

assemblad®

## **HEADLIGHT TESTER HDL-113**



## **OPERATION AND MAINTENANCE MANUAL**

Note  
Edition RAEE: November 2018 - Vers. 1.20  
ASSEMBLAD – Automotive Division - Technical dept





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# 1 GENERAL INFORMATION

## 1.1 TAKING OVER

At the time of the taking over of the instrument, you should check it immediately if it is complete with all its accessories and the specified material on the accompanying documents. Check the outside of the instrument, in case of damage due to transportation, note it to the carrier and promptly notifying the office of ASSEMBLAD shipments. Only with this procedure you can proceed with the integration of missing or damaged goods quickly.

## 1.2 SECURITY RULES

- Inspect the instrument identification plates, in case they were illegible or damaged, request replacement labels to the manufacturer.
- The instrument must only be used by authorized and trained operators
- The working environment must be sufficiently ventilated
- Provide a suitable gas intake system, the test must be carried out with the vehicle with the engine running. The inhalation of carbon monoxide may cause harm to the body.
- Do not leave the instrument exposed to sunlight or near heat.
- Do not leave the instrument in the rain or in very humid environments. The electronic parts could suffer irreversible.
- The instrument has an internal battery, in case of inadequate use this may be danger of fire or explosion. Do not hold the battery to heat sources, use only original external charger and if the battery must be replaced, use only original battery.
- In case of anomaly, the instrument can be seen and witnessed only by personnel authorized by ASSEMBLAD.
- In case of replacement of any part of the instrument, use only original spare parts.
- Tampering of any component of the equipment invalidates the warranty.

**Note: Assemblad does not accept any responsibility for any damage, accident or fault generated by the lack of compliance with these rules.**

## 2 TECHNICAL DATA

### 2.1 LIST OF PARTS OF HEADLIGHT TESTER MODEL HDL-113



The parts of the instrument are the following:

- Steel Base
- Column with vertical displacement movement
- Optical chamber with focal lens of 500 mm
- Projection screen
- Reading panel
- Display with 16 characters in 2 lines
- Keyboard with 4 keys
- Centre alignment laser under rules CEI EN60825-1
- Horizontal alignment laser under rules CEI EN 60825-1
- Light sensor unit
- RS232 interface circuit
- Battery
- Battery charger

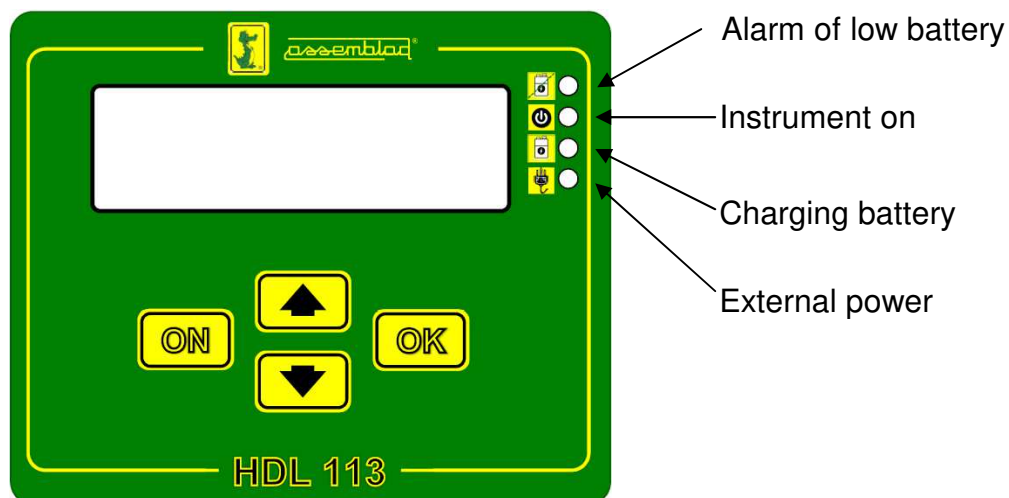
## 2.2 MEASUREMENT RANGES

- Lightness: 0 – 150000 lux
- Resolution: 1 lux
- Headlight height: 0.25 – 1.50 meter

