

# USER MANUAL

## CAP2600

Camera headlamp adjustment system  
Universal Light and Heavy vehicle



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## I. Introduction

Thank you for having purchased the CAP2600 headlamp adjustment system. This system, which is fitted with camera technology developed by CAPELEC, is an autonomous control and adjustment system adapted to all types of headlamp.

Please read this manual carefully before using the appliances in order to obtain the best results. Keep it in a safe place to be able to consult it if necessary.

Remark: The information in this document is subject to change without notice. CAPELEC cannot be held liable for direct or indirect damage of any type, nor for losses or costs incurred through non compliant use.

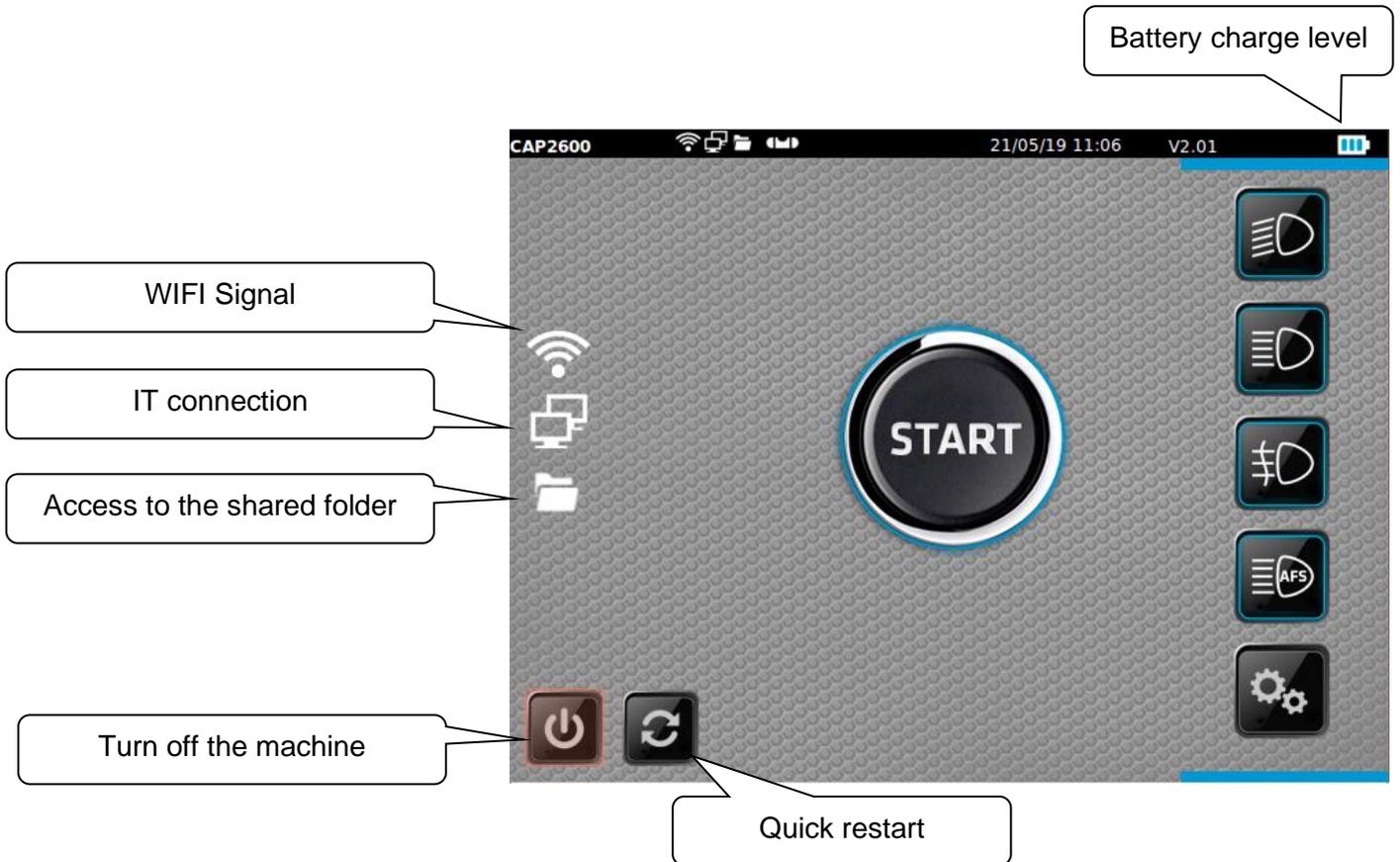


### **WARNING**

The lens of the system must never be exposed to sunlight.  
The concentration of sunlight can cause heating and a risk of damaging the equipment and/or burns.

