

***EASYLUX***  
***RETROREFLECTOMETER***

# WE ARE AHEAD.

Easylux specializes in the design and development of precision optoelectronic measurement systems.

Our innovative optical system is the result of 10 years of hard work by a non-conformist engineering team. We clearly realized how unsafe and unsuitable big and heavy instruments are for road visibility control.

The patented MiniReflecto family is a turning point for the face of the standard retroreflectometers.

We are placing a new milestone. Change your concepts and leave the dinosaurs of retroreflectometers in the past.



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# INNOVATION.

## RETROREFLECTOMETER

**A retroreflectometer is an optoelectronic instrument that translates the human visual perception to numbers.**

**The MiniReflecto is a family of innovative retroreflectometers released in 2014** for on-site or laboratory measuring of retroreflection properties of road markings, road signs, road studs, safety clothing and other materials.

The exclusive external light suppression technology allows free access to the measurement area, even over strong sunlight.

On the following pages we will present our new technology and other innovations such as the quadruple angle vertical retroreflectometer and the dual angle road studs retroreflectometer.

CHANGE  
YOUR  
CONCEPTS

**It is time to leave the big, heavy dinosaurs of retroreflectometers in the past.**



**Creating an entirely new design meant inventing entirely new technology.**

# STRONG AND MODERN

Built with modern, strong and flexible engineering plastics, aluminum and inox steel structure, the new MiniReflecto is a light and robust retroreflectometer.

## MiniReflecto Retroreflectometer family

The MiniReflecto handheld instruments are available in 3 different configurations:

- Horizontal, for retroreflection of road markings;
- Vertical, for retroreflection of traffic signs;
- Road Studs, for raised pavement markers - RRP.

## AA BATTERY SDCard

MiniReflecto works with standard universal rechargeable AA batteries.

The LED optical system makes the instrument energy efficient and almost maintenance-free.

All measured data is stored as text files onto a removable SD Card.



# AIRPLANE BAGGAGE CARRY-ON

**All MiniReflecto family  
are airplane carry-on  
baggage size compatible.**

You can now bring the carrying case  
with you in the airplane cabin.

**Brains over brawn.**

You no longer need to break your  
back using a retroreflectometer.



## LOG DATABASE

The measurements are organized on LOG files that can register important parameters:

- Road Name;
- Milestone mark;
- Operator's name;
- Direction (north, south, east, west);
- Material (paint, thermoplastic, prismatic, ...);
- Color;
- Place (left border, center line, etc.);
- Free notes (dusty, wet, sectioned, ...)



## ANDROID INTERFACE



- Trigger measurements.
- Share Data
- Take Pictures



**ERGONOMIC**  
ROAD MARKING  
CONTROL

Sun proof measurements.

## HORIZONTAL

### Retroreflectometer

|            |            |
|------------|------------|
| EN1436     | RL Qd      |
| ASTM E1710 | RL         |
| ASTM E2302 | Qd         |
| ASTM E2177 | RL wet     |
| ASTM E2832 | RL2 (rain) |

MiniReflecto Horizontal measures the night visibility **RL**, the Day Visibility **Qd**, the visibility under wet **RL wet** and continuous wetting conditions **RL rain** of road markings.

The patented MiniReflecto optical system, combined with CIE eye sensor response allows precise measurement of all types and colors of road marking materials, even profiled markings up to 15 mm.

### Dimensions and Weight

|               |                       |
|---------------|-----------------------|
| Length        | 255 mm (without Qd)   |
| Width         | 155 mm                |
| Height        | 170 mm                |
| Weight        | 2.1 kg (with battery) |
| Carrying case | 470 x 380 x 240 mm    |

### Electrical

|              |                                      |
|--------------|--------------------------------------|
| Battery      | Standard AA size (6 units)           |
| Charger      | Automatic 100-240 V full range       |
| Data memory  | SD Card (4 GB minimum)               |
| Display      | Color transfective, touch screen     |
| Interface    | USB, serial and Bluetooth (optional) |
| Operating    | -10°C to 50°C                        |
| Light source | LED light (maintenance free)         |

**SMALL**  
AND  
**FAST**

Measurements can be made in  
1 s for **RL** or 2 s for **RL** and **Qd**

Our new technology is almost 5  
times smaller and lighter than  
the classic old technology.





