BaseSpion

User Manual

Last edited August 25, 2017

VISO SYSTEMS

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Safety information

Warning! This product is not for household use.

Read this manual before installing and operating the BaseSpion, follow the safety warnings listed below, and study all the cautions in the manual.

Preventing electric shocks

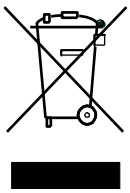
Make sure the power supply is always grounded.

Use a source of AC power that complies with the local building and electrical codes, that has both overload and ground-fault protection.

If the controller or the power supply are in any way damaged, defective, wet, or show signs of overheating, disconnect the power supply from the AC power and contact Viso Service for assistance.

Do not install or use the device outdoors. Do not spray with or immerse in water or any other liquid.

Do not remove any covers or attempt to repair the controller or the power supply. Refer any service to Viso.



Disposing of this product

Viso products are supplied in compliance with Directive 2002/96/EC of the European Parliament and of the Council of the European Union on WEEE (Waste Electrical and Electronic Equipment), as amended by Directive 2003/108/EC, where applicable.

Help preserve the environment! Ensure that this product is recycled at the end of its lifetime. Your supplier can give details of local arrangements for the disposal of Viso products.

Introduction

About this document

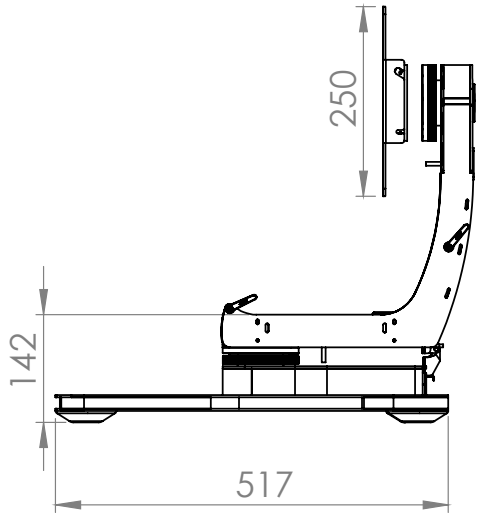
These guidelines describe the installation process of the BaseSpion followed by typical measurements of various light sources.

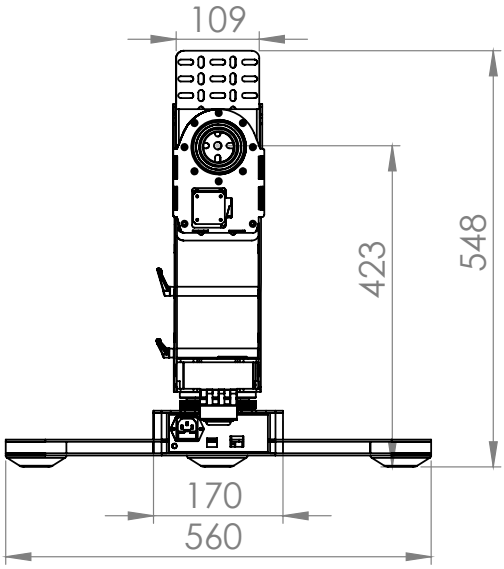
About the BaseSpion

The BaseSpion is a far field goniometer system with a spectrometer sensor that makes it possible to get all photometric measurements quickly and efficiently. The Light Inspector software enables to quickly measure, save and export the newly obtained data.