## II. Overview

### 2.1 Viewing touch screen



For a more precise use it is recommended to use the stylus.



## 2.3 Main functions

There are 5 main modes available when the appliance is powered on:



### Control

The control menu is used to check the headlamps on all types of vehicle depending on current legislation. The appliance will guide you through a complete control of the different vehicle lamps.



### Dipped beam

It is used to accurately adjust the dipped-beam headlamps: dip angle, lateral angle and light intensity measurement.



### High beam

It is used to adjust the high beam: dip angle, lateral angle and light intensity measurement.



### Fog lamps

It is used to adjust the fog lamps: dip angle and light intensity measurement.



### AFS calibration

It is used to calibrate the AFS function. A specific diagnosis tool is required to interact with the calculator.



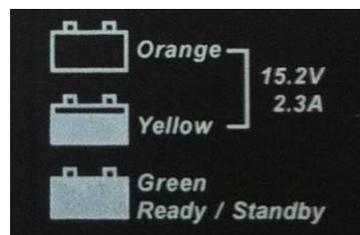
### Configuration

This menu gives access to several sub-menus used to configure the different CAP2600 functions, such as the printer mode, the date and time etc.

## 2.4 Power supply

The CAP2600 operates on lithium-iron batteries. It has a 10 hour autonomy in continuous operation.

The charger supplied with the appliance has a battery load indicator:



Remark on the charger:

The connection point is the adapter block which must remain accessible.

A charger different from the originally supplied charger must not be used under any circumstances.

Remark on the batteries:

The replacement of the batteries must be by original parts.

Disposal of the batteries:

Dispose of the batteries in compliance with the laws and regulations applicable to your country. Do not dispose of used batteries in the dustbin: in most countries the incineration of batteries is prohibited, as are their burial or disposal in public landfills.

Please contact the competent authorities for more information on the measures adopted by your country to collect, recycle and destroy used batteries.

## III Placing the CAP2600

### 3.1 Vehicle preparation

Firstly, check the tyre pressure. If the pressure is not correct, either inflate or deflate to the recommended pressure within the - 0 bar and + 0.3 bar limit. In all cases, the pressure must be balanced.

For vehicles fitted with discharge lamps, operate the windscreen wiper system when the lamps are lit.

Move the vehicle forward at low speed, gently stop the vehicle in the lamp checking zone with the wheels straight. Otherwise (for example after an axle check), the vehicle should be advanced the equivalent of one wheel circumference (without constraints on the axles) and then gently stopped.

For vehicles with non traditional suspension (e.g. servo suspension), the engine must be started before carrying out any measurements, and the vehicle must be stabilised with the engine running.

Put on the handbrake (progressively for manually controlled brakes) or, for automatic models, place the gear stick in the P position (Park).

When the vehicle is fitted with a manual lamp adjustment system, either inside the vehicle or on the lamps, place the system in the position set by the manufacturer depending on the load. If the system is not operational, the control is carried out in the current configuration.

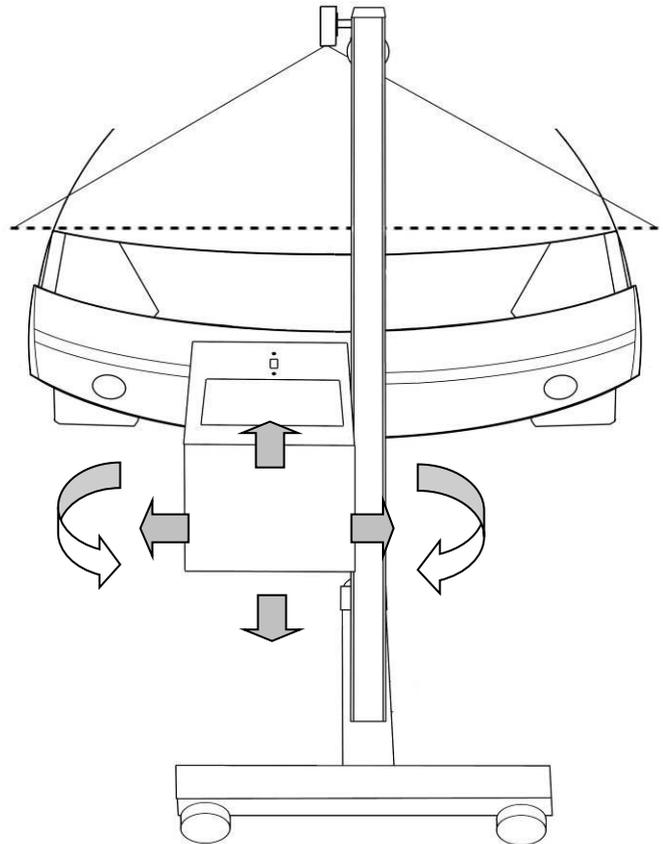
### 3.2 Positioning in the length axis of the vehicle