# WORK LIGHT



## MiniReflecto Horizontal Features

- 30-meter geometry (15-meter 86.5°/1.5° available).
- Standard universal rechargeable AA battery.
- Android Smartphone Bluetooth interface (optional).
- Temperature, humidity and inclination (% Tilt X and % Tilt Y).
- WAAS GPS (optional).
- User removable SD Card (4 GB minimum).
- Color transfective (sun readable) LCD with touch screen.
- LED technology - almost maintenance-free.
- Airplane carry-on luggage compatible carrying case.
- Adjustable handle and IrDA remote control.
- Fast measurements: 1 s for  $R_L$  or 2 s for  $R_L$  and  $Q_d$ .
- Measure flat and profiled markings up to 15 mm.
- Register the date, time, GPS, humidity, temperature, tilt %,...
- LOG facilities (Road name, milestone, color, material, ...)
- Free EasyData software for data analysis and reports.
- Calibration by ceramic reference - NIST traceable.
- Multiple languages. Continuously updating average value.
- User configurable Wet timer, Trigger timer and Stop timer.

## MiniReflecto Horizontal Technical

|                      |  |
|----------------------|--|
| Illumination angle   | 1.24° (88.76°)   |
| Observation angle    | 2.29° (1.05°)  |
| Geometry             | 30-meter simulation distance (15-meter available)<br><b>Arrangement B</b> - The length of the illuminated area is fully included within the length of the detected area. |
| Observation aperture | ±0.15°   |
| Measurement area     | 58 x 350 mm  |
| Measurement sensor   | CIE V ( $\lambda$ ) adapted  |
| Measurement Range    | $R_L$ : 0 - 3999 mcd . m <sup>2</sup> . lx <sup>-1</sup> $Q_d$ : 0 - 399 mcd . m <sup>2</sup> . lx <sup>-1</sup>   |
| Measurement Time     | 1 second for $R_L$ or 2 seconds for $R_L$ + $Q_d$  |
| Profiled markings    | Up to 15 mm  |

**2 years warranty**

## Traceable Reference Standard

Easylux instruments are calibrated at a factory laboratory and traceable in accordance with standards issued by NIST (*National Institute of Standards and Technology, USA*).

**30-meter geometry:**

88.76° / 1.05° (ASTM E1710)

1.24° / 2.29° (EN1436)



**ASTM E2832**

$R_{L2}$  (rain) compatible technology.

External beam retroreflectometer.

Free access over measurement area.

# DIFFUSE LIGHT



## Qd

### Day visibility (optional)

The patented foldable and removable Qd light source makes the user work simple and practical. The Qd light source can be removed if Day Visibility (Qd) measurements are not required.

## Options

### MiniReflecto Horizontal add-ons

BlueTooth

WAAS GPS

Ergonomic KIT

VGA Camera



**15 mm**

Profiled road markings  
with no adjustments.



# Approved

Test Certificate No. 0913-2014-04

Our innovative technology was approved by an independent  
laboratory in Germany.



# Conditions of rain.

## Continuous wetting compatible technology.

Free access over measurement area.

ASTM E2832

EN 1436

ABNT 14723





## The Nylon Bag kit



MiniReflecto Horizontal measures the night visibility **RL**, the Day Visibility **Qd**, the visibility under wet **RL wet** and continuous wetting conditions **RL-2 rain** of all shapes and colors of road markings, even **RL** profiled up to 15 mm without adjustments.





## TRAFFIC SIGNS SAFETY CLOTHING

# VERTICAL

## Retroreflectometer

|            |                         |
|------------|-------------------------|
| ASTM E1709 | 0.2°                    |
| ASTM E2540 | 0.5°                    |
| EN 12899-1 | 0.33°                   |
| ISO 20471  | 0.2°, 0.33°, 1.0°, 1.5° |

The **Minireflecto Vertical** is an up to four angle retroreflectometer designed to accurately measure the retroreflection  $R_A$  of road signs, safety clothing and other materials.

**The innovative optical system can measure up to 4 (four) simultaneous observation angles. The entrance angle ( $\beta$ ) can be fixed ( $-4^\circ / +5^\circ$ ) or it can be continuously adjusted by the operator.**

The combination of adjustable entrance angle with the exclusive quadruple simultaneous observation angles allows precise determination of retroreflection according to all international standards.

## Dimensions and Weight

|               |                       |
|---------------|-----------------------|
| Length        | 255 mm                |
| Width         | 155 mm                |
| Height        | 170 mm                |
| Weight        | 2.0 kg (with battery) |
| Carrying case | 470 x 380 x 240 mm    |

## Electrical

|              |                                      |
|--------------|--------------------------------------|
| Battery      | Standard AA size (6 units)           |
| Charger      | Automatic 100-240 V full range       |
| Data memory  | SD Card (4 GB minimum)               |
| Display      | Color transfective, touch screen     |
| Interface    | USB, serial and Bluetooth (optional) |
| Operating    | -10°C to 50°C                        |
| Light source | LED light (maintenance free)         |



# Extension

## Remote Control

A 1.8 to 5 meter adjustable extension pole and a remote control make working with high-mounted traffic signs easy.

