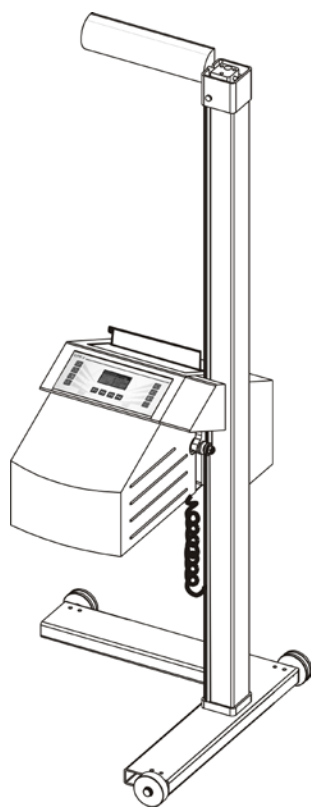


# LITE 3

*Headlight Tester*

## Original Operating Instructions

BA380501-en



Dynamometers, Diagnostic Units, Emission Testers

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# 1 Safety

## 1.1 Introduction

Thoroughly read this manual before operating the equipment and comply with the instructions. Always display the manual in a conspicuous location.

Personal injury and property damage incurred due to non-compliance with these safety instructions are not covered by the product liability regulations.

## 1.2 Symbols



Important safety instructions. Failure to comply with instructions could result in personal injury or property damage.

---



Important information.

---

## 1.3 Intended Use

This device only serves to check and adjust the alignment of vehicle headlights.

This device cannot be modified without the express, written consent of the manufacturer. Any infringement renders the conformity declaration invalid.

## 1.4 Inappropriate Use

Any use other than described is inappropriate.

## 1.5 Safety Instructions

- This device must only ever be operated and used in strict accordance with its intended use.
- This device must only ever be operated within its performance limits.
- The device must only ever be operated by trained personnel above the age of 18.
- All parts of the electrical system must be protected against damp and humidity.
- All service work must be performed by service technicians employed by the manufacturer or by authorized service partners.
- Never expose the lens to direct sunlight. The bundling of light may cause fire damage inside the housing.
- Only ever clean the lens with a soft cloth and a glass cleaning agent.

- Always replace scratched lenses otherwise the measuring results may be distorted.
- Optional laser alignment unit: Never look into the laser beam (laser class 2M). Comply with work safety and accident prevention directives (H&SW regulations) in respect of laser radiation.

## **1.6 Combination with Accessories**

The equipment shall be operated only with accessories offered, approved or permitted by the manufacturer.

---

## 2 Description

### 2.1 General Information

Headlights on motor vehicles must assure sufficiently good visibility but must not dazzle oncoming road users. Three times as many road accidents occur on rural roads at night than during daylight hours. According to the German road traffic body StVZO, the alignment of headlights needs to be checked and adjusted at regular intervals.

Automotive manufacturers invest a great deal of potential in the development of modern lighting systems. Nevertheless, testing and safety technology needs to be capable of checking these highly-developed headlights quickly and accurately. MAHA has developed an optimum solution: Using LITE 3, the digital headlight tester, precise and rapid headlight checks can be performed, even on the very latest lighting systems. In addition, using the single-chip processor, the device can be adapted via the various modes available to suit the legislative requirements of other countries and/or to be extended to comply with further legislative developments.

The headlight setting can be tested using an optical display unit. The headlight tester is microprocessor-controlled. A CMOS camera installed in the housing digitizes the headlight beam throw pattern. LITE 3 automatically evaluates the test result and transmits it for checking to the LCD graphics display screen. The data can then be transmitted to the EUROSYSTEM via an RS232/USB interface or by a wireless connection.

The headlight tester is equipped with an acoustic setting mode to enable headlight beam throw to be adjusted quickly and conveniently without visual contact with the device. With immediate effect, the display screen on the headlight tester can be changed to any one of several language versions by means of a user variable. This range of language options is being extended progressively. This means that the display can be adapted perfectly to suit the EUROSYSTEM, available in over forty languages.

LITE 3 complies with the latest technical status. A seemingly minor element from the testing and safety technology sector. Nonetheless revolutionary in terms of its development – and an application of immense importance. This is because it can help to prevent accidents and, in so doing, to save lives.

## 2.2 Specifications

Application	Testable types of headlight	Paraboid (e.g. H4)
		Projection system (DE and/or PES)
		Free surfaces (FF or HNS)
		XENON and LED
Meas. range	Above	0...600 mm / 10 m (0...6 %)
	Below	0...600 mm / 10 m (0...6 %)
	Left	0...600 mm / 10 m (0...6 %)
	Right	0...600 mm / 10 m (0...6 %)
	Height of light center	200...1300 mm
	Measuring distance	100...25 in
Intensity	Lighting strength	0...125,000 cd (Candela)
	Illumination strength	0...200 lx (Lux)
Error limits	Intensity	+/- 5 %
	Deviation from an axis	+/- 5'
Working range	Temperature	-15...+113.00 °F
	Relative humidity	20...80 %
	Power supply	100...240 VAC, 50/60 Hz /12 VDC
Dimensions	Packaging (L x W x H)	1850 x 800 x 800 mm

---

## 2.3 Options

- Laser line module alignment unit for LITE: Dash laser Class 2M, integrated in mirror holder
- Module PC cable connection for test line:
  - Spiral connection for data and voltage transfer to device
  - Interface cable RS232/USB for PC connection
- Module PC Bluetooth connection:
  - Bluetooth module for transmission of measuring data to a PC
  - USB-Bluetooth receiver for the receiver PC (from EUROSYSYSTEM v7.10)
- WLAN interface converter for wireless transmission to a PC to 100 meters distance
  - Redirector configuration driver for setting up virtual COM ports under Windows (from EUROSYSYSTEM v7.10)
- Plastic rollers (for version without running strips); running strips (rails) overfloor/underfloor
- Laser calibration device, type: LK1

## 2.4 Design

### **Alignment mirror**

- A The swivel-mounted alignment mirror is used to align the device with the vehicle.

### **Pillar**

The pillar comprises a precision profile that supports the sliding rails.

- B There is a counterweight in the pillar which can be used to lock the set height automatically. The pillar can be rotated about its base and this enables the device to be aligned with the vehicle.

### **Folding mirror**

- C The folding mirror and the viewing window below it enable the projection surface in the housing to be observed.

### **Control panel with graphic LCD**

For checking, setting, saving low-beam, high-beam, foglights,

- D supplementary lights, daytime driving lights, motorway lights, DF and IR measurement. Graphic LCD to evaluate the headlight beam throw pattern.

### **Housing**

The housing is home to a projection surface on which the headlight beam throw pattern is displayed. This image is recorded and digitized by a

- E CMOS camera.

With wireless PC connections and/or standalone devices, the connection bush for the power unit is located to the outer left of the display screen at the bottom of the housing (refer to 'Maintenance' section).

### **Base (foot)**

- F Depending on version, the base of the device may either be mounted on two rails for fixe—location use, or with rubber rollers for more mobile use.

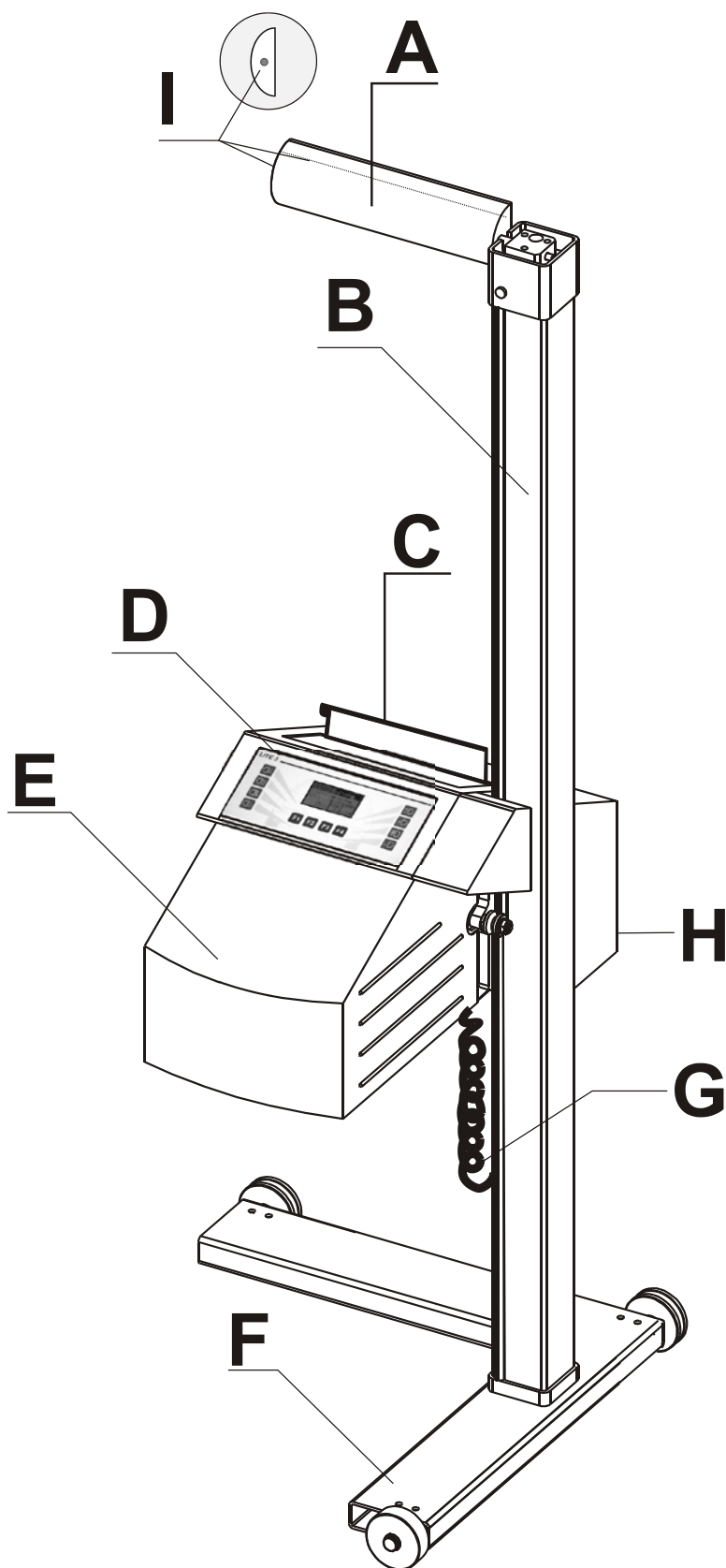
### **Spiral connecting cable**

- G Via the RS232 interface, measuring results can be transmitted to a PC equipped with the corresponding software (e.g. EUROSYSYSTEM).

### **Fresnel lens**

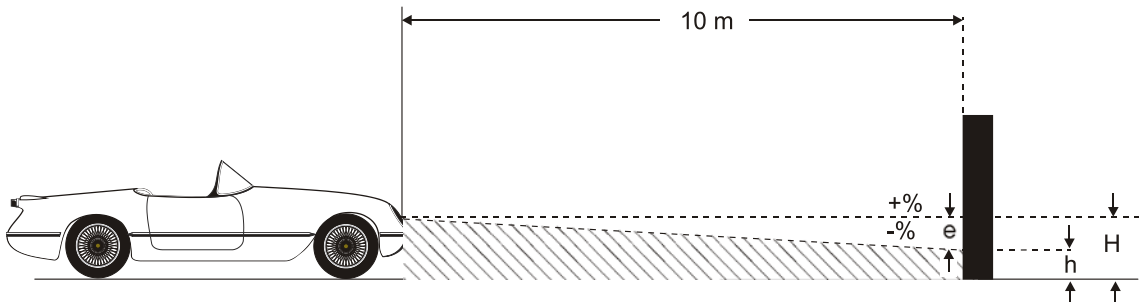
- H Bundles the projected headlight beam and depicts it on the projection surface in the housing.