1 - Bring the CAP2600 in front of the centre of the vehicle, such that the lens of the adjustment system is located between 20 and 80 cm in front of each lamp for the measurement;

2 - Identify two fixed points on the vehicle, symmetrically placed in relationship to the central axis (example: upper left and right corners of the windscreen, angles of the bonnet, windscreen wiper nozzles if their base is not deformed);

3 - Pivot the box to place the laser line on the selected fixed points of the vehicle.

4 - You can begin the control procedure (or adjustment). During this phase you will move the CAP2600 in front of the headlamp to be checked (or adjusted) while maintaining the angular position thanks to the laser.



#### WARNING Laser radiation:

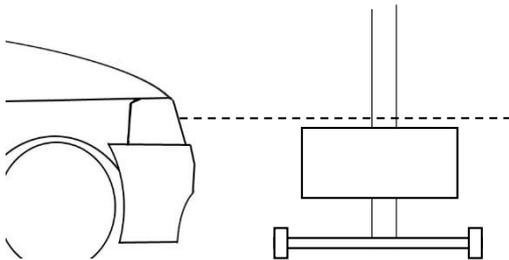
- Class 2M laser device
- Do not look directly into the beam nor directly observe using "magnifying" optical instruments.
- The vehicle must be empty of occupants when the laser beam is being adjusted.
- Laser adjustment must be used momentarily.

### 3.3 Positioning the optical block in front of the headlamp.

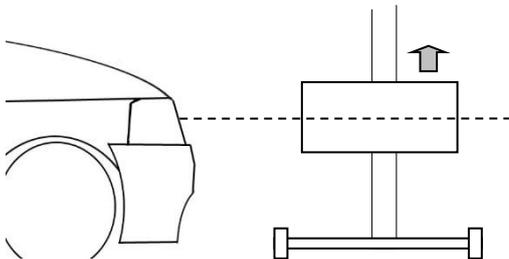
Electronic positioning assistance will help you when positioning the optical block in front of the headlamps. It is automatically activated before each angle measurement for passing beams. The indications displayed on the screen indicate in which direction the box is to be moved. When the optimum position is reached "Ok" is displayed on the screen and the appliance automatically switches to the next phase.

Operating mode:

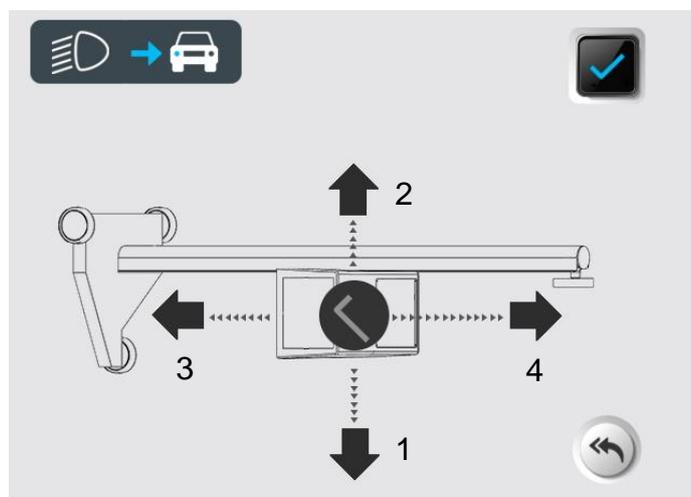
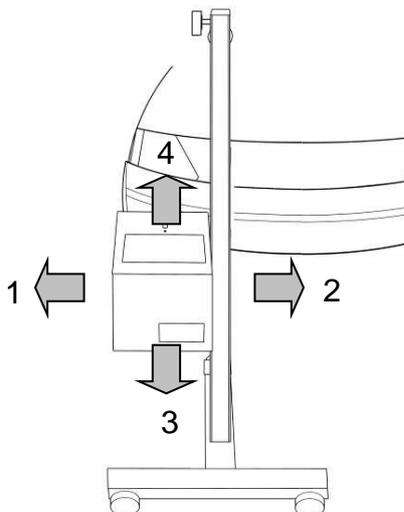
1 - Place the headlamp adjustment system in front of the headlamp to be checked, by visually placing it below the center of the headlamp.