# Options

## MiniReflecto Vertical add-ons

BlueTooth

WAAS GPS

RFID Reader ISO 15693 and ISO 1443A/B

Barcode Reader

5 meter extension pole

# ADJUSTABLE Illumination angle

With built-in digital inclinometer for precise entrance angle control.



Measures all types and colors of retroreflective materials.

## Sun proof technology

The exclusive external light suppression technology allows free access to the measurement area.

# ISO 20471

The combination of adjustable entrance angle with the exclusive quadruple simultaneous observation angles allows precise determination of retroreflection according ISO 20471 - *High Visibility Clothing*.



# DETAILED INFORMATION



## MiniReflecto Vertical Technical

|                      |   |
|----------------------|---|
| Illumination angle   | -4° / +5° and continuously adjustable   |
| Observation angle    | Up to 4 simultaneous<br>Available angles : 0.2°, 0.33°, 0.5°, 1.0°, 1.5° and 2.0°     |
| Observation aperture | 0.1° annular aperture.  |
| Measurement area     | 28 mm   |
| Measurement sensor   | CIE V ( $\lambda$ ) adapted   |
| Measurement range    | $R_A$ : 0 - 1999 cd . lx <sup>-1</sup> . m <sup>2</sup>                               |
| Measurement time     | 1 second for each observation angle   |
| Standards            | ASTM E1709, ASTM E2540, ASTM E1809, EN 12899-1,<br>ISO 20471, DIN 67520, MUTCD, ABNT. |

2 years warranty.

## Traceable Reference Standard

EasyLux Vertical uses a single reference standard to accurately measure all colors and types of materials. The reference is traceable to an accredited national standards laboratory.

## MiniReflecto Vertical Features

- Available with 2 or 4 simultaneous angles .
- Suitable for safety clothing ISO 20471.
- 5 meters extension pole and IrDA remote control (optional).
- Free adjustment of Illumination Angle.
- Contactless - External light proof measurements.
- Built-in Digital Inclinometer for precise angle control.
- Temperature, humidity.
- WAAS GPS (optional).
- User removable SD Card (4 GB minimum).
- Color transfective (sun readable) LCD with touch screen.
- LED technology - almost maintenance-free.
- Airplane carry-on luggage compatible carrying case.
- Fast measurements: **1 second** for each observation angle.
- Register the date, time, GPS, humidity, temperature, angle, ...
- LOG facilities as road name, milestone, color, material type, ...
- Free EasyData software for data analysis and reports.
- Multiple languages.
- Averaging facilities with continuously updating values.
- User configurable Trigger timer and Stop timer.



# UP TO 4 ANGLES SIMULTANEOUSLY

# Road Studs

## Retroreflectometer

|            |           |
|------------|-----------|
| ASTM E1696 | 0.2° / 1° |
| EN 1463    | 0.3° / 1° |

**MiniReflecto is the unique Dual Angle road studs retroreflectometer** in the world market.

The patented optical system was designed to measure the retroreflectance  $R_l$  of RRPM on site or in a laboratory with two simultaneous observation angles of 0.2° (or 0.3°) and 1°.

Thanks to exclusive stray light suppression technology the user has full access to the measurement area at the time of reading. It makes correct field positioning and precise entrance angle control possible.



**FULL  
CONTROL**

Thanks to exclusive stray light suppression technology the user has full access to the measurement area.

It makes correct field positioning and precise entrance angle control possible.

## Road Studs Options

BlueTooth

WAAS GPS

Ergonomic kit



## Dimensions and Weight

|               |                       |
|---------------|-----------------------|
| Length        | 255 mm                |
| Width         | 155 mm                |
| Height        | 170 mm                |
| Weight        | 2.0 kg (with battery) |
| Carrying case | 470 x 380 x 240 mm    |

## Electrical

|              |                                      |
|--------------|--------------------------------------|
| Battery      | Standard AA size (6 units)           |
| Charger      | Automatic 100-240 V full range       |
| Data memory  | SD Card (4 GB minimum)               |
| Display      | Color transfective, touch screen     |
| Interface    | USB, serial and Bluetooth (optional) |
| Operating    | -10°C to 50°C                        |
| Light Source | LED light                            |

# ALL TYPES AND COLORS



Measures all types and colors of road studs (RRPM) on site or in the laboratory.

## MiniReflecto Road Studs Technical

|                      |   |
|----------------------|---|
| Illumination angle   | 1.0°  |
| Observation angle    | 0.2° (or 0.3°) and 1°                           |
| Observation aperture | 0.1°  |
| Measurement area     | 75 mm x 30 mm                                   |
| Measurement sensor   | CIE V ( $\lambda$ ) adapted                     |
| Measurement range    | R <sub>r</sub> : 0 - 2500 cd . lx <sup>-1</sup> |
| Measurement time     | 1 second for each observation angle             |
| Standards            | ASTM E1696, EN1463                              |

**2 years warranty.**

## Traceable Reference Standard

EasyLux Road Studs uses a single reference standard to accurately measure all colors and types of road studs. The reference standard is traceable to an accredited national standards laboratory.



