

# Configuration Tool for CEDES Light Curtains

Software to configure and diagnose the CEDES Safety und Automation Products  
Safe2+, Safe4, Safe200, Safe400 and Object100



English

**Content**

**1. Important notice ..... 2**  
**2. Introduction ..... 3**  
 2.1 Special Features ..... 3  
**3. Installation..... 3**  
 3.1 Preparation ..... 3  
 3.2 Operating Systems ..... 3  
 3.3 Installation Software Configuration Tool ..... 3  
 3.4 Installation USB driver for OptiLink ..... 5  
 3.4.1 Successful driver installation ..... 6  
 3.5 Program start ..... 6  
**4. Optilink..... 7**  
**5. Configuration Tool for light curtains ..... 7**  
 5.1 Welcome window ..... 7  
 5.2 Main window ..... 7  
 5.2.1 System Designer ..... 8  
 5.2.2 Order form..... 9  
 5.2.3 Application Info ..... 9  
 5.2.4 Diagnosis ..... 10  
 5.3 Menu Options ..... 12  
 5.3.1 User registration ..... 12  
 5.3.2 Update reference list ..... 13  
 5.3.3 Exit ..... 13  
 5.4 Part number and order code ..... 14

This manual refers to the Software Configuration Tool V4.30 and later Versions.

**1. Important notice**

**⚠ Important safety advice:**  
 CEDES safety and automation products can only achieve their function as a safety controller module, if the instructions given in this instruction manual and the within mentioned documents are exactly followed, as well as consulting the valid laws and regulations at the time of installation.  
 Should these instructions not be carefully followed, serious injury or death may occur. The installer or system integrator will be fully responsible for a safe integration of this product. In this case CEDES, or any other party who may have distributed the software will not be liable for any damages.  
 All details reported by the program are for guidance only. CEDES does not give any warranty for calculations, general information, prices or technical details about correctness and completeness.  
 In the interests of continual technical advancement, CEDES reserve the right to amend the specification of the products and of the prices detailed in this software without prior notice. For further information contact the CEDES head quarter or your nearest CEDES distributor.  
 This software is provided "as is" without warranty of any kind either expressed or implied, including but not limited to the implied warranties merchantability and fitness for a particular purpose. The entire risk as to the quality and performance of the product is with you. Should the product prove defective, you assume the cost of all necessary servicing or error correction. CEDES does not warrant that the functions contained in the software will meet your requirements or that the operation of the software will be uninterrupted or error free.  
 In no event shall CEDES, or any other party who may have distributed the software as permitted above, be liable for damages, including any general, special, incidental, or consequential damages arising out of the use or inability to use the software (including but not limited to loss of data or data being rendered inaccurate or losses sustained by you or third parties or failure of the software to operate with any other products), even if such holder or other party has been advised of the possibility of such damages.

TÜV Rheinland Product Safety GmbH, has tested the functions and the safety relevant adjustment possibilities of this software, and confirmed the basic correct functioning of all adjustment possibilities.

**Remark:**  
 Obviously this program could not be tested with every type of computer or operating system. For that reason every result has to be proved for plausibility. Every calculation of this program is based on standards EN 999 (1998) and EN 61496-2. Special applications with their specific standards as well as country specific directions are not taken into account. Therefore the user is responsible for the application of this program.

## 2. Introduction

The software "Configuration Tool" developed by CEDES is designed for the most varying of applications. It can be used as a truly active work-instrument by technicians, safety experts, maintenance personnel, designers, process controllers as well as purchase managers.

The program is used firstly to configure the CEDES safety and automation products. It guides the user to define a CEDES light curtain and get the order code and part number. Secondly, the program offers diagnosis functions together with the "OptiLink".

This software description manual covers the following CEDES light curtains:

- Safety light curtain Safe2+
- Safety light curtain Safe4
- Safety light curtain Safe200
- Safety light curtain Safe400
- Light curtain Object100

The Configuration Tool for CEDES safety control units is covered by the manual 105 784 "Configuration Tool Controller". With the help of this software, functions like start method (automatic, manual, or two-hand), stop delay, Blanking, EDM, and "Safety prevention" can be chosen easily and configured. The configurations of the following products are described:

- Safety Relay SafeCIS3
- Safety Relay SafeC 200 xx
- Safety Relay SafeC 400 xx

The software is an excellent tool where technical data and various application information of all the different systems is obtained in seconds. Use this software as an active work-instrument and you will be impressed by the large range of possibilities the CEDES Safety systems offer.

### 2.1 Special Features

The outstanding features of the Configuration Tool are:

- Simple installation
- Simple graphical user interface
- Easy to use
- No programming knowledge necessary
- Diagnosis tool integrated
- Detailed safety information integrated
- OptiLink communication software included
- Enables process control
- Optimize maintenance services
- Order generation by mouse click
- Comfortable design of more than 14,000,000 light curtains
- Visual indication of terminal assignment
- TÜV certificated application info
- Internet and e-mail suitable
- Free download at [www.cedes.com](http://www.cedes.com)

## 3. Installation

### 3.1 Preparation

#### Important notice:

**Before connecting the USB OptiLink to the computer the software Configuration Tool has to be installed (see Chapter 3.3).**

During installation the USB driver software is copied to the hard disk. After this the USB OptiLink can be connected to the computer and the driver software installed according Chapter 3.4.

Before installation of the newest version of the Configuration Tool, CEDES recommends that the previous versions be uninstalled. This is carried out using the following link:

**Windows-Start - Program - CEDES - SAFETY - Safety Configurator Additional - Uninstall CEDES Configuration Tool**

Make sure that all programs active in the background on your PC are shut down. These may disturb the correct "Set up" installation of the Configuration Tool.

### 3.2 Operating Systems

The Configuration Tool works on the following operating systems:

Windows 2000  
Windows XP SP1, SP2

### 3.3 Installation Software Configuration Tool

Start installation with the following link

**setupConfigurationTool\_Vxxx.exe**

The program can be found on the CEDES Safety & Automation CD (103 828, supplied with each OptiLink), or downloaded free of charge from [www.cedes.com](http://www.cedes.com).

Follow the instructions of the setup program (Figures 1-15). This manual refers to the proposed settings of the setup program. Using the blue marked buttons leads to a successful installation of the Configuration Tool.