- I **Laser line module alignment unit (option)**



## 2.5 Definition of Technical Terms

### 2.5.1 Pitch Angle

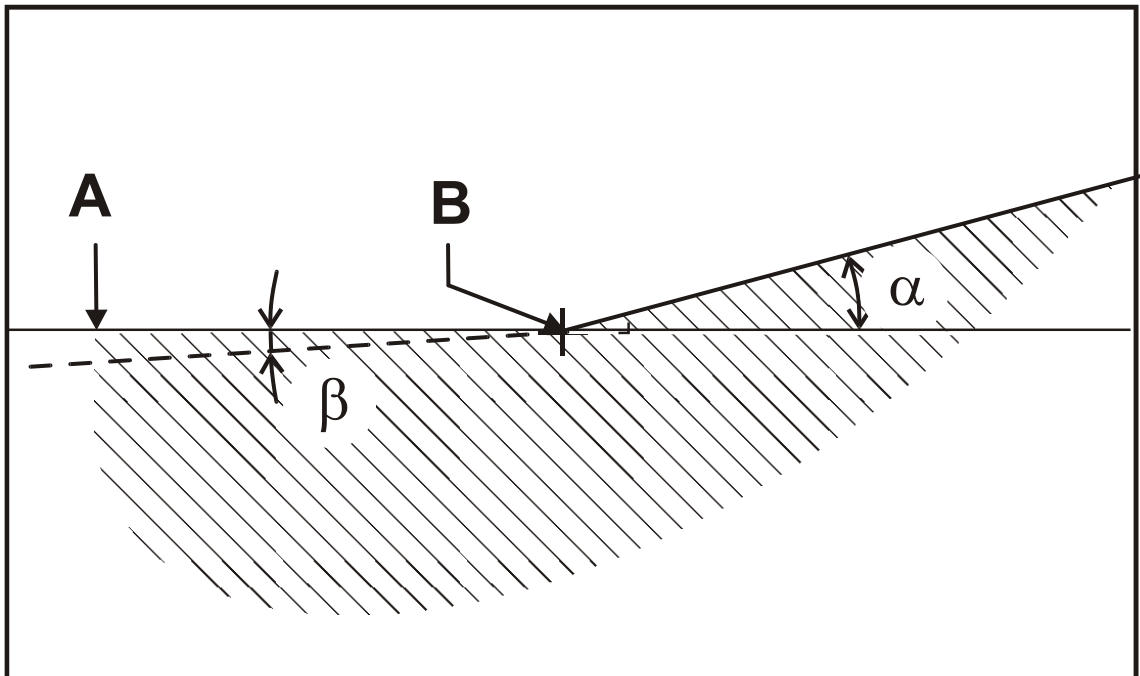


Angle of inclination of light-dark limit against the test surface.

The inclination of headlight lighting bundle against the test surface is expressed as a percentage, using 10 m as a reference parameter:

$$\frac{H - h}{1000} \times 100$$

### 2.5.2 Low Beam



**Light-dark limit**

- A** Boundary for light distribution between 'top dark' and 'bottom light' for low-beam lights.

**Inflection point**

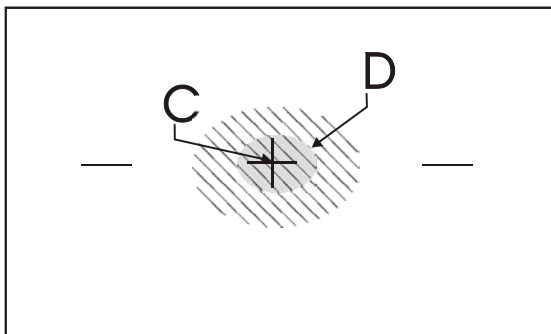
- B** Synonymous with the light-dark limit for asymmetric low-beam lighting. The deviation of the inflection point is expressed in %. 10 meters is used as the reference dimension.

**Yaw angle**

- $\alpha$**  Angle between the inflection point on the rising component of the light-dark limit and the horizontal line for asymmetric low-beam light.

**Rolling angle**

- $\beta$**  Angle between the left component of the light-dark limit and the horizontal, usually 0°.

**2.5.3 High Beam****Central mark**

- C** From the central mark, the deviation of hot-spot is specified in X and Y directions.

**Hot spot**

- D** Center of light beam for high-beam. The deviation of hot spot from central mark is expressed in %. 10 meters is used as the reference dimension.

**2.5.4 Luminance / Luminous Intensity**

Transmission of illumination strength and light intensity is expressed in Lux or Candela. Conversion of illumination strength to light intensity:

$$I = E \cdot r^2$$

I = lighting strength in Lux

E = illumination strength in Candela

r = distance between lens of light tester and graphics screen (r = 50 cm)

## 3 Operation

### 3.1 Requirements on the Operator

---

All persons employed in the operation, maintenance, installation, removal and disposal of the device must

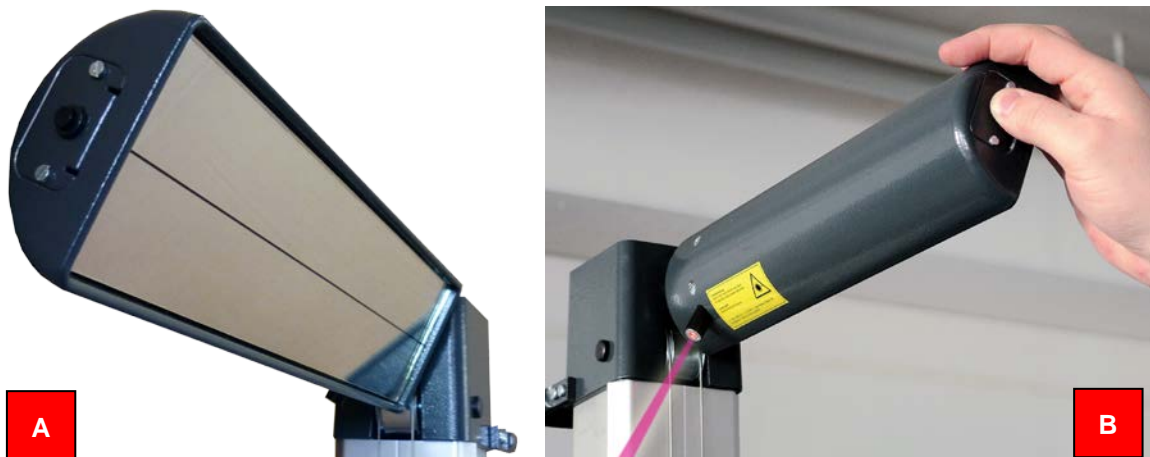


- be at least 18 years old,
  - be trained and instructed in writing,
  - have read and understood this manual
  - be on record as having been instructed in safety guidelines.
- 

### 3.2 Requirements for the Place of Installation

The location for the headlight adjustment points requires careful planning. Headlight beam-throw adjustment devices are sensitive measuring devices that are prone to malfunction if moved from one place to another in the workshop. Precise setting of headlights then ceases to be possible. Headlights must be checked at a location that is completely flat. Irregularities, bulges, inclined and recessed areas give rise to measurement errors. Please observe the legislative requirements that, where applicable, contain details of the surface properties of the location to be chosen for setting up the equipment. Approval testing as defined in the test equipment monitoring standard ISO 10 604 must take place before a headlight testing station enters service. (more info in 'Headlight adjustment station for cars', based on ISO 10 604).

### 3.3 Aligning



- 1 Slide device centrally in front of the vehicle.
- 2 The device is correctly aligned if two symmetrical reference points on the front of the vehicle are located on the black line on the alignment mirror (A).  
The laser alignment unit (B) is integrated in the mirror holder. The dash laser is enabled by pressing the pushbutton. The device is aligned correctly if the dash laser is located at the front of the vehicle and parallel to two symmetrical reference points.

**Battery replacement:**

Open the side cover of the mirror holder. Type: 4x1.5V Mignon.

## 3.4 Controls



### 3.4.1 Light Selector Buttons

#### Standard Functions (Buttons)



High-beam



Foglight



Low-beam



Daytime driving light

#### Additional Functions 2nd Level (Display Symbols)



Dynamic high-beam (preconfigured)



Supplementary lights (preconfigured)



Motorway lighting (preconfigured)



BMW DLS (dynamic light spot; preconfigured in BMW mode)



Infrared light



Matrix light (preconfigured in Volkswagen mode)



The additional functions can be individually adapted for all buttons, including those already preconfigured. See also section "Selection Menu / Additional Functions 2nd Level".

### 3.4.2 LCD Buttons

**F1** Measuring

**F3** Selection menu

**F2** Adjusting

**F4** OFF / Service menu (also refer to "Menu overview" section)

### 3.5 Switching On / Off

#### ON

The device can be switched on by pressing any button.

The software version of the LITE 3 and the set mode appear on the display for a few seconds whenever it is switched on.

(0) = MAHA mode (default)



MAHA Headlight Tester  
Version V 0.83.0 GB  
from 06.02.2014  
RS232: 115200bps ( 0 )

Available modes, adjustable using LON Manager:

0 = MAHA	2 = France	3 = Ireland (Eire)	4 = Turkey
5 = Russia	6 = Lithuania	7 = Volkswagen	8 = BMW

#### Automatic OFF

The device switches off automatically whenever the disengagement time has elapsed. The disengagement time is set using user variable 5 (default setting of 5 minutes). The device shuts down if no button is pressed during this time.

#### Manual OFF

Press **<F4>** for one second.



LITE3 Hauptmenü

	EC	-1.2%	
MESS + F1	JUST ↙ F2	AUSW MENU F3	OFF F4

Press **<F3>** button to switch off the device.



Servicemenü

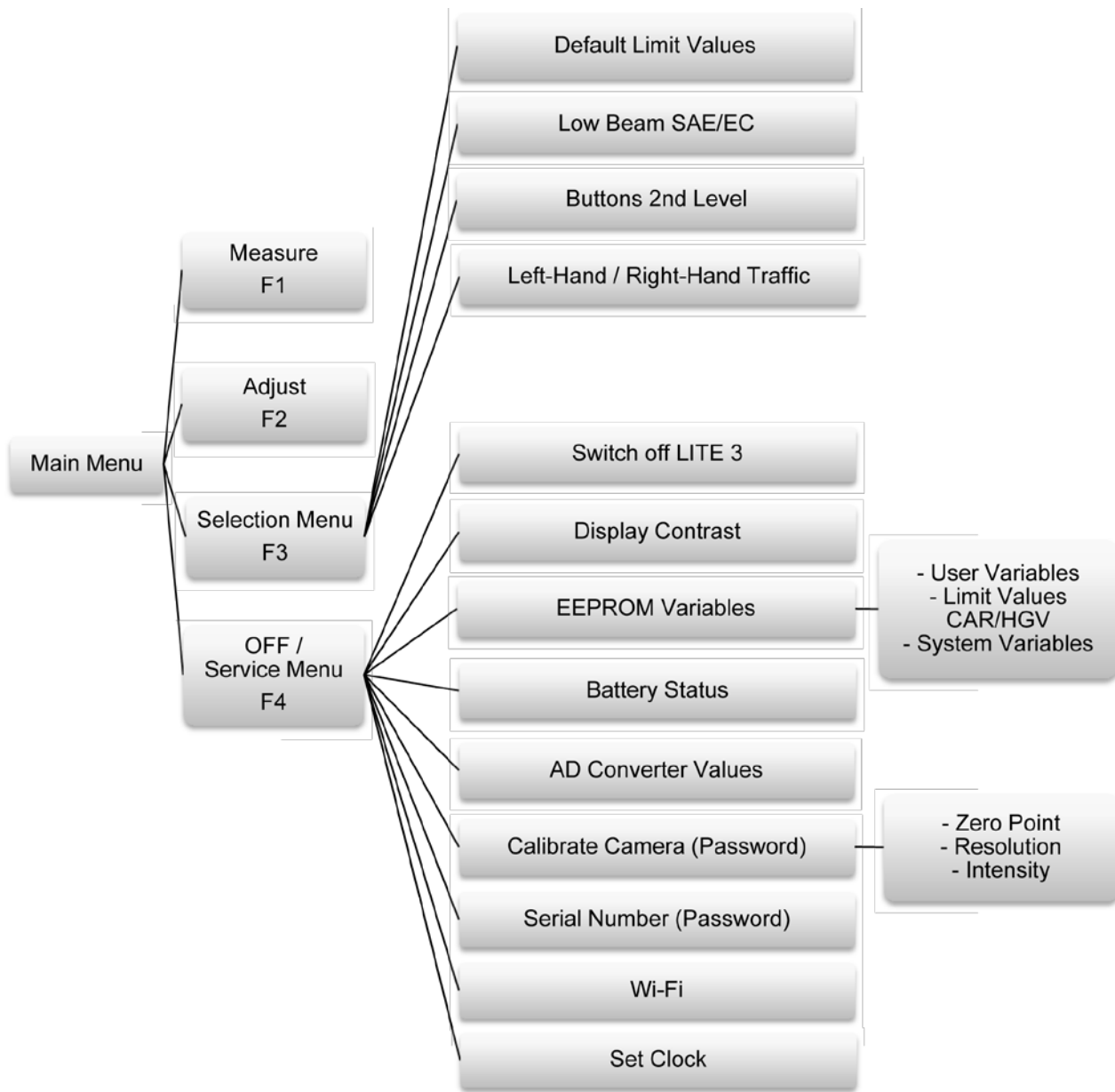
LITE3 abschalten

		ENTER	ESC
--	--	-------	-----



The device cannot be switched off while the battery is being charged, i.e. while plugged into a live power connection. The device shuts down automatically as soon as the battery reaches its full charge.

3.6 Menu Overview



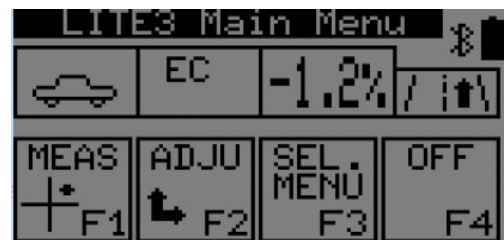
To make Left-hand/Right-hand Traffic available in the Selection menu, variable 34 must be enabled.

### 3.7 Measuring (Headlight Diagnosis)

1 Switch on headlights.

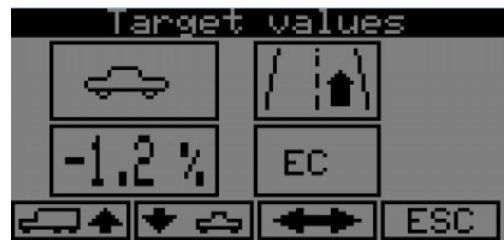


2 Press the <F1> key to carry out headlight diagnosis.



► The following screen display appears with preconfigured set-point values:

- 3 Use the <F1> and <F2> keys to adjust the set-point value.
- 4 Use the <F3> key to select the type of headlight.