## MiniReflecto Road Studs Features

- 2 simultaneous geometry: 0.2° (or 0.3°) and 1°.
- Free adjustment of entrance angle.
- External, light proof measurements.
- Full access to the measurement area at time of reading.
- Allows precise positioning on field.
- Easy entrance angle control.
- WAAS GPS (optional).
- User removable SD Card (4 GB minimum).
- Color, transfective (sun readable) LCD with touch screen.
- LED technology - almost maintenance-free.
- Airplane carry-on luggage compatible carrying case.
- Fast measurements: **1 second** for each observation angle.
- Register the date, time, GPS, humidity, temperature, tilt %, ...
- LOG facilities as road name, milestone, color, RRRPM type, ...
- Free EasyData software for data analysis and reports.
- Multiple languages.
- Averaging facilities with continuously updating value.
- User configurable Trigger timer and Stop timer.

# 2 ANGLES SIMULTANEOUSLY



# RETROREFLECTANCE KIT

It does not seem possible. That you can bring all retroreflectometers - road marking, road studs, road signs - into a single light box. But it is.



# CLASSIC



## Classic Horizontal

Released in 2006 as a robust and simple solution to road marking visibility control.



## Classic Vertical

Released in 2008 with an innovative LED light source system, the Easylux classic vertical retroreflector is very compact and simple.



## Classic Road Studs - RRPM

Released in 2009 as a laboratory instrument, the classic RRPM was redesigned to match critical field requirements as position and alignment control.

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## Classic Products

Easylux classic retroreflectometers are designed with focus on simplicity and practicality.

All classic products use LED technology. It makes the instrument almost maintenance-free and energy efficient.

# HORIZONTAL

## Classic Retroreflectometer

|            |        |
|------------|--------|
| EN1436     | RL Qd  |
| ASTM E1710 | RL     |
| ASTM E2302 | Qd     |
| ASTM E2177 | RL wet |

Available on :

- 15-meter geometry;
- 30-meter geometry;
- Dual 15/30 geometry.



**Easylux Horizontal Classic is robust, simple and intuitive handling**

**instrument** which can simultaneously evaluate nighttime visibility ( $R_L$ ), daytime visibility (Qd) and register the ambient temperature and relative air humidity quickly, easily and effortlessly.

## Classic Horizontal Technical

|                    |   |
|--------------------|---|
| 30-meter geometry  | 88.76° / 1.05° (ASTM E1710)<br>1.24° / 2.29° (EN1436)   |
| 15-meter geometry  | 86.5° / 1.5°  |
| Measurement range  | $R_L$ : 0 - 1999 mcd . m <sup>2</sup> . lx <sup>-1</sup><br>Qd: 0 - 320 mcd . m <sup>2</sup> . lx <sup>-1</sup> |
| Measurement area   | 70 x 190 mm   |
| Measurement sensor | Multiple detectors - CIE V ( $\lambda$ ) adapted  |
| Measurement time   | 1 second for $R_L$ or 2 seconds for RL + Qd   |
| Profiled markings  | Up to 2 mm  |
| Dimensions         | 590 x 160 x 260 mm  |
| Weight             | 5.5 kg (with battery)   |
| Standards          | EN1436, ASTM E1710, ASTM E2176, ASTM E2302,<br>NBR 14723 (15-meter).  |



## Electrical

|              |                                 |
|--------------|---------------------------------|
| Battery      | V.L.R.A 12 V rechargeable       |
| Charger      | Automatic 100-240 V full range  |
| Data memory  | Internal 4000 measurements      |
| Display      | Character LCD with night vision |
| Interface    | USB                             |
| Operating    | -10°C to 70°C (extended range)  |
| Light Source | LED light                       |

**StrAusZert Germany test certificate No. 0913-2014-04**



The instrument comes with carrying case, calibration certificate, Easydata software tool, user's manual (English, Portuguese, Spanish and Italian), NIST traceable calibration standard, USB cable and a universal full-range battery charger.

## Classic Horizontal Features

- LED technology. Long-lasting battery.
- Internal memory for 4000 readings. USB computer interface.
- Extended temperature range: -10° C to 70° C.
- Free Easydata software for data analysis and reports (see page 45).
- NIST Traceable Standard (preformed glass beads) .
- WAAS GPS (optional).
- Temperature and Air Relative Humidity for every data.
- Programmable stop-timer and wet-timer.
- 4 languages menu (English, Portuguese, Spanish ,Italian).
- Available in single or dual geometry.
- Approved by StrAusZert Germany (certificate 0913-2014-04)
- 2 year warranty.



