

Operating Instructions

wsafe02

Software for Configuration and Diagnosis
of wenglor Safety Devices

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1. Important Terms

Diagnosis

If the wenglor safety device is permanently connected to a PC via the serial port, all shutdown operations can be recorded along with additional information such as the date of shutdown and the beams which are responsible for shutdown of the safety device. This diagnosis can then be read out as a table.

Configuration

Setting up the functions of the safety device is called configuration. Configuration is carried out with the help of wSafe02 software.

User Authority

The configuration of safety related functions is only accessible to properly trained personnel. Various levels of user authority have thus been established, each of which is assigned its own password. There are three user groups.

Configuration Profile

The configuration profile includes all of the connected safety device's configurable functions. The profile can be saved as a data file, and can be uploaded to the safety device for use.

2. Safety Precaution



Each time the safety device is configured, subsequent testing must be executed in order to determine whether or not switching is performed as desired. Appropriately designed test objects can be used for this purpose.

Safety clearance changes when the “floating blanking”, “auto-floating blanking” and “reduced resolution” modes are used. If necessary, safety clearance must be recalculated and corrected in these operating modes.

Furthermore, a warning lamp must be connected in these modes as well.

Configuration of safety-relevant functions may only be performed by properly trained personnel.

This description does not replace the operating instructions included with wenglor safety devices, which also include descriptions of corresponding functions, as well as the respective safety precautions which must be adhered to.

2.1 Symbols



Identifies suggestions and tips which simplify software use.



Identifies a precaution for the prevention of danger.

3. Intended Purpose and Use

3.1 Target Group

This document is intended for persons who operate and/or maintain wenglor safety devices, or plan for their use in the project engineering stage.

3.2 Function

The software described in this document is used for diagnosis and configuration of bus-compatible wenglor safety devices. It also establishes continuous communication with up to two safety devices.

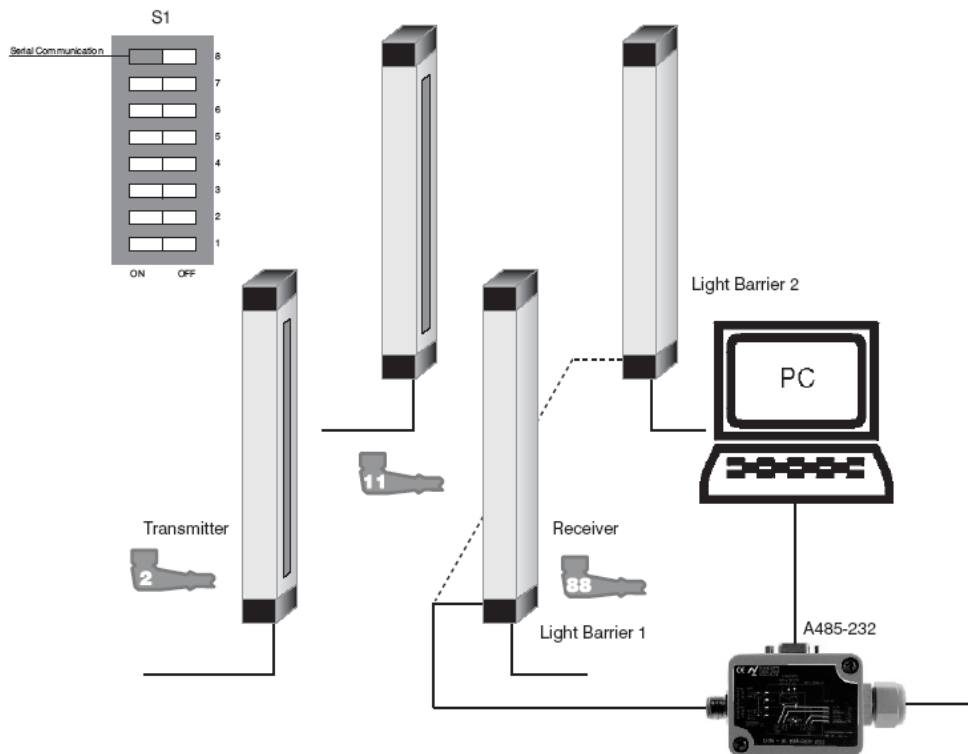
wsafe02 software offers the following configuration options:

- Saving and loading of complete user profiles
- Activation of simple basic functions (functional modes)
- Activation of safety functions (operating modes)
- Recording mode for the identification of parameters
- Read-out of safety device parameters
- User administration
- Diagnosis
- Assignment of device names
- Communication with up to two safety devices
- Online monitoring of the safety field
- Disabling of the DIP switches
- Amplification adjustment

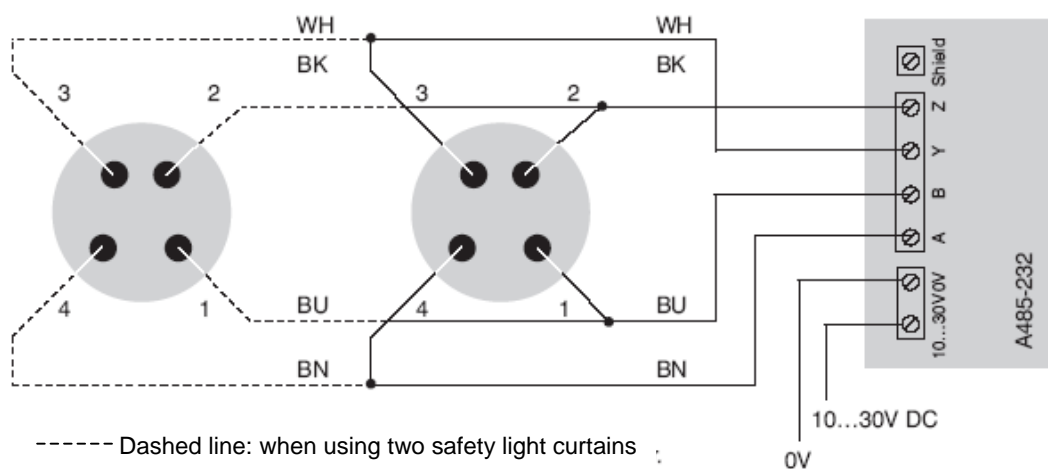
4. Connecting the Components

4.1 Setup

The light barrier receiver is equipped with an RS 485 interface. The A485-232 adapter box can be used for connection to a PC. In order to activate the interface, the “serial communication” DIP switch at the receiver (DIP switch 8) must be set to the “on” position.