## 2.3 STORAGE AND USE ENVIRONMENTS

- Temperature: -10°C - +40°C
- Humidity: 10% - 90%

## 2.4 KEYBOARD AND DISPLAY



Turn on the instrument



Increase value or stand-alone test progress



Decrease value or stand-alone test progress



Confirm value or measure



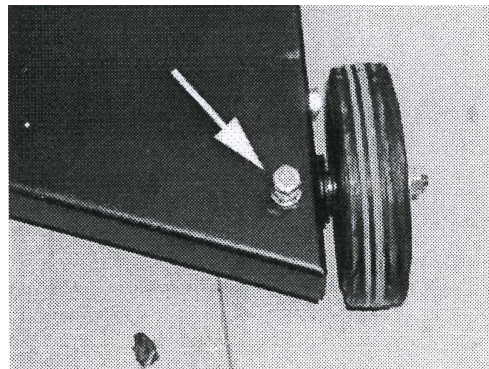
Turn off the instrument



### 3 INSTALLATION

#### 3.1 SETUP THE HEADLIGHT TESTER

- The instrument is already assembled inside of the box
- Unscrew the bolts that fix the optical chamber in vertical position.
- Set the optical chamber in horizontal position and screw the bolts.
- Set the column in vertical position with the screw displaced on the base (See under picture)



- Set the optical chamber for a planar position, verify the spirit level inside the optical chamber.

## 3.2 SOFTWARE INSTALLATION

Minimum requirements:

- Operative system Microsoft® Windows®
- N°1 RS232 interface or Bluetooth device
- Download the installation file.
- Run the setup
- Follow the instruction until the conclusion
- At the first run select SERVICE -> SETUP
- Select the COM port connected to the instrument and select TEST CONNECTION
- Select REGISTRATION and fill in all field with the garage and operator data

**Configuration**

Headlight Tester: HDL113  
 HCTClient version: 200  
☐ Debug ☐ Show list at end of test ☐ Close at the end of the test

Input Data: C:\MCTC  
 Output Data: C:\MCTC  
 Language: [Flags]

**Headlight tester**

Brand: ASSEMBLAD  
 Model: HDL113  
 Serial number: BL181312  
 Expiration date: 08/11/2019  
 Approval: OM00750g/NET2  
 Ver. HCTClient: 200  
 Ver. Firmware: 3.31  
 Serial port: COM2  
 Address: 1  
 Baud rate: 9600

General settings

UPDATE FW  
 RESET

Set parameters  
 Test connection  
 Search instrument

Registration Configuration Confirm Cancel

**Configuration**

**Registration**

Company name	Assemblad S.r.l.
VAT	00879690485
Company code	1
Address	Via della Querce, 6/a
City	Campi Bisenzio
Postal code	50013
District	FI
Phone	055890485
Fax	055890496
Technical Manager	Me

Registration Configuration Confirm Cancel



## 4 OPERATIONS

### 4.1 VEHICLE SETUP

Before to begin every measurement, clean the headlight. If the vehicle has a trimmer to set the alignment headlight, set it in the position "0".

- Line up the wheel of vehicle
- Verify the absence of deformation of the bodywork that can change the alignment of the light.
- Verify the wheel pressure.
- Turn on the vehicle

If the vehicle is fitted with hydropneumatic suspension, it is necessary to adjust the balance in standard mode