## Options

WAAS GPS

Ergonomic Kit

Qd - Daytime Visibility

Portable Serial Printer



# VERTICAL

## Classic Retroreflectometer

ASTM E1709

ASTM E2540

EN 12899-1

ISO 20471

Available on :

- Single angle.
- Dual angle.

**EasyLux Vertical classic retroreflectometer is the most compact dual angle retroreflectometer in the world market.** Being only **180 mm wide and 860 g** weight, this practical instrument can measure the retroreflection ( $R_A$ ) of all type and colors of road signs and others materials fast and effortlessly.

### Options

WAAS GPS

5 meter extension pole with remote control

Barcode reader

RFid tag reader ISO 15693 and ISO 1443A/B



The LED optic system is built according to CIE V( $\lambda$ ) specifications, enabling accurate measuring on colorful materials without the need of correcting factors.

## Classic Vertical Technical

|                      |  |
|----------------------|--|
| Illumination angle   | -4° or +5°   |
| Observation angle    | Up to 2 simultaneous .<br>Available angles : 0.2°,0.33°,0.5°,1.0°                  |
| Observation aperture | 0.1° annular aperture.   |
| Measurement area     | 25 mm  |
| Measurement sensor   | CIE V ( $\lambda$ ) adapted  |
| Measurement range    | $R_A$ : 0 - 1999 cd . lx <sup>-1</sup> . m <sup>-2</sup>                           |
| Measurement time     | 1 second for each observation angle  |
| Memory               | Internal 4000 measurements   |
| Interface            | USB (Easydata software compatible)   |
| Battery              | LI-Ion 7.2 V   |
| Standards            | ASTM E1709, ASTM E1809, ASTM E2540, EN 12899-1, ISO 20471, DIN 67520, MUTCD, ABNT. |

## Traceable Reference Standard

EasyLux uses a single standard traceable to an accredited national standards laboratory.



# Road Studs

## Classic Retroreflectometer

|            |           |
|------------|-----------|
| ASTM E1696 | 0.2° / 1° |
| EN 1463    | 0.3° / 1° |

### EasyLux Road Studs is a robust and very compact size

**retroreflectometer.** Weighing only 3 kg, this simple handling instrument can measure the retroreflection ( $R_1$ ) of all types and colors of road studs - RPM.

### Applications and Uses:

- Checking of road studs' visibility at field or laboratory.
- Inspection directly on field.
- Decision about renewal



The stray light suppression technology allows the user full access to the measurement area at time of reading. It makes correct field positioning and precise entrance angle control possible.

## Classic Road Studs Features

- Available in single or dual geometry.
- LED technology. Long-lasting battery.
- Stores over 4000 readings. USB computer interface.
- Extended temperature range: -10° C to 70° C.
- Free Easydata software for data analysis and reports (see page 45).
- WAAS GPS (optional).
- Registers the Temperature and the Relative Humidity for every data.
- 4 languages menu (English, Portuguese, Spanish , Italian).
- 2 year warranty.



## Classic Road Studs Technical

|                      |   |
|----------------------|---|
| Illumination angle   | 0°                                      |
| Observation angle    | 0.2° (or 0.3°) and 1°                   |
| Observation aperture | 0.1° annular aperture.                  |
| Measurement area     | 135 mm x 30 mm                          |
| Measurement sensor   | CIE V ( $\lambda$ ) adapted             |
| Measurement range    | $R_1$ : 0 - 2500 mcd . lx <sup>-1</sup> |
| Measurement time     | 1 second for each observation angle     |
| Memory               | Internal 4000 measurements              |
| Interface            | USB (Easydata software compatible)      |
| Battery              | Li-Ion 7.2 V                            |
| Dimensions           | 250 mm x 180 mm x 170 mm                |
| Weight               | 3 kg (with battery)                     |
| Standards            | ASTM E1946, EN 1463                     |

## Traceable Reference Standard

EasyLux uses a single standard traceable to an accredited national standards laboratory.



# DYNAMIC

## DYNAMIC

### Retroreflectometer

|            |          |
|------------|----------|
| EN1436     | RL       |
| ASTM E1710 | RL       |
| ASTM E2177 | RL wet   |
| ASTM E2832 | RL2 rain |
| ABNT 14723 | 15-meter |

Available on :

- 15-meter geometry.
- 30-meter geometry.

**The Easylux Dynamic is the world's very first LED technology highway continuous retroreflectometer.**

The patented LED light source makes the equipment **energy efficient** and almost **maintenance-free**.

**Easylux Dynamic** measures the nighttime visibility  $R_L$  coefficient under strong sun light on dry or wet conditions. Profiled markings up to 20 mm can also be measured.