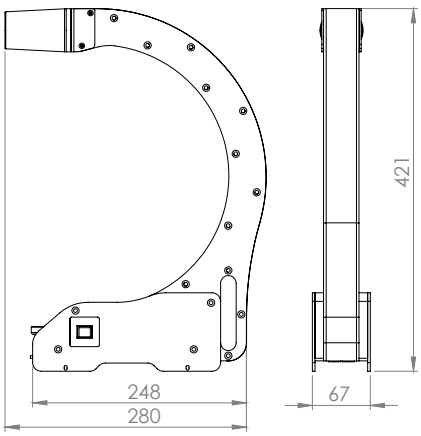
Dimensions

Goniometer

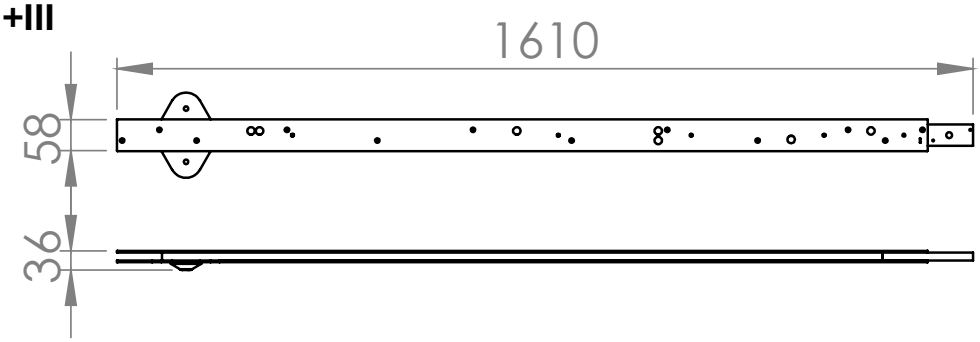




Sensor



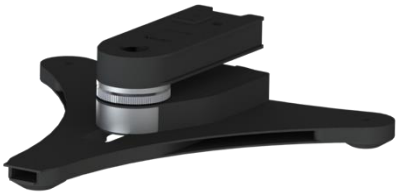
Rail I+II+III



Packaging and weight

The BaseSpion consist of 5 main assemblies as shown below.

Base – 14Kg



2/3 x sensor rail – 4Kg (12kg)

Sensor 4kg

Tower 4kg

E27 Bulb holder – 0,5Kg

BaseSpion items

- Base
- 3 x Sensor rails
- Tower
- Sensor
- Bulb holder with E27, E14, G10 and B22 adaptor.
- Light Inspector USB stick (Windows)
- 2m IEC power cord
- 5m USB cable
- 7,5m RJ45 cable for connection the Sensor
- Div screws for assembly

Shipping Packages

	Shipping packages	Shipping dimensions	Weight
1.	Sensor	50 x 50 x 20 cm	5 Kg
2.	Base + Tower	60 x 60 x 35 cm	20 Kg
3.	Rails	165 x 28 x 28 cm	16 Kg

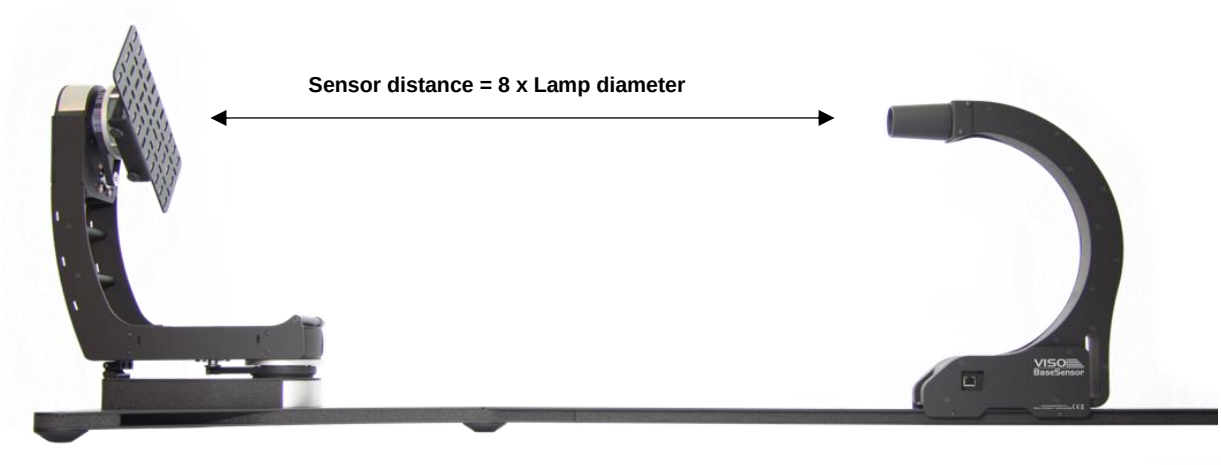
Total shipping weight: 41 kg.

The shipment is done in a total of 3 packages.

Room considerations

Sensor distance

The BaseSpion is a far field system, which means the distance between the light source and the sensor should be at least 8 x diameter of the lamp as shown below.



For example, for a lamp with a 20cm diagonal illuminating surface, the distance from center of rotation of the gonio to the sensor should be at least 160cm (20cm x 8)

Note ! The “Lamp diameter” is only the illuminating part of the lamp.

Room and table dimensions

The Sensor Rail that attaches to the Goniometer Base comes standard in three parts giving you the option of three different setups, depending on your needs and what your room allows.