- With one long press of the <F1> or <F2> key, switch between the set-point value for trucks and cars.
  - If variable 34 is set to 1, one long press of the <F3> key can select between left and right-hand traffic.
- The set-point values can be adopted for future measurements.



Recommended distance between front edge of device and headlight:  
approx. 10...50 cm.

5 Press the desired light selector key. After that, the installed CMOS camera digitizes the headlight beam throw pattern depicted on the projection screen.

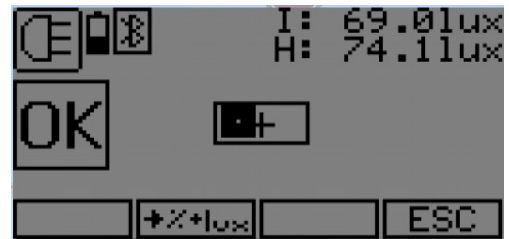


With any existing connection, measuring values are transferred to the EUROSYSTEM automatically. Refer to "EUROSYSTEM" section.

**3.7.1 High-Beam**

The measuring values appear on the screen:

- The left window shows the direction of adjustment and/or correct evaluation.
- The nominal window is located centrally.
- The actual position of the headlight is depicted as a small black box.



- Hotspot on the x-axis in %
- Hotspot on the y-axis in %
- Light intensity at centerpoint in lux
- Light intensity of hotspot in lux

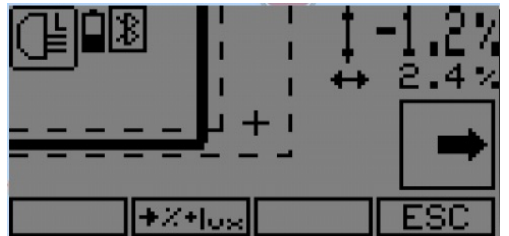


**3.7.2 Dynamic High-Beam Function**

For the DLA measurement, press and hold down the high-beam button for 3 seconds.

The measuring values appear on the screen:

- The left window shows the direction of adjustment and/or correct evaluation.
- The nominal corridor is located centrally.
- The actual position of the headlight is depicted as a black bar.



- Horizontal variance in %
- Vertical variance in %
- Light intensity of hotspot in lux



- **F2:** Change between graphic and numerical evaluation.



Dynamic high-beam function is enabled on vehicle in the case of Volkswagen.

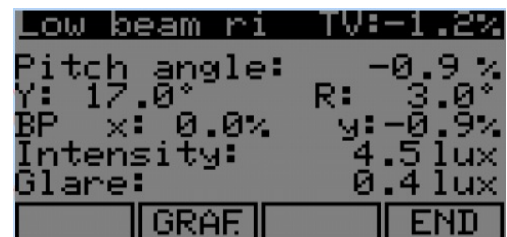
### 3.7.3 Low-Beam

The measuring values appear on the screen:

- The left window shows the direction of adjustment and/or correct evaluation.
- The nominal corridor is located centrally.
- The actual position of the headlight is depicted as a black bar.



- Pitch angle in %
- Y: Yaw angle in °R: Roll angle in °
- BP: Break point x-axis / y-axis
- Light intensity in Lux
- Glare intensity in Lux



### 3.7.4 Motorway Lighting

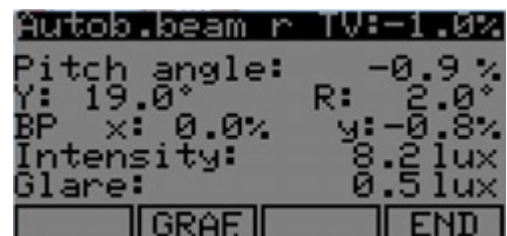
To measure motorway lighting, press and hold down the low-beam button for 3 seconds.

The measuring values appear on the screen:

- The left window shows the direction of adjustment and/or correct evaluation.
- The nominal corridor is located centrally.
- The actual position of the headlight is depicted as a black bar.



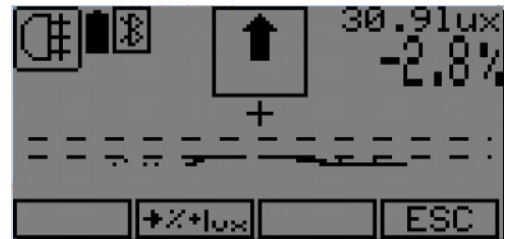
- Pitch angle in %
- Y: Yaw angle in °R: Roll angle in °
- BP: Break point x-axis / y-axis
- Light intensity in Lux
- Glare intensity in Lux



### 3.7.5 Foglight

The measuring values appear on the screen:

- The window in the middle shows the direction of adjustment and/or correct evaluation.
- The nominal corridor is located centrally.
- The actual position of the headlight is depicted as a black bar.



- Pitch angle in %
- Roll angle in degrees
- Light intensity in Lux
- Glare intensity in Lux

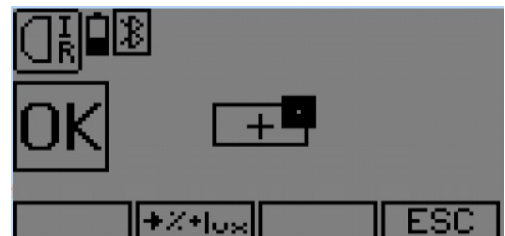


### 3.7.6 Infrared Light

For the infrared light function, press and hold down the foglight button for 3 seconds.

The measuring values appear on the screen:

- The left window shows the direction of adjustment and/or correct evaluation.
- The nominal window is located centrally.
- The actual position of the headlight is depicted as a small black box.



- Hotspot on the x-axis in %
- Hotspot on the y-axis in %

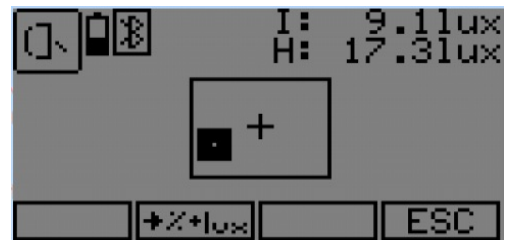


An appropriate adjustment fixture is required to set the DISTRONIC sensor setting for Mercedes-Benz (e.g. Romess).

### 3.7.7 Daytime Driving Light

The measuring values appear on the screen:

- The nominal window is located centrally.
- The actual position of the headlight is depicted as a small black box.



- Hotspot on the x-axis in %
- Hotspot on the y-axis in %
- Light intensity at centerpoint in lux
- Light intensity of hotspot in lux



### 3.7.8 Auxiliary Light

To measure Auxiliary Light, press and hold down the daytime driving light button for 3 seconds.

The measuring values appear on the screen:

- The left window shows the direction of adjustment and/or correct evaluation.
- The nominal corridor is located centrally.
- The actual position of the headlight is depicted as a small black box.



- Hotspot on the x-axis in %
- Hotspot on the y-axis in %
- Light intensity at centerpoint in lux
- Light intensity of hotspot in lux



### 3.7.9 Dynamic Light Spot BMW

To measure Dynamic Light Spot BMW, press and hold down the auxiliary light button for 3 seconds.

The measuring values appear on the screen:

- The left window shows the direction of adjustment and/or correct evaluation.
- The small nominal window is located below the zero point.
- The actual position of the headlight is depicted as a small black box.
- Hotspot on the x-axis in %
- Hotspot on the y-axis in %
- Light intensity at centerpoint in lux
- Light intensity of hotspot in lux

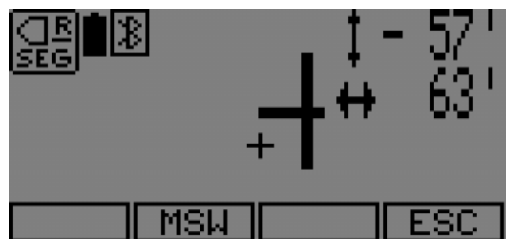


### 3.7.10 Matrix Beam Audi

To measure Matrix Beam Audi, press and hold down the auxiliary light button for 3 seconds.

The measuring values appear on the screen:

- The actual position of the LED reflector is depicted by the two lines.
- Horizontal displacement of the vertical line in minutes.
- Vertical displacement of the horizontal line in minutes.
- Light intensity of hotspot in lux.



### 3.8 Adjusting

With this menu item, dynamic adjustment and/or correction of the headlights can be performed.

- 1 Switch on headlights.

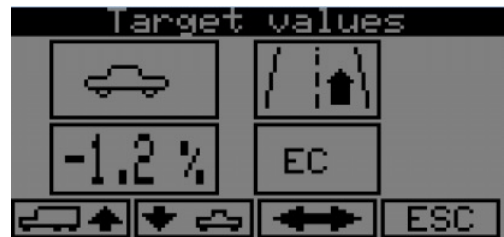


- 2 Press the <F1> key to carry out headlight diagnosis.



- The following screen display appears with preconfigured set-point values:

- 3 Use the <F1> and <F2> keys to adjust the set-point value.
- 4 Use the <F3> key to select the type of headlight.



- With one long press of the <F1> or <F2> key, the system switches between the set-point values for trucks and cars.
  - If variable 34 is set to 1, one long press of the <F3> key can select between left and right-hand traffic.
- 5 Press the desired light selector key. After that, the installed CMOS camera digitizes the headlight beam throw pattern depicted on the projection screen.



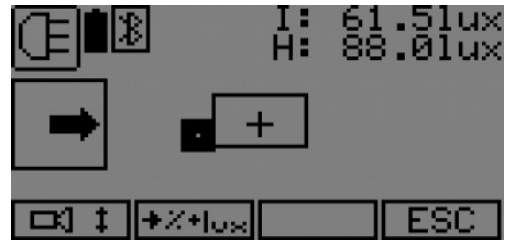
Evaluation aid on display screen:

- OK on black background – very good
- OK on light background – good

**3.8.1 High-Beam**

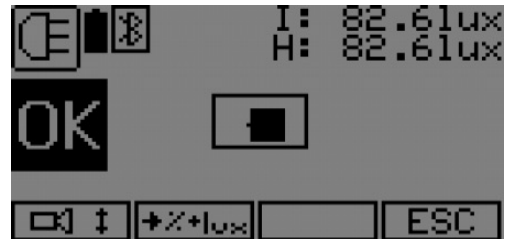
The depiction of the headlight appears on the display screen:

- The left window shows the direction of setting
- The nominal window is located centrally.
- The actual position of the headlight is depicted as a small black box.



Set the headlights up so that the small black box is in the nominal window.

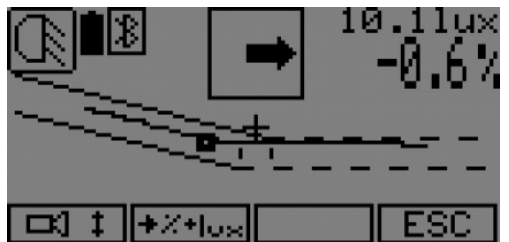
- ▶ 'OK' appears in the left window.



**3.8.2 Low-Beam**

The depiction of the headlight appears on the display screen:

- The center of the window shows the direction of adjustment.
- The nominal window is located centrally.
- The actual position of the headlight is depicted as a black bar.



Set the headlights up so that the small black box is in the nominal window.

- ▶ 'OK' then appears in the top window.



- **F1:** Selection menu for the acoustic adjustment mode (see Acoustic Adjustment Mode section).
- **F2:** Change between graphic and numerical evaluation.
- **F4:** Quit the display.

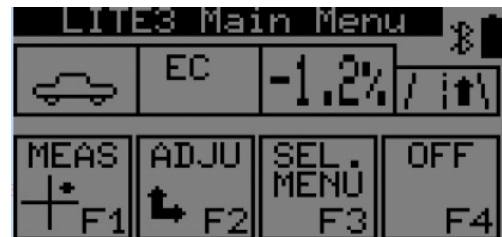
This procedure for headlight adjustment also applies to other types of headlight.

### 3.8.3 Acoustic Setting Mode

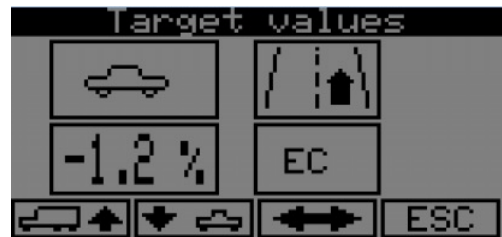
The device is equipped with an 'acoustic adjustment mode' that enables the adjustment to be made without visual contact with the device.

- The further the actual position of the headlight deviates from nominal position, the longer the tone interval sounds.
- As the actual position approaches the nominal position, the interval between tones shortens.
- Once the actual position reaches the nominal position, a continuous tone sounds.

- 1 Press the <F2> key to carry out acoustically guided headlight adjustment.



- 2 In the Setpoint Values menu, press the desired light selector button.