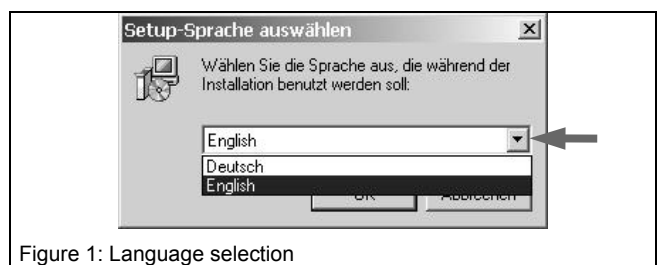


Figure 1: Language selection

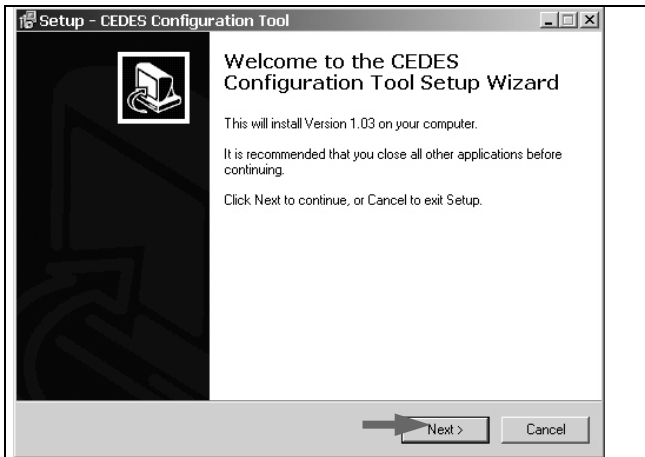


Figure 2: Welcome window for installation

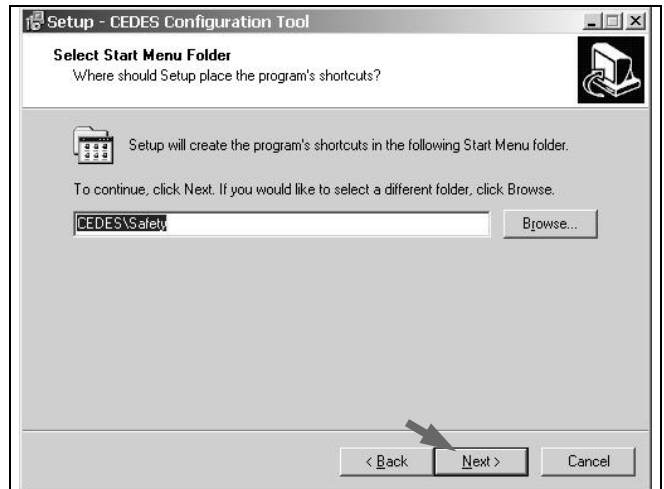


Figure 5: Select the start menu folder

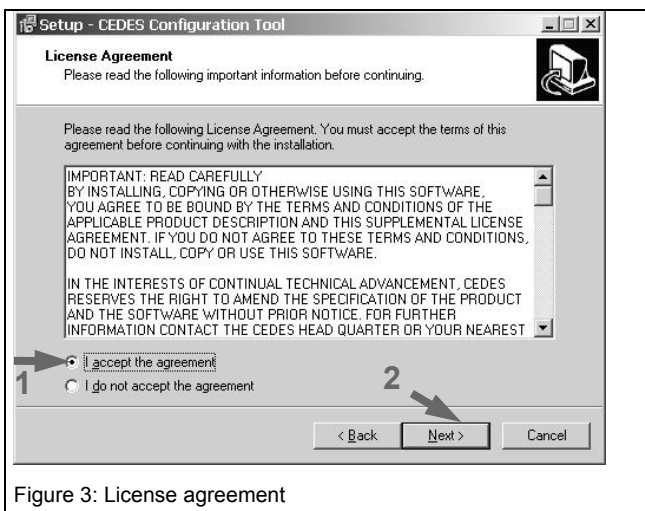


Figure 3: License agreement

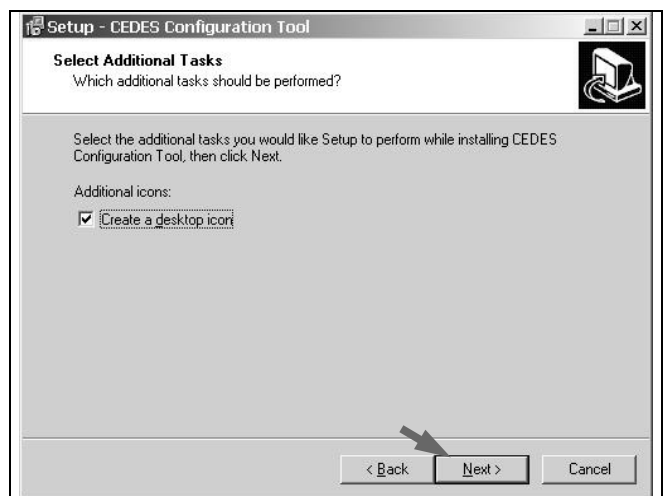


Figure 6: Create desktop symbol

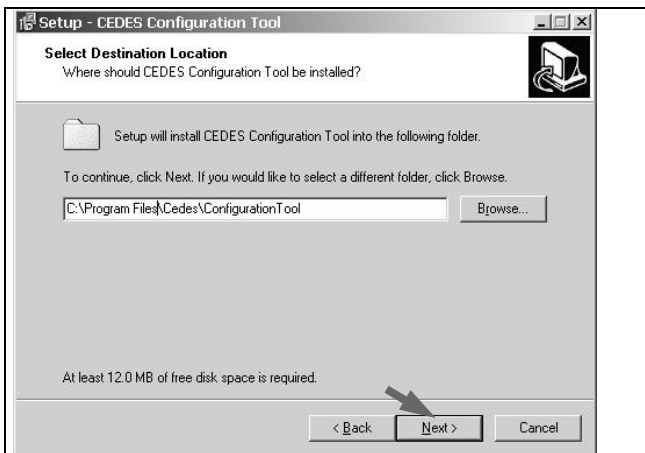


Figure 4: Select target folder of installation  
(Default: C:\Program Files\Cedes\ConfigurationTool)

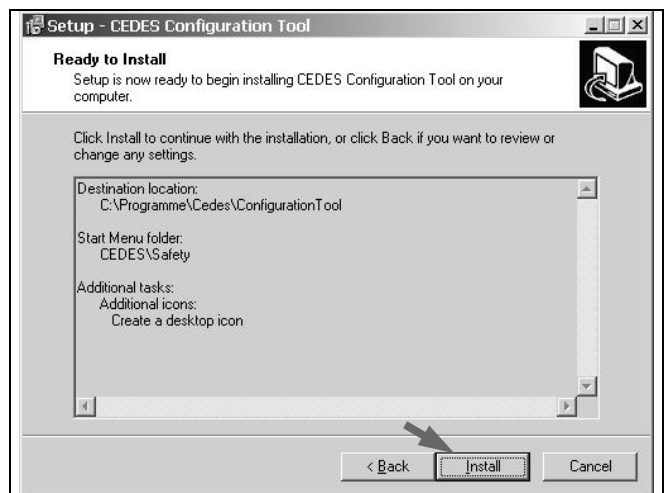


Figure 7: Run installation

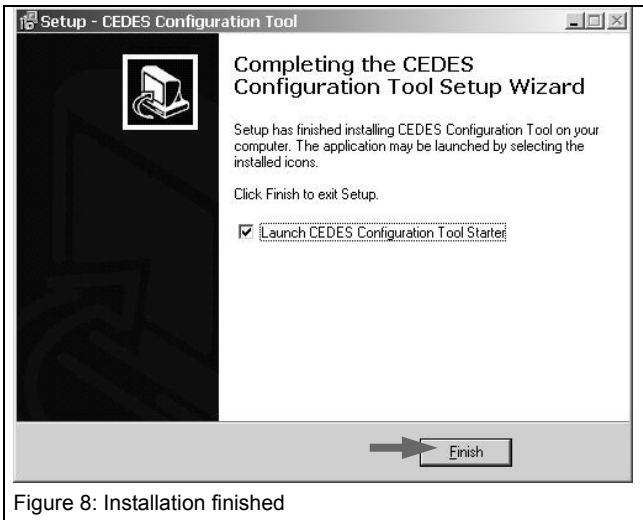


Figure 8: Installation finished

### 3.4 Installation USB driver for OptiLink

In case there is already installed a driver on your computer, it has to be uninstalled (Windows-Start, Settings, Control panel, Software, select driver software, press remove).

Connect the USB OptiLink to your computer. The following window pops up automatically (Figure 9). Depending on the Windows operating system the message can be slightly different. Select 'No, not this time' (when selectable) and click 'Next'.

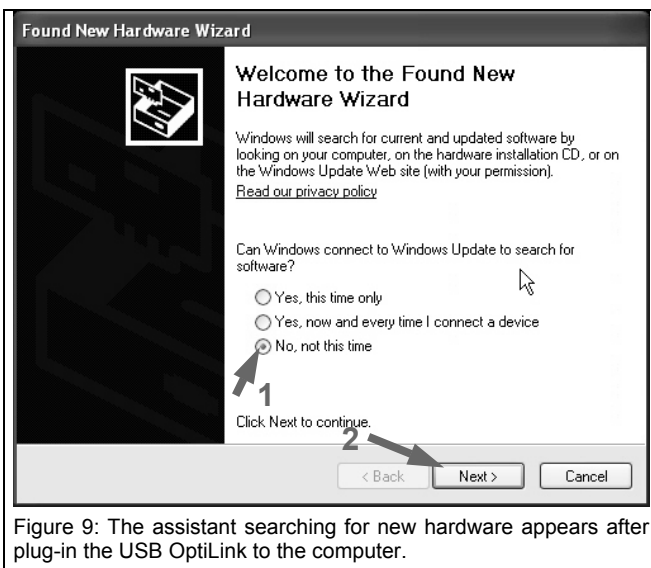


Figure 9: The assistant searching for new hardware appears after plug-in the USB OptiLink to the computer.