4.2 Schematic Diagram



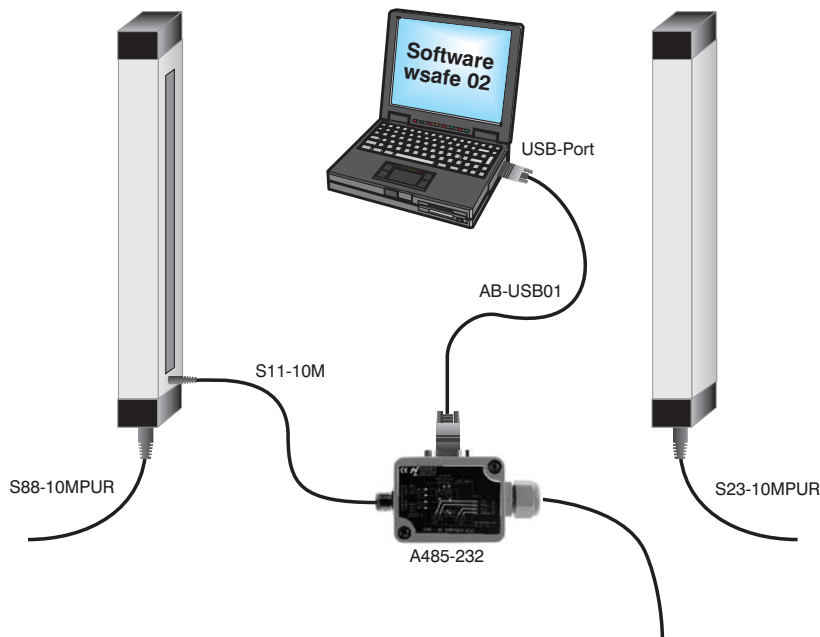
5. Software Installation

5.1 Minimum Requirements

- ➔ Standard Intel Pentium PC, 233 MHz, 64 MB RAM
- ➔ Operating system: MS Windows 95, 98, NT 4.0, 2000 or XP
(Notes for use with Windows 7, view chapter 6.1 Starting the Program)
- ➔ RS 485 (RS 232) serial port (Bus-compatible wenglor® safety devices are equipped with an interface in accordance with the RS 485 specification. If the PC is only equipped with an RS 232 interface, the A485-232 converter can be utilized. USB can be used instead of RS 232, in which case the AB-USB01 connector cable and the driver are required.)



USB cannot be used with MS Windows NT.



5.2 Installation Procedure

- ➔ Execute the setup program: **“Install_wSafe02.exe”**.
 - (www.wenglor.de/Download/Software)

6. Settings and Operation

6.1 Starting the Program

After installation, the program can be started.

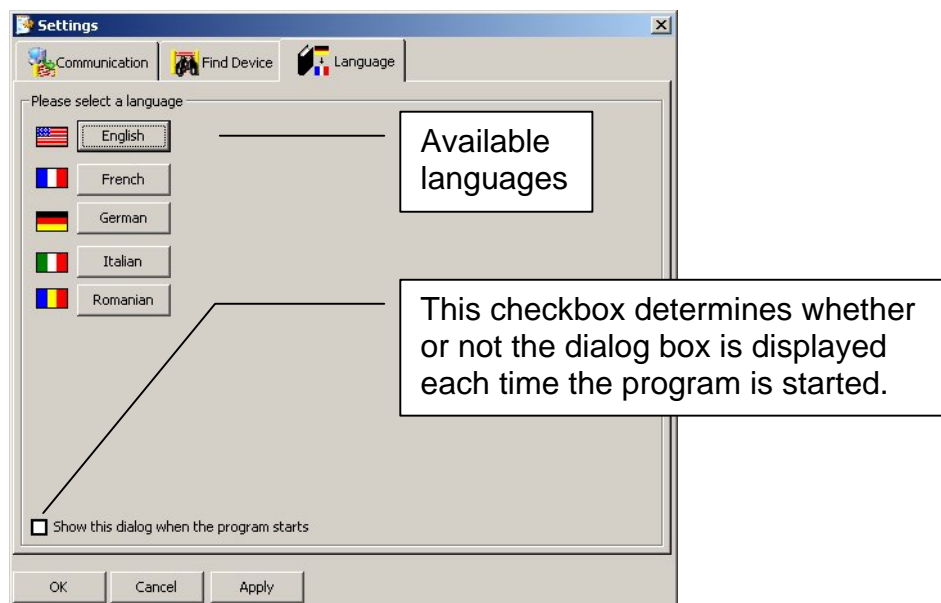
In order to start the software under Windows 7 (64 Bit), proceed as follows:

- Open "Characteristics" (Click right on program)
- Select register "Compability"
- Select Compability Mode "Windows XP (Service Pack 3)" or in security access level "run program as administrator"

The following dialog window opens up "Do you want to allow changes at this computer coming from another operator?". Confirm by clicking "Yes"

6.2 Selecting a Language

After the program has been started for the first time, the following dialog box appears.

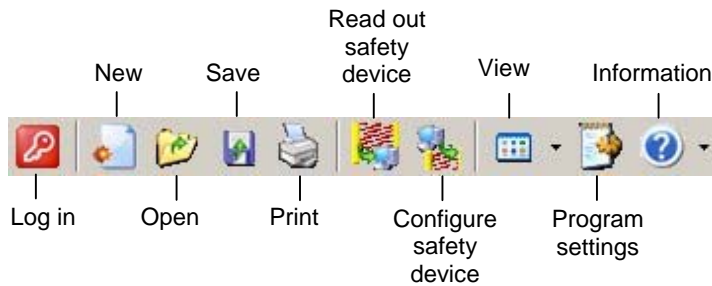


- ➔ Select a language by clicking the appropriate button.
- ➔ Acknowledge your selection with the **OK** button
 - The selected language is activated.

A different language can be selected at any time.

6.3 User Interface for Handling Safety Devices

6.3.1 Toolbar



Commands linked to any buttons which appear in gray are currently unavailable, or your user authority level does not allow for access to these commands.

6.3.2 The Status Line

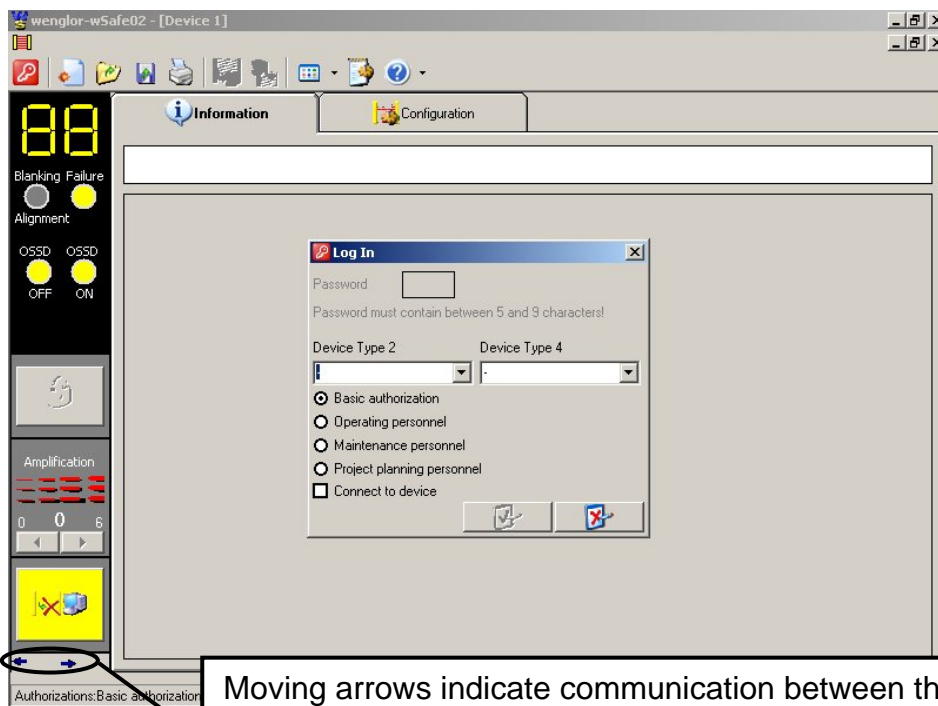
The status line, including details regarding active authorizations, the device name, the serial number and the selected operating mode, appears at the bottom edge of the program window.



6.3.3 New User Interface

→ Open the user interface by clicking the **New** button.

➤ The following user interface with log-in dialog box appears.