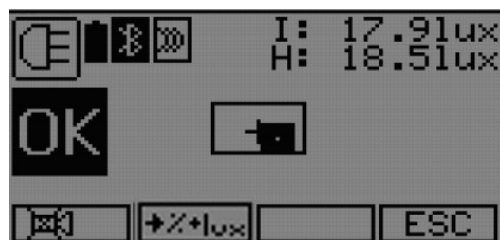
- 3 Select the vertical acoustic adjustment mode with the <F1> key.



- 4 Set the headlights vertically until a continuous tone sounds.
- 5 Select the horizontal acoustic adjustment mode with the <F1> key.



- 6 Set the headlights horizontally until a continuous tone sounds.
  - ▶ 'OK' on a dark background then appears in the left window.
- 7 By pressing the <F1> key again, the acoustic adjustment mode can be switched off.

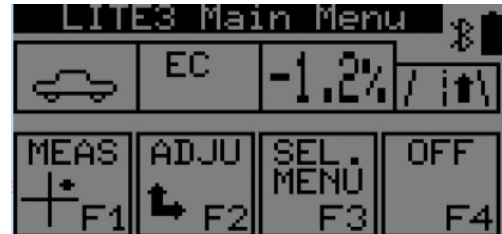


With an existing PC connection, the entire adjustment process can also be tracked visually on the PC monitor in the EUROSYSTEM (see 'EUROSYSTEM' section).

## 4 Selection Menu

The device can be preconfigured to test various versions of headlight. These preset values then appear whenever the device is switched on.

- 1 Press the **<F3>** button to access the limit value menu.



The selection menu can be used as standard to choose between two programs:

- Default limit values CAR ↔ TRUCK
- Low-beam SAE/EC Europ. asymm. ↔ LED



If the appropriate variables are enabled, the following additional menu items appear on screen:



- Left/right-hand traffic
- SAE/EC low-beam lights
- European Asymmetric ↔ USA (SAE) HB1, HB3, HB4 ↔ USA (SAE) HB5

- 2 These programs can be selected using the **<F1>** and **<F2>** buttons, and called up using the **<F3>** button.
- 3 Use the **<F4>** button to quit the menu item or the limit value menu.

## 4.1 Car/Truck Limit Values

- 1 Call up limit value menu and select 'Default limit values' menu item.
- 2 Press <F3> to call up the CAR/TRUCK menu selection.



- 3 Select the desired CAR/TRUCK using the <F1> and <F2> keys.

CAR



TRUCK



- 4 Press <F3> to save the selected limit values and to quit this menu item.
- 5 Use the <F4> button to quit the menu item without saving.

Default settings	Car	Truck
Low-beam	-1.2 %	-3.0 %
High-beam	±0.0 %	±0.0 %
Foglight	-2.0 %	-4.0 %

## 4.2 European/American Headlights

- 1 Press <F3> button to call up the headlight selection menu.
- 2 Select menu item Low-beam SAE/EC.



The headlight selection menu comprises four programs:

- European Asymmetric Headlights
- European Asymmetric LED
- USA headlight types HB1, HB3, HB4
- USA headlight type HB5



- 3 Select the desired headlight type using the <F1> and <F2> keys.
  - 4 Press <F3> to save the selected headlight type and to quit this menu item.
- USA headlights only available in this menu if variable 19 is set to 1. In the nominal value menu, it is then also possible to toggle with the <F3> key between American (SAE) and European headlights (EC).

## 4.3 Additional Functions 2nd Level

### 4.3.1 Preconfiguration

- MAHA Standard/Countries:  
Dynamic high-beam, Motorway lighting, free, Supplementary lights
- Volkswagen mode:  
Dynamic high-beam, Motorway lighting, Matrix (Segment light), Supplementary lights



- BMW mode  
Dynamic high-beam, Motorway lighting, DLS (Spot), Supplementary lights



### 4.3.2 Individual Assignment of Buttons

- 1 In the Selection menu, press <F3> to select a button for the 2nd level.
- 2 Browse using <F1> and <F2> until the desired function appears.
- 3 Example: Press the Foglight button to assign it with Infrared light.
- 4 Use <F3> to save the current setting and to quit the menu item.



Use this procedure to change or delete further additional functions.

### 4.4 Left-Hand/Right-Hand Traffic

- 1 Press <F3> key to call up the headlight selection menu.
- 2 Select 'Left/Right-Hand Traffic' menu item.



- 3 Select between left- and right-hand traffic using the <F1> and <F2> keys.



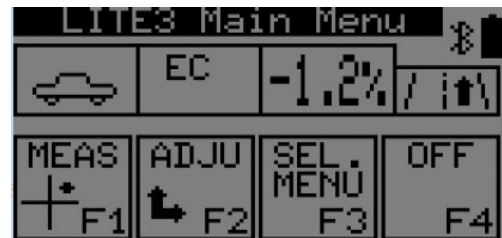
4 Press <F3> to save the selection and to quit this menu item.

5 Use the <F4> button to quit the menu item without saving.

Selecting between left- and right-hand traffic is also possible by a long press of <F3> in the Default Limit Values menu.

## 5 Service Menu

- 1 Press the <F4> key for 1 second to access the Service menu.



The device is now in the Service menu. This comprises nine programs:

- Switch off LITE3
- Adjust the display contrast
- EEPROM variables
- Status of battery charge
- AD converter values
- Calibrate camera (engineer password)
- Serial number (engineer password)
- WLAN
- Set time



2 Use the <F1> and <F2> keys to scroll through the programs.

3 Use the <F3> key to select the desired menu item or to save the change.

## 5.1 Setting the Contrast

- 1 Call up Service meny and select 'Display contrast' menu item.
- 2 Press <F3> button to call up the Contrast program.



- The Contrast program appears on the display:
- 3 Actuation of the <F1> and <F2> keys reduces or increases the contrast.



The display contrast is temperature-dependent and is corrected automatically by an internal temperature monitoring feature. The selected contrast setting therefore remains constant across virtually the entire operating temperature range.

## 5.2 Programming Variables



Programming is performed in the factory. Changes to the set variables can result in the device ceasing to function correctly.

- 1 Call up Service menu and select 'EEPROM variables' menu item.
- 2 Press <F3> button to call up the headlight selection menu.



- The EEPROM variables program appears on the display: This comprises nine programs:
- User variables
  - Limit values for CARS/TRUCKS
  - System variables (password)



The left numeral on the display shows the variable number while the right numeral shows the setting of that variable.

- 3 Select the desired headlight type using the <F1> and <F2> keys.
- 4 Use the <F3> key to call up the variable to be changed.



- 5 Using the input keys (see below), enter a new variable number.
 

With a short press of the <F4> key, it is possible to correct the input for a variable (keying error).

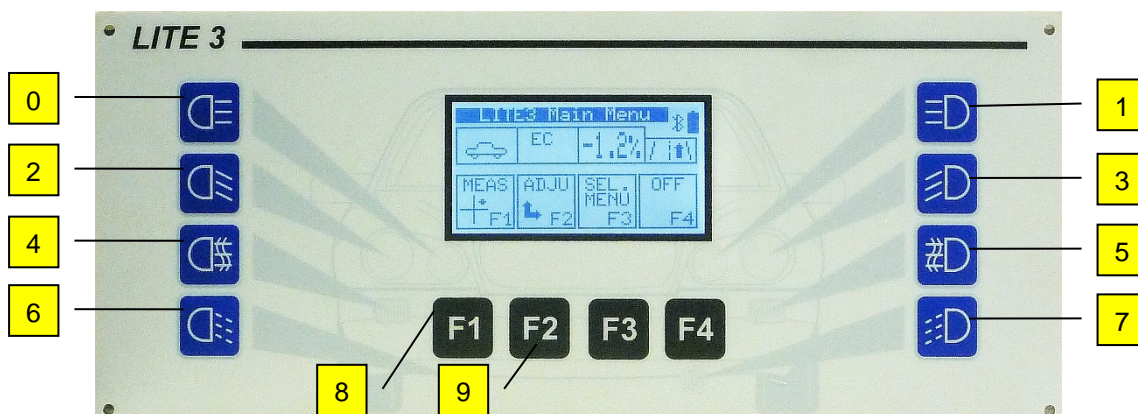


- 6 One long press of the <F3> key saves the value keyed in.
- 7 With a short press of the <F3> key, the menu item is quit without saving.



The 'Limit values CAR/TRUCK' variables can be changed in the same way.

Assignment of numerals to the input keys:



### 5.3 List of Variables

#### User Variables

No.	Name of Variable	Default Value	Min	Max
0	Version number	0		
1	Test line number	0		
2	Percent or degrees 0 = percent 1 = degrees	0	0	1
3	Lux or Candela 0 = lux 1 = candela	0	0	1
4	Signal tone 0 = Signal tone OFF 1 = Signal tone, keyboard & acoustic mode ON 2 = Signal tone, keyboard and acoustic mode OFF	1	0	2
5	Disengagement time in minutes for key-press and Power ON 5 = 5 mins	5		
6	Limit value menu before measurement	1		
7-9	free	-1		
10	RS232 Baud rate user interface 0 = 4800 Baud                      4 = 57600 Baud 1 = 9600 Baud                      5 = 115200 Baud 2 = 19200 Baud 3 = 38400 Baud                      10 = 2400 Baud	5  Ireland 0 France 10		
11	RS232 Baud rate user interface 0 = 4800 Baud                      3 = 38400 Baud 1 = 9600 Baud                      4 = 57600 Baud 2 = 19200 Baud                      5 = 115200 Baud	5	0	5
12	Language LCD 0 = German                      D 1 = English                      GB 2 = French                      F 3 = Spanish                      E 4 = Turkish                      TR 5 = Lithuanian                      LT 6 = 7 = Finnish                      FIN 8 = Slovenian                      SLO 9 = Portuguese                      P Language LCD 2 0 = German                      D 1 = English                      GB 2 = Slovakian                      SK 3 = Swedish                      S	0		
13	LITE 1.2 Simulation 0 = LITE3 1 = LITE1.2 2 = LITE1.2 Gost	0		
14	Delete measuring values 0 = Do not delete after transmission 1 = Delete after transmission	0		

No.	Name of Variable	Default Value	Min	Max
15	CAR or TRUCK after switching on 0 = CAR 1 = TRUCK	0	0	1
16	Right or left-hand traffic after switching on 0 = Right-hand traffic 1 = Left-hand traffic	0		
17	European, USA Type 1, USA Type 2, low-beam after switching on 0 = asymmetrical Europ. low-beam light 1 = USA headlight type 1 2 = USA headlight type 2	0	0	2
18	Light type 0 = HC, DC, HCR, DCR 1 = C, CR	0		
19	USA (SAE) activate headlights 0 = not active, no SAE selection in menu 1 = active	0		
20	Disengagement time acc. to measuring values	30		
21	Disengagement time acc. to control data record	60		
22	Disengagement time for Eurosystem protocol	600		
24	Disengagement time for display lighting and WLAN 5 = 5 minutes 65535 = do not switch off			
25	Send measuring values automatically 0 = send no measuring values automatically 1 = send measuring values with SEND key 2 = send automatically after every meas.	0		
26	Activate motorway lighting 0 = not active, no measurement possible 1 = active	1		
27	Activate motorway lighting 0 = not active, no measurement possible 1 = active	1		
28	Activate daytime driving lights 0 = not active, no measurement possible 1 = active	1		
29	Activate infrared lights 0 = not active, no measurement possible 1 = active	1		
30	DisplayContrast	500		
31	Nominal value for tipping angle, cars, in 0.1%	-12		
32	Nominal value for tipping angle, cars, in 0.1%	-30		
33	Tolerance, headlight specification, Lithuania in 0.1%, tolerance +/- 0.7%	7		
34	Activate left/right-hand traffic menu 0 = not active, no changeover possible 1 = active	0		
35	Priority for short press of button 0 = measurement of supplementary lighting; long press of button for daytime driving light measurement 1 = measurement of daytime driving light; long key press to measure supplementary lighting	1	0	1

No.	Name of Variable	Default Value	Min	Max
36	Image transmission Eurosystem Russia 1 = image transmission V7.00.015	0	0	1
38	Giegnnet ID code 001C 0 = ID code 001C not issued 1 = ID code 001C issued	1		
39	OTCLAN protocol enabled	0		
40	Threshold value distance sensor h = 80 cm	68		
41	Threshold value distance sensor h = 39.37 in	56		
42	Threshold value distance sensor h = 47.24 in	50		
43	2nd level High-beam	2		
44	2nd level Low-beam	1		
45	Bluetooth baud rate for modified hardware			
46	2nd level Foglight	0		
47	2nd level Daytime driving light	3		
49	EEPROM not empty pattern for user variables	23205		