Run the next step dependant upon your operating system:

- Windows2000: select 'search for driver (recommended)' and press 'continue' then select 'Other Source'
- Windows XP: Select 'Install software from a list' and press continue (Figure 10).

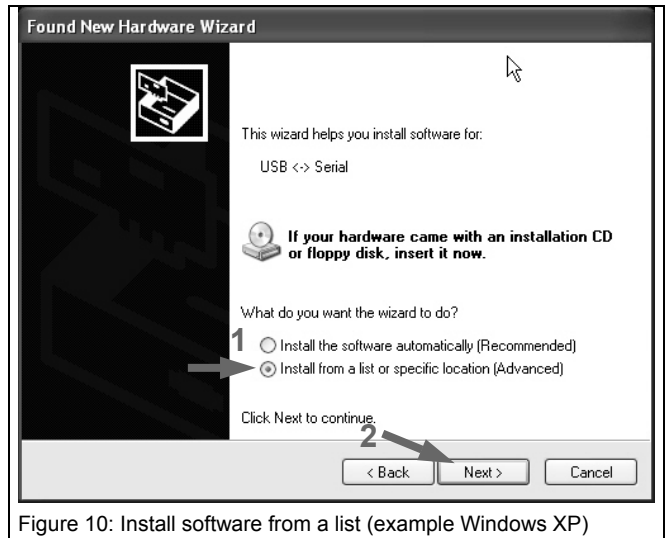


Figure 10: Install software from a list (example Windows XP)

- For both operating systems:

Select 'Search for the best driver in this location' and enter folder

C:\Program files\Cedes\ConfigurationTool\WinDriver (Figure 11). Press 'Next' to continue.

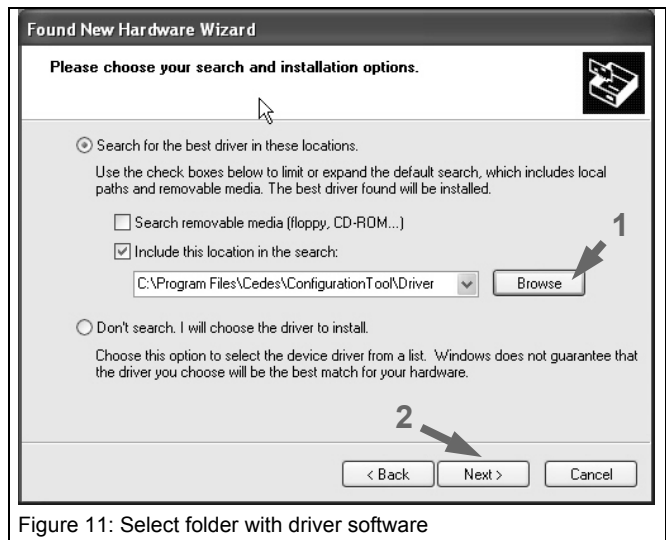


Figure 11: Select folder with driver software

**Only for Windows XP:** If the message warning for uncertified driver (not-WHQL certified) is configured, message in Figure 12 appears. Press 'Next'

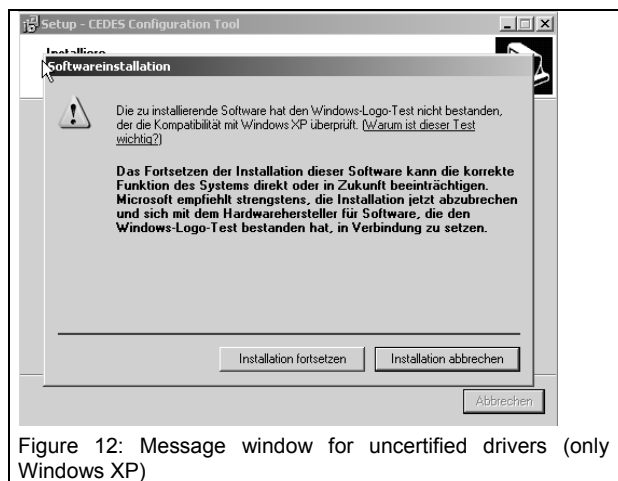


Figure 12: Message window for uncertified drivers (only Windows XP)

Figure 13 appears and shows the copying of the driver files.



Figure 13: Software is being installed

After successful installation of the software the window 'Completing the found new hardware wizard' appears (Figure 14). Pressing Button 'Finish' ends the installation.



Figure 14: Completion of the installation of the USB driver

The USB serial converter is now installed. Windows however has not installed the USB port driver. Therefore the window 'Assistant for searching for new hardware' appears (Figure 9), now for a second time. Repeat the installation steps, described before (Figure 9 - Figure 14). The OptiLink will now operate with your computer.

**3.4.1 Successful driver installation**

With successful driver installation a new COM port (com x) becomes available. The port number needs to be selected in the Program Configuration Tool (see menu item "Com Port Settings") in order to be able to communicate with a CEDES unit via the USB OptiLink.

The Windows Hardware Manager (Start – Settings – Control panel – Device Manager) displays the USB Serial Port Number (com x). (Example: COM Port 7 in Figure 15).

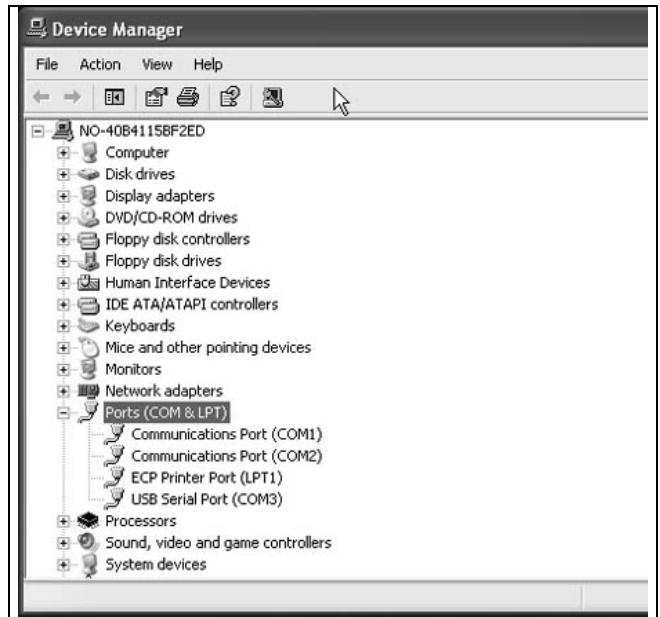


Figure 15: USB driver COM-Port (e.g.: COM7)

**3.5 Program start**

The Configuration Tool can be started from the desktop or the windows start menu.

'Windows-Start' – 'Program' – 'CEDES' – 'SAFETY' – 'Configuration Tool Starter'.

The Configuration Tool starts with the selection window (Figure 16). A product line can be selected and the specific configuration program will be started. At this time, the following product lines are available:

- Safety light curtain Safe2+ / 4
- Safety light curtain Safe200 / 400
- Safety Control unit SafeC 200 / 400
- Safety Control unit SafeCIS3
- Light curtain Object100

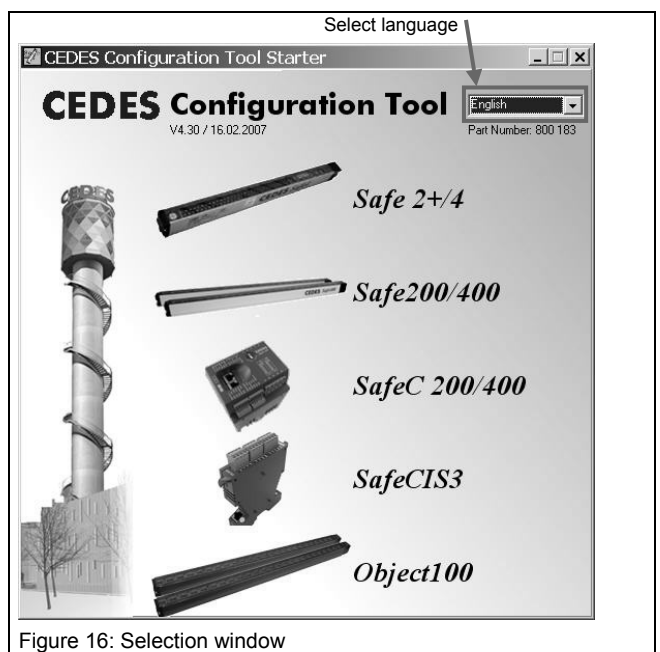


Figure 16: Selection window

First select your preferred language with the pull-down option "Language" in the top right corner of the window. Then select your preferred product group and the welcome window for this product appears.