**Note: In the Indoor rooms it is necessary to provide adequate ventilation or suction of exhaust gas.**

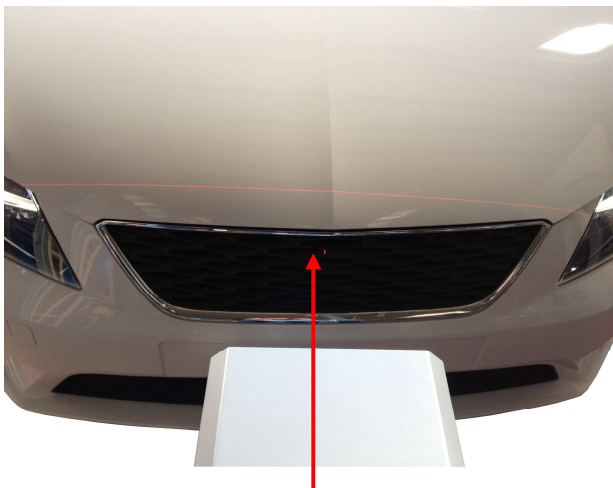
### 4.2 ALIGNMENT OF INSTRUMENT WITH THE VEHICLE UNDER TEST

Warning: the laser devices may give risks to safety and health for humans. The operator then must consider such risks during use, taking care not to direct the laser in direction of persons. It is recommended to define specifically the area of use

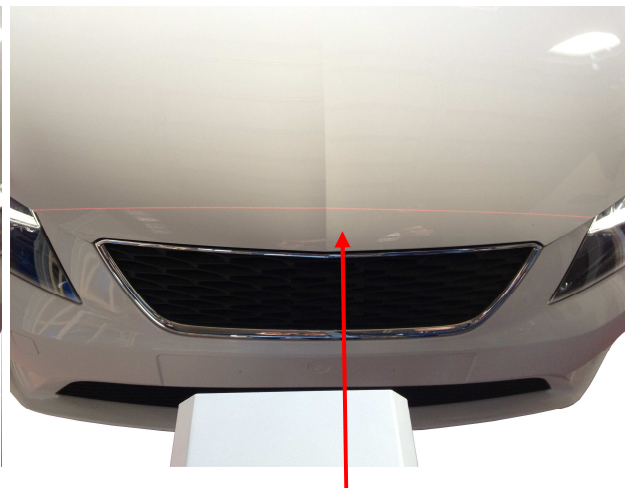
- Check that there are not people near the test area
- Position the headlight tester with the lens at 50 cm from the headlight
- Unblock the column
- Turn on the line laser



- Locate horizontal line of the vehicle, as the motor bonnet
- Rotate the headlight tester until the laser line coincides with this line



**NO**



**YES**

- Set the column

### 4.3 LINE LASER MAINTENANCE

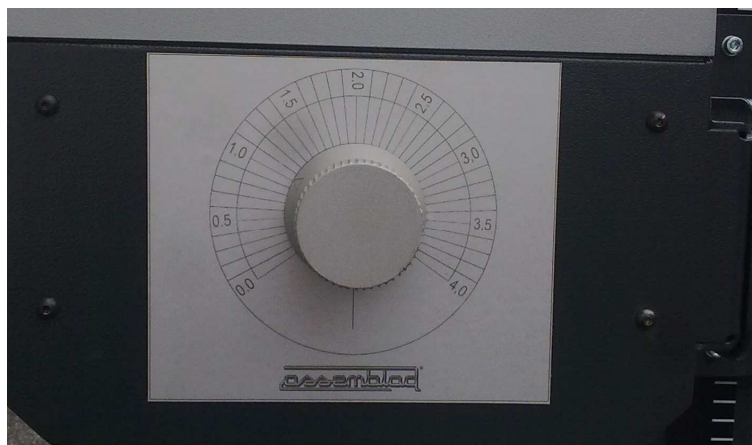
The line laser use 2 alkaline battery model AA of 1.5V. To substitute them use the same model, to open the battery cover remove the 2 screw, verify the cleaning of the laser lens.

### 4.4 OPTICAL CHAMBER ALIGNEMENT



Using the side handle, align the camera taking as a reference the spirit level placed inside the optical chamber.

## 4.5 OPTICAL SHIELD



The optical shield adjustment must be carried out using the rear dial, setting the slope descending value shown on the following table:

the vehicle's headlight. This value is expressed as a percentage (%). If this value is not given, set the value to 1 for the height of the projector up to 80 cm, set 1.5 if height of projector is more than 80 cm.