2 - Follow the instructions on the screen in order to place the optical block at the correct height.



3 - Finally, place the optical block accurately by following the instructions until "Ok" is displayed on the screen.

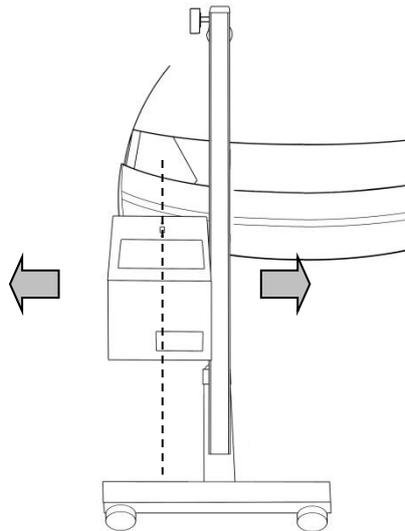


**WARNING:** During this operation make sure that the front of the appliance is not exposed to a parasite external light source (sunlight, spotlight), this could cause incorrect positioning.

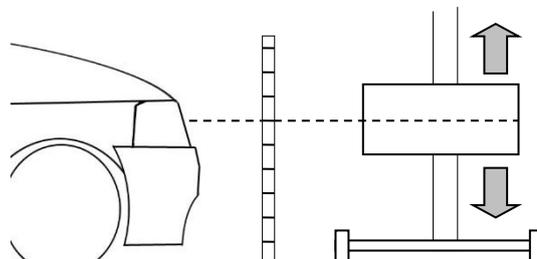
Visual positioning:

If you do not have the electronic assistance, manual positioning is carried out by placing the lens and the centre of the headlamp opposite each other.

1 - First place the optical block laterally in front of the headlamp



2 - Measure the height on the centre of the headlamp and position the centre of the lens at this height.



## IV. Control

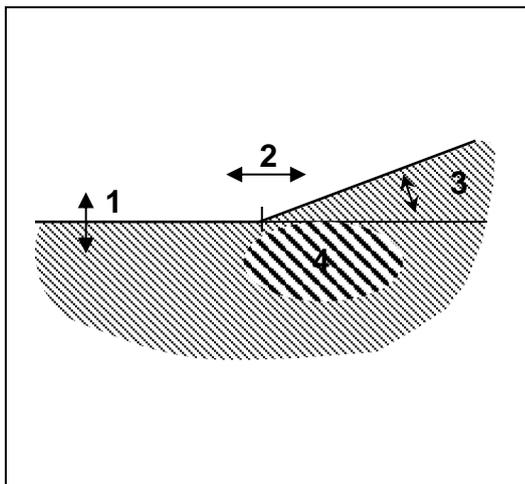
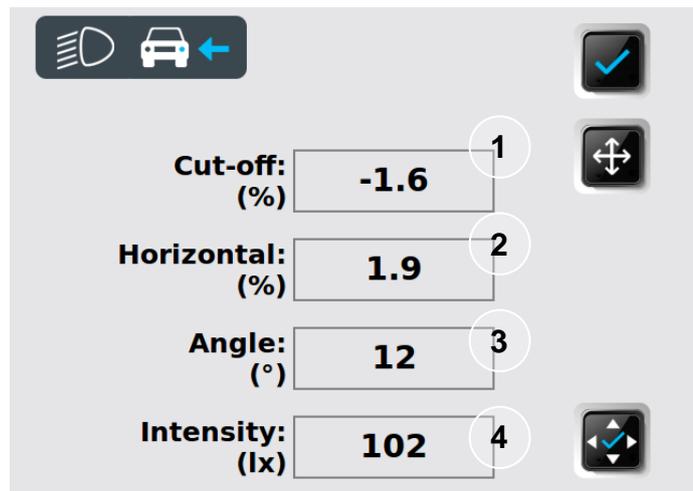


In the control menu , the CAP2600 will guide you through the entire vehicle headlamp control process.

