDF format by the installation.

## 1 Setting up

Allow sufficient time to plan the integration and configuration of the EGS(H) 41. Please remember that planning and configuration errors can put people at risk. Put organizational measures in place to guarantee safety during configuration procedures!

Ensure that the system cannot enter any dangerous states during the configuration procedures including in that part of the system monitored by devices connected to the EGS(H) 41.

To configure the EGS(H) 41 you require the following:

- Operating instructions belonging to the EGS(H) 41
- Notebook/PC running a Windows® operating system
- The configuration software EGS41Pro
- A EGS(H) 41 device ready for operations
- Connecting cable to connect the notebook/PC with the EGS(H) 41 device

### 1.1 Planning and configuration



#### Caution!

Ensure you have planned the application thoroughly before you begin to configure the EGS(H)41!

Amongst other considerations the planning must include:

- A detailed safety analysis of the planned application
- A complete list of all required devices, their connections as well as the signals provided or required by these devices.

In addition, the following conditions must be fulfilled:

- The EGS(H) 41 must be connected to the power supply.
- The safety components must be electrically connected to the EGS(H) 41.

Read also the appropriate operating and assembly instructions.

### 1.2 System requirements

For configuration purposes it is possible to use any commercially available Windows® notebooks/PCs that fulfil the following system requirements:

- Windows® 7 / 8 / 8.1 / 10 / 11
- Free space on the HDD: 150MB
- Free USB 2.0 interface or higher
- 1 GB RAM, CPU: 1GHz, screen resolution: 1024x 768

### 1.3 Installing the software

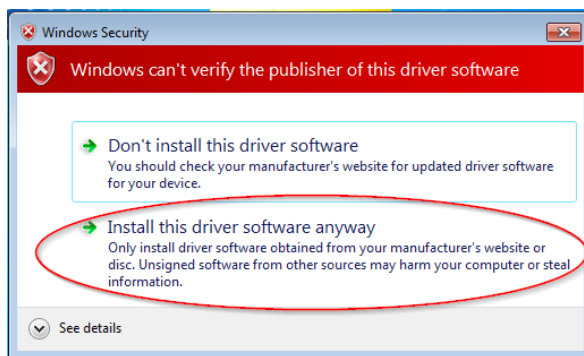
Ensure that there is a USB connection between the EGS(H)41 device and your laptop/PC. If the “New hardware search assistant” starts automatically, click “Cancel” to close it.

Insert the enclosed data storage medium, or execute *Setup.exe* after downloading. Navigate to the drive using the explorer, and launch *Setup.exe* there.

The setup will guide you through the installation. Please follow the instructions on the monitor.

#### Windows 7

Unfortunately, because support for your operating system has run out, we will no longer be able to sign your drivers. Therefore, you must confirm installation manually. To do so, click “Install this driver software anyway”. Then the setup routine will continue.



## 1.4 Installing the driver manually



### PLEASE NOTE!

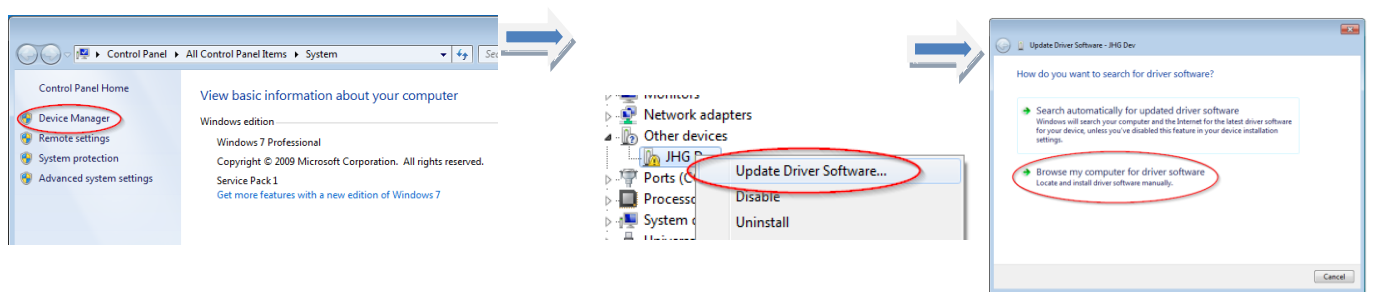
You must log into a user account with administrator rights to install the software.  
Ensure all programs are closed.

If it is necessary to install the driver manually, depending on your operating system, please check the following steps.

Connect the supplied USB cable with the EGS(H) 41 device and your notebook/PC

By pressing “Windows key” “Pause/Break” or desktop “Computer” (right click) “Properties” you get into the System Properties.

Open the device manager, which lists all the connected devices. Select “JHG Dev” (right click) “Update Driver Software”.