DIPPED	Vertical deviation	Horizontal deviation
Projectors approved on DGM standards [3]	$\geq 1/10$ of projector center height from the floor [4]	$\leq 1,5^\circ$ of outside optical center
Projectors approved on 89/517/CEE or ECE-ONU rules	$\geq 1\%$ [1] $\geq 1.5\%$ [2]	$\leq 1,5^\circ$ of outside optical center
Motorcycle no DGM std	$= 1\%$	$\leq 1,5^\circ$ of outside optical center

[1] For projectors with optical center less or equal to 80 cm from the floor;

[2] For projectors with optical center greater than 80 cm from the floor;

[3] With symbol mark "e" or "E", valid for car and motorcycle.

[4] The real value to set the vertical deviation is showed from the software in the selection of headlight type selection in the summary of vehicle data.

## 5 TEST RUN





Turn on the headlight tester, open the software “LUXANALYZER”, select “HEADLIGHT TEST”

In the dialog form you can insert vehicle details (Data vehicle) and the owner data (Owner information)

Data entry vehicle			
<b>Headlight tester settings</b>		<b>Printer Setup</b>	
Sequence of headlights test	LOW LEFT HIGH LEFT LOW RIGHT HIGH RIGHT	Printer <input type="text"/>	
Operator	io	Omologazione faro <input type="radio"/> DGM <input type="radio"/> ECE/CEE	
<b>Data entry vehicle</b>			
<b>Data vehicle</b>		<b>Headlights data</b>	
License plate		Number of headlights	1
Frame number		Left headlight type	LOW LEFT
Vehicle type	LIGHT VEHICLE	Right headlight type	LOW RIGHT
International Category	M3 - Passenger vehicles > 5 t	Height of highlights [cm]	80
Vehicle Description	Bus		
Date of first registration			
Factory			
Model			
Mileage			
<b>Owner information</b>		<b>Limits Reference</b>	
Surname		Low beam lower limit	3750
Name		Low beam upper limit	90000
Address		High beam lower limit	20000
Postal code	City	High beam upper limit	150000
Telephone number			
E-mail		Inclinazione da impostare [%]	
		<input type="button" value="✓ Confirm (F3)"/> <input type="button" value="✗ Cancel (F4)"/>	

On the right side you can insert the type of vehicle illumination, like the number and type of lamps, and you can decide the sequence of measurement, and the minimum and maximum illuminance limits according with the current law





Once you have aligned the instrument and set in plane, go to the left lighthouse. Insert the vehicle data, press CONFIRM (F3)

Test brightness of the headlights			
<b>HEADLIGHT LEFT</b>		<b>HEADLIGHT RIGHT</b>	
<b>LOW BEAM</b>		<b>LOW BEAM</b>	
HORIZONTAL	-	HORIZONTAL	-
VERTICAL	-	VERTICAL	-
	LUX		LUX
BRIGHTNESS	00000	BRIGHTNESS	00000
<b>HIGH BEAM</b>		<b>HIGH BEAM</b>	
HORIZONTAL	-	HORIZONTAL	-
VERTICAL	-	VERTICAL	-
	LUX		LUX
BRIGHTNESS	00000	BRIGHTNESS	00000
<b>Press start(F5) to begin</b>			<b>Start</b>

Center the laser point with the center of left headlight

Select START (F5) on PC

**PRESS START  
ON PC**

Test brightness of the headlights			
<b>HEADLIGHT LEFT</b>		<b>HEADLIGHT RIGHT</b>	
<b>LOW BEAM</b>		<b>LOW BEAM</b>	
HORIZONTAL		HORIZONTAL	
VERTICAL		VERTICAL	
	LUX		LUX
BRIGHTNESS	00000	BRIGHTNESS	00000
<b>HIGH BEAM</b>		<b>HIGH BEAM</b>	
HORIZONTAL		HORIZONTAL	
VERTICAL		VERTICAL	
	LUX		LUX
BRIGHTNESS	00000	BRIGHTNESS	00000
<b>Waiting height and type headlight</b>			<b>Stop</b>

Push "OK" on headlight tester

**DATA RECEIVED  
PRESS OK**

Use the arrow keys to increase/decrease the height value.  
Push "OK" on headlight tester to go on.