### Limit Values for Cars, Right-Hand Traffic

No.	Name of Variable	Default Value
200	Upper limit, high-beam in 0.1%	15
201	Lower limit, high-beam in 0.1%	-10
202	Right limit, high-beam in 0.1%	20
203	Left limit, high-beam in 0.1%	-20
204	Intensity of high-beam in 0.1 Lux	480
205	Intensity of high-beam, total for Russia	3600
206	Upper limit, dynamic high-beam in 0.1%	-5
207	Lower limit, dynamic high-beam in 0.1%	-20
208	Right limit, dynamic high-beam in 0.1%	15
209	Left limit, high-beam in 0.1%	-15
210	Upper limit, low-beam in 0.1%	-5
211	Lower limit, high-beam in 0.1%	-20
212	Right limit, low-beam in 0.1%	8
213	Upper limit, low-beam in 0.1%	-8
214	Intensity of low-beam bulbs in 0.1 Lux	160
215	Glare from low-beam bulbs in 0.1 Lux	10
216	Upper limit, low-beam in 0.1%	5
217	Lower limit, motorway lights in 0.1%	-15
218	Right limit, motorway lights in 0.1%	8
219	Left limit, motorway lights in 0.1%	-8
220	Upper limit, foglights in 0.1%	-15
221	Lower limit, foglights in 0.1%	-25
222	Intensity of high-beam in 0.1 Lux	160
223	Glare from foglights in 0.1 Lux	10
224	free	-1
225	Upper limit, supplementary light in 0.1%	15
226	Lower limit, supplementary light in 0.1%	-10
227	Right limit, supplementary light in 0.1%	20
228	Left limit, supplementary light in 0.1%	-20

No.	Name of Variable	Default Value
229	Intensity of supplementary light in 0.1 Lux	480
230	Upper limit, USA headlight Type1 in 0.1% VW	-13 -5
231	Lower limit, USA headlight Type1 in 0.1% VW	-35 -15
232	Right limit, USA headlight Type1 in 0.1% VW	44 5
233	Left limit, USA headlight Type1 in 0.1% VW	9 -5
234	Intensity, USA headlight Type1 in 0.1 Lux	160
235	Upper limit, daytime lighting in 0.1%	30
236	Lower limit, daytime lighting in 0.1%	-30
237	Right limit, daytime lighting in 0.1%	30
238	Left limit, daytime lighting in 0.1%	30
239	Intensity of daytime lighting in 0.1 Lux	6
240	Upper limit, USA headlight Type2 in 0.1%	-9
241	Lower limit, USA headlight Type2 in 0.1%	-35
242	Right limit, USA headlight Type2 in 0.1%	20
243	Left limit, USA headlight Type2 in 0.1%	-20
244	Intensity, USA headlight Type2 in 0.1 Lux	160
245	Upper limit DLS in 0.1 %  Russia mode: Intensity 2, low-beam in 0.1 Lux for halogen/xenon lamps: HC, HCR, DC, DCR	-12 35
246	Right limit DLS in 0.1 %  Russia mode: Glare 2, low-beam in 0.1 Lux for halogen/xenon lamps: HC, HCR, DC, DCR	-26 15
247	BMW Mode: Right limit DLS in 0.1 %	5
248	BMW Mode: Left limit DLS in 0.1 %	-5
249	EEPROM not empty pattern for limit values	23205

### Limit Values, Trucks, Right-Hand Traffic

No.	Name of Variable	Default Value
250	Upper limit, high-beam in 0.1%	15
251	Lower limit, high-beam in 0.1%	-10
252	Right limit, high-beam in 0.1%	20
253	Left limit, high-beam in 0.1%	-20
254	Intensity of high-beam in 0.1 Lux	480
255	Intensity of high-beam, total for Russia	3600
256-257	free	-1
258	Upper limit 2, low-beam for Lithuania	-15
259	Lower limit 2, low-beam for Lithuania	-35
260	Upper limit, low-beam in 0.1%	-25
261	Lower limit, high-beam in 0.1%	-37
262	Right limit, low-beam in 0.1%	8
263	Upper limit, low-beam in 0.1%	-8
264	Intensity of low-beam in 0.1 Lux	160
265	Glare of low-beam in 0.1 Lux	10
266	Upper limit, low-beam in 0.1%	-35
267	Lower limit, motorway lights in 0.1%	-45
268	Right limit, motorway lights in 0.1%	8
269	Left limit, motorway lights in 0.1%	-8
270	Upper limit, foglights in 0.1%	-35
271	Lower limit, foglights in 0.1%	-45
272	Intensity of high-beam in 0.1 Lux	160
273	Glare from foglights in 0.1 Lux	10
274	free	-1
275	Upper limit, supplementary light in 0.1%	15
276	Lower limit, supplementary light in 0.1%	-10
277	Right limit, supplementary light in 0.1%	20
278	Left limit, supplementary light in 0.1%	-20
279	Intensity of supplementary light in 0.1 Lux	480
280	Upper limit, USA headlight Type1 in 0.1%	-9
281	Lower limit, USA headlight Type1 in 0.1%	-35
282	Right limit, USA headlight Type1 in 0.1%	44
283	Left limit, USA headlight Type1 in 0.1%	9
284	Intensity, USA headlight Type1 in 0.1 Lux	160
285	Upper limit, daytime lighting in 0.1%	30
286	Lower limit, daytime lighting in 0.1%	-30
287	Right limit, daytime lighting in 0.1%	30
288	Left limit, daytime lighting in 0.1%	-30
289	Intensity of daytime lighting in 0.1 Lux	6
290	Upper limit, USA headlight Type2 in 0.1%	-9
291	Lower limit, USA headlight Type2 in 0.1%	-35
292	Right limit, USA headlight Type2 in 0.1%	20
293	Left limit, USA headlight Type2 in 0.1%	-20
294	Intensity, USA headlight Type2 in 0.1 Lux	160

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No.	Name of Variable	Default Value
295	Russia only: Intensity 2, low-beam for Russia in 0.1 Lux for halogen/xenon lamps: HC, HCR, DC, DCR	35
296	Russia only: Glare 2, low-beam for Russia in 0.1 Lux for halogen/xenon lamps: HC, HCR, DC, DCR	15
297-298	free	-1
299	EEPROM not empty pattern for limit values	23205

**Limit Values, Cars, Left-Hand Traffic**

<b>No.</b>	<b>Name of Variable</b>	<b>Default Value</b>
300	Upper limit, high-beam in 0.1%	0
301	Lower limit, high-beam in 0.1% Ireland (Eire)	-20 -30
302	Right limit, high-beam in 0.1%	0
303	Left limit, high-beam in 0.1% Ireland (Eire)	-20 -35
304	Intensity of high-beam in 0.1 Lux	480
305	Intensity of high-beam, total for Russia	3600
306	Upper limit, dynamic high-beam in 0.1%	-5
307	Lower limit, dynamic high-beam in 0.1%	-20
308	Right limit, dynamic high-beam in 0.1%	15
309	Left limit, high-beam in 0.1%	-15
310	Upper limit, low-beam in 0.1% Ireland (Eire)	-5 -4
311	Lower limit, low-beam in 0.1% Ireland (Eire)	-20 -50
312	Right limit, low-beam in 0.1% Ireland (Eire)	0 30
313	Left limit, low-beam in 0.1% Ireland (Eire)	-20 -60
314	Intensity of low-beam in 0.1 Lux	160
315	Glare of low-beam in 0.1 Lux	10
316	Upper limit, motorway lights in 0.1% Ireland (Eire)	-5 -4
317	Lower limit, motorway lights in 0.1% Ireland (Eire)	-15 -50
318	Right limit, motorway lights in 0.1% Ireland (Eire)	0 30
319	Left limit, motorway lights in 0.1% Ireland (Eire)	-20 -60
320	Upper limit, foglights in 0.1% Ireland (Eire)	-15 -14
321	Lower limit, foglights in 0.1% Ireland (Eire)	-25 -50
322	Intensity of high-beam in 0.1 Lux	160
323	Glare from foglights in 0.1 Lux	10
324	free	-1
325	Upper limit, supplementary light in 0.1% Ireland (Eire)	0 10
326	Lower limit, supplementary light in 0.1% Ireland (Eire)	-20 -30
327	Right limit, supplementary light in 0.1%	0
328	Left limit, supplementary light in 0.1% Ireland (Eire)	-20 -35
329	Intensity of supplementary light in 0.1 Lux	480
330	Upper limit, USA headlight Type1 in 0.1% VW	-9 -5

No.	Name of Variable	Default Value
331	Lower limit, USA headlight Type1 in 0.1% VW	-27
		-15
332	Right limit, USA headlight Type1 in 0.1% VW	0
		5
333	Left limit, USA headlight Type1 in 0.1% VW	-20
		-5
334	Intensity, USA headlight Type1 in 0.1 Lux	160
335	Upper limit, daytime lighting in 0.1%	30
336	Lower limit, daytime lighting in 0.1%	-30
337	Right limit, daytime lighting in 0.1%	30
338	Left limit, daytime lighting in 0.1%	-30
339	Intensity, daytime lighting in 0.1%	6
340	Upper limit, USA headlight Type2 in 0.1%	-5
341	Lower limit, USA headlight Type2 in 0.1%	-20
342	Right limit, USA headlight Type2 in 0.1%	-17
343	Left limit, USA headlight Type2 in 0.1%	-37
344	Intensity, USA headlight Type2 in 0.1 Lux	160
345	Upper limit DLS in 0.1 %	-12
	Russia mode: Intensity 2, low-beam in 0.1 Lux for halogen/xenon lamps: HC, HCR, DC, DCR	35
346	Right limit DLS in 0.1 %	-26
	Russia mode: Glare 2, low-beam in 0.1 Lux for halogen/xenon lamps: HC, HCR, DC, DCR	15
347	BMW Mode: Right limit DLS in 0.1 %	5
348	BMW Mode: Left limit DLS in 0.1 %	-5
349	EEPROM not empty pattern for limit values	23205

**Limit Values, Trucks, Left-Hand Traffic**

No.	Name of Variable	Default Value
350	Upper limit, high-beam in 0.1% Ireland (Eire)	0 10
351	Lower limit, high-beam in 0.1% Ireland (Eire)	-20 -30
352	Right limit, high-beam in 0.1%	0
353	Left limit, high-beam in 0.1% Ireland (Eire)	-20 -35
354	Intensity of high-beam in 0.1 Lux	480
355	Intensity of high-beam, total for Russia	3600
356-357	free	-1
358	Upper limit 2, low-beam for Lithuania	-15
359	Lower limit 2, low-beam for Lithuania	-35
360	Upper limit, low-beam in 0.1% Ireland (Eire)	-12 -4
361	Lower limit, low-beam in 0.1% Ireland (Eire)	-28 -50
362	Right limit, low-beam in 0.1% Ireland (Eire)	0 30
363	Left limit, low-beam in 0.1% Ireland (Eire)	-20 -60
364	Intensity of low-beam in 0.1 Lux	160
365	Glare of low-beam in 0.1 Lux	10
366	Upper limit, motorway lights in 0.1% Ireland (Eire)	-12 -4
367	Lower limit, motorway lights in 0.1% Ireland (Eire)	-28 -50
368	Right limit, motorway lights in 0.1% Ireland (Eire)	0 30
369	Left limit, motorway lights in 0.1% Ireland (Eire)	-20 -60
370	Upper limit, foglights in 0.1% Ireland (Eire)	-22 -14
371	Lower limit, foglights in 0.1% Ireland (Eire)	-33 -50
372	Intensity of high-beam in 0.1 Lux	160
373	Glare from foglights in 0.1 Lux	10
374	free	-1
375	Upper limit, supplementary light in 0.1% Ireland (Eire)	0 10
376	Lower limit, supplementary light in 0.1% Ireland (Eire)	-20 -30
377	Right limit, supplementary light in 0.1%	0
378	Left limit, supplementary light in 0.1% Ireland (Eire)	-20 -35
379	Intensity of supplementary light in 0.1 Lux	480
380	Upper limit, USA headlight Type1 in 0.1%	0
381	Lower limit, USA headlight Type1 in 0.1%	-27
382	Right limit, USA headlight Type1 in 0.1%	0
383	Left limit, USA headlight Type1 in 0.1%	-20

No.	Name of Variable	Default Value
384	Intensity, USA headlight Type1 in 0.1 Lux	160
385	Upper limit, daytime lighting in 0.1%	30
386	Lower limit, daytime lighting in 0.1%	-30
387	Right limit, daytime lighting in 0.1%	30
388	Left limit, daytime lighting in 0.1%	-30
389	Intensity, daytime lighting in 0.1%	6
390	Upper limit, USA headlight Type2 in 0.1%	-5
391	Lower limit, USA headlight Type2 in 0.1%	-20
392	Right limit, USA headlight Type2 in 0.1%	-17
393	Left limit, USA headlight Type2 in 0.1%	-37
394	Intensity, USA headlight Type2 in 0.1 Lux	160
395	Russia only: Intensity 2, low-beam for Russia in 0.1 Lux for halogen/xenon lamps: HC, HCR, DC, DCR	35
396	Russia only: Glare 2, low-beam for Russia in 0.1 Lux for halogen/xenon lamps: HC, HCR, DC, DCR	15
399	EEPROM not empty pattern for limit values	23205

These limit values are default values in MAHA mode (0).

### System variables

For MAHA service technicians. Access is password-protected.

### 5.4 Battery Status and AD Converter Card

- 1 Call up Service menu and select 'Battery/accumulator status' menu item.
- 2 Press the <F3> key to display the accumulator status. ▶ The accumulator values appear on the screen:



- 1 Call up Service menu and select 'A/D converter values' menu item.
- 2 Press the <F3> key to display the A/D converter values. ▶ The A/D converter values appear on the screen:



- 3 Use the <F4> button to quit the menu item.