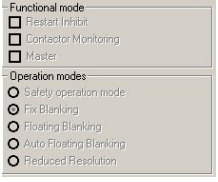
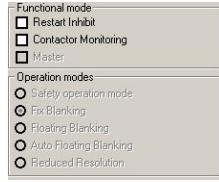
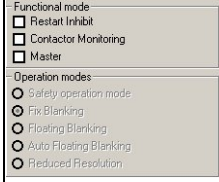
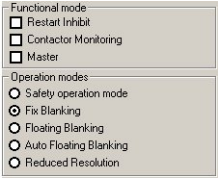


Moving arrows indicate communication between the PC and the safety device.

6.3.4 Log-In Dialog and Operator Authorization

Three different user groups can be set up for software utilization: operating personnel, maintenance personnel and project planning personnel. Each group is assigned to its own authority level. This assures that safety functions, the use of which requires special attention, can only be accessed by persons who have been properly trained.

The operator's authorization level is determined by the operator's input.

	Basic authorization	Operating personnel	Maintenance personnel	Project planning personnel
Display safety field	√	√	√	√
Change address	×	×	×	√
User administration	×	Restricted	Restricted	√
Diagnosis	√	√	√	√
Change functional mode	×	Restricted	√	√
Change operating mode	×	×	×	√
				

Default passwords which are stored the safety device at the factory:

- ➔ Project planning personnel: pass1
- ➔ Maintenance personnel: pass2
- ➔ Operating personnel: pass3

These default passwords can be changed by the user.

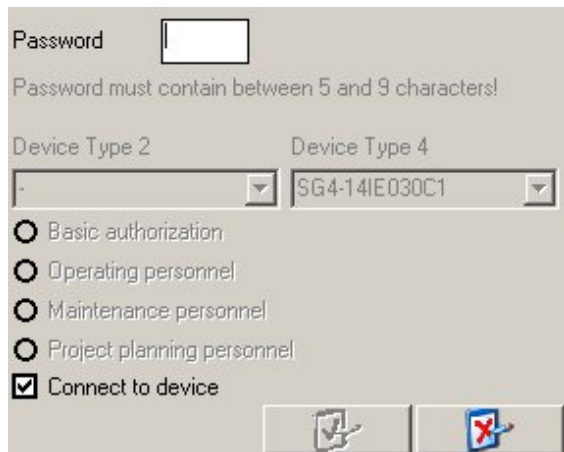
In order to execute functions, the user has to log in.

The following log-in options are available:

- ➔ Log in to the safety device
If you want to query safety device data or write data to the safety device, you have to log in to the connected safety device.
- ➔ Log in offline
If no safety device has been connected, you can select a safety device type and an authorization category.

6.3.4.1 Log In at the Safety Device

- Select **Connect to Safety Device**.
- Enter your password.
- Acknowledge your password.
 - The safety device is read out and data are displayed at the PC according to the current authorization category.



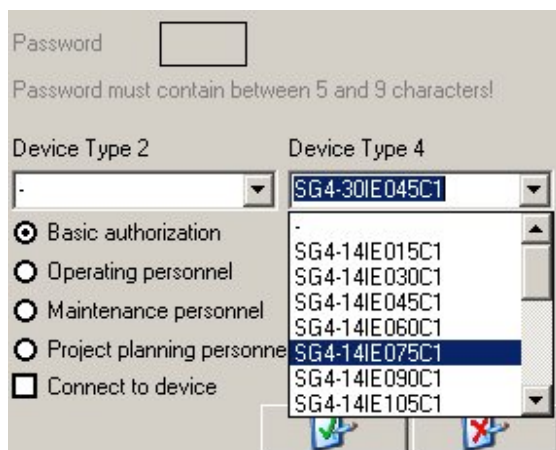
Password
 Password must contain between 5 and 9 characters!

Device Type 2: Device Type 4:

Basic authorization
 Operating personnel
 Maintenance personnel
 Project planning personnel
 Connect to device

6.3.4.2 Log In Offline

- Do not select **Connect to Safety Device**.
- Select a safety device type.
- Select an authorization category.
- Acknowledge your selection.
 - The user interface is displayed according to your selections.



Password
 Password must contain between 5 and 9 characters!

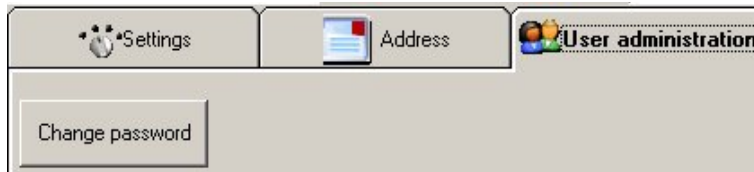
Device Type 2: Device Type 4:

Basic authorization
 Operating personnel
 Maintenance personnel
 Project planning personnel
 Connect to device

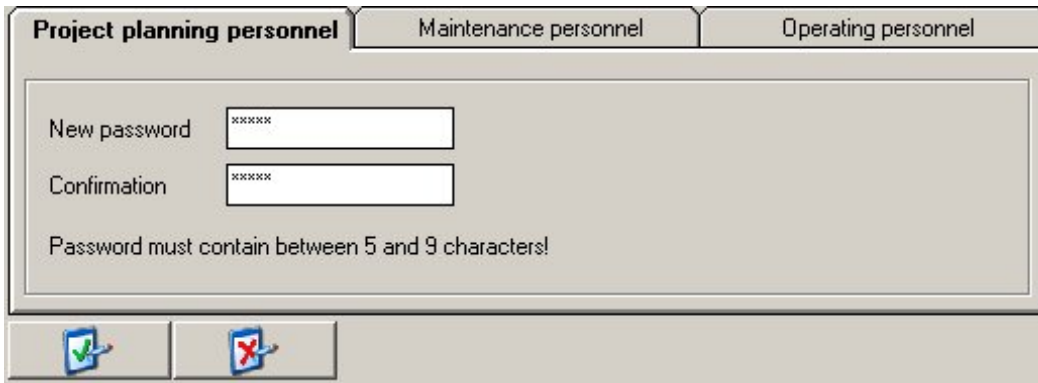
Device Type 4 dropdown list:
 -
 SG4-14IE015C1
 SG4-14IE030C1
 SG4-14IE045C1
 SG4-14IE060C1
 SG4-14IE075C1
 SG4-14IE090C1
 SG4-14IE105C1

6.3.4.3 Changing a Password

→ Click the **User administration** index tab.



→ Click the **Change password** button.
The **Change password** window appears.



- Select the user whose password will be changed.
 - Enter a new password.
 - Confirm the new password.
 - Acknowledge your selections.
 - The password is transmitted to the safety device after confirmation.
 - Click the **Configure Safety Device** button in the toolbar.
- The configuration is transferred to the safety device, which is then rebooted.

The following passwords can be changed, depending upon the authority level with which the user logs in:

	Operating personnel password	Maintenance personnel password	Project planning personnel password
Operating personnel	✓	✗	✗
Maintenance personnel	✓	✓	✗
Project planning personal	✓	✓	✓

6.4 Reading Out a Safety Device

The configuration of the safety device can be read out and displayed at the PC.

→ Click the **Read Out Safety Device** button in the toolbar.



- The safety device is read out and the respective data are displayed at the PC.

6.5 Configuring a Safety Device

All settings made at the PC can be transmitted to the connected safety device.

→ Click the **Configure Safety Device** button in the toolbar.