## 4. Optilink

OptiLink is an optical interface between the CEDES-safety products and a USB Interface of a personal computer. The OptiLink allows a fast, simple and comfortable communication between a CEDES control unit or light curtain Safe2+/4 and a computer. Firstly OptiLink can be used as a diagnostic instrument (short term and long term diagnostic) to find out failures such as "power supply fluctuations", "short circuits of the outputs" etc. Secondly, this interface can be used to operate a CEDES safety light curtain as a measuring light curtain the same time for process controlling at.

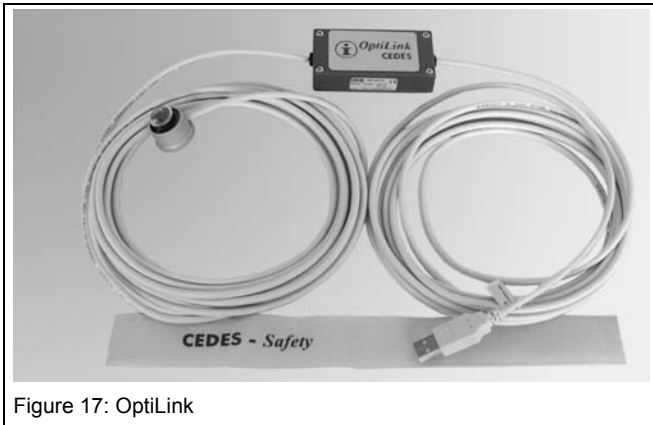


Figure 17: OptiLink

### ⚠ Important notice:

Before connecting the USB OptiLink to the computer the software Configuration Tool has to be installed (see chapter 3.3).

The connection is simple and completed in seconds:

- Press the suction cup of the sensor head onto the marked position (Ⓜ). For a more secure connection, the suction cup may be dampened slightly.
- Stick the USB connector into an unused COM-port on your computer.

## 5. Configuration Tool for light curtains

### 5.1 Welcome window

After starting the program the "Welcome window" (Figure 18) is opened for the corresponding product family. In this window you will find a link to the important safety information. Read the information by clicking with the mouse in the flashing area with the yellow exclamation mark. Press the flashing area to

start reading the information, or press "Ok" to accept the information.

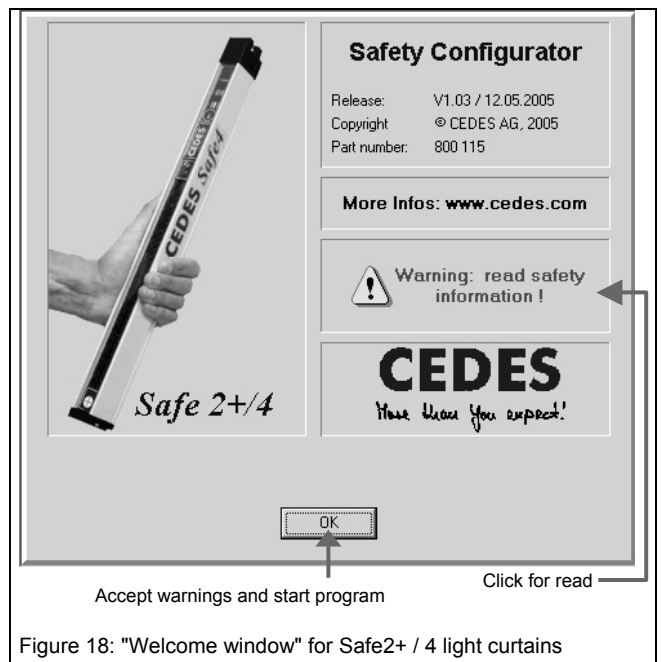


Figure 18: "Welcome window" for Safe2+ / 4 light curtains

Every product line has its own window. This manual differentiates between three product families:

- Light curtains:
- Safe2+ / 4
  - Safe200 / 400
  - Object100

This chapter guides you through the configuration program for light curtains and the manual "Configuration Tool Controller" (part no. 105 784) describes the configuration and diagnosis of the CEDES control units.

### 5.2 Main window

The main window contains up to four different tab sheets (Figure 19).

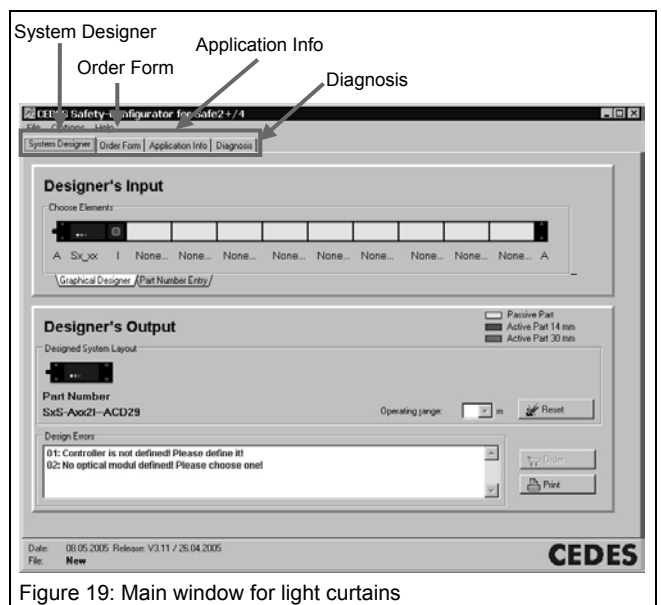


Figure 19: Main window for light curtains

The tab sheets are available for the following light curtain systems:

	Safe2+/4	Safe200/400	Object100
System Designer	✓	✓	✓
Order Form	✓	✓	✓
Application Info	✓	✗ <sup>1)</sup>	✗ <sup>1)</sup>
Diagnosis	✓	✗ <sup>1)</sup>	✗ <sup>1)</sup>

<sup>1)</sup> see Configuration Tool Controller (SafeC 200/400 or SafeCIS3)

**5.2.1 System Designer**

The "System Designer" is used to design all different kinds of CEDES light curtain systems. A rough estimation shows, that more than 14,000,000 light curtains can be designed and manufactured. This window is used to design a light curtain with its length, resolution, profile type and further parameters. At the end the order code and part numbers are defined.

The "System Designer" itself consists of two parts:

- Graphical Designer
- Part Number Entry

Switch between these parts by choosing the corresponding tab sheets (see Figure 20).

**a. Graphical Designer**

The "Graphical Designer" is used to build up a system step by step. Starting from the left to the right side, any configuration can be designed by choosing the corresponding modules in the "Designer Input".