### Step: Controlling dipped beam lamps

During this step you will control the left and right side lamps of the vehicle.

First you must position the CAP2600 in front of the headlamp to be controlled. (See chapter III).

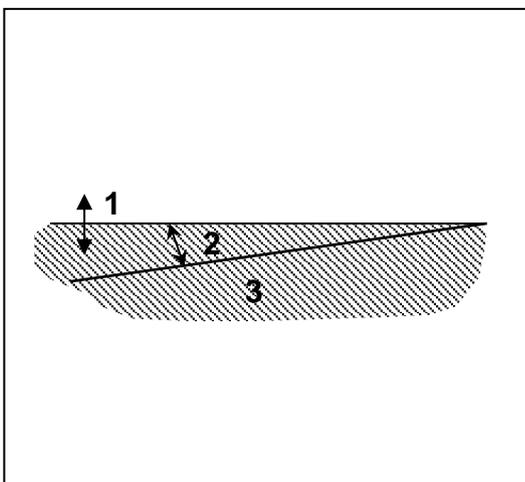
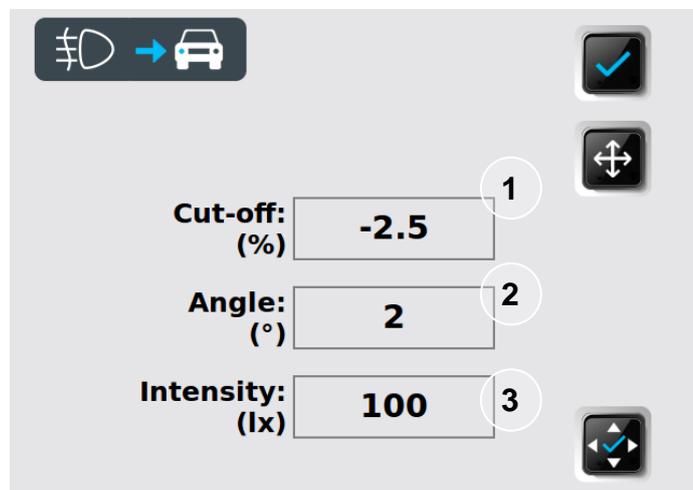
Cut-off: (%)	-1.6	1
Horizontal: (%)	1.9	2
Angle: (°)	12	3
Intensity: (lx)	102	4

The example above corresponds to the measurement of the left dipped beam lamp. The measured values displayed in red indicate a value that is outside the statutory limits.

### Step: Controlling the fog lamps

During this step you will control the left and right side fog lamps of the vehicle.

First you must position the CAP2600 in front of the headlamp to be controlled. (See chapter III).

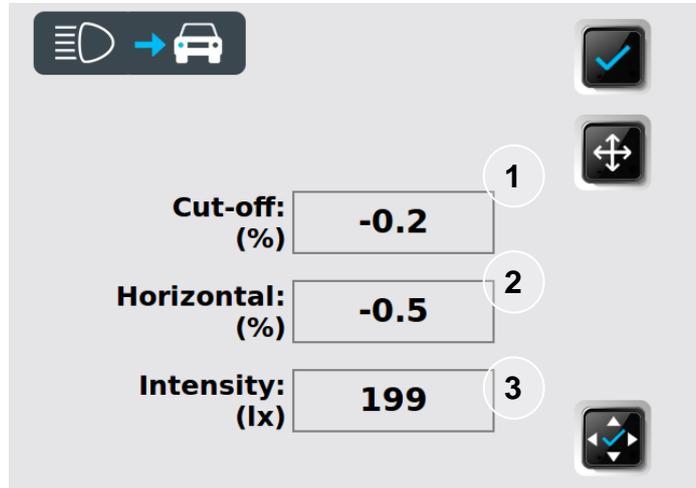
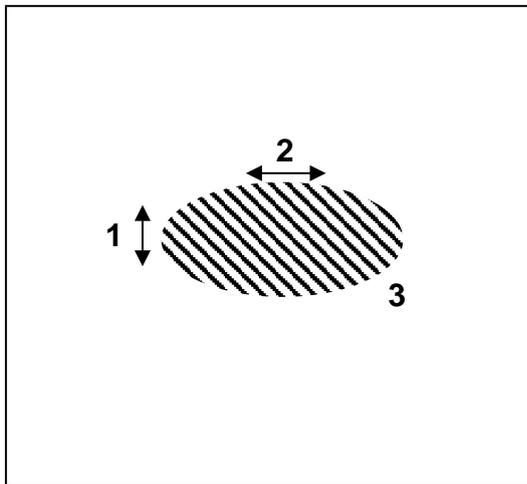