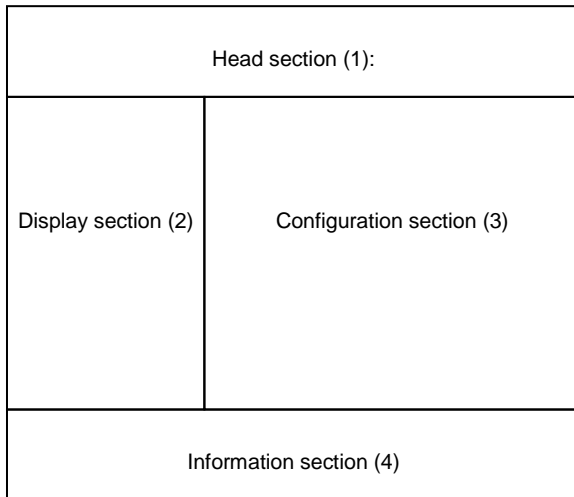


Now, as the installation source, select the path for your installation by clicking “Search”. There, select the drivers folder. Click “Continue” to start the installation. Click “Continue” to complete installation of the driver software for the USB. End the installation by clicking “Close”. The device can now be used.

## 2 Configuring

In this chapter you will learn how to configure the EGS(H) 41 using the configuration software EGS41Pro. For the purpose of clarity the user interface is divided up into different sections.

The drawing below offers a schematic overview:



▪ **Head section (1):**

In this section the software control menus and the status padlock icon are displayed (please refer to Chapter 3.1).

▪ **Display section (2):**

This is where the current device settings of the EGS(H) 41 are displayed. The display section is always visible. This makes it possible to check implemented settings (please refer to Chapters 2.1 and 3.3).

▪ **Configuration section (3):**

This is where the device parameters are entered on the pages Parameters 1 and Parameters 2. This is where graphic information is displayed on the diagnostic screens (please refer to Chapters 4 and 5).

▪ **Information section (4)**

General information about the configuration software, the connected devices as well as a dynamic communications status indicator are displayed in the information section (please refer to Chapter 3.2).

### 2.1 Fundamental procedure

The EGS(H) 41 is configured effectively by taking the following steps:

- Turn on the PC
- Connect the EGS(H) 41 device to the USB port of the PC
- Switch on the EGS(H) 41 device
- Launch the software EGS41Pro (please refer to Chapter 3)
- Establish communications and log onto the EGS(H) 41 (please refer to Chapter 3.4)
- Configure parameters (please refer to Chapters 4 and 5)
- Check parameter settings
- Approve the parameters in the device
- Test the parameter settings of the EGS(H) 41 on a secured system

The EGS(H) 41 device is ready for operations after completing these steps.



## 2.2 Configuration planning table

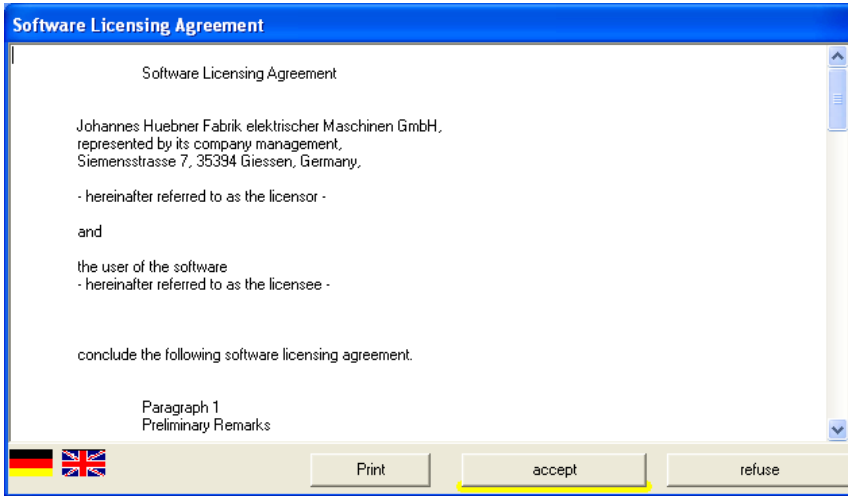


### PLEASE NOTE!

A configuration planning table is provided below.  
Use a printout or a copy of the planning table below to plan the configuration of the EGS(H) 41.

Parameter	Factory setting	New value
User device designation		
Inverse speed alignment	Not active	
Underspeed	Not active	
Speed dependent switching	Not active	
Switch delay	Not active	
Switch 1 active	Not active	
Switch 2 active	Not active	
S1R – nov_on	90 rpm	
S1R – nov_off	100 rpm	
S2R – nov_on	180 rpm	
S2R – nov_off	200 rpm	

### 3 Software description



Connect the EGS(H) 41 device to the PC with the USB cable.

Switch on the power supply to your EGS(H) 41.

To launch the software EGS41Pro click 'Start \ Programs \ HUEBNER –GIESSEN \ EGS 41.