**HEADLIGHT HEIGHT**  
**80 cm**

Use the arrow keys to set the type of headlight  
Push "OK" on headlight tester to go on

**HEADLIGHT TYPE**  
**ASYMMETRICAL**

Push "OK" on headlight tester to go on

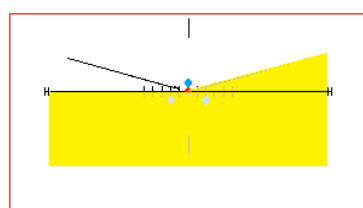
**LOW BEAM LEFT**

Confirm with Yes or NO, using the arrow keys the correct vertical orientation of the lighthouse, push "OK" to go on,

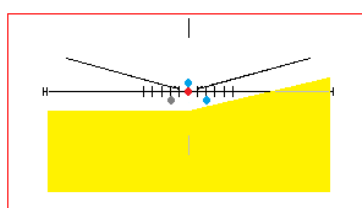
**VERT. ORIENTATION**  
**CORRECT?**

Confirm with Yes or NO, using the arrow keys the correct horizontal orientation of the lighthouse, push "OK" to go on.

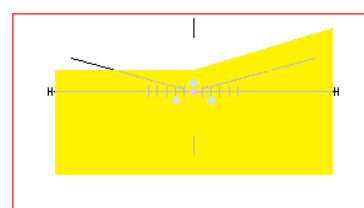
**HORIZ. ORIENTATION**  
**CORRECT?**



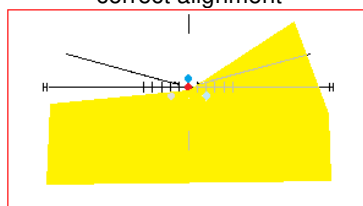
correct alignment



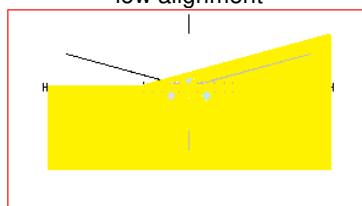
low alignment



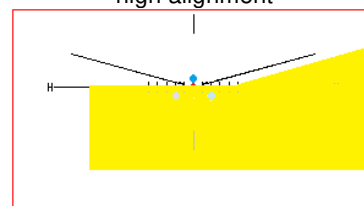
high alignment



rotated alignment



left alignment



right alignment

Wait for the stabilization of the light value, you can see in real time if the current value is according with the law limits that you previously insert in the vehicle data dialog form, if the illuminance isn't into the allowed interval you can see a bar in the display, its length is dependent by lux value, as soon as the value is into the allowed interval you can see "OK" on the display. When you finish the measurement you can confirm with "OK", regardless the result of the test.



Test brightness of the headlights			
<b>HEADLIGHT LEFT</b>		<b>HEADLIGHT RIGHT</b>	
<b>LOW BEAM</b>		<b>LOW BEAM</b>	
HORIZONTAL	REGOLARE	HORIZONTAL	
VERTICAL	REGOLARE	VERTICAL	
	LUX		LUX
BRIGHTNESS	10235	BRIGHTNESS	00000
<b>HIGH BEAM</b>		<b>HIGH BEAM</b>	
HORIZONTAL		HORIZONTAL	
VERTICAL		VERTICAL	
	LUX		LUX
BRIGHTNESS	00000	BRIGHTNESS	00000
Waiting values ...			Stop

The measured values and confirmed will be displayed on the screen of LuxAnalyzer real-time software.





Repeat for the high beam left

**HIGH BEAM LEFT**

Test brightness of the headlights			
<b>HEADLIGHT LEFT</b>		<b>HEADLIGHT RIGHT</b>	
<b>LOW BEAM</b>		<b>LOW BEAM</b>	
HORIZONTAL	REGOLARE	HORIZONTAL	
VERTICAL	REGOLARE	VERTICAL	
	LUX		LUX
BRIGHTNESS	10235	BRIGHTNESS	00000
<b>HIGH BEAM</b>		<b>HIGH BEAM</b>	
HORIZONTAL	REGOLARE	HORIZONTAL	
VERTICAL	REGOLARE	VERTICAL	
	LUX		LUX
BRIGHTNESS	52595	BRIGHTNESS	00000
Waiting values ...			Stop



Move the instrument to the right lighthouse and repeat the same operation, at the end will be displayed all the measurements done.