U version:      Power supply  
 I accu:        Accu current  
 TempAccu:    Accu temperature  
 U chg:        Charge voltage  
 U ext:        Not used at present  
 Dist.:        Not used at present  
 Dist.:        Accu voltage

## 6 Options

### 6.1 Bluetooth Connection

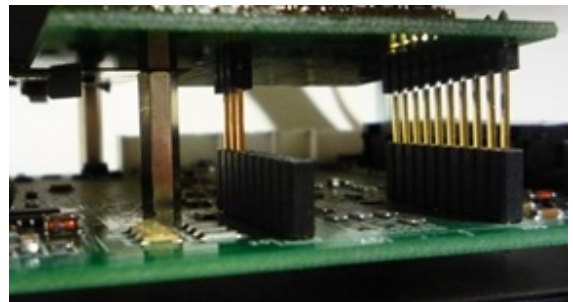
#### Conditions / Preparations

- EUROSYSYSTEM software v7.20 or higher.
- LITE 3 user variable 13 must be set to 0.
- Other LITE 3 Bluetooth devices in the room need to be switched off.

- 1 Switch off the LITE 3 operating unit and remove it from the housing.



- 2 Insert the transmitter module into the Bluetooth slot as shown.



#### Installation under Windows 7 (32 and 64 Bit)



All internal Bluetooth software versions must be de-installed before installing the receiver / USB pen drive supplied.

Model:  
Gembird BTD MINI2 Class 1





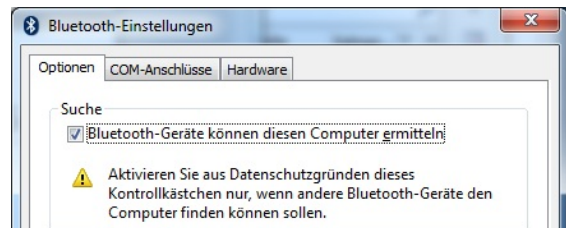
The range of radio waves is subject to a great number of influencing factors. That means that max. range can vary very greatly. To assure seamless communication within the workshops, the maximum distance to LITE 3 should be reduced to 30 meters.

- 1 Plug receiver / USB pen drive into USB port on the PC.
- 2 Wait for automatic driver installation.

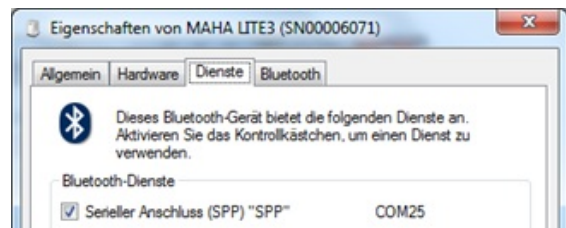
- 3 Right-click the Bluetooth symbol  in the task bar and select "Add Device".
- 4 Select MAHA LITE 3.



- 5 In the context menu, select "Open Settings" and tick the checkbox under Search.



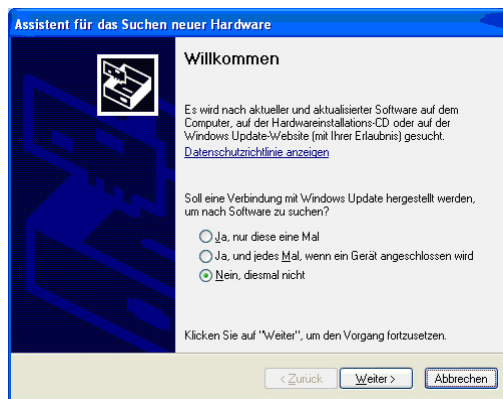
- 6 In "Properties" the COM port can be checked and renamed if necessary.



Installation of the drivers from the mini CD supplied is not normally required.

### **Discontinued Model BELKIN Adapter F8T017ng Installation under Windows XP (Windows 32 Bit only)**

- 1 Plug receiver / USB pen drive into USB port on the PC.
- 2 Quit the Hardware Assistant by pressing <Quit>.
- 3 Install CD.
- 4 Select installation (here WIN XP 32 Bit).
- 5 Follow installation instructions, confirm with <Next>.



6 Accept license agreement

8 Close installation with <Complete>.

7 Select target folder and confirm with <Next>.



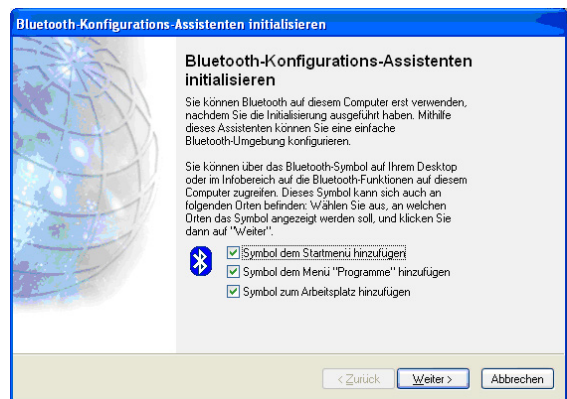
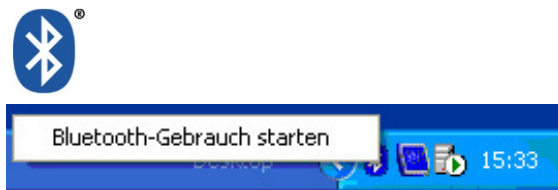
The device must be enabled.

Every installed Bluetooth application has its own device address. Only the device being installed must be switched on.

9 Click Bluetooth symbol on task bar in Info area with right-hand mouse key.

11 Select Bluetooth Configuration Assistant and confirm with <Next>.

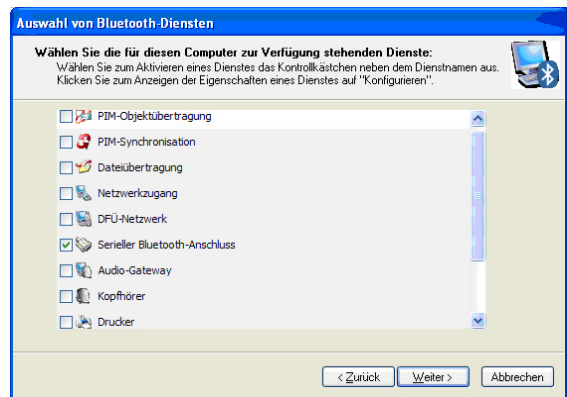
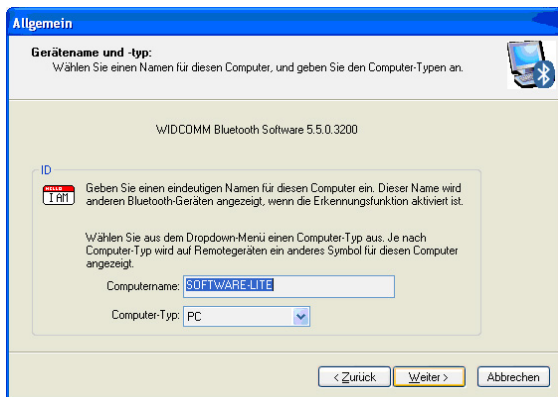
10 Start Bluetooth Use, confirm with <Next >.



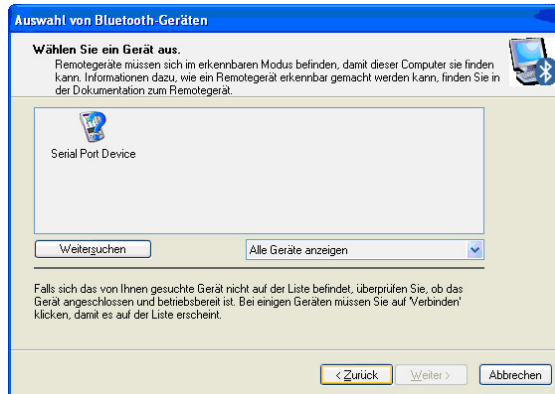
12 Confirm with <Next>.

13 Only select <Serial Bluetooth Connection>.

14 Confirm with <Next>.



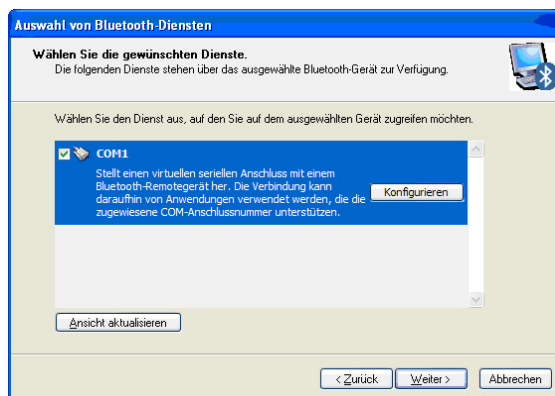
15 Start Serial Port Device with double-click.



16 Type in **0000** and confirm with <Next >.



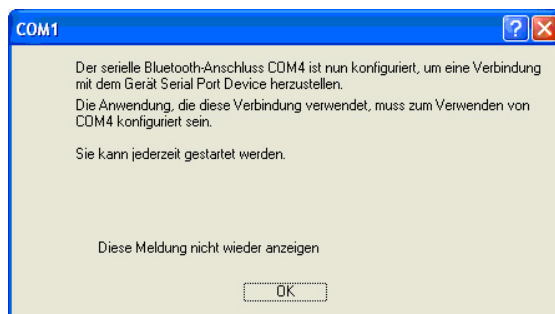
17 Confirm with <Next>.



18 Quit the Assistant with <Complete>.

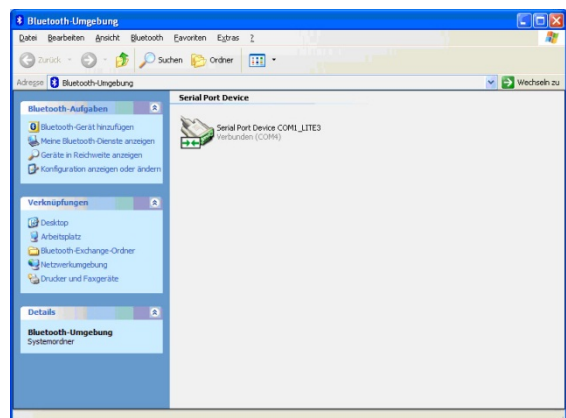


19 Confirm with <OK>.

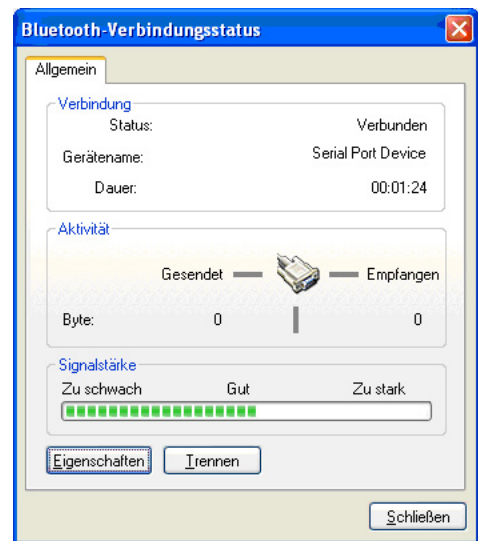


► Connection is displayed in window.

20 The name of the connection can be changed.

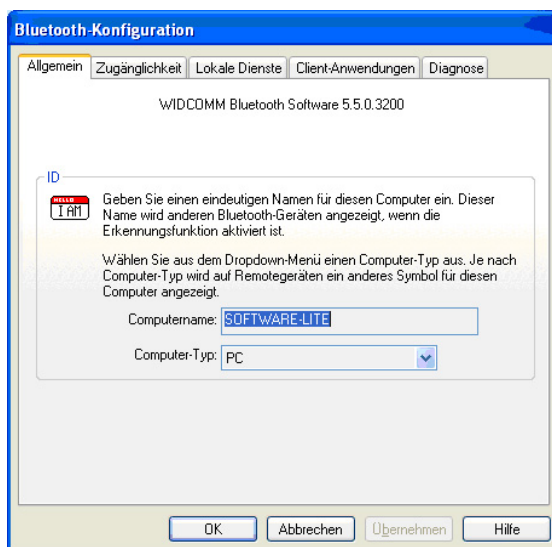


21 Double-click "Serial Port Device" to call up the status.

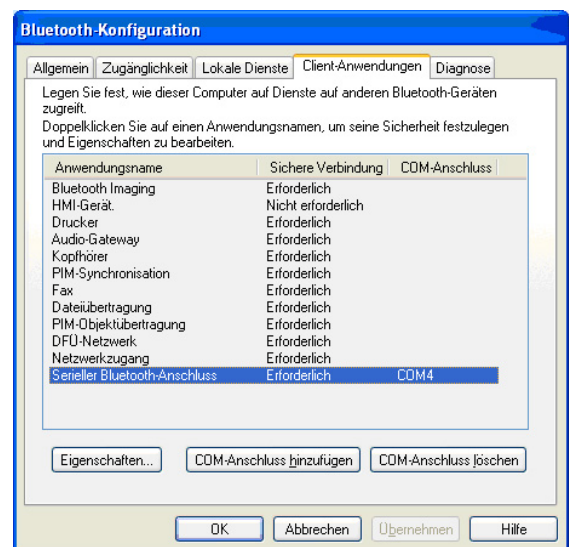


## View of Configuration after Installation

### General



### Client applications



## 6.2 WLAN Connection

### WLAN adapter

- Data transmission speeds of up to 30 Mbit
- 2-antenna technology for large range and high coverage
- Compatible with 802.11 b/g/n standards
- Reliable protection with WEP, WPA and WPA2
- The US300EX adapter with 2 antennas connects your computer quickly and reliably with your wireless SSW interface converter



### WLAN interface converter

- The SSW-WLAN (IGW/400) interface converter is a network based serial device server.
- The device provides a transparent serial interface – without platform restrictions at distances of up to 100 metres.
- The WLAN module is installed in the housing of the LITE3.