With Rail I mounted a 2m table is needed

With Rail I + II mounted a 3m table is needed

With Rail I + II + III mounted a 3m table is needed

In the chart below is given the max light source size for each rail position.

Example
If you need to measure a light source with a diameter of 27cm, you need to have **Rail I** and **Rail II** mounted and the sensor should be slided to position 7 (sensor distance 250cm)

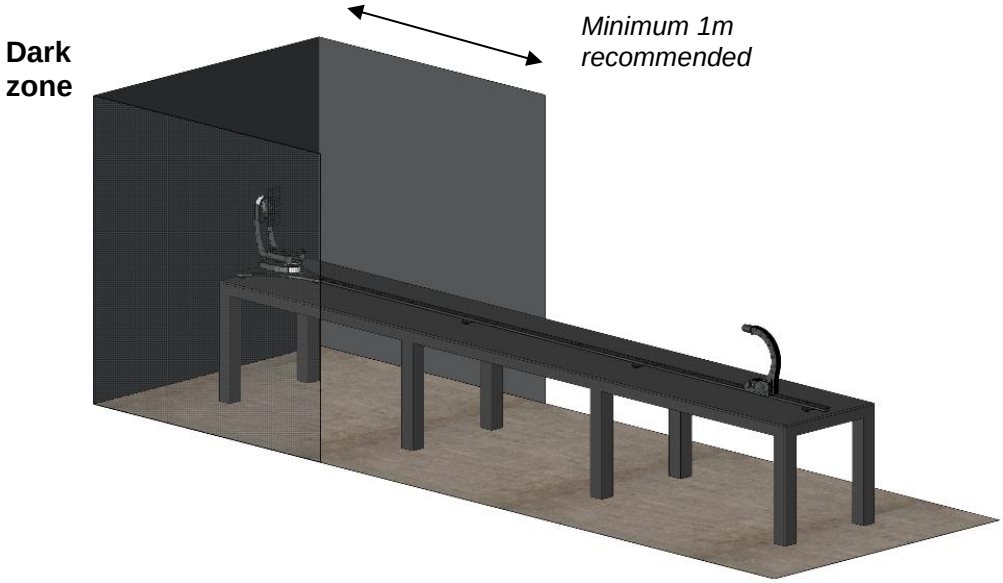
Room width: Recommended 100cm or more (Minimum 60cm deping on lamp size)

Lamp calculation chart

Rail Pos	Lamp dia	Sensor dist	Table length	Rail
1	4cm	35cm	2 m	I
2	6cm	50cm	2m	I
3	9cm	75cm	2m	I
4	12cm	100cm	2m	I
5	18cm	150cm	2m	I
6	24cm	200cm	3,5m	I+II
7	30cm	250cm	3,5m	I+II
8	36cm	300cm	3,5m	I+II
9	42cm	350cm	5m	I+II+III
10	54cm	450cm	5m	I+II+III

Goniometer ‘Dark zone’

Normally when doing light measurement, a completely dark room is needed. But with the BaseSpion it is not a necessity for the whole room to be dark, as the sensor uses a special directional sensor. This means having only the goniometer zone dark will be sufficient, as shown below.



It is recommended the depth of the dark zone to be 1 meter or more.

A room can be darkened either by painting the walls black or using a black curtain.

A black molton curtain can be better than a painted wall, as the folds in the curtain works as small light bafflers trapping the light.

Note *If you have the option to have a fully dark room, this should this should be your first choice.*

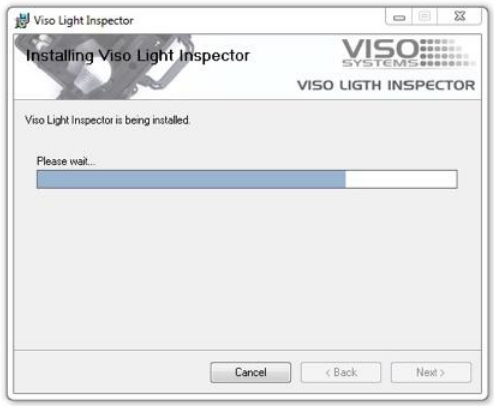
Installation

Software installation

Before you can start using the BaseSpion, the “Viso Light Inspector” software must be installed. It is supported on all windows platforms.