When launching the software for the first time a window is displayed containing the licensing agreement.

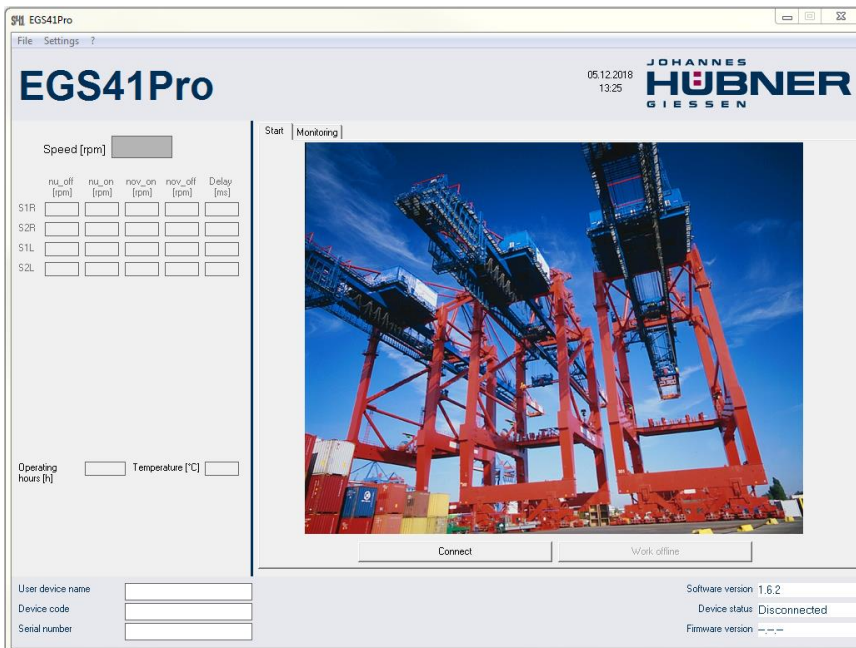
Use the scroll bar on the right-hand side of the screen to view all of the text! Click the 'Print' button to print out the licensing agreement.

The software EGS41Pro will not launch if you do not accept the licensing agreement.



**CAUTION!**

Please read the licensing agreement carefully

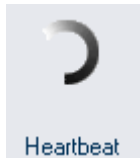


After you have accepted the licensing agreement the EGS41Pro Home screen is displayed.

The individual functions on the “Home screen” are described in more detail in Chapter 3.1.

To establish a connection to the EGS(H) 41 proceed as follows:

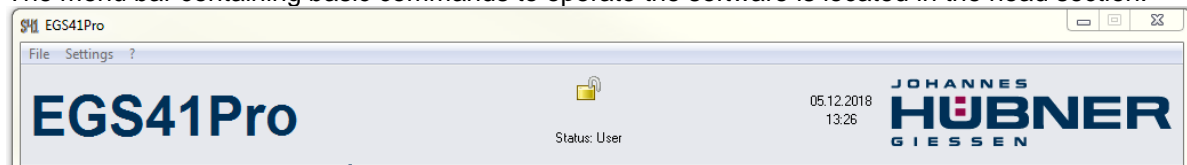
On the Home screen click the 'Establish connection' button.



Communications have been successfully established when the communication status symbol rotates. You can now begin to configure the device.

### 3.1 Head section

The menu bar containing basic commands to operate the software is located in the head section.



#### PLEASE NOTE!



Menu commands are presently unavailable if dimmed (for example, because the configuration software is unable to communicate with the EGS(H)41. First define the user language for the user interface under 'System settings/language'. If required, click '?\Help' to call up the online context-sensitive Help. To exit the program click 'File\Exit'.



The current log-in status is displayed in the middle of the head section. A padlock with an open shackle symbolizes that the configuration is not yet safeguarded against unauthorized alterations.

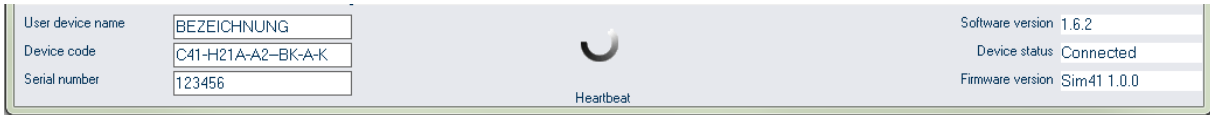


A closed padlock indicates that the configuration is securely safeguarded against unauthorized alterations. Chapter 5 'Parameter 2 page' contains details on safeguarding the configuration.

The user level with which the user is logged onto the device is displayed below the padlock symbol (in this example the status is: User).

### 3.2 Information section

Information from the connected EGS(H)41 is displayed in the information section.



The previously mentioned dynamic indicator symbolizing the communication status between the PC and the EGS(H)41 is displayed in the middle. Each successfully transmitted or received data packet causes the partial ring to rotate.