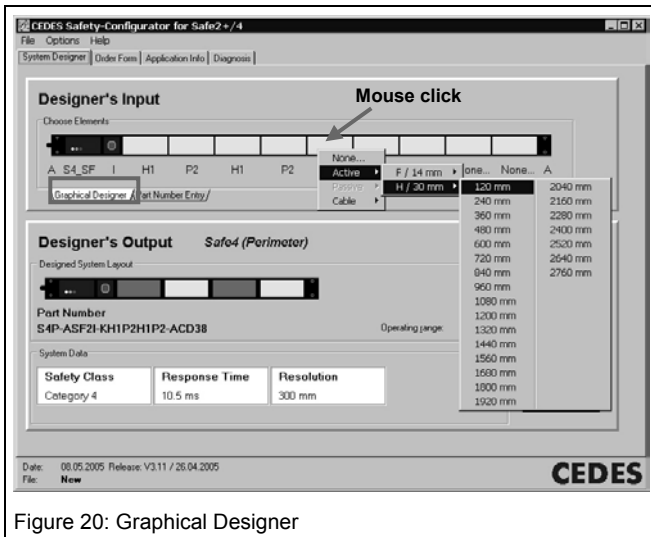


Figure 20: Graphical Designer

Simply place the mouse on the input bar, press the left button and a list will appear with all possibilities suitable for this position.

Each chosen module is directly shown in the "Designer's Output". When configuration is concluded the product number, order code, safety classification, response time and resolution will be displayed.

All the options of any light curtain system are defined in the order code. The associated order code and its corresponding part number is instantly displayed (see also chapter 5.4).

The system defined can be added to the shopping basket by clicking on "Order".

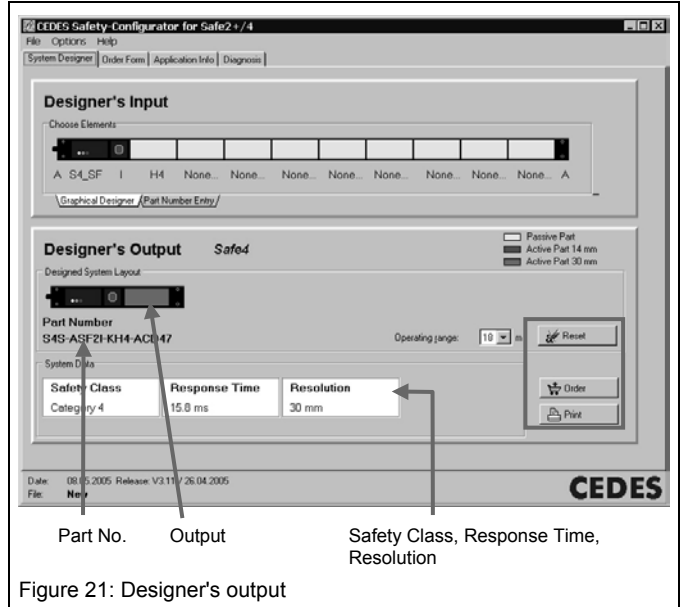


Figure 21: Designer's output

To design a new configuration press "Reset", or to print out the configuration press "Print".

**b. Input System designation**

Another useful feature is the second part of the system designer, the "Input System designation".

To look up the technical details, the application info or just how the system looks, the complete part number or order code can be entered in the editors field. After pressing the "Ok" button, the system is displayed in the designer's output window.

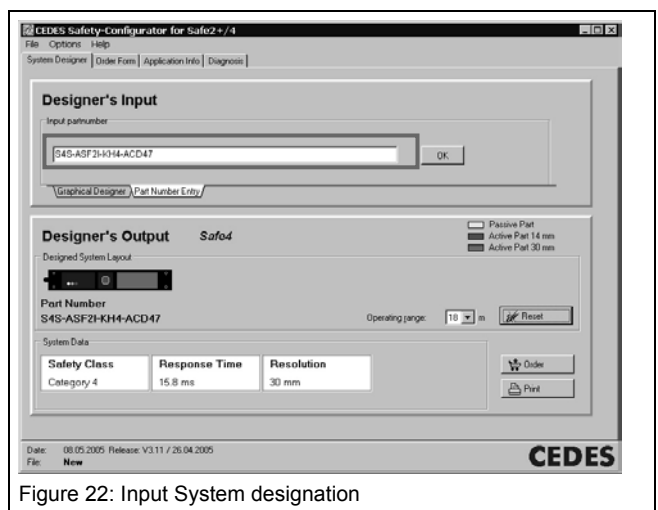


Figure 22: Input System designation



## 5.2.2 Order form

The "Order Form" allows the generation of order files which can be sent by e-mail or fax to your next CEDES representative.

If you have defined a system with the "System Designer" and you press "Order", you will find your system in the "Order form". Here you can enter the quantity and your "Order number" or add any notes (e.g. customer, delivery date, etc.).

Place the mouse directly on the part number and press the right button two new options arise: "Copy cell" and "Copy row". This makes it very easy to copy the string into any other Windows program or your personal ERP system.

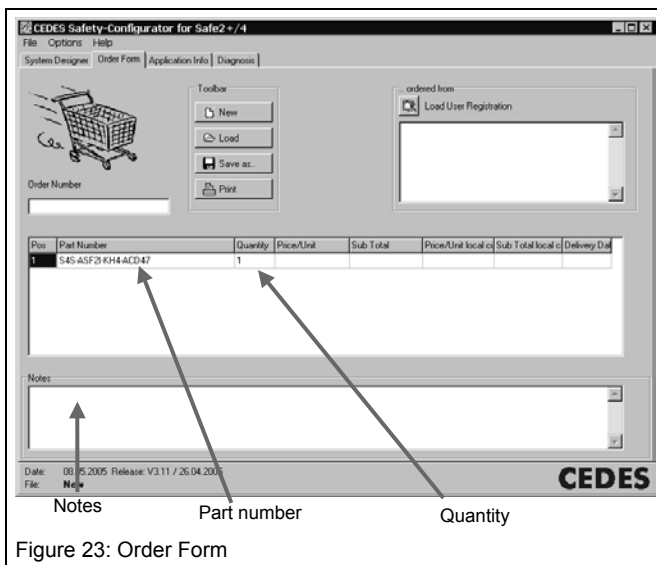


Figure 23: Order Form

This order can also be saved in a file, for ease of reference. This file can then be sent as an attachment by e-mail. It is also possible to just press the print button and send each order simply by fax. The registration data will be displayed if the button "Load User Registration" is pressed.

Additionally, it is also possible to load an old order. By double clicking the part number of the table, the more detailed configuration in the "System Designer" can be checked. Therefore it is very easy to check the set up, the technical data and the application information of any system designed previously.

## 5.2.3 Application Info

This window is available for Safe2+/4 light curtains. For application with Safe200/400 light curtains this window is part of the controller configuration tool software.

The "Application Info" is used to calculate the safety distances according to the international standards. The software "Configuration Tool" is TÜV approved. Results can be printed out and be implemented for the safety documentation of an application.

This part of the program calculates the safety distances for applications with vertical mounting according to the standards EN 999-1998 and EN 61496-1,-2). All calculations are tested and certified by TÜV Rheinland.

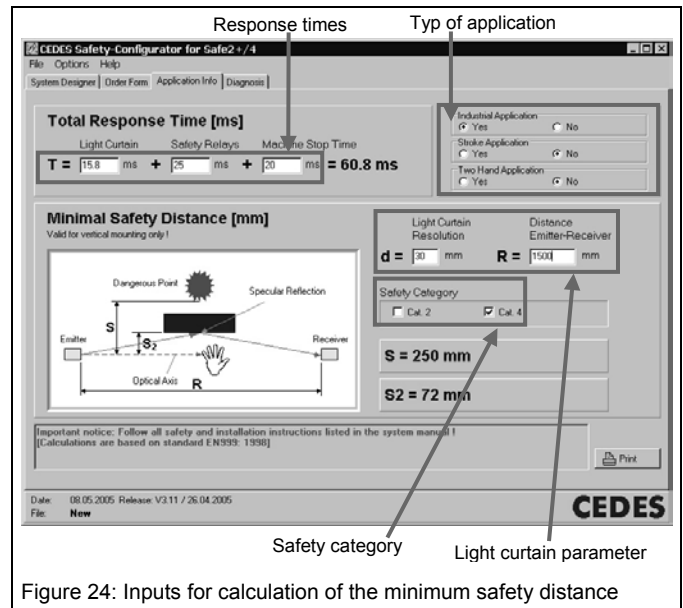


Figure 24: Inputs for calculation of the minimum safety distance

To find out the correct safety distance, firstly the type of application has to be selected. The Configuration Tool offers three types:

1. "Industrial Application: Yes or No" Choose "Yes" if the application is industrial. Select "No" if the application is not industrial. This means that children also have access to the application.
2. "Stroke Application: Yes or No" Choose "Yes" if the application starts automatically after a preset number of interruptions of the protective field of the light curtain (e.g. presses). Select "No" if the application is not a stroke application.
3. "Two Hand Application: Yes or No" Choose "Yes" if the application is started with a two hand start button. Choose "No" if not.