Use the following link to download the latest version:

http://www.visosystems.com/download-light-inspector/



1) Please make sure the BaseSpion is not connected to the computer during software installation.

2) Run the .msi file and follow the installation instruction.

3) USB drivers are automatically installed.

Your measurements are not lost when updating to a newer version or uninstalling and reinstalling. All measurements will always remain in your document folder. If you want to remove all your measurements go to the ‘Light Inspector’ folder and delete them manually.

Folder location:

C:\Users\’Username’\Documents\Viso Systems\Light Inspector

Or if stored in dropbox:

C:\Users\’username’\Dropbox

Connect power

The BaseSpion comes with a standard IEC power-in connector and with a standard euro power cable, but any power cable can be used as the BaseSpion supports any outlet voltage from 90-260VAC.

The power-in connector supplies power to the goniometer motor, power analyser and the light source being measured. Which means the power feed to the system is also what is being delivered to the light source to be measured.

AC power supply cable plug

Warning: Risk of an electric shock! Plug installation shall be performed by a qualified electrician.

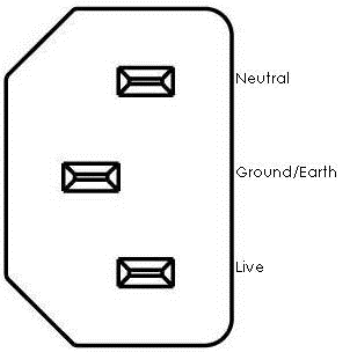
A grounding-type (earthed) power plug that fits the local power outlet must be used. You can acquire an IEC power cable with a suitable grounding-type plug from most of consumer electronics stores.

When installing the plug connect pins as follows:

Yellow and green wire to grounding (earth)

Blue wire to neutral

Brown wire to live



Connect USB

The BaseSpion is connected to the computer using a USB connector type A to B. 2 meter USB cable is included with the BaseSpion, however any USB cable supporting USB2.0 can be used.

The USB provides communication and power to the BaseSpion's main board processor. But to run power analyser and photo spectrometer, you need to have power connected.

Start the "Viso Light Inspector" software after having connected the USB; the connection to the BaseSpion will be established automatically. A successful connection is shown with a green "Connected" icon in the upper right corner of the 'Viso Light Inspector' software.

You can connect and disconnect the USB without restarting the "Viso Light Inspector" software, as the connection is always established automatically as soon as the USB connector is

plugged in and vice versa.

Connecting the BaseSensor

The BaseSpion is connected to the LabSensor with a RJ45 cable.

A 7,5 meter RJ45 Cat5 shielded cable is supplied with the BaseSpion, but any shielded RJ45 cable can be used

Warning

Do not connect the Sensor to the C-plane motor connector, this could damage the Sensor.

Connecting the C-plane goniometer

The C-plane goniometer is connected to the BaseSpion base through a RJ45 cable. The BaseSpion will automatically detect the C-plane goniometer.

Warning

Do not connect the C-plane motor to the Sensor connector, this could damage the BaseSpion.

Connecting a lamp power

The BaseSpion has a built-in power analyser and power switch. The power switch is used when running in ambient light correction mode. So the lamp can be switched off before a measurement, so that the values of the ambient light can be obtained and subsequently subtracted from final measurements.

The maximum current supported by the lamp output is 3A, which is 660W at 220VAC and 330W at 110VAC.

AC power supply cable plug

Warning: Risk of electric shock! Plug installation shall be performed by a qualified electrician.

A grounding-type (earthed) power plug that fits the local power outlet must be used. You can acquire an IEC power cable with a suitable grounding-type plug from most of consumer electronics stores.

When installing the plug connect pins as follows:

- **Yellow and green wire to grounding (earth)**
- **Blue wire to neutral**
- **Brown wire to live**

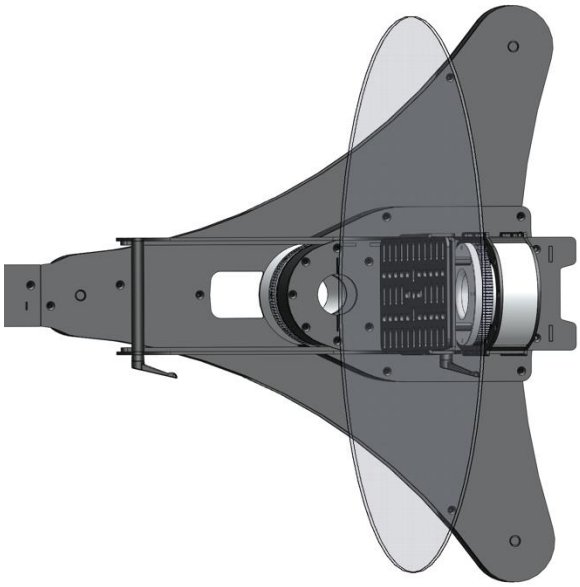
Connecting diagram

Below there is the connection diagram showing the different connections in order to make the system operational.