### 3.3 Display section



The display section is located on the left-hand side of the screen, where it possible to check the settings transmitted to the EGS(41). The current speed and direction of rotation of the EGS(41). are displayed in the top part of the display section.

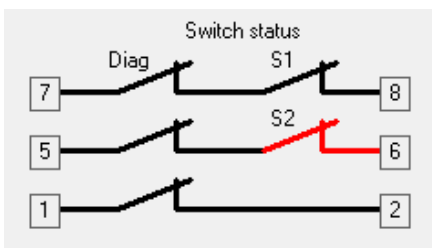
Below that the speed(s) settings are displayed in table form.

The abbreviations are explained in the chapter 4 on the 'Parameters 1' page.



#### ATTENTION!

The values displayed in the table always correspond to the current device settings!



Below the table a graphic displays the switching statuses of the safe outputs 'S1, S2' and the diagnostics output 'Diag.'.



#### ATTENTION!

The graphical symbols always represent the defined setpoint value!

Graphic symbols depicted in red indicate that switch position determined by the EGS(H)41 does not match the programmed switch position.

The reason why the switch symbol is highlighted red is because the switch is either defective or not connected correctly. The number of hours [h] in operation and the PCB temperature of the connected device is displayed below the switch symbol.

When a switch is inactive it appears dimmed.

Text highlighted red indicates that a device fault has occurred (see Chapter 10).

### 3.4 Establishing a connection and logging on

Click the button 'Establish connection' to establish communications between the configuration software and the EGS(H)41 device.

The rotating communications status indicator is displayed.

Data relating to device identification such as user designation, article code and the serial number are read out of the device and displayed in the information area.

The device status on the right-hand side of the information area changes to 'connected'.

Device data in the information section is refreshed approx. once per second.

You have now accessed the lowest user level. In this level you are able to view the settings of the connected EGS(H)41. On the 'Monitoring' screen you are able to observe the positions of the switches analogous to an oscilloscope. Further details are available in Chapter 6.



Password authentication is required to be able to make changes to the configuration!

To enter your password for authentication click the menu item 'Device settings\Parameters'.

Enter your password in the Enter password box and click OK to confirm.



#### PLEASE NOTE!

The login password is set ex-works to 'huebner'.



#### CAUTION!

Change the password as soon as possible to protect the configuration from unauthorized access!

(Please refer to Chapter 5 'Parameter 2 page').

Once you have successfully logged in three new pages are displayed on-screen for selection:

- Operating data
- Parameters 1
- Parameters 2

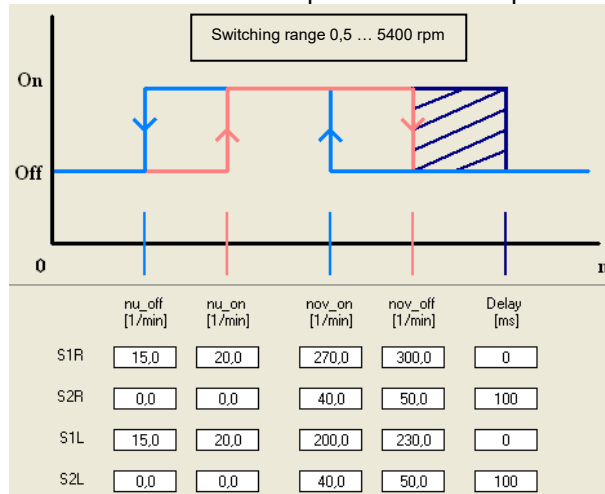
Changes are made to the settings of the EGS(H)41 on the pages Parameters 1 and Parameters 2. On the Operating data page you are able to view a collation of all of the device settings and print these out for documentation purposes.

## Online Help

Press 'F1' to display additional information about the individual functions.

## 4 Parameters 1

On this page the settings are made that define the operating characteristics of the EGS(H)41. You are able to define the switch-off speeds as well as possible additional speed-dependent functions.



A fundamental condition that applies to all switching speed inputs is that they must be within the device-specific switching range of 0.5-5400 rpm.

An input value "0" in the field nov\_off disables the corresponding switch.

An input value "0" in the field nu-on disabled the underspeed (see chapter 4.2, 4.3).

The speed-dependent functions are displayed in a schematic graphic at the top of the page.

The input fields for entering switching thresholds are displayed in the lower part of the page in table form. One line is allocated to a respective switch (S1R to S2L).

The columns are allocated to the respective switching thresholds for the speeds nu\_on to nov\_off and switch delay.