The LED optical system, combined with CIE eye sensor response  $V(\lambda)$  allows precise measurement of all types and colors of road marking at traffic speed (up to 120 km/h).



## EasyLux Dynamic Technical

|                    |   |
|--------------------|---|
| 30-meter geometry  | 88.76° / 1.05° (ASTM E1710)<br>1.24° / 2.29° (EN1436)             |
| 15-meter geometry  | 86.5° / 1.5°  |
| Measurement range  | $R_L$ : 0 - 1999 mcd . m <sup>-2</sup> . lx <sup>-1</sup>         |
| Measurement area   | 600 x 400 mm (16 channels)  |
| Measurement sensor | Multiple detectors - CIE V ( $\lambda$ ) adapted                  |
| Receiver aperture  | 0.33°   |
| Profiled markings  | Up to 20 mm   |
| Dimensions         | 590 x 160 x 260 mm  |
| Weight             | 11 kg   |
| Working speed      | Up to 120 km/h  |
| Warranty           | 2 years   |
| Standards          | EN1436, ASTM E1710, ASTM E2176, ASTM E2302, NBR 14723 (15-meter). |



The driver has control on the remote tablet of:

- Video overlay with position indicator.
- $R_L$  progression chart.
- Real time value and position bar diagram.
- Average values with user configurable integration space.
- Pre-programmed messages buttons (dust, rain, maintenance,...)

## EasyLux Dynamic Features

- Continuous  $R_L$  measurements under dry or wet conditions.
- LED technology - almost maintenance-free.
- Works at any light condition (night and day) even over strong sun light.
- Real-time, high speed measurements.
- WAAS GPS - Mapping software compatible.
- Video overlay for driver guidance.
- Save pictures of all measured road markings.
- Driver can stop the data recording or register cue points
- Detect, record and classify road studs
- Free EasyData software for data analysis and Excel reports.
- Detect and measure double lines.
- Averaging facilities with continuously updating value.
- Universal car adaptor. Easy to mount on either car side.
- Removable front protection glass. Easy to clean and replace.
- Rear security alert flashing light.
- Extra panoramic camera for road surveillance (optional).
- Register date, time, GPS, temperature, relative air humidity, speed, pictures, driver alerts and other relevant data.



# MANAGE ROAD STUDS



EasyLux Dynamic can detect, record and classify all road studs in measurement area.

The data collected by the measurement unit are stored on the central computer as .CSV and HTML reports. If necessary the data can be encrypted.

Double lines are measured individually with separate values for each line.