To start the calculation the following data is needed:

- a. The response time of the light curtain [ms].
- b. The response time of the safety relay or safety PLC [ms]. The time entered here has to take into account the total amount of time needed by the machine control to stop the dangerous movement.
- c. The machine stopping time [ms], which is the additional time needed until e.g. the breaks of the machine stop the dangerous movement.

Finally the following data must be inserted:

- I. The resolution of the light curtain system (vertical part) [mm],
- II. The distance between emitter and receiver [mm]
- III. The safety category.

To get more information on these points please contact your CEDES supplier.

By inserting all this data you will obtain

- the minimum safety distance between the protective field and the dangerous point (S [mm]) and
- the minimum distance to reflective surfaces (S2 [mm]).

Use the operation manual (part no. 102 261) of the Safe2+ / Safe4 system or contact your nearest CEDES agency to receive more information.

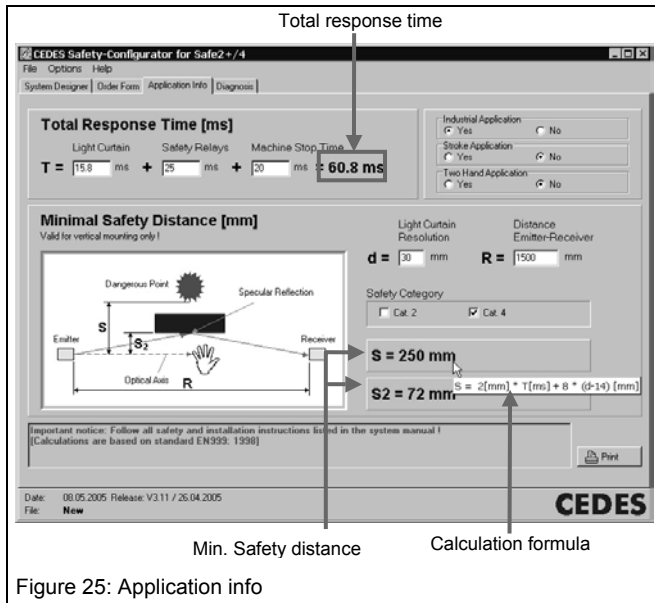


Figure 25: Application info

To find out the formula selected for the calculation, simply place the mouse on the result and the formula is displayed.

## 5.2.4 Diagnosis

Diagnostic as well as process controlling results can be obtained in seconds. The OptiLink (chapter 4) establishes a communication from a computer and any CEDES Safe2+ / Safe4 safety light curtain. The diagnosis window displays light curtain monitoring field status as well as history data, service information and object height.

The Diagnosis features for Safe200/400 light curtain are available in the software "Configuration Tool" for the control units SafeC 200/400 and SafeCIS3.

### 5.2.4.1 OptiLink Demo

To get an impression of the performance of the OptiLink tool a demonstration was integrated in the software (Figure 26).

Click the "Demo" button to see a simulated interruption of the protective field. Double click the "Demo" button to simulate an external error. For more details click on "Service Information". Press "Reset" to start from the beginning.

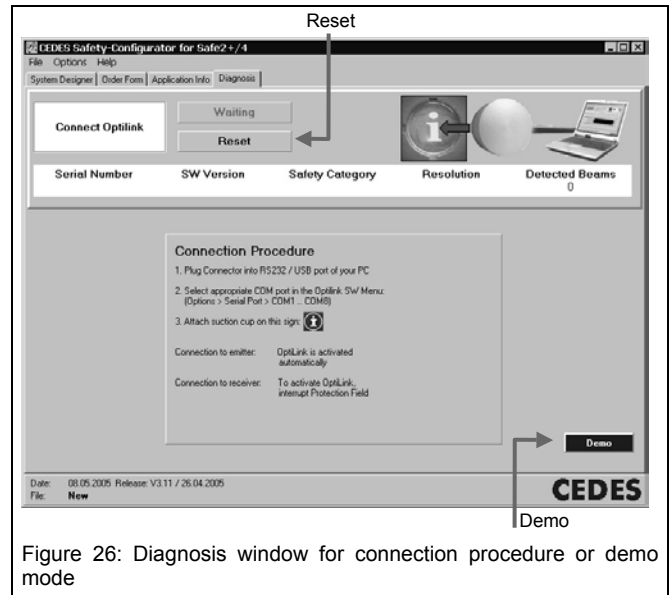


Figure 26: Diagnosis window for connection procedure or demo mode

### 5.2.4.2 Establish an OptiLink connection

#### ⚠ Important notice:

Before connecting the USB OptiLink to the computer the software Configuration Tool has to be installed (see chapter 3.3).

To establish a connection from your computer to a Safe2+/4 light curtain, follow this procedure:


- Attach the suction cap of the sensor head at the mark  of a Safe2+ / Safe4 receiver or emitter side of the light curtain.



Figure 27: Suction head of the OptiLink on the "i" sign of Safe4

- Make sure, the Configuration Tool software is installed, before plugging the USB connector into the USB terminal of your computer. Otherwise your computer may not find the USB driver software.
- If the OptiLink is plugged in the first time on the computer, the driver will be installed according chapter 3.4.
- Select the COM with menu "Option – Comport settings" (Figure 28). Normally COM1 stands for the serial link (RS232) and COMx for the USB interface (see Figure 15).

**Hint:**

Check the available COM ports, before plugging the USB connector of the OptiLink into the computer. Compare the available COM ports after plugging the OptiLink into the computer. The new added COM port number is the one for the OptiLink communication. Select this one.

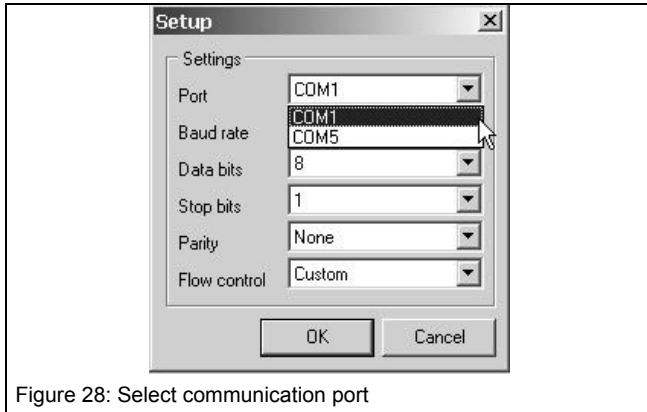


Figure 28: Select communication port

- Select the COM with menu "Option – Comport settings" (Figure 28). Normally COM1 stands for the serial link (RS232) and COMx for the USB interface (see Figure 15)

**Hint:**

Check the available COM ports, before plugging the USB connector of the OptiLink into the computer. Compare the available COM ports after plugging the OptiLink into the computer. The new added COM port number is the one for the OptiLink communication. Select this one.

- Select tab sheet diagnosis.

Two circumstances have to be differentiated here:

- The suction cup is attached to the emitter controller: The software recognizes the application immediately and activates the diagnosis window "Service Information" (Figure 32).
- The suction cup is attached to the receiver controller: The software recognizes the application immediately, but displays the protective field viewer (Figure 29) only if a change of the status occurs (e.g. light curtain interruption)

Furthermore the serial number, the software version, the safety category, the resolution and the number of detected beams of the connected system are displayed.

**5.2.4.3 Protective Field Viewer**

The program shows the area of interrupted beams. The displayed numbers correspond to the number of the first interrupted beam and the last interrupted beam.