The switches listed in the lines are allocated as follows	
S1R:	Switching speeds of switch 1 with clockwise direction of rotation
S2R:	Switching speeds of switch 2 with clockwise direction of rotation
S1L:	Switching speeds of switch 1 with anti-clockwise direction of rotation
S2L:	Switching speeds of switch 2 with anti-clockwise direction of rotation

The values listed in the columns are allocated as follows	
nu_off	Switch-off speed for underspeed detection
nu_on	Switch-on speed for underspeed detection
nov_off	Switch-off speed for overspeed detection
nov_on	Switch-on speed for overspeed detection
Delay	Delay time applied to triggered switch-off in ms

Depending on the activation boxes selected only those lines and columns are displayed that are relevant to the respective function.



## CAUTION!

When switch delay is activated the actual switch-off speed is higher than the set switch-off speed!

Observe also information on determining the switching deviation described in the Operating and Assembly instruction EGS(H)41!

After making changes to the switching speed settings click the 'Check input' button to check the new settings do not violate restrictions.

	nu_off [rpm]	nu_on [rpm]	nov_on [rpm]	nov_off [rpm]	Delay [ms]
S1	15,0	22,0	260,0	300,0	0
S2	0,0	0,0	40,0	50,0	100

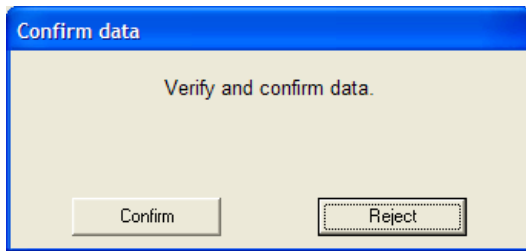
### Restrictions:

- $nov\_on < 0,9 * nov\_off$
- $nu\_on < 0,9 * nov\_on$
- $nov\_off < 0,9 * nu\_on$  (or  $nu\_off = nu\_on = 0$ )
- $0.5^\circ < slip\ angle \leq 90^\circ$
- 

Once the check has been completed successfully the data is stored to a temporary memory in the connected device. Flawed entries are highlighted red and data transmission to the device is prevented.

To indicate that the data has not yet been accepted on a permanent basis the entry and display areas are each displayed with a red frame.

To begin the process of accepting the changes permanently click the button 'Store data in device'.



You will again be required by a security prompt to verify and confirm your changes.

Click the 'Confirm' button to confirm the changes you have undertaken and store these permanently in the connected device.

To reject the changes click the 'Reject' button.

The data in the temporary memory will be deleted.



### PLEASE NOTE!

Before the settings can be accepted and used by the EGS(H)41 they must be saved to the device; to do so click the 'Save data in device' button then click the 'Confirm' button in the 'Confirm data' dialog box.

#### Overspeed switch configuration

- Inverse rotation evaluation
- Underspeed
- Rotation dependent switching
- Switching delay
- S1 active
- S2 active

The respective activation check boxes are in the Overspeed switch configuration dialogue box on the right of the page.

As there are no restrictions to observe the settings are transmitted immediately to the temporary memory in the connected device.

For information on the activation boxes please refer to the chapters 4.1, 4.2, 4.3, 4.4 and 4.5.



## 4.1 Inverse rotation evaluation

Clockwise rotation for the switches S1R and S2R is defined as anti-clockwise rotation when viewing the end of the shaft of the EGS(H)41. When inverse rotation evaluation is activated the allocations for S1R and S1L are inverted.

## 4.2 Underspeed

Underspeed is detected. Below the speed `nu_off` the respective switch is open (off). The switch is closed again when the speed exceeds `nu_on`. The input columns for 'nu\_on' and 'nu\_off' are displayed if underspeed detection is activated.

## 4.3 Rotation-direction dependent switching

The switching speeds S1R and S2R apply to clockwise direction of rotation. The speeds S1L and S2L apply to anti-clockwise direction of rotation.

The input lines for S1L and S2L are displayed if rotation direction dependent switching is activated.

If 'Rotation direction dependent switching' is not activated the switches S1 and S2 are not labelled with a rotation indicator R or L. The switching speeds entered apply independent of the direction of rotation.

## 4.4 Switch delay

The adjustable switch delay facility suppresses the switch-off function if the maximum speed is exceeded only briefly. That can be appropriate for example during load shedding. When the speeds `nov_off` are exceeded the switches S1 and S2 are opened only after the delay time set in the 'Delay' field has elapsed. The delay time can be set between 0 and 300 ms. The switch-off function is not triggered if the speed again falls below the `nov_off` value within the set delay time.



### PLEASE NOTE!

The delay time applies only to the switch-off function when the defined `nov_off` speed is exceeded. All other switching operations are triggered immediately.

## 4.5 Slip detection

	S1	S2	Slipping angle [°]
Slip detection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="--"/>

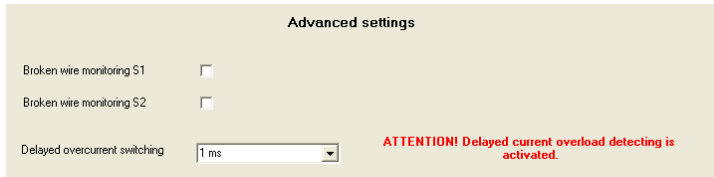
It is important in some applications to be able to detect if the system is standing precisely still or if it is turning at a crawling speed. The rotary speed monitoring function is unable to detect speeds below 0.25 rpm.