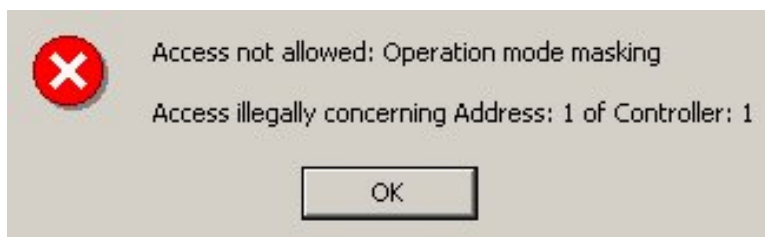


- Data displayed at the PC are transmitted to the safety device and saved.
- The safety device reboots.
 - The safety device is then configured according to the transmitted data.



The safety device can only be configured if the operator is logged in to the safety device, and has the necessary authorization. If an operator attempts to configure a safety device without the necessary authorisation, an error message is displayed.

Example:

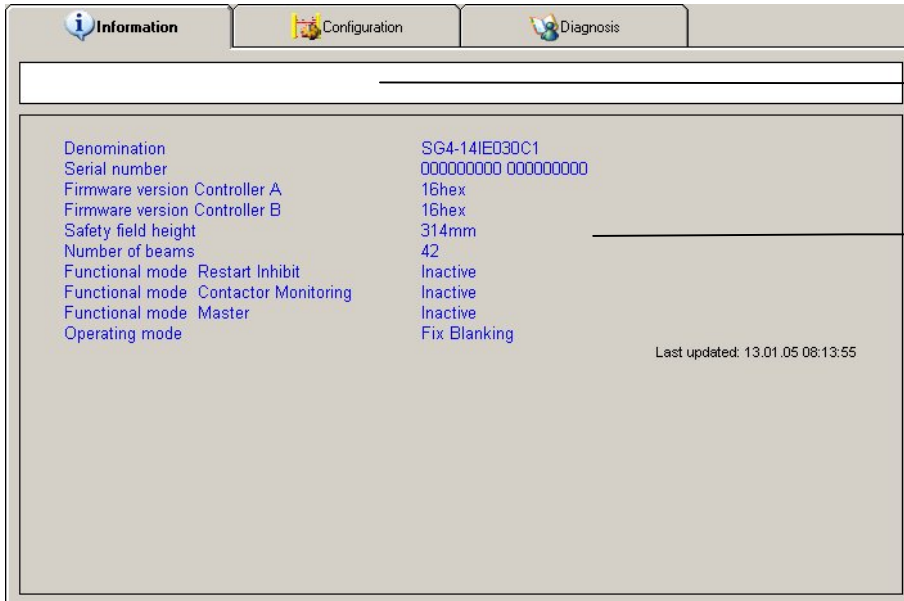


The configuration of the safety device remains unchanged as a result of inadequate authorization.



If communication with the safety device is interrupted, the user has to log in again.

6.6 The Information Index Card

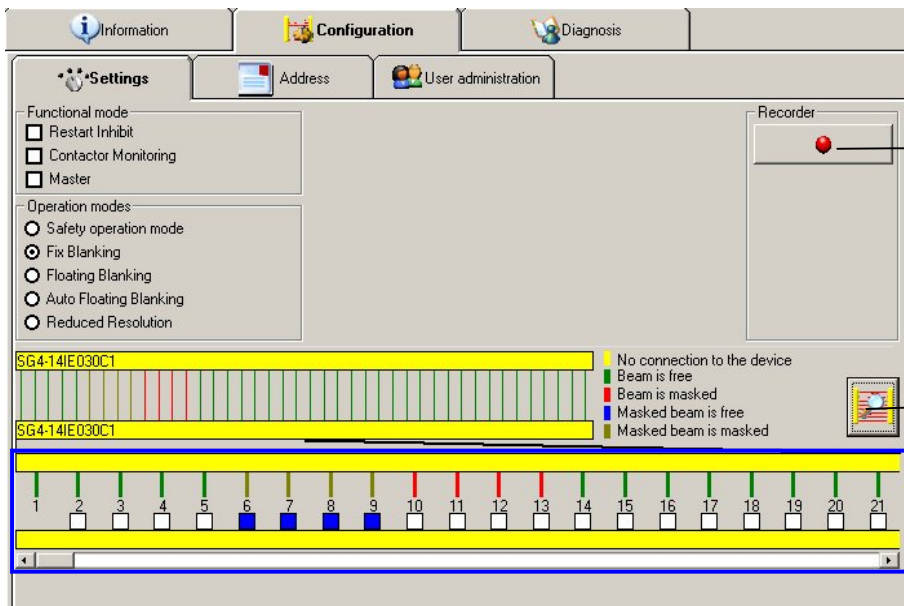


Freely editable comment

Information regarding the safety device in text format

The most important data are listed as an overview in this window. All configuration files can be saved (*.sst data file) or printed.

6.7 The Configuration Index Card



Recording function for ascertaining parameters

Detail view on/off

← Detail view

The most important functions for configuring safety devices are included in this window.

6.8 Displaying Safety Device Data Online

If a safety device is connected, its respective data can be displayed online in an overview. wSafe02 software communicates with the safety device continuously to this end.

Clicking the buttons shown below switches back and forth between the online and the offline display.



The safety device is displayed online at the PC.



The safety device is displayed offline at the PC.

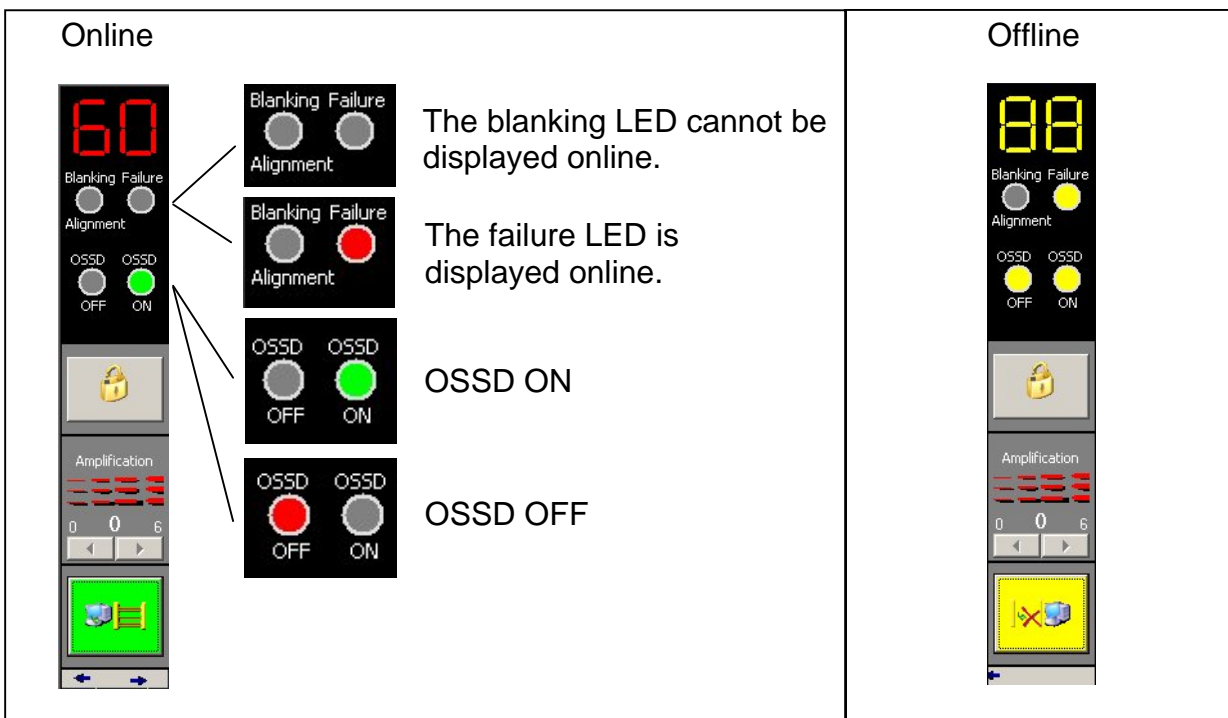
6.8.1 The Safety Field

Different colors indicate the status of the individual beams.