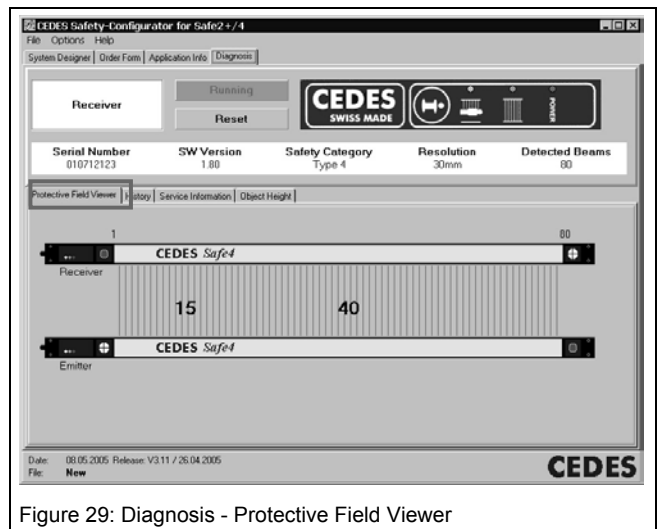


Figure 29: Diagnosis - Protective Field Viewer

If for example the protective field of Safe4 or Safe2+ is interrupted it can instantly be seen on the screen (Figure 30).

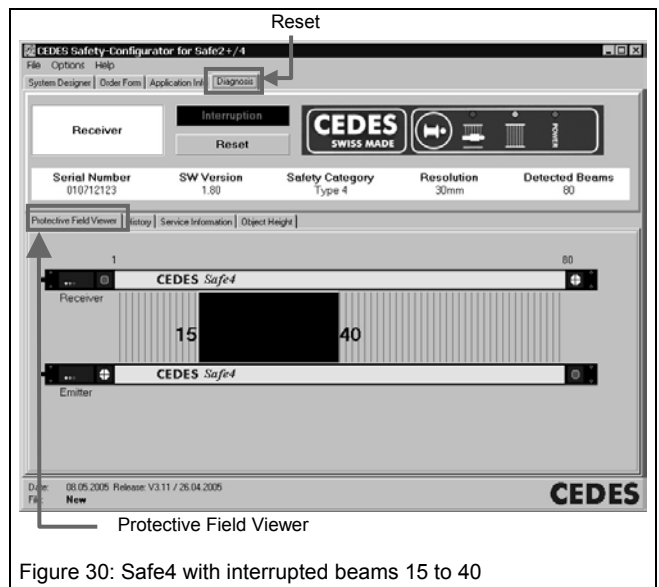


Figure 30: Safe4 with interrupted beams 15 to 40

**5.2.4.4 History**

The software also offers the option to create a history file. Select "History" and click on the "Start" button to create a file. Click on "Stop" to finish the recording.

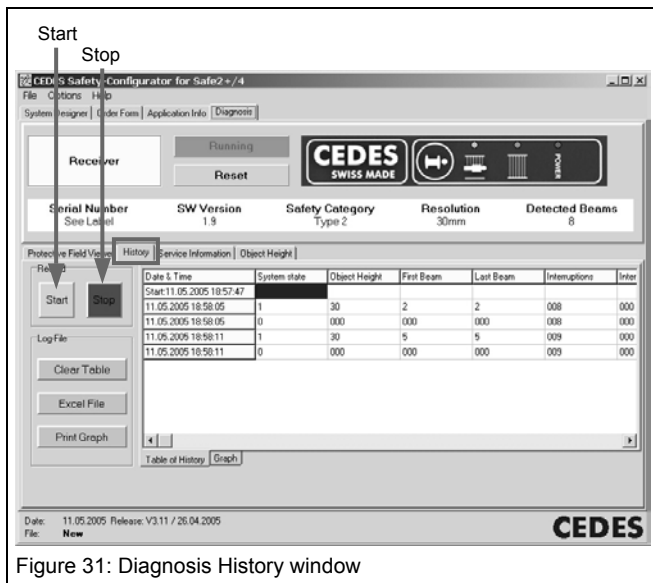


Figure 31: Diagnosis History window

If the "Excel" option is selected, a Windows Excel sheet is generated which enables an analysis of the data according to customer specifications.

**5.2.4.5 Service Information**

In case of failures the tab sheet "Service Information" gives a short description of the kind of the incident. External and internal failures as well as the actions to correct them are displayed.

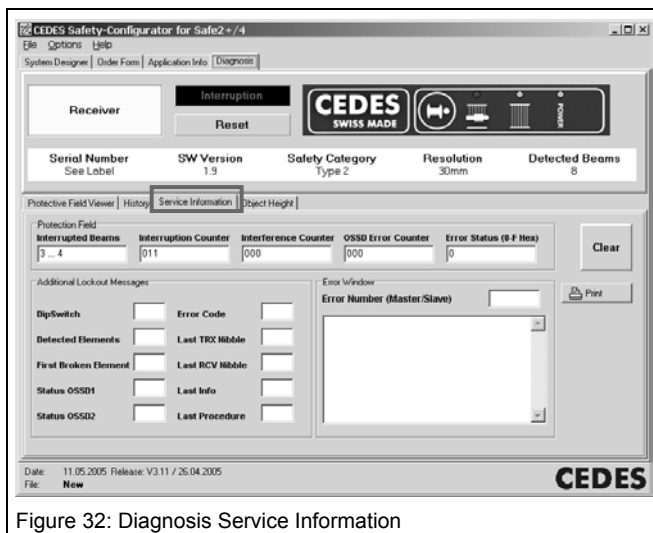


Figure 32: Diagnosis Service Information

**5.2.4.6 Object Height**

This part of the software is developed as an example for applications where the safety light curtain besides its safety function also works as a measuring light curtain for process controlling (e.g. measuring the height of a pallet on a conveyor).

Two values are displayed. First the actual length of the interrupted field and second the maximum length of the interrupted field since start of recording.

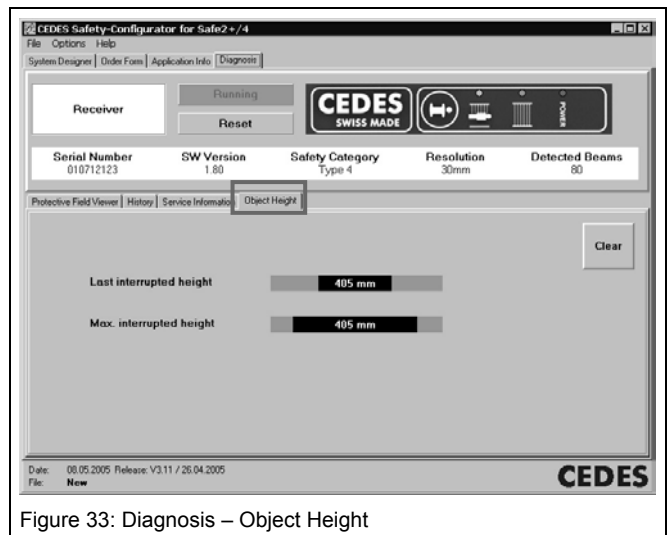


Figure 33: Diagnosis – Object Height

**5.3 Menu Options**

**5.3.1 User registration**

At the first program start-up, "Option – User registration" should be chosen in the menu bar (Figure 34).

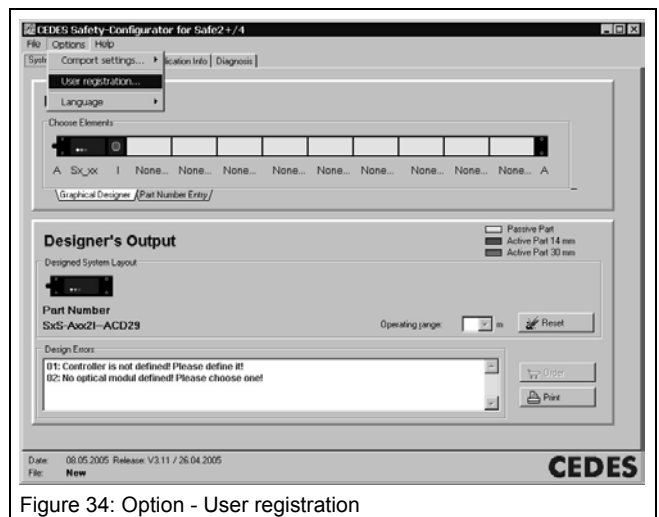


Figure 34: Option - User registration

The window "User registration" will open. Personal and company data can be entered here. With this information an order form for fax or email use is incredibly easy created.