Mounting and alignment of the lamp

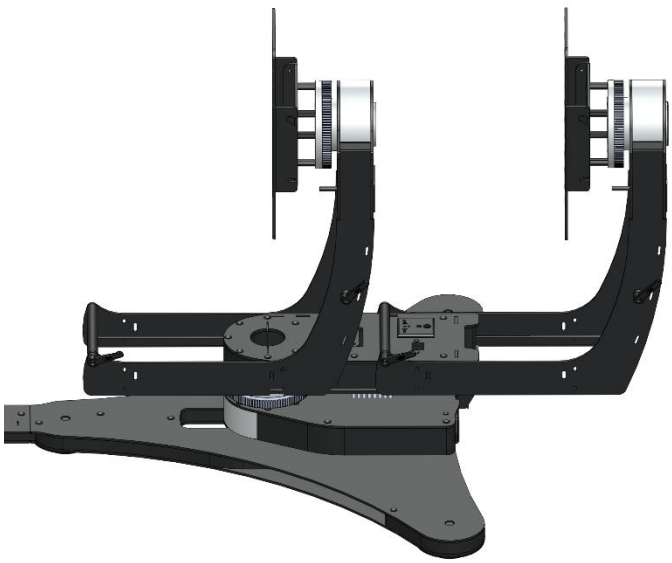
Aligning the lamp is key to ensuring a precise measurement. Cut outs in the top of the goniometer marks the center of rotation. Any lamp must carefully cantered before measurement

carefully be aligned after this, like the picture below. The transparent disc imitates the center of a lamp.



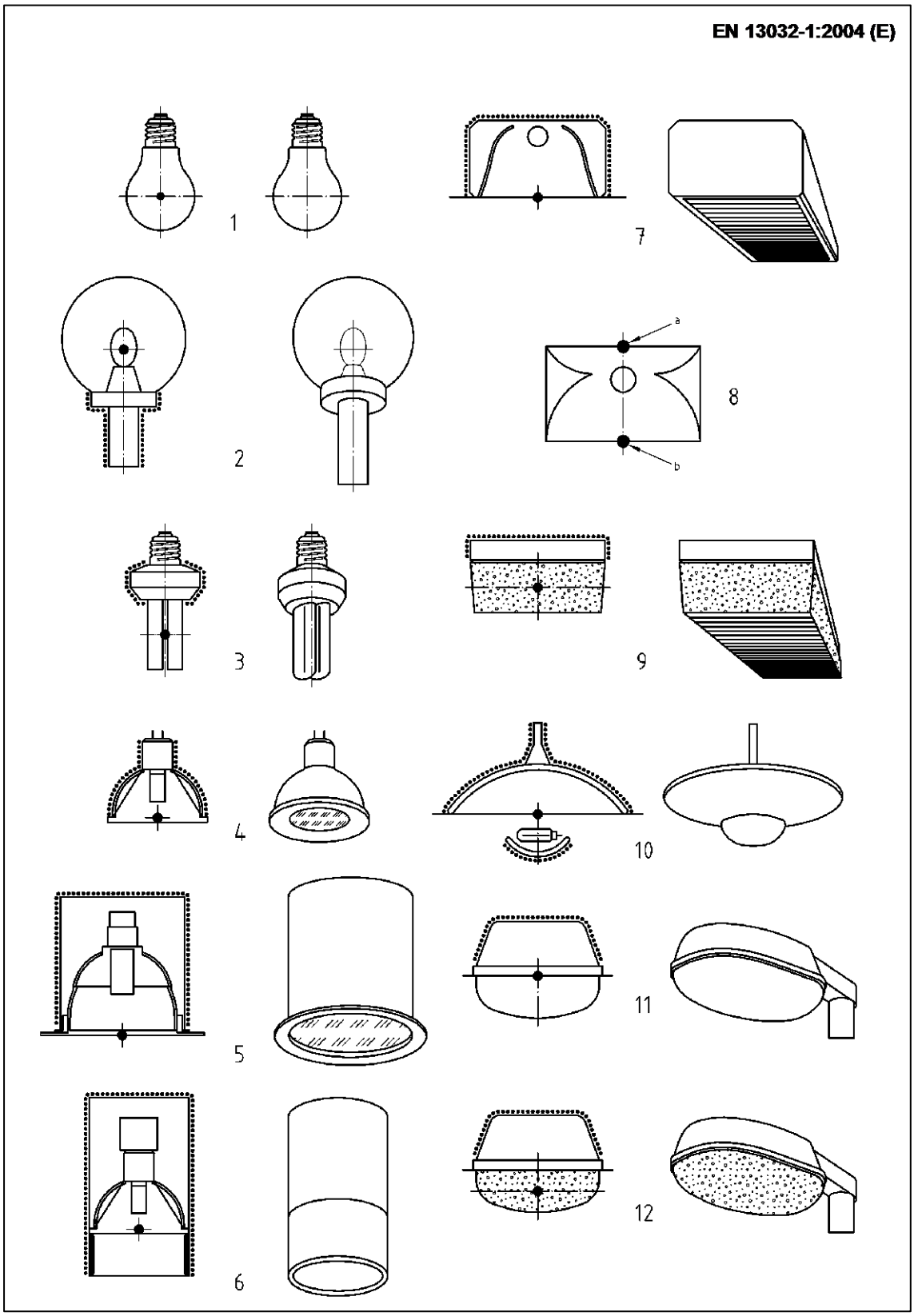
The tower can be adjusted from 0cm to a max lamp depth of 35cm