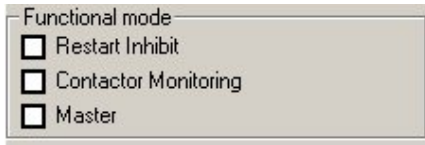
6.8.2 The Operating Unit

Online Display



7. Functional and Operating Modes

7.1 Activating Functional Modes

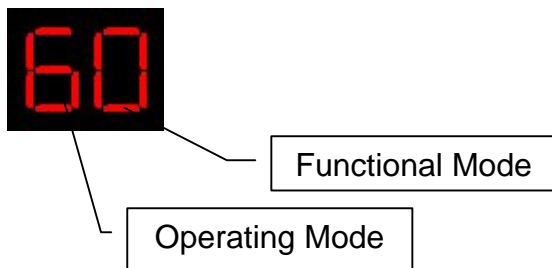


One or more functional modes can be selected. After these settings have been transmitted, the respective functional modes are enabled at the safety device.



Each time the safety device is configured, subsequent testing must be executed in order to determine whether or not switching is performed as desired. Appropriately designed test objects can be used for this purpose.

The current functional mode appears at the display.



Procedure:

- ➔ Activate the desired check box(es).
- ➔ Click the **Configure Safety Device** button in the toolbar.

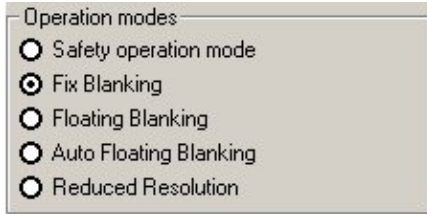


- The configuration is transferred to the safety device, which is then rebooted.



7.2 Configuring the Operating Modes

The following safety-relevant operating modes can be configured.



Configuration of the operating modes necessitates appropriate authorization (see section: “Log-In Dialog and Operator Authorization”).

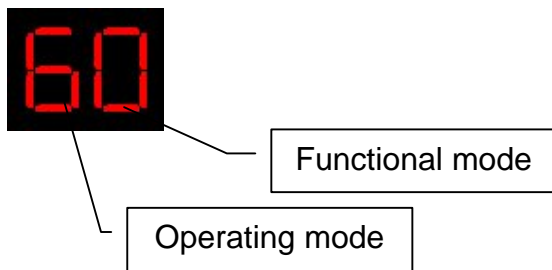


Each time the safety device is configured, subsequent testing must be executed in order to determine whether or not switching is performed as desired. Appropriately designed test objects can be used for this purpose.

Only one operating mode can be selected. Depending on the selected operating mode, it may be necessary to set other parameters as well. These parameters can be input manually, or generated automatically.

Operating mode	Manual input	Automatic input
Safety operating mode	X	X
Fix blanking	√	√
Floating blanking	√	√
Auto-floating blanking	X	√
Reduced resolution	√	√

The current operating mode appears at the display.



7.2.1 Configuring the “Safety Operating Mode”

→ Activate the **Safety operating mode** check box.

→ Click the **Configure Safety Device** button in the toolbar.



➤ The configuration is transferred to the safety device, which is then rebooted.



7.2.2 Configuring the “Fix Blanking” Operating Mode

The fix blanking operating mode can be activated in order to blank out objects which are continuously located in the safety field (masking).



No more than 25% of the total number of beams, or 20 beams, may be blanked. If more beams are masked an error message appears. Configuration is aborted in this case.

7.2.2.1 Manual Configuration

→ Select the **Fix Blanking** operating mode.

→ Move an object into the safety field.

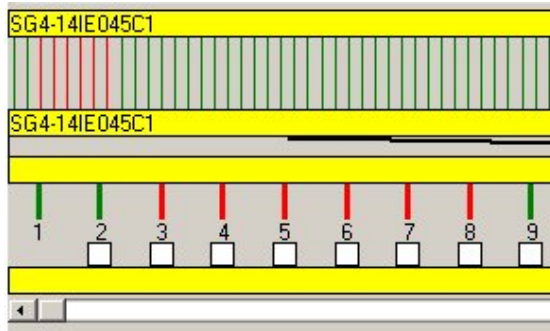
→ Activate the online display function.



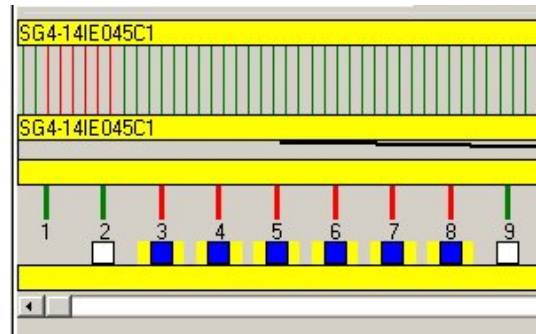
→ Activate the detail view.



→ Select the beams to be masked in the detail view.



One object is located in the safety field.



This object will be masked. The effected beams are selected to this end. The selected beams are highlighted in yellow, because the current configuration of the safety device differs from the configuration in the program.

→ Click the **Configure Safety Device** button in the toolbar.



➤ The configuration is transferred to the safety device, which is then rebooted.



7.2.2.2 Automatic Configuration

→ Select the **Fix Blanking** operating mode.

→ Move an object into the safety field.

→ Click the **Recording** button.

- The online display function is activated.
- The beams which are masked by the object are marked.



→ Activate the detail view if necessary (optional).



→ End recording by clicking the **Stop** button.

- The online display function is exited.



→ Click the **Configure Safety Device** button in the toolbar.



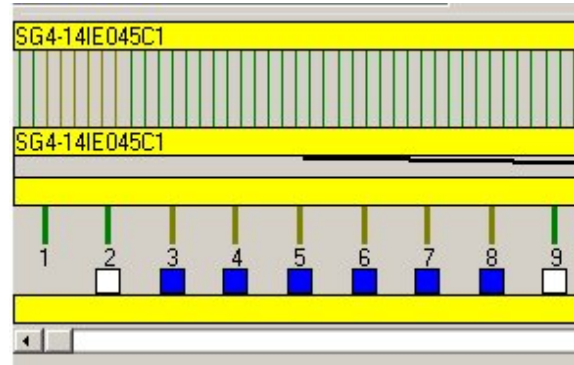
➤ The configuration is transferred to the safety device, which is then rebooted.