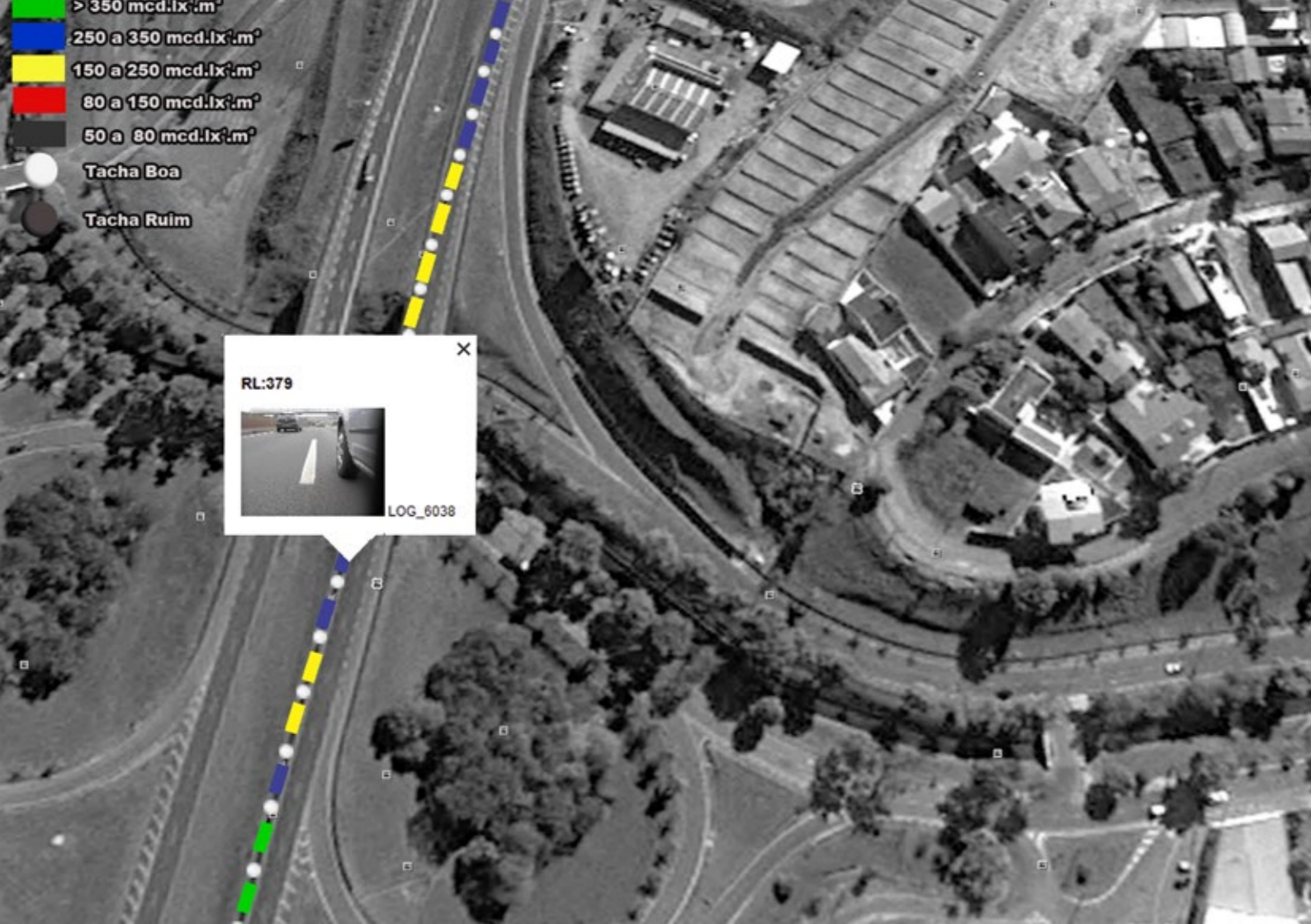
## Traceable Reference Standard

EasyLux uses a single standard traceable to an accredited national standards laboratory.

## Electrical

|              |  |
|--------------|--|
| Energy       | 12 V                                     |
| Security     | Rear flashing warning light              |
| Image log    | Up to 5 road marking pictures per second |
| Display      | Tablet PC for driver assistance          |
| Interface    | USB                                      |
| Operating    | -10°C to 70°C (extended range)           |
| Light Source | LED light                                |





# EasyData

## Software

Windows 8

**Easydata is a software tool developed to manage measured figures of Easylux retroreflectometers.**

EasyData is supplied with ALL Easylux retroreflectometer models.

## COMPATIBLE DEVICES

| Device       | Description   |
|--------------|---|
| Minireflecto | All models of MiniReflecto<br>(Horizontal, Vertical and Road Studs) |
| Classic      | All models of classic retroreflectometers                           |
| Dynamic      | 30-meter and 15-meter models  |

Download data by USB, Bluetooth interface or read it from SD Card to generate reports and visual overview where measurements have been taken. All Data can be filtered by value range and color, exported as XLS, KML and displayed on the map:

- **Filter data by value and color**
- **Generate Excel measurements reports**
- **Display measured points on the map (GPS required)**



Measured data can be classified by value and color.



Automatically generates editable Excel measurement

Measurement Register - 1

| Time    | RA(0.2) | RA(0.5) | RA(1.0) | RA(1.5) | Color     |
|---------|---------|---------|---------|---------|-----------|
| Average | 450.0   | 225.0   | 90.0    | 22.5    | White     |
| Average | 270.0   | 135.0   | 54.0    | 13.5    | Yellow    |
| Average | 135.0   | 67.5    | 27.0    | 6.7     | Red       |
| Average | 67.5    | 33.7    | 13.5    | 3.3     | Blue      |
| Average | 112.5   | 56.2    | 22.5    | 5.6     | Green     |
| Average | 225.0   | 112.5   | 45.0    | 11.2    | Orange    |
| Average | 90.0    | 45.0    | 18.0    | 4.5     | Brown     |
| Average | 90.0    | 45.0    | 18.0    | 4.5     | Black     |
| Average | 337.5   | 168.7   | 67.5    | 16.8    | Yellow Gr |
| Average | 315.0   | 157.5   | 63.0    | 15.7    | Orange FL |
| Average | 360.0   | 180.0   | 72.0    | 18.0    | Yellow FL |

EasyData MiniReflecto

File Excel Google Earth Configuration Help

Filter

RA(0.2) RA(0.5) RA(1.0) RA(1.5)