Cut-off: (%)	-2.5	1
Angle: (°)	2	2
Intensity: (lx)	100	3

### Step: Controlling high beam lamps

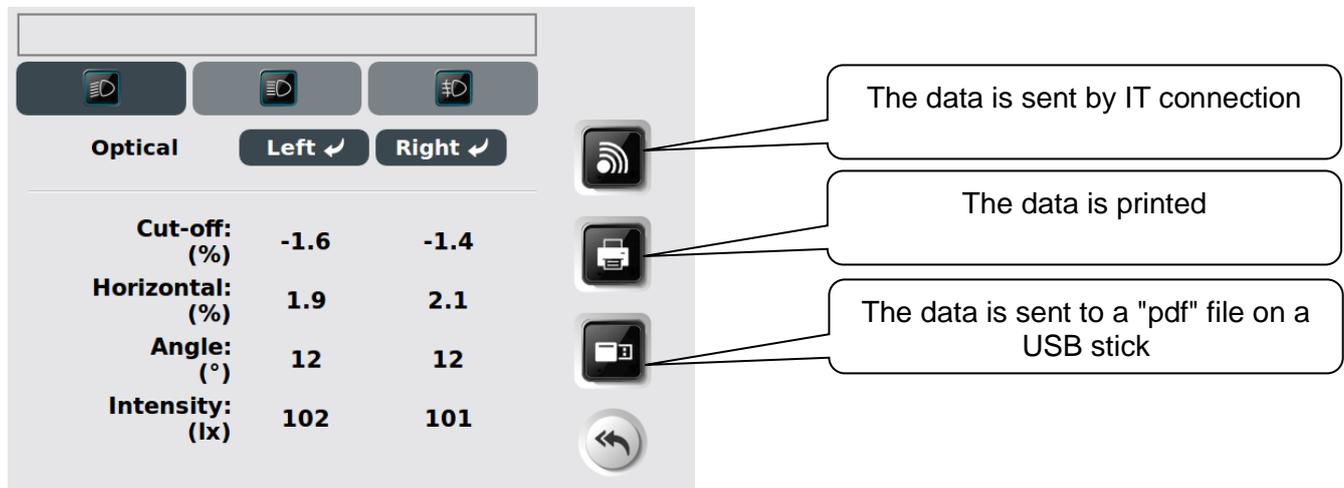
During this step you will control the left and right side high beam lamps of the vehicle.

First you must position the CAP2600 in front of the headlamp to be controlled. (See chapter III).



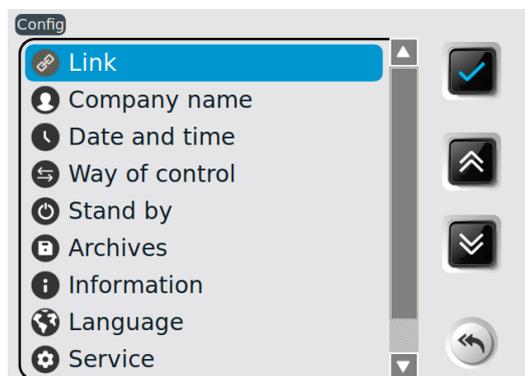
### Step 6: Test result

In this step the appliance indicates the result of the test. You can see the results for each type of headlamp by clicking on one of the "result" boxes.



## V. Configuration

The configuration menu gives access to different sub-menus used to configure the appliance.



### Connection

This menu has secure access and is used to select the method used to send the data, configure the IT link and printing.

### Company name

This menu is used to record the name, address and other information about your company. This data will then appear on the header of your printed tickets.

### Date & time

This menu is used to set the date and time.

### Control direction

This menu is used to choose in which order the headlamps are checked in the control procedure. Right headlamp first then left (right - left) and vice versa (left - right).

### Standby sub-menu

This menu is used to configure the time after which the appliance will shut down automatically when not active.

### Sound alarm sub-menu

If you wish, you can activate the adjustment system sound.

### Information sub-menu

This menu gives access to the following data:

- Model of the appliance

- 
- Software version
  - Appliance serial number
  - CPU card serial number
  - Approval number
  - Battery level
  - Power of the WIFI signal

### **Language sub-menu**

This menu is used to select the language used by the appliance.