7.2.2.3 Status After Booting

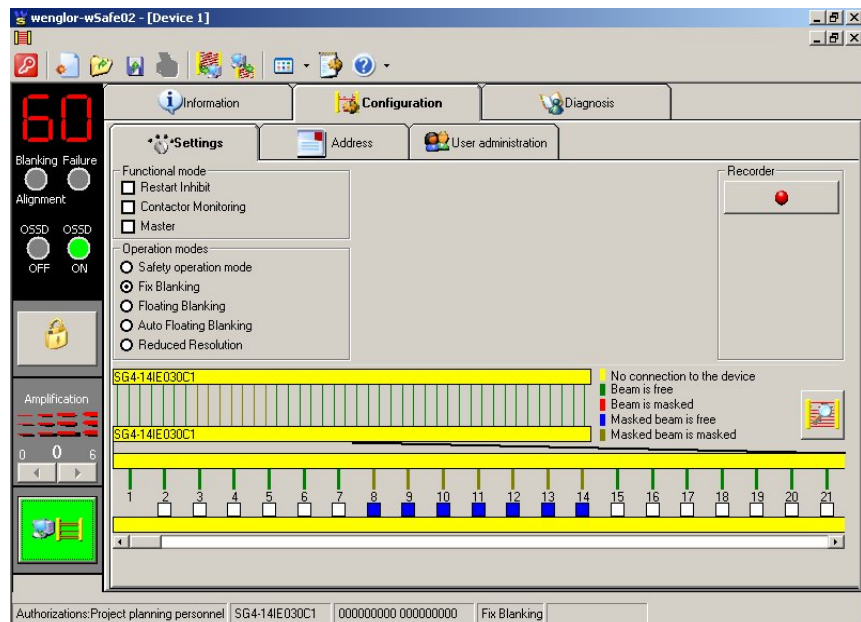
After transmitting the configuration to the safety device, the masked beams appear as blue boxes. The safety device has been set to the fix blanking operating mode.

Current safety device settings are identical to those of the program. The selected beams are not highlighted in yellow.



Test the shutdown function of the safety device with dedicated test objects.

Example:



7.2.3 Configuring the “Floating Blanking” Operating Mode

The floating blanking mode can be activated to blank out a moving object which is continuously located in the safety field (masking).



No more than 25% of the total number of beams, or 20 beams, may be blanked. No more than 3 objects may be located in the safety field. If more beams are selected an error message appears. Configuration is aborted in this case.



Safety clearance changes when this operating mode is used. If necessary, safety clearance must be recalculated and corrected.

A warning lamp must also be connected.

→ Refer to the operating instructions for the safety device.

7.2.3.1 Manual Configuration

→ Select the **Floating Blanking** operating mode.

→ Move an object into the safety field.

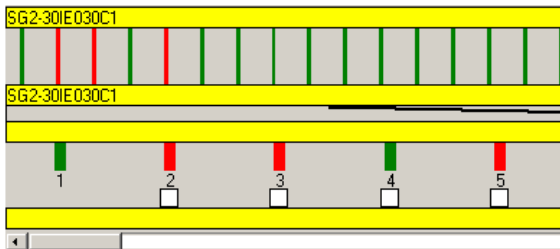
→ Activate the online display function.



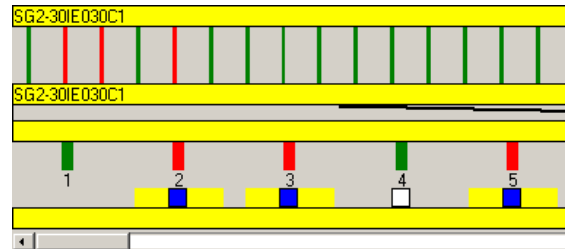
→ Activate the detail view.



→ Select the beams to be masked in the detail view.



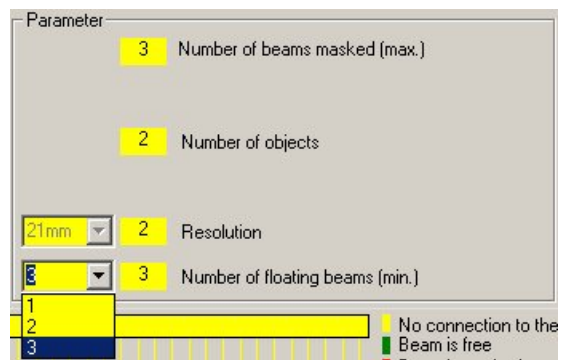
Two objects are located in the safety field.



These objects will be masked. The effected beams are selected to this end. The selected beams are highlighted in yellow, because the current configuration of the safety device differs from the configuration in the program.

→ If necessary, adjust the parameter for the number of floating beams (min.)

→ Don't forget that only a limited selection is possible.



→ Click the **Configure Safety Device** button in the toolbar.



➤ The configuration is transferred to the safety device, which is then rebooted.



7.2.3.2 Automatic Configuration

- ➔ Select the **Floating Blanking** operating mode.
- ➔ Move an object into the safety field.
- ➔ Click the **Recording** button.
 - The online display function is activated.
 - The beams which are masked by the object are marked.
 - Repeatedly move the objects slowly back and forth, and advance them to all future positions.



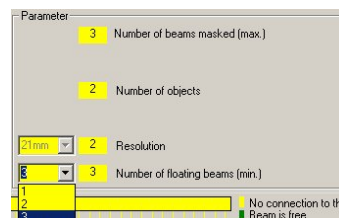
- ➔ Activate the detail view if necessary (optional).



- ➔ End recording by clicking the **Stop** button.
 - The online display function is exited.



- ➔ Double check the parameters for the number of objects, the number of blanked beams, and resolution.
- ➔ Double check the parameter for the number of floating beams (min.), and adjust if necessary.



- ➔ Click the **Configure Safety Device** button in the toolbar.



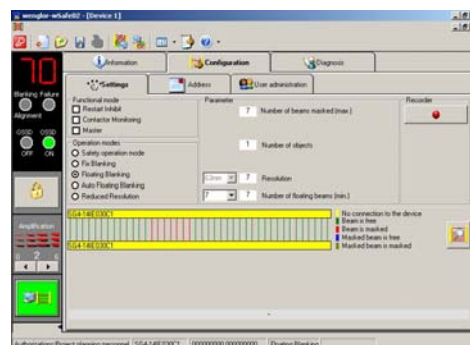
- The configuration is transferred to the safety device, which is then rebooted.



7.2.3.3 Status after Booting

After transmitting the configuration to the safety device, the safety field is displayed. Blanked beams are displayed in red.

Current safety device settings are identical to those of the program. The selected beams are not highlighted in yellow.



Test the shutdown function of the safety device with dedicated test objects.

7.2.4 Configuring the “Auto-Floating Blanking” Operating Mode

The auto-floating blanking mode can be activated for moving objects which are located in the safety field, and which leave the safety field at defined intervals. Maximum floating time must be specified in this case, i.e. time during which the object is located in the safety field.



No more than 25% of the total number of beams, or 20 beams, may be blanked. No more than 1 object may be located in the safety field. If more beams are selected an error message appears. Configuration is aborted in this case.



Safety clearance changes when this operating mode is used. If necessary, safety clearance must be recalculated and corrected. A warning lamp must also be connected.
 → Refer to the operating instructions for the safety device.

7.2.4.1 Manual Configuration

Manual configuration is not supported.

7.2.4.2 Automatic Configuration

→ Select the **Auto-Floating Blanking** operating mode.

→ Move an object into the safety field.

→ Click the **Recording** button.

- The online display function is activated.
- The beams which are masked by the object are marked.
- Repeatedly move the objects slowly back and forth, and advance them to all future positions.



→ Activate the detail view if necessary (optional).



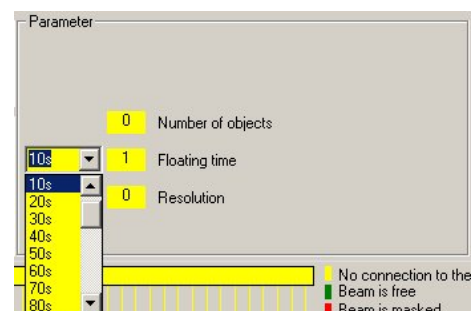
→ End recording by clicking the **Stop** button.

- The online display function is exited.