Min Max



Center of luminares

The black spot marks the photometric center of the different lamps. This photometric center is what should be aligned with center of rotation of the Base.



Explanation of presentation

Presentation	Explanation
●	Photometric centre
▬▬▬▬	opaque, substantially black
/// /// ///	opaque, diffuse or specular reflectant
⁘⁘⁘⁘	translucent, clear
.....	compartment

Photometric centre of light sources

1) Incandescent lamp
2) With a clear cover
3) Compact fluorescent lamp
4) Reflector lamp
5) Luminaire with reflecting mirror
6) Luminaire with shield, substantially black
7) Luminaire with opaque sides
8) Direct-indirect luminaire
   a) Luminant area 1 with photometric centre 1
   b) Luminant area 2 with photometric centre 2
9) Luminaire with diffusing/prismatic sides
10) Indirect luminaire with secondary reflector
11) Outdoor luminaire with clear cover
12) Outdoor luminaire with diffusing/prismatic cover

Mounting of fixtures with a static base

To keep the BaseSpion goniometer still, when mounting and aligning a light source for measurement, there is a lock on the back of the goniometer.

A sensor detects when the base is locked and if a measurement is started with the lock activated an animated messages will appear in the software, reminding you to unlock the base before continuing.

Making measurements

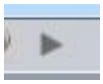
Alignment of the sensor

Before making any measurements it is important to place the sensor at an appropriate distance. The BaseSpion is a far field goniometer system, which means that the distance between the sensor and the lamp should be equal to or larger than eight times the lamp length/diameter.

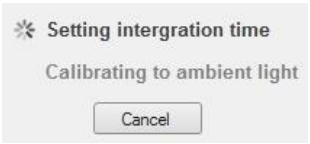
Further info, see *Installation Chart page 10*

Making a measurement

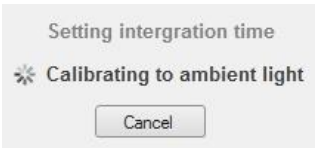
1) A measurement is simply started by clicking on the play icon on the menu bar.



2) Then the integration time is set automatically.



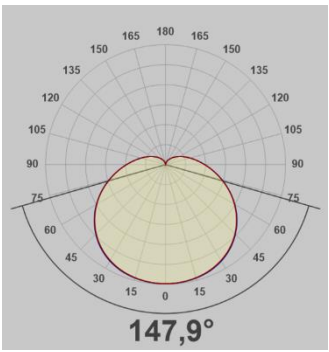
3) The ambient light level is automatically measured by turning off the light source.



4) The power is then measured and stored.

5) The light source is then rotated at 180 degrees to prepare for measurement.

6) The complete 360 degrees angular light field is then measured and the beam angle is calculated.