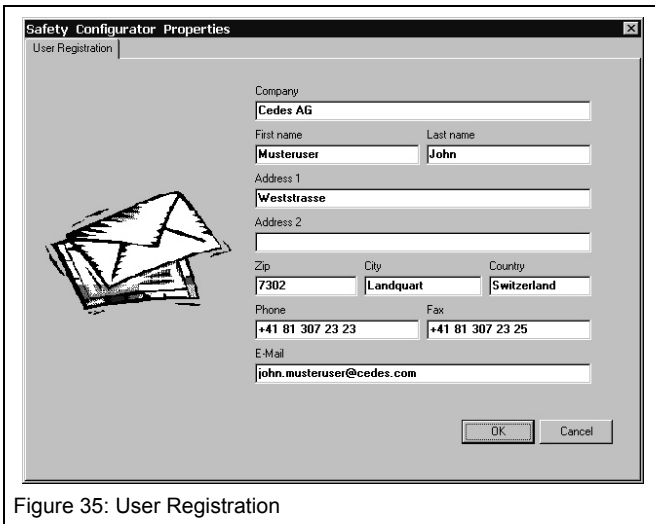


Figure 35: User Registration

Click "Ok" button to return to the main window.

### 5.3.2 Update reference list

The software Configuration Tool contains an internal list of currently available light curtains with a unique part number (Index  $\geq$  0001, see chapter 5.4). This list is saved in the file "Config\_Tool\_Reference\_List.txt". When configuring a light curtain the part number gets displayed.

The list is updated every time the configuration tool is started. The list gets copied from the CEDES Homepage ([http://www.cedes.com/download/Config\\_Tool\\_Reference\\_List.txt](http://www.cedes.com/download/Config_Tool_Reference_List.txt)). Updating can be toggled on and off under menu selection "Options – Update Reference List".

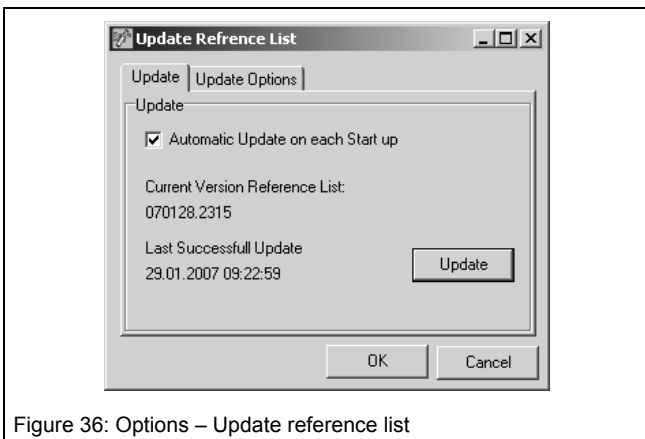


Figure 36: Options – Update reference list

The reference list can also be manually imported. Use button "Update" and tab sheet "Update Options" – Update from Other Location (Figure 37)

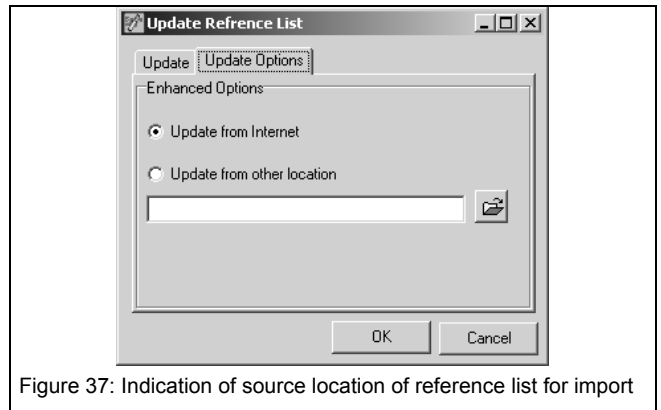


Figure 37: Indication of source location of reference list for import

#### ⚠ Note:

If your computer has no Internet connection the following message appears when updating the reference list:



Figure 38: Update reference list error

This error message also appears if there is no Internet connection when starting the Configuration Tool if the option "Update Automatically On Start-up" is selected. This error message can be prevented by deactivating the this options (Menu "Options – Update Reference List").

### 5.3.3 Exit

To end the program select "Exit" on the pull down menu "File". All entries of the registration data will be saved automatically.

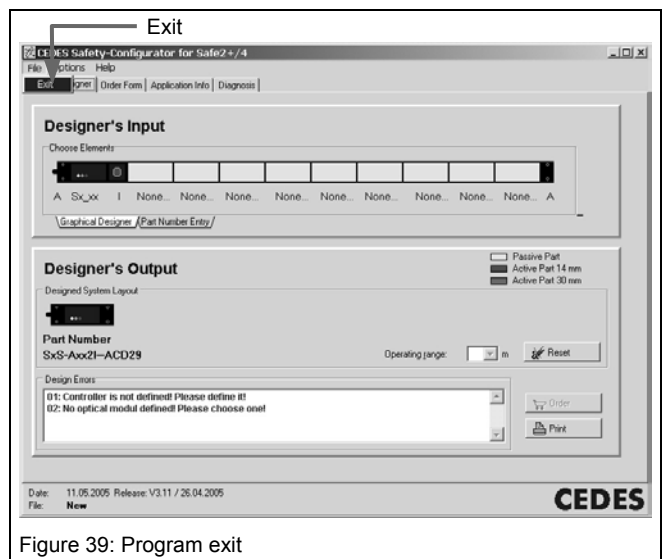


Figure 39: Program exit

## 5.4 Part number and order code

A rough estimation shows, that more than 14,000,000 different systems can be designed and manufactured. A CEDES light curtain is defined uniquely by its order code, e.g. S400S-CSF5N-LF4-ACD4C = Safe400, including 5 m connecting cable, finger resolution, protected area height = 200 mm, Standard profile.

An order code may be allocated to a unique CEDES part number. A part number consist of 11 characters. The first six characters represent the product group and the next four characters the index.

Table 1: Part numbers for CEDES light curtains

CEDES Part No.	Product Group
103 000 0000	Safe4 Standard
103 001 0000	Safe4 Extension
103 002 0000	Safe4 Perimeter
103 003 0000	Safe2+ Standard
103 004 0000	Safe2+ Extension
103 005 0000	Safe2+ Perimeter
103 566 0000	Safe400 Standard
103 567 0000	Safe400 Extension
103 568 000x	Safe400 Perimeter
104 158 0000	Safe200 Standard
103 664 0000	Safe200 Extension
104 159 0000	Object100 Standard
104 788 0000	Object100 Standard

If the four character index number is  $\geq 0001$ , the associated Order Code is always unique. Example: 103 566 0005 = S400S-CSF5N-LF4-ACD4C. If the four character index number = 0000, the Order Code and therefore the light curtain dimensions may vary from product to product. This means that Product Number 103 566 0000 defines a Safe400 light curtain, but not its parameters. However, for precise definition of the light curtain the order code is definitive.

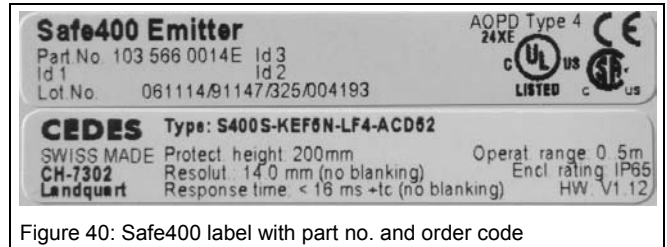


Figure 40: Safe400 label with part no. and order code