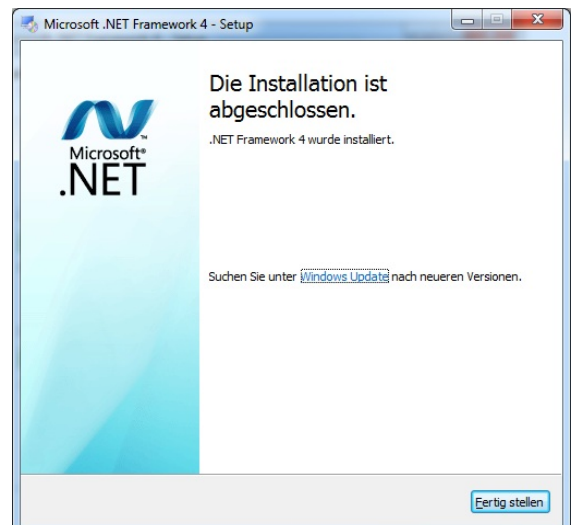
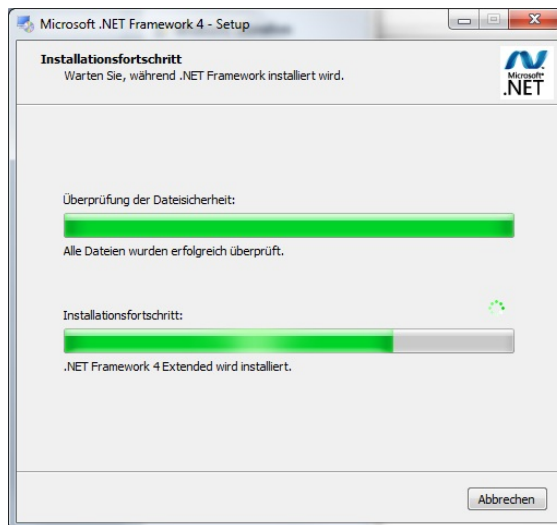
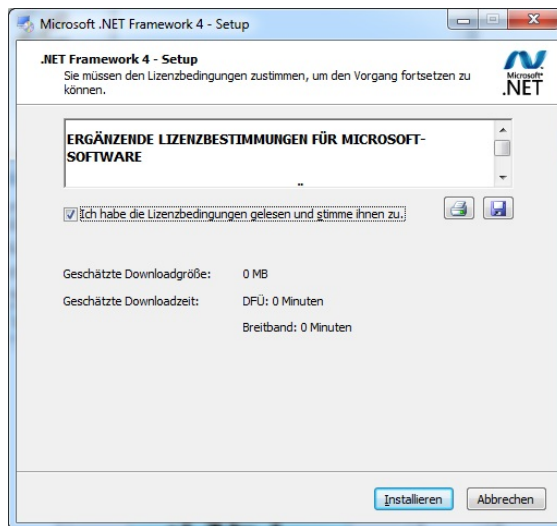
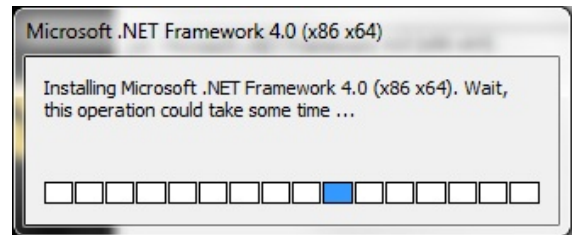
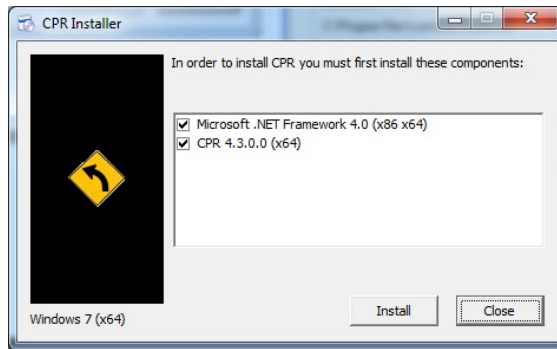


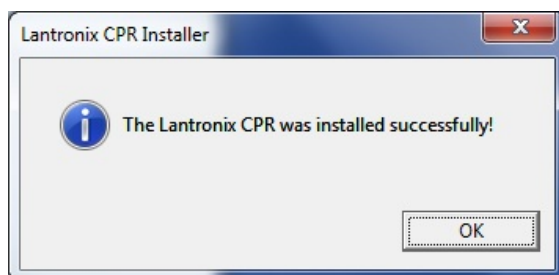
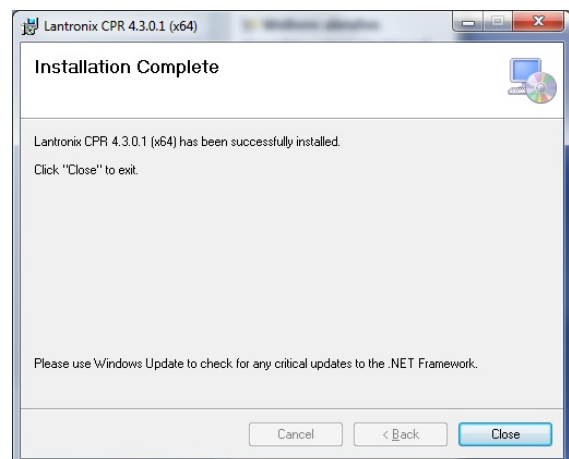
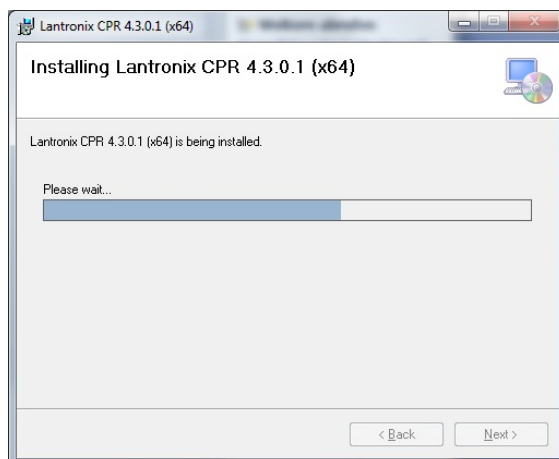
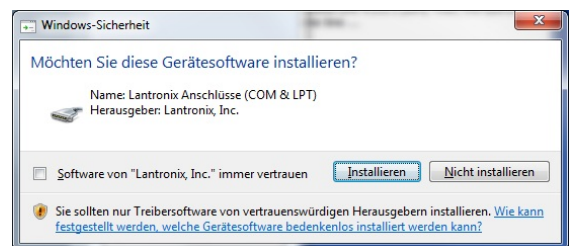
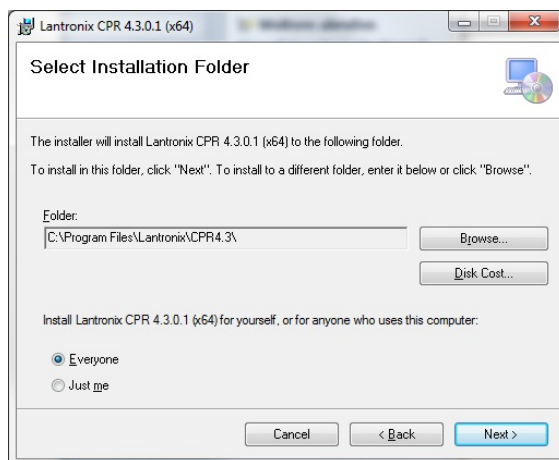
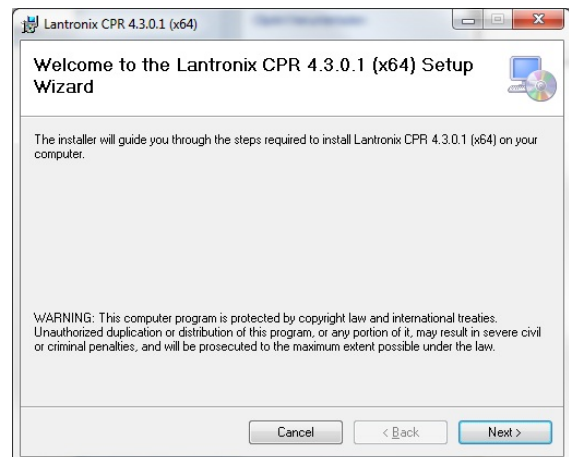
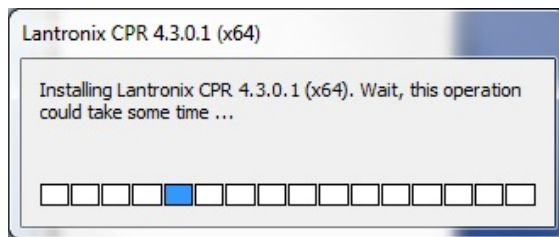
### LantronxRedirector

#### Software CPR for Windows 7 (32/64bit) / Windows XP (32bit)

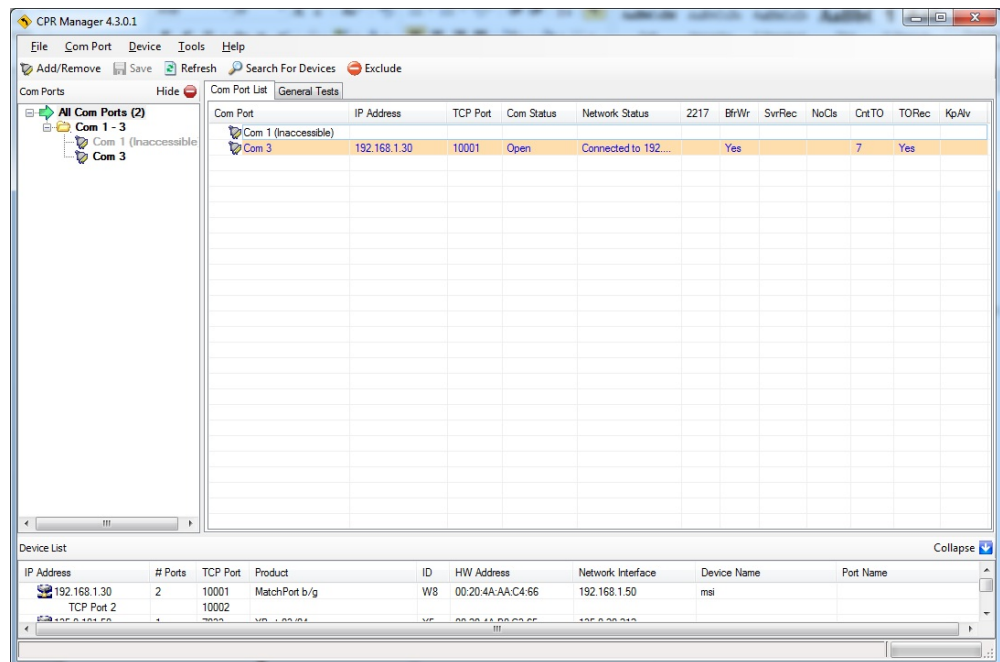
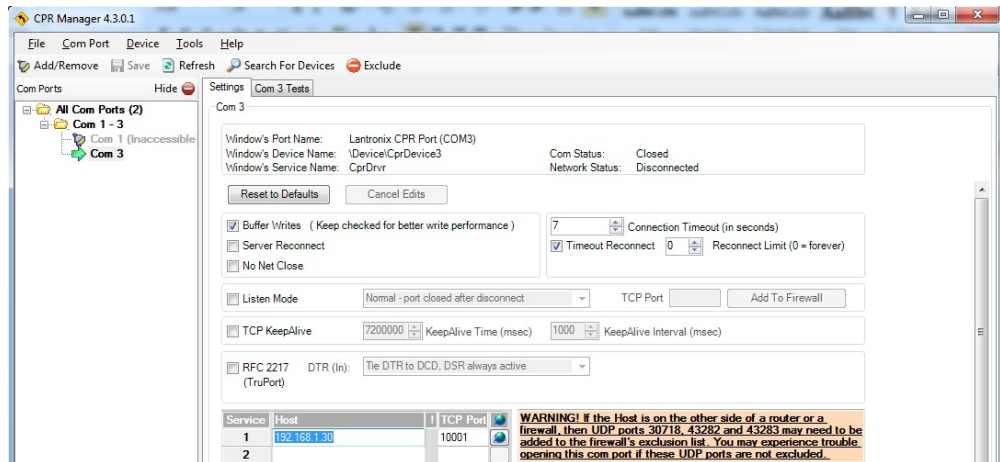
After configuration of the WLAN adapter (instructions supplied with device), the drivers are installed to use a serial interface on the SSW-WLAN as a virtual COM port on a Windows PC.