When slip detection is activated the selected switch opens when the drive is stationary (at a standstill). The switch is closed again if the shaft of the basic unit turns more than the set slip angle ( $\pm 1^\circ \dots \pm 90^\circ$ ), independent of the speed. It is not possible to combine slip angle detection and underspeed switch-off within a single switching channel.

## 5 Parameters 2

On this page the settings are made that define the safety-relevant characteristics of the EGS(H)41.

### 5.1 Broken wire detection



Broken wire detection is available for the switching outputs S1 and S2. Detection is triggered as soon as the internal load current monitoring measures less than 5 mA when a switch is closed.



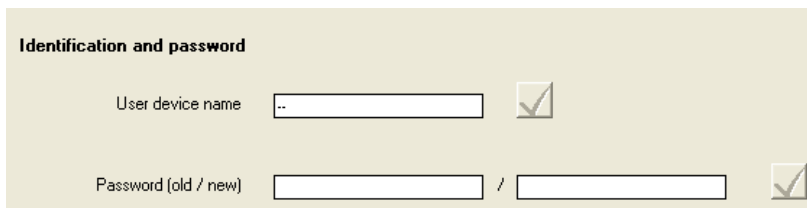
#### PLEASE NOTE!

This detection cannot function if there are opened contacts in the safety circuit in series to the switch output.

### 5.2 Delayed overcurrent switch-off

A switching load with high initial current requirements can trigger an undesired over-current switch-off. It is possible to delay this overcurrent detection 1 ms, 2 ms or 5 ms.

### 5.3 Identification and password



In the middle section, you can give the device any user device name. This makes it easier to allocate EGS(H) 41 to its place of installation (e.g. “hoist 22”). The device name is limited to 12 characters.

Furthermore, in the second line of the middle section, you can define a new password for access to the configuration. With this password, only an authorized group of users will be able to change the configuration. To verify your authorization, enter the current password in the left box and the new password in the right box.

Press “change” to activate the new password in the device.

The password must be created from the alphanumeric characters a-z, A-Z and 1-9. The maximum length of the password is limited to 12 characters.



## PLEASE NOTE

The password on delivery of EGS(H) 41 is "huebner". Please note that you must enter a new password to protect the configuration from unauthorized changes!

When the factory-set password is changed the padlock symbol at the top of the screen is displayed closed.

To save changes permanently to the device click the 'Save data to device' button.

If an assigned user password has been lost, see chapter 9.1

## 5.4 Delete errors

It is possible to delete displayed error messages in the safety settings section. This also resets the connected device.

If the cause of the error has not been rectified the internal diagnostics displays the error message again after the connected device is reset.

### Load factory settings:

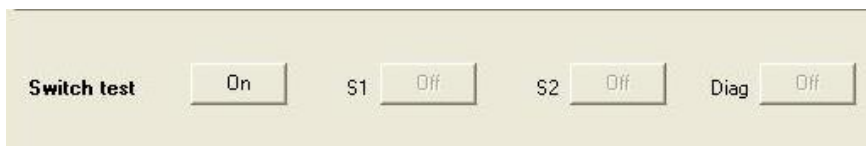
All settings made in the device are returned to the original factory settings.



## CAUTION!

Loading the factory defaults irrevocably overwrites all configuration settings, including the safety settings!

## 5.5 Switching contact test



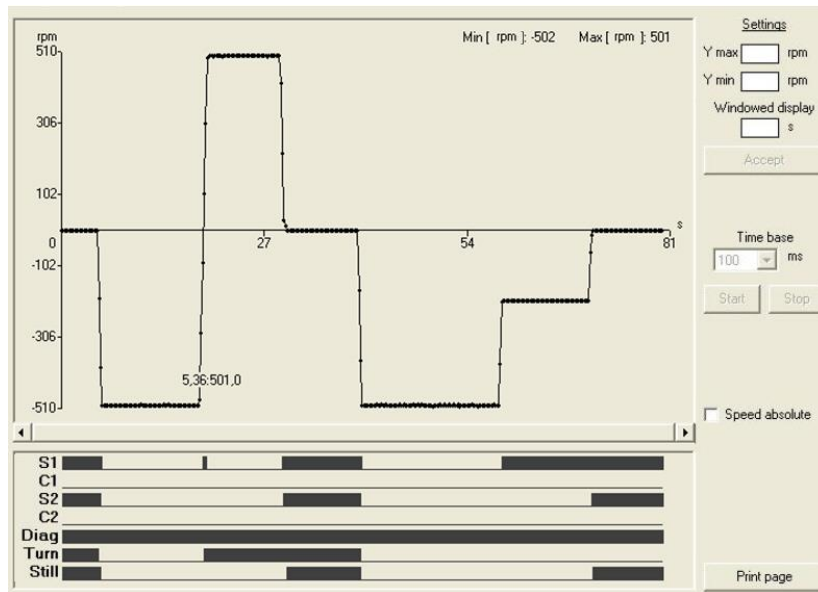
You can test the function of the switching outputs in the connected device in the bottom section.