→ Adjust the parameter for floating time.

→ Double check the parameters for the number of objects and resolution.



→ Click the **Configure Safety Device** button in the toolbar.



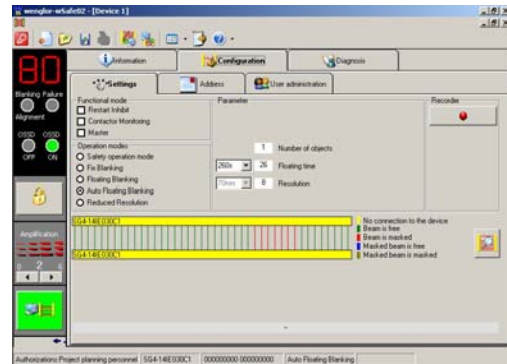
- The configuration is transferred to the safety device, which is then rebooted.



7.2.4.3 Status after Booting

After transmitting the configuration to the safety device, the safety field is displayed. Blanked beams are displayed in red.

Current safety device settings are identical to those of the program. The selected beams are not highlighted in yellow.



Test the shutdown function of the safety device with dedicated test objects.

7.2.5 Configuring the “Reduced Resolution” Operating Mode

Reduced resolution can be activated to blank out an object of a certain size, which is located in the safety field.



The size of the objects which can be blanked out is limited. If objects selected for automatic configuration are too large, an error message is displayed. Configuration is aborted in this case.



Safety clearance changes when this operating mode is used. If necessary, safety clearance must be recalculated and corrected.

A warning lamp must also be connected.

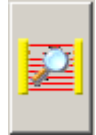
→ Refer to the operating instructions for the safety device.

7.2.5.1 Manual Configuration

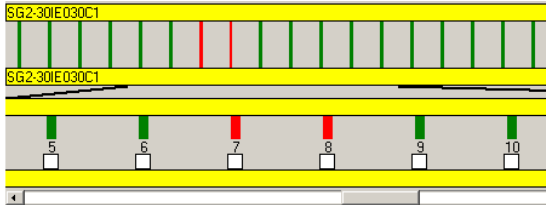
- Select the **Reduced Resolution** operating mode.
- Move an object into the safety field.
- Activate the online display function.



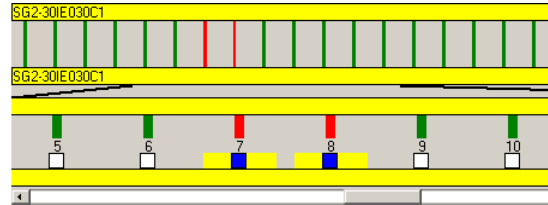
→ Activate the detail view.



→ Select the beams to be masked in the detail view.

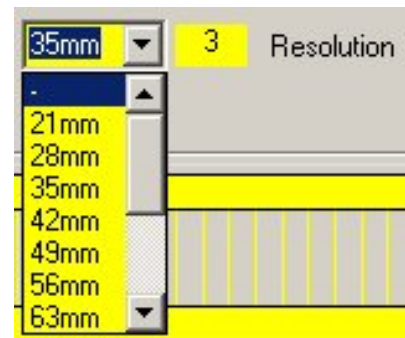


The object blanks 2 beams.



These objects will be masked. The effected beams are selected to this end. The selected beams are highlighted in yellow, because the current configuration of the safety device differs from the configuration in the program.

→ Double check the resolution parameter, and adjust if necessary.



→ Click the **Configure Safety Device** button in the toolbar.



➤ The configuration is transferred to the safety device, which is then rebooted.



7.2.5.2 Automatic Configuration

→ Select the **Reduced Resolution** operating mode.

→ Move an object into the safety field.

→ Click the **Recording** button.

- The online display function is activated.
- The beams which are masked by the object are marked.
- Repeatedly move the objects slowly back and forth, and advance them to all future positions.



→ Activate the detail view if necessary (optional).

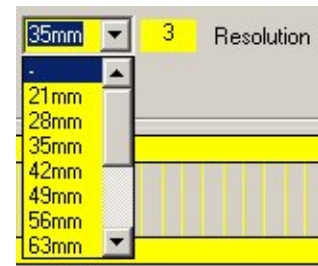


→ End recording by clicking the **Stop** button.

- The online display function is exited.



→ Double check the resolution parameter, and adjust if necessary.



→ Click the **Configure Safety Device** button in the toolbar.



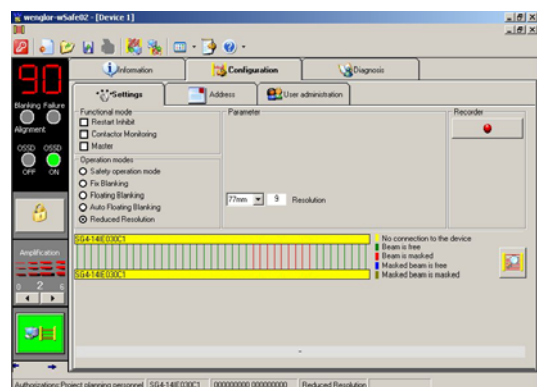
- The configuration is transferred to the safety device, which is then rebooted.



7.2.5.3 Status after Booting

After transmitting the configuration to the safety device, the safety field is displayed. Blanked beams are displayed in red.

Current safety device settings are identical to those of the program. The selected beams are not highlighted in yellow.



Test the shutdown function of the safety device with dedicated test objects.

8. Further Settings

8.1 Adjusting Receiver Sensitivity

→ Click the **Increase Amplification** button or the **Decrease Amplification** button.



→ Click the **Configure Safety Device** button in the toolbar.



➤ The configuration is transferred to the safety device, which is then rebooted.



Amplification should only be set high enough to assure proper functioning of the safety device.

8.2 DIP Switches

If the **DIP Switch Locking** button is activated, the safety device can only be configured via the serial interface. This assures reliable protection against manipulation. If the **DIP Switch Unlocking** button is activated, the DIP switches can once again be used to configure the safety device.

8.2.1 Locking

→ Click the **DIP Switch Locking** button.



→ Click the **Configure Safety Device** button in the toolbar.



➤ The configuration is transferred to the safety device, which is then rebooted.



8.2.2 Unlocking

→ Click the **DIP Switch Unlocking** button.



→ Click the **Configure Safety Device** in the toolbar button.



➤ The configuration is transferred to the safety device, which is then rebooted.



8.3 Changing the Address

If two sensors are connected to the PC via the bus, each sensor must be assigned its own unique address.

→ Click the **Address** index tab.

→ Select the desired address from the list.



→ Click the **Configure Safety Device** button in the toolbar.