- 1 Start Cpr\_x86x64cd\_4.3.0.1.exe and install both components.





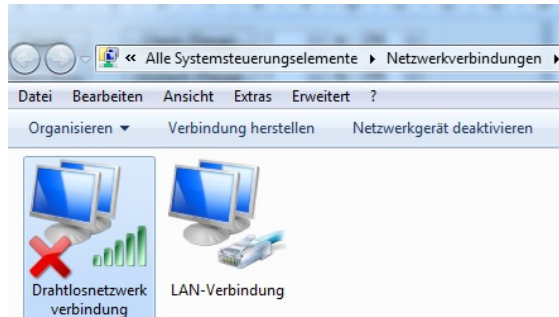
- 2 After installation, the PC must be rebooted before using the virtual COM port for the first time.
- 3 Call up CPR Manager in the Start menu, click *Add/Remove* and select a free COM port (here COM 3).  
Under Host, now key in the preconfigured IP address for interface converter **192.168.1.30** and at the TCP port, key in the number **10001**



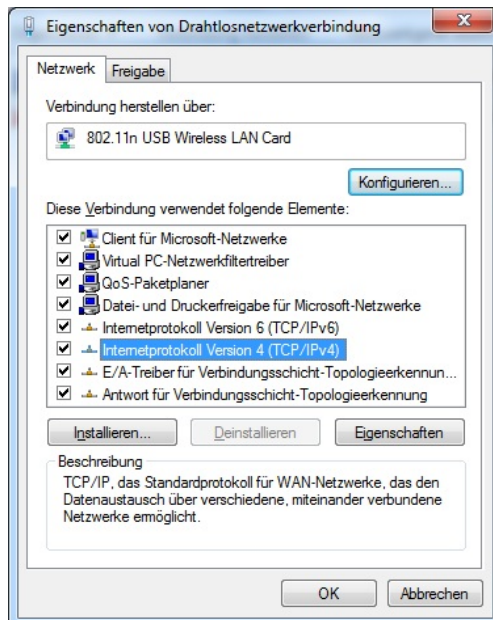
- 4 The configuration is now complete. Quit by pressing the 'Save' button.  
► After configuration, the serial interface of the SSW-WLAN can be used as the virtual COM port on a Windows PC.  
(Note: With Windows 7, it may be necessary to set up the WLAN connection manually.)

## 6.2.1 Configuration of the Wireless PC Network

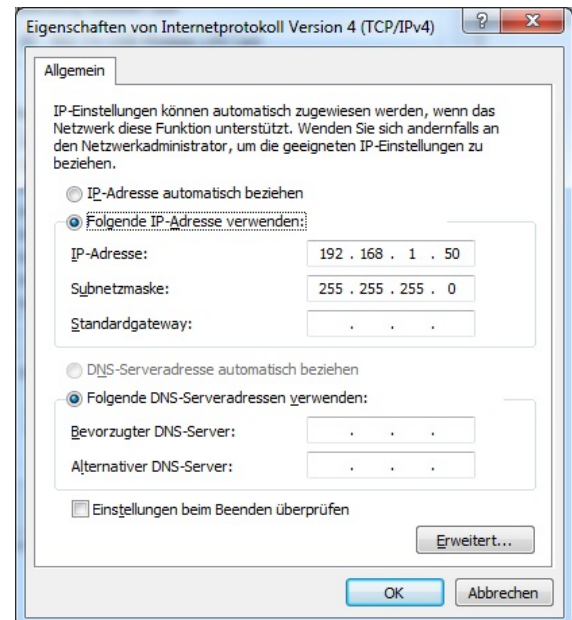
In the search box in Windows 7, key in *ncpa cpl* (XP Start/Run).



Select *Properties* in the Context menu of the wireless network.



Use the following IP address in Properties for the Internet protocol:  
*192.168.1.50*



Confirm with <OK>Finished.

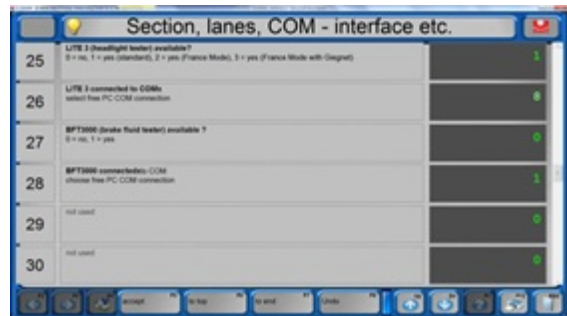
## 6.3 EUROSYSYSTEM

### Settings and Procedures of Light Measurement in EUROSYSYSTEM v7.50

After the connection is established, the yellow indicator lamp is ON.

Set variables using System / Settings / Section, Lanes, External Devices

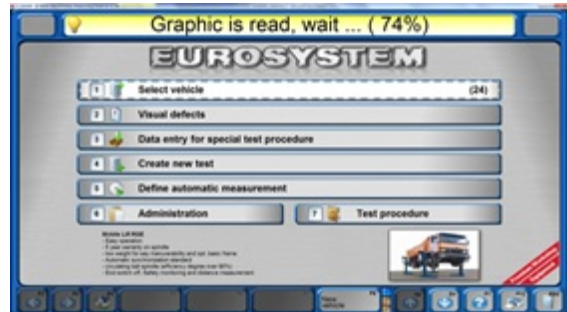
- Variable 25: Value 1
- Variable 26: COM port
- Reboot the EUROSYSYSTEM



When devices are connected, connection takes place automatically.



- ▶ Display of Welcome screen.
- 1 Position LITE 3 in front of vehicle and check the headlights.
- 2 Measuring values are transmitted to the EUROSYSYSTEM automatically.
- 3 The connection to LITE 3 is retained until the EUROSYSYSTEM is terminated.
- 4 Select <Display measuring values> menu item.

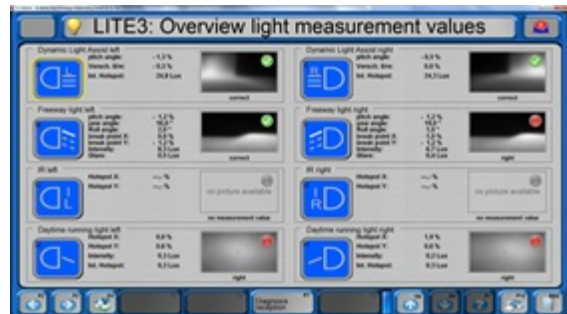


5 Select <Light tester> menu item.

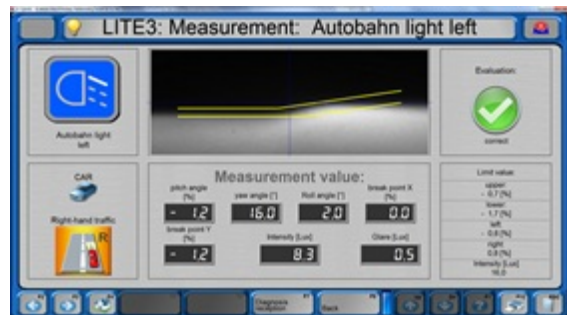


► An overview of the measuring values is displayed.

6 Select the desired measurement:  
In this example, second level with dynamic high-beam and motorway light.

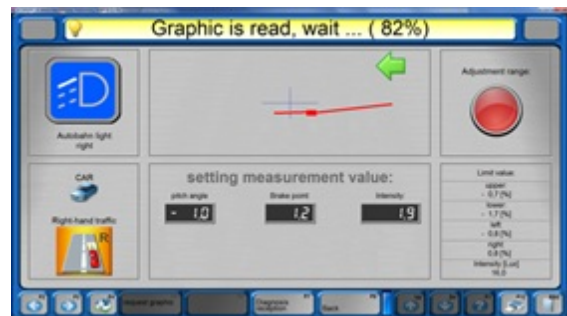


► The data for the selected measurement are displayed in detailed form.



## Visual Presentation of Headlight Adjustment in EUROSYSYSTEM

- 1 Start the headlight adjustment by pressing button F2 on the headlight tester and press a light selection key.
  - ▶ Immediately, the system transmits the coordinates and the current headlight pattern to EUROSYSYSTEM.
  - ▶ Adjustment can now be tracked in the EUROSYSYSTEM.



- ▶ Test values and evaluation are updated in real time.
- 2 The graphic for the headlight pattern can be updated manually by pressing the F6 button.



- 3 To carry out an adjustment without graphic, disable the LITE 3 image transmission in the soft DIPs.



---

## 7 Maintenance

### 7.1 Maintenance by the Operator

- The LITE 3 headlight tester is an optical measuring device and must therefore be handled accordingly (i.e. with care).
- The outer protective disk needs to be wiped regularly with a clean cloth.
- In all other respects, this is a zero-maintenance device.

### 7.2 Charging the Battery

---



- Standard battery 3.7 Ah
  - More powerful 11 Ah battery is advisable for WLAN and Bluetooth applications
- 

#### USB / RS232

When connected by cable, power supply and charging of the battery takes place via the round Neutrik connector at the bottom of the housing.

#### Bluetooth / WLAN

With wireless PC connections and/or standalone devices, the connector for the power unit is located to the outer left of the display screen at the bottom of the housing (refer to Fig.). Use the 12V 2A plug-in power supply unit provided.



### 7.3 Spare Parts

To ensure safe and reliable operation, only use original spare parts supplied by the equipment manufacturer.

## 7.4 Troubleshooting

**Fault:** No connection established.

Possible Cause	Remedial Action
LITE 3 not enabled or switched off.	Switch on LITE 3.
Battery is discharged.	Charge the battery or establish a direct connection with the charger attached.
Wrong COM port selected.	Check COM port.
	In Bluetooth mode: Right-click the symbol on task bar <ol style="list-style-type: none"> <li>1 Bluetooth environment: Conduct a search</li> <li>2 Right-click serial port</li> <li>3 Properties</li> <li>4 Check COM port.</li> </ol>
	With RS232 connection: Start the EUROSYSYEM <ol style="list-style-type: none"> <li>1 Page down, then &lt;System&gt;</li> <li>2 Section, select gate &lt;F&gt;</li> <li>3 Check variable 26</li> </ol>
	With WLAN connection: refer to 'WLAN installation' section
Bluetooth network device not installed	Right-click the Bluetooth symbol on the task bar <ol style="list-style-type: none"> <li>1 Open Settings</li> <li>2 COM Ports, Add Device</li> <li>3 Outgoing: MAHA LITE 3</li> <li>4 Confirm SPP service</li> </ol>
Transmitter and receiver are wrongly installed.	Ensure that transmitter and receiver are correctly installed. With PCB removed, the active Bluetooth connection on the orange diode beside connector X6 can be checked, on device server for WLAN. A blue LED shows the existing network connection while a red LED indicates operational readiness status.
User variable 13 has an incorrect value.	In the EEPROM variables menu, set user variable 13 to a value of 0.

Possible Cause	Remedial Action
Lantronix CPR Manager blocking	If the Windows firewall blocks a program and you wish for this program to communicate through the firewall, you can usually accomplish this by selecting the relevant program in the Exceptions List in the Windows firewall.

## 8 Disposal

If you want to dispose of the equipment, please contact your MAHA dealer or the following address, indicating equipment type, date of purchase and serial number:

MAHA Maschinenbau Haldenwang GmbH & Co. KG  
 Hoyen 20  
 87490 Haldenwang  
 Germany

Phone: +49 (0) 8374 585 0  
 Fax: +49 (0) 8374 585 500  
 Email: altgeraete@maha.de

Alternatively, you may take the equipment to a specialised waste management plant to ensure that all components and operating liquids are properly disposed of.

## 9 Contents of the Declaration of Conformity

### MAHA Maschinenbau Haldenwang GmbH & Co. KG

herewith declares as a manufacturer its sole responsibility to ensure that the product named hereafter meets the safety and health regulations both in design and construction required by the EC directives stated below.

This declaration becomes void if any change is made to the product that was not discussed and approved by named company beforehand.

**Model:** LITE 3  
**Designation:** Headlight Tester  
**EC Directives:** 2004/108/EC; 2006/95/EC  
**EN Standards:** EN12100-1/-2; EN60204-1; EN61000-6-3, EN61000-6-4

## 10 Company Information

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The contents of this edition have been checked with great care. However, errors cannot be fully excluded. Subject to technical change without notice.

### Document

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### Manufacturer

MAHA Maschinenbau Haldenwang GmbH & Co. KG  
Hoyen 20  
87490 Haldenwang  
Germany

Phone: +49 (0)8374 585 0  
Fax: +49 (0)8374 585 590  
Fax Parts: +49 (0)8374 585 565  
Internet: <http://www.maha.de>  
E-Mail: [maha@maha.de](mailto:maha@maha.de)  
**Hotline:** +49 (0)1806 624 260 for Brake Testers and Test Lanes  
+49 (0)1806 624 280 for Automotive Lifts  
+49 (0)1806 624 290 for Dynamometers and Emission Testers

### Service

AutomoTec GmbH  
Maybachstraße 8  
87437 Kempten  
Germany  
Phone: +49 (0)1806 624 250  
Fax: +49 (0)1806 624 255  
Internet: <http://www.automo-tec.com>  
E-Mail: [service@automo-tec.com](mailto:service@automo-tec.com)