Test brightness of the headlights			
<b>HEADLIGHT LEFT</b>		<b>HEADLIGHT RIGHT</b>	
<b>LOW BEAM</b>		<b>LOW BEAM</b>	
HORIZONTAL	REGOLARE	HORIZONTAL	REGOLARE
VERTICAL	REGOLARE	VERTICAL	REGOLARE
	LUX		LUX
BRIGHTNESS	10235	BRIGHTNESS	10203
<b>HIGH BEAM</b>		<b>HIGH BEAM</b>	
HORIZONTAL	REGOLARE	HORIZONTAL	REGOLARE
VERTICAL	REGOLARE	VERTICAL	REGOLARE
	LUX		LUX
BRIGHTNESS	52595	BRIGHTNESS	50822
<b>TOTAL RESULT: REGULAR</b>			
Repeat (F1)		Note (F2)	
Print (F3)		Exit (F4)	

From this screen you can repeat the test or print the test report. With the exit button will automatically generated the file \*.FAR.

## 6 METROLOGICAL LOGBOOK


The equipment (if needed) is supplied to the end user with a **metrological logbook** that is a register for verification, control and repairs of the instrument.

In case the equipment is used for legal measurements, the logbook must be always updated, providing to perform the periodic and occasional checks and/or repairs, when needed, by Assemblad or by authorized personnel, C.S.R.P.A.D. of Rome, C.P.A. authorized by “Direzione Generale della Motorizzazione Civile e dei Trasporti in Concessione”, or by Notified Bodies.

In the event that equipment is used for legal measurements, it is necessary to take the logbook with the instrument or, as an alternative, replacing it with a copy on which must be noted the place where the original is located.

## 7 USER INFORMATION - RAEE Directive <sup>(#)</sup>



The symbol stamp  the equipment means that when the product will be at the end of its operative life it shall be considered as a special refusal and shall be a “special dismantle”. For this reason the user shall take it to a Dismantle Center authorized by Local Authority or to an authorized distributor for purchasing a new equivalent equipment.

<sup>(#)</sup> European Directives 2002/95/CE, 2002/96/CE and 2003/108/CE

## 8 WARRANTY

- ❖ 01 - This device was built with care and carefully inspected before it left the factory.
- ❖ 02 - It is guaranteed for one year from the date of purchase by the final user.
- ❖ 03 - To enjoy full rights under this warranty and avoid the risk of invalidation, you must mail a copy of the Warranty Certificate to the factory within 10 days of the purchase date.
- ❖ 04 - The warranty covers all defects in materials.
- ❖ 05 - The warranty does not cover: external cables, probes, the remote control unit, pumps, motors and the external accessories. These items are subject to wear and their efficiency depends on how they are handled or treated.
- ❖ 06 - The warranty does not cover damage caused by accidents, impact or dropping the instrument, or by negligence, improper use, non-compliance with the instructions and improper storage.
- ❖ 07 - If the device has such defects as to require technical service, you must return it to Assemblad or an authorized service center.
- ❖ 08 - Shipping charges shall be covered by the customer.
- ❖ 09 - ASSEMBLAD, even supplying support on demand for the first installation of the equipment, disclaims any liability for damages and injuries caused, even to third parties, by an improper installation, maintenance, defective or unsafe electrical connections.
- ❖ 10 - Further, ASSEMBLAD disclaims any claim for damages from anyone due to a miss utilization of the equipment for any reason.
- ❖ 11 - The warranty shall immediately become invalid if the device shows any signs of tampering.
- ❖ 12 - The exclusive court of jurisdiction for any disputes arising from the application and/or interpretation of this warranty is the Court of Florence (Italy).

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