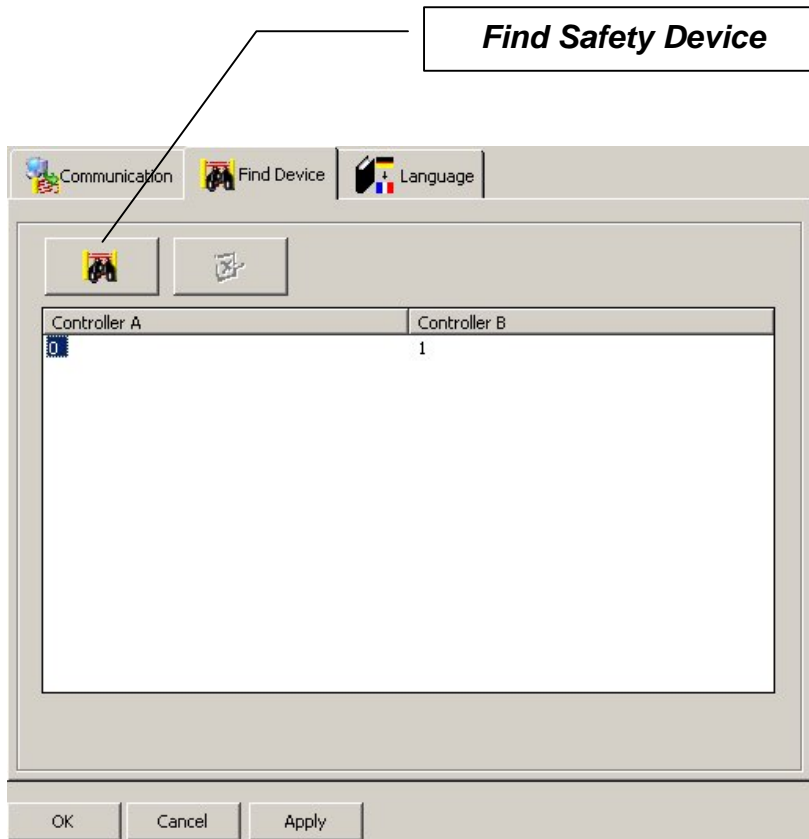


➤ The configuration is transferred to the safety device, which is then rebooted.



8.4 Finding the Safety Device

If the address of the safety device is unknown, it can be found with the help of the **Find Safety Device** function in the **Settings** dialog box.



8.5 Entering New Passwords



A code can be obtained from wenglor product support which allows the user to return passwords or the device type to their default settings (pass1, pass2, pass3).

The designation of computer system time, the type of utilized safety device and the serial number are required to this end.

9. Using Data Files

9.1 Saving a Configuration to a Data File

- Click the **Information** index tab.
- Enter a comment, e.g. "light barrier at check system check03".



- Click the **Save as** button in the toolbar.



- The dialog box for saving data files appears.
- Enter the directory path and the file name.
- Click the **Save** button.
 - The configuration is saved as an *.sst file.

9.2 Loading a Configuration from a Data File

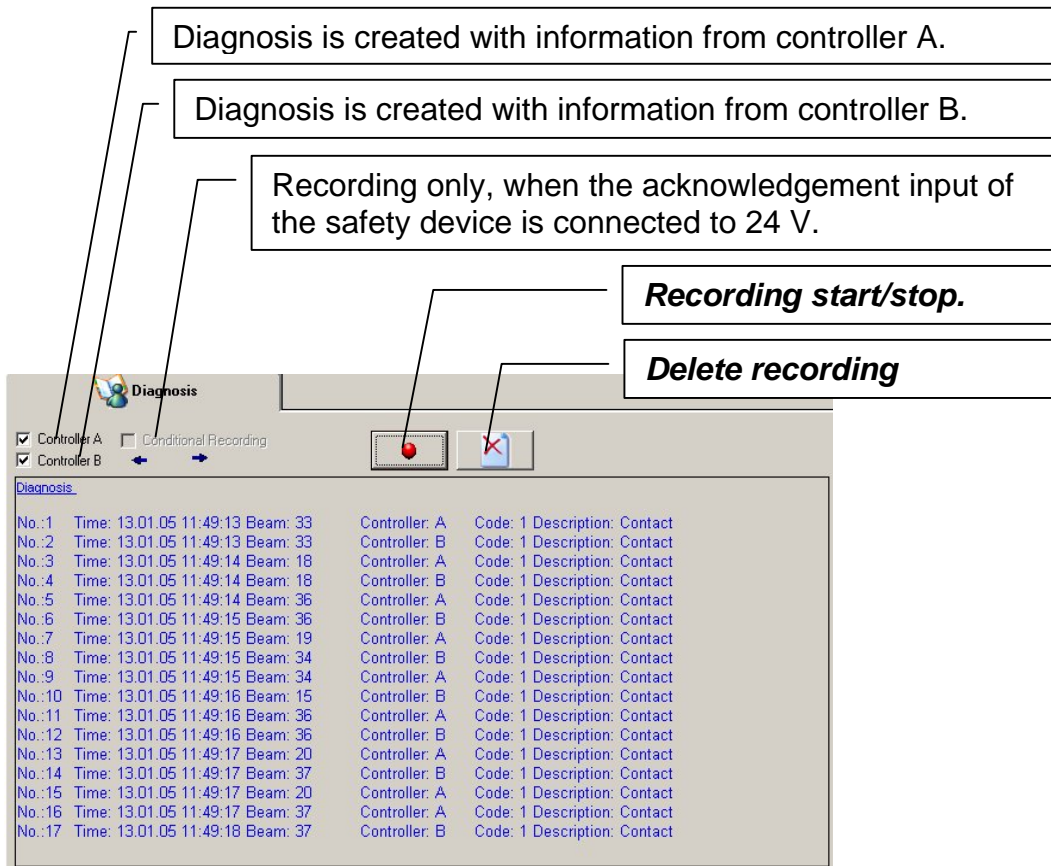
- Click the **Open** button in the toolbar.



- Select a configuration file.
- Click the **Open** button.
- Log in.
 - The configuration file is displayed

10. Diagnosis

In order to generate a diagnosis, an online connection to the wenglor safety device must be established.



Diagnosis is created with information from controller A.

Diagnosis is created with information from controller B.

Recording only, when the acknowledgement input of the safety device is connected to 24 V.

Recording start/stop.

Delete recording

Diagnosis

Controller A Conditional Recording
 Controller B ← →

Diagnosis

No.:1	Time: 13.01.05 11:49:13	Beam: 33	Controller: A	Code: 1	Description: Contact
No.:2	Time: 13.01.05 11:49:13	Beam: 33	Controller: B	Code: 1	Description: Contact
No.:3	Time: 13.01.05 11:49:14	Beam: 18	Controller: A	Code: 1	Description: Contact
No.:4	Time: 13.01.05 11:49:14	Beam: 18	Controller: B	Code: 1	Description: Contact
No.:5	Time: 13.01.05 11:49:14	Beam: 36	Controller: A	Code: 1	Description: Contact
No.:6	Time: 13.01.05 11:49:15	Beam: 36	Controller: B	Code: 1	Description: Contact
No.:7	Time: 13.01.05 11:49:15	Beam: 19	Controller: A	Code: 1	Description: Contact
No.:8	Time: 13.01.05 11:49:15	Beam: 34	Controller: B	Code: 1	Description: Contact
No.:9	Time: 13.01.05 11:49:15	Beam: 34	Controller: A	Code: 1	Description: Contact
No.:10	Time: 13.01.05 11:49:16	Beam: 15	Controller: B	Code: 1	Description: Contact
No.:11	Time: 13.01.05 11:49:16	Beam: 36	Controller: A	Code: 1	Description: Contact
No.:12	Time: 13.01.05 11:49:16	Beam: 36	Controller: B	Code: 1	Description: Contact
No.:13	Time: 13.01.05 11:49:17	Beam: 20	Controller: A	Code: 1	Description: Contact
No.:14	Time: 13.01.05 11:49:17	Beam: 37	Controller: B	Code: 1	Description: Contact
No.:15	Time: 13.01.05 11:49:17	Beam: 20	Controller: A	Code: 1	Description: Contact
No.:16	Time: 13.01.05 11:49:17	Beam: 37	Controller: A	Code: 1	Description: Contact
No.:17	Time: 13.01.05 11:49:18	Beam: 37	Controller: B	Code: 1	Description: Contact

The results of the diagnosis can be printed out or saved as a *.wdia file.