Set the corresponding outputs directly using the buttons allocated to switching outputs S1, S2 and the diagnosis output Diag.

Press "Reset test" to deactivate the test settings.

You can only carry out the test functions when the device is at a standstill!

## 6 Monitoring screen



These pages are available to all users, as they do not permit any changes to the device settings. Here you will find a graphic user interface based on the functions of an oscilloscope, for observation and analysis of EGS(H) 41's switching behaviour.

### Shown as curves:

The top section shows the current speed of EGS(H) 41 as a curve over time. It also shows the minimum and maximum speeds during the measurement.

The bottom section shows the statuses of switching outputs S1, S2 and diagnosis together with the following binary statuses of the following triggers.

The description is valid for signal representation as binary '1'

S1:	The switching output 1 is closed (ON)
C1:	Status monitoring for switching output 1 has triggered
S2:	The switching output 2 is closed (ON)
C2:	Status monitoring for switching output 2 has triggered
Diag:	The switching output Diag. is closed (ON)
Rotation:	The current direction of rotation is clockwise
Still:	Standstill detected or slip detection triggered

## 6.1 Functions

### Representation scaling:

The input fields for entering values to adapt scaling are located on the right-hand side of the speed graphic.

By entering the appropriate values in the 'Ymax' and 'Ymin' fields you can limit representations in the speed range.

The screenshot shows a configuration window with two sections. The top section is titled 'Settings' and contains three input fields: 'Y max' with a unit of 'rpm', 'Y min' with a unit of 'rpm', and 'Windowed display' with a unit of 's'. Below these fields is an 'Accept' button. The bottom section is titled 'Time base' and contains a dropdown menu showing '100' with a unit of 'ms'. Below this dropdown are 'Start' and 'Stop' buttons.

The "Time rate" value determines the logging rate.

The "Windowed display" button toggles between displaying the complete log and a display with an adjustable window width in which the current speed value is displayed on the right-hand side of the diagram.

Click the 'Accept' button for the settings to take effect.

Click the 'Start' and 'Stop' buttons to start, stop or end the logging procedure.

Once the logging procedure has been completed it is possible to increase the size of individual sections by holding down the left mouse button and dragging the respective window corner. Use a right click to reset the procedure.

## 7 Operating data

Here you can see a summary overview of all settings for the connected EGS(H) 41.

No settings can be adjusted here.

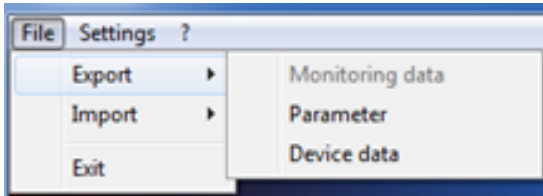
The top section shows all major device settings and the parameters adjusted under “Parameter 2” with their current values.

No.	Error number	Operating hours [h]	Error counter	Error text
1				
2				
3				
4				
5				
6				
7				
8				
9				

The bottom section contains a table showing the last 9 errors with detailed information. (chapter 10). Press “Print page” to trigger a print-out of all data shown on the page including the configuration settings shown in the display section. A Windows® printer must be installed on your computer so that you can make a print-out.

## 8 Pulldown-Menu “file”

With “Export” device data can be saved in the PC and with “Import” device data can be transferred from the PC to the device.



### 8.1 Save monitoring data

“File → Export → Monitoring data” saves the recorded monitoring data (\*.s41) in the PC.

With “file → Import → Monitoring data” the saved data will be displayed on the page monitoring.

This function is only “offline” available.

Also monitoring data can be exported as CSV, in order to edit or process them later with Excel.

### 8.2 Save parameter

“File → Export → Parameter” saves the user parameter (\*.par) in the PC.

With “File → Import → Parameter” the user parameters are loaded into the input forms of EGS41 pro software and can be saved in the device by the user after testing.

The function can also be used for transmission of user parameters to other EGS(H)41 devices.

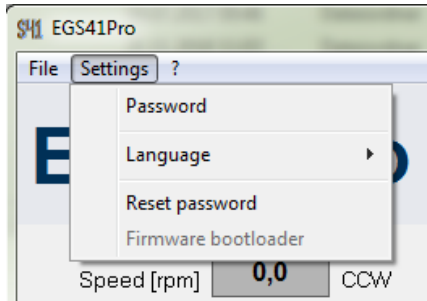
### 8.3 Save device data

“File → Export → Device Data” saves the device data (\*.edt) in the selected folder.