### **Maintenance sub-menu**

This menu has a secure access and is only for use by approved maintenance companies.

## **VII. Maintenance of the appliance**

Lens maintenance:

- Avoid touching the lens in order to avoid dirtying it
- Clean when necessary (using soapy water or a window cleaning product)
- If your lens is cracked or has too many scratches it must be replaced by your maintenance company.

Battery maintenance:

- If the autonomy of your appliance is significantly reduced, notify your maintenance company for a technician to replace the batteries.

Mechanical checks:

- Position the lamp adjustment system at the spirit level calibration reference point indicated by your maintenance company when the appliance was installed, check that the bubble on the spirit level remains centred whatever the position of the optical block.
- If the bubble is significantly off centre, contact your maintenance company and ask for a technician to check the condition and calibration of your appliance.

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## IX. Technical specifications

### Specifications:

- Weight: 25kg
- LxWxH: 590 x 670 x 1900 m
- 15 hours battery autonomy during continuous use
- Rapid 4 hour recharge with automatic stop

### Operating conditions:

- Batteries: Rechargeable Lithium Iron batteries
- Charger power supply: 15.2V 2.3A
- Surrounding temperature: from 5°C to 40°C
- Storage temperature: from -15°C to +55°C
- Relative humidity: 98% non condensed

### Measurement:

- Measurement of the angle (headlamp dipped angle) in %
- Dip angle measurement range: from +6 to -6%
- Lateral measurement range: from 10 to -10%
- Accuracy: +/- 0.2%
  
- Intensity measurement in Candela
- Measurement range: 0 to 125kcd
- Accuracy: 10%



This symbol indicates that, in compliance with the WEEE directive (2002/96/EC) and with your local regulations, this product must not be disposed of with household waste. It must be deposited in a zone specific to this effect, for example an electric and electronic waste official collection centre (EEE), in order to be recycled, or at an approved product exchange point which is accessible when purchasing a new product of the same type as the product being disposed of. Any failures to respect these recommendations on the disposal of this type of waste can have negative effects on the environment and public health because these electric and electronic products generally contain potentially dangerous substances. In parallel, your complete collaboration in the correct disposal of this product will contribute to a better use of natural resources. For more information on equipment collection points for recycling, contact your town hall, the waste collection department, the approved WEEE plan or the household waste removal service.

**DECLARATION UE DE CONFORMITE / EU DECLARATION OF CONFORMITY**

<b>Equipement :</b> <i>Product:</i>	<b>CAP2600</b>
<b>Fabriquant:</b> <i>Manufacturer:</i>	<b>CAPELEC</b> <b>1130 rue des marels</b> <b>34000 Montpellier</b> <b>FRANCE</b>
<p>La présente déclaration de conformité est établie sous la seule responsabilité du fabricant  <i>This declaration of conformity is issued under the sole responsibility of the manufacturer.</i></p>	
<b>Objet de la déclaration :</b> <i>Declaration object :</i>	<b>CAP2600</b>
<p>L'objet de la déclaration décrit ci-dessus est conforme à la législation d'harmonisation de l'Union applicable  <i>The object of the declaration described above is in conformity with the relevant Union harmonization legislation</i></p>	
<p>DIRECTIVE COMPATIBILITE ELECTROMAGNETIQUE  <i>ELECTROMAGNETIC COMPATIBILITY DIRECTIVE</i>  2014/30/UE (2004/108/EC)</p> <p>DIRECTIVE BASSE TENSION  <i>LOW VOLTAGE DIRECTIVE</i>  2014/35/UE (2006/95/EC)</p> <p>DIRECTIVE RED  2014/53/UE (1999/5/CE)</p>	
<p style="text-align: center;"><b>Références des normes harmonisées</b>  <i>References to the relevant harmonized standards used</i></p>	
<p style="text-align: center;">EN61010-1 :2011  EN61326-1 :2013  EN300 328-2 :2015</p>	
<b>Signature du fabriquant :</b> <i>Manufacturer signature:</i>  <b>CAPELEC</b> <b>1130 rue des marels</b> <b>34000 Montpellier</b> <b>FRANCE</b>	<p style="text-align: right;"><b>MONTPELLIER le 23/05/2016</b></p>  <p style="text-align: right;"><b>Thierry COTON</b>  <b>Gérant / General Manager</b></p>