All values All colors

| Km   | RA(0.2) | RA(0.5) | RA(1.0) | RA(1.5) | Color     |
|------|---------|---------|---------|---------|-----------|
| 1.00 | 450.0   | 225.0   | 90.0    | 22.5    | White     |
| 2.00 | 270.0   | 135.0   | 54.0    | 13.5    | Yellow    |
| 2.00 | 135.0   | 67.5    | 27.0    | 6.7     | Red       |
| 2.00 | 67.5    | 33.7    | 13.5    | 3.3     | Blue      |
| 2.00 | 112.5   | 56.2    | 22.5    | 5.6     | Green     |
| 2.00 | 225.0   | 112.5   | 45.0    | 11.2    | Orange    |
| 2.00 | 90.0    | 45.0    | 18.0    | 4.5     | Brown     |
| 2.00 | 90.0    | 45.0    | 18.0    | 4.5     | Black     |
| 2.00 | 337.5   | 168.7   | 67.5    | 16.8    | Yellow Gr |
| 2.00 | 315.0   | 157.5   | 63.0    | 15.7    | Orange FL |
| 2.00 | 360.0   | 180.0   | 72.0    | 18.0    | Yellow FL |

40 °C / rH : 53%  
Place : Right Border  
Color : Orange  
km : 2.00

Excel Refresh ZOOM Start Communication

Weak Signal / No GPS

Export KML.

Google Earth compatible .



Automatic display measured values on the road map (GPS required).

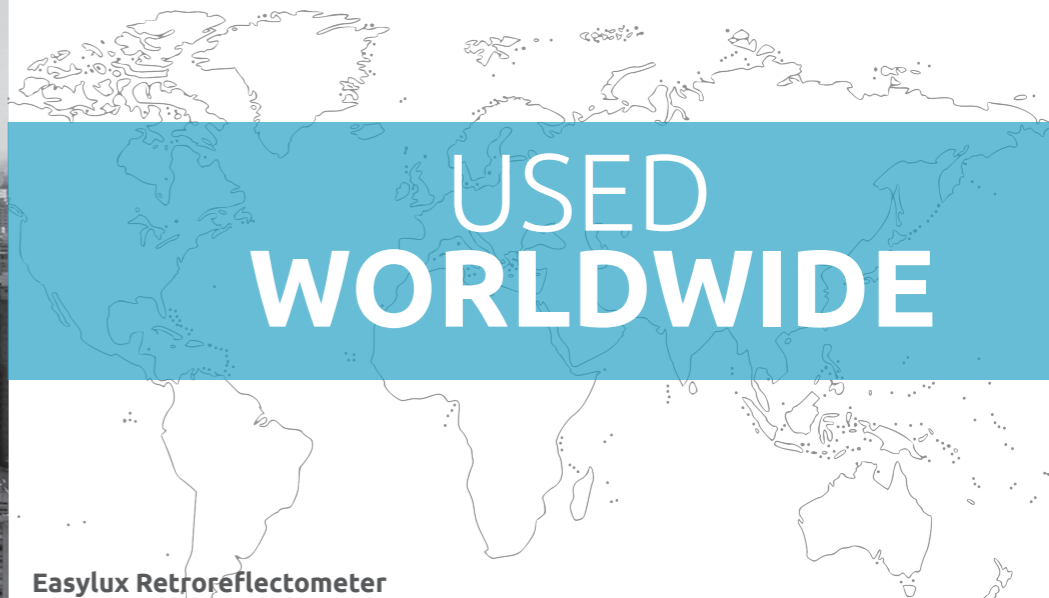
# Services

Each Easylux instrument by itself does not need re-calibration or special services unless damaged by external factors.

To ensure reliable measurements, periodic checking of the instrument reference standard is recommended.

The user can buy a new calibrated reference standard to replace the old one or it can be checked independently with a special Easylux Calibration Kit (sold separately)

In case of damage or preventive maintenance, Easylux offers service of the instrument at our factory and re-calibration of the reference standards according to traceable references.



**Easylux Retroreflectometer**  
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# Looking far ahead

## Horizontal retroreflectometer timeline.



### Released in 2006

8 kg

670 mm length

LED optical system

Front wheels

Big and heavy instruments are unsafe and not suitable for road visibility control.



### Released in 2007

6 kg

580 mm length

LED optical system



### Released in 2009

5.5 kg

550 mm length

LED optical system



### Released in 2014

2.1 kg

250 mm length

LED optical system

Today, Easylux holds the most advanced retroreflectometer optoelectronic technology.

The MiniReflecto horizontal is the result of an ambitious project. Being unconventional didn't matter, we were determined to make all efforts to build the best instrument in the world.

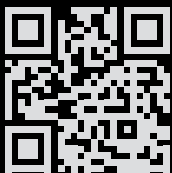
All preconceived ideas about nighttime visibility optics were questioned and reinvented.

Throughout the development we erased the requirements and rewrote it again several times.

### We are placing a new market milestone.

No other horizontal retroreflectometer in the world can match the size, the design, the performance and the weight of the new MiniReflecto...It simply can not be done.





October 2015

[www.easylux.com.br](http://www.easylux.com.br)