The data can be used by the manufacturer of the device for failure analysis.

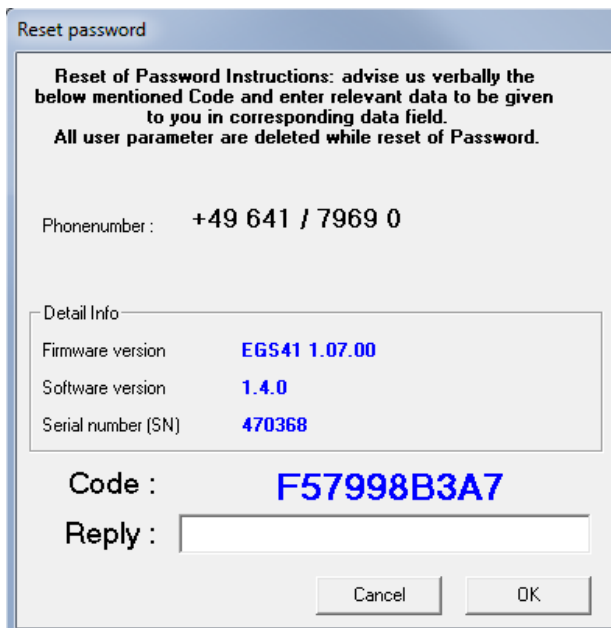
## 9 Pull-down-Menu “Settings”

Here, system settings can be changed.



### 9.1 Reset Password

If a selected user password is lost, you can request by telephone via the menu item “Reset Password” a reset code. With this code the device can be reset to “factory setting”.



#### CAUTION!

By the function “Reset Password” also all parameters are set to factory setting.



## 9.2 Boot loader firmware

With the function “boot loader firmware” the device firmware can be replaced via the USB port. The boot loader is only available from version EGS41 1.07.00.

	PC	Device
Software version	1.4.0	EGS41 1.07.00
Bootloader version	PCBL 1.00.00	PN181-600-1.00.00
Serial number		470368
New firmware version		

To perform an update, you have to inform the manufacturer about the serial number of the device, an email address and recipient's name.

A suitable update file is generated and made available.

A separately sent password releases the file for the update. Prior to the update process with button “examining” will be tested whether the update file is compatible with the device. After a successful test the new firmware can be programmed with “transferred” in the device.

## 10 Error table

Error message	Description
Dg_Intern [FFxx]	Device error
Dg_Iov [0601, FE01]	Overcurrent in the switch 1 or switch 2
Dg_Sw1Dr [0602, FE02]	Broken wire switch 1
Dg_Sw2Dr [0603, FE03]	Broken wire switch 2
Dg_TempMain [0604, FE04]	Overtemperature in device
Dg_TempKK [0605, FE05]	Overtemperature in switch
Dg_Temp230V [0606, FE06]	Overtemperature in power supply unit "Option HV"
Dg_ExtOv [0607, FE07]	Max. permissible supply voltage exceeded
Dg_n_Fatal [0608, FE08]	Non-permissible high speed
Dg_ExtUv [0609, FE09]	Below lowest permissible supply voltage
Error [FExx]	Error
FatalError [FFxx]	Fatal error

### Error category:

#### Error:

The switches S1, S2 and Diag are opened.

- To reset to the normal state interrupt the power supply via the reset input or click 'Delete error' in the software 'EGS41Pro'.

#### Fatal error:

The switches S1, S2 and Diag are opened.

- To reset to the normal state click "Delete error" in the software "EGS41Pro". The 'Delete error' command initiates a restart. If the error persists the device remains in the error state.

The device enters a 'safe state' in the event an error or fatal error occurs. In addition, the error causing the problem is displayed.

## 11 Notes on configuration

It is only possible to configure the device with a single password (user rights: administrator). The factory-set administrator password is: huebner. For reasons of safety it is strongly advised that you create a user-defined password (max. 12 characters). Information on how to change the password is available on page Parameter2.

### 11.1 Switch delay

Activating switch delay leads to increased switch-off speeds when speeds are accelerating in the switching point. Before activating the switch delay ensure the switch-off speed cannot reach dangerously high speeds.

(Note also the determination of the switching error which is described in the operating and assembly instructions electronic overspeed switch EGS®41 EGS®(H)41 basic units).

### 11.2 Delayed overcurrent switch-off

Delayed overcurrent switch-off affects the functioning of the electronic fuse and can lead to the destruction of the switch when very high currents flow.

It is recommended that you install an external back-up fuse.

### 11.3 Slip angle detection

The switch remains open if the switch-off speed is reached within the set slip angle.

### 11.4 Diagnostics output

The diagnostics output is not a safety output.



#### **CAUTION!**

The electrical data of the diagnostics output vary (0...30V DC/max. 50 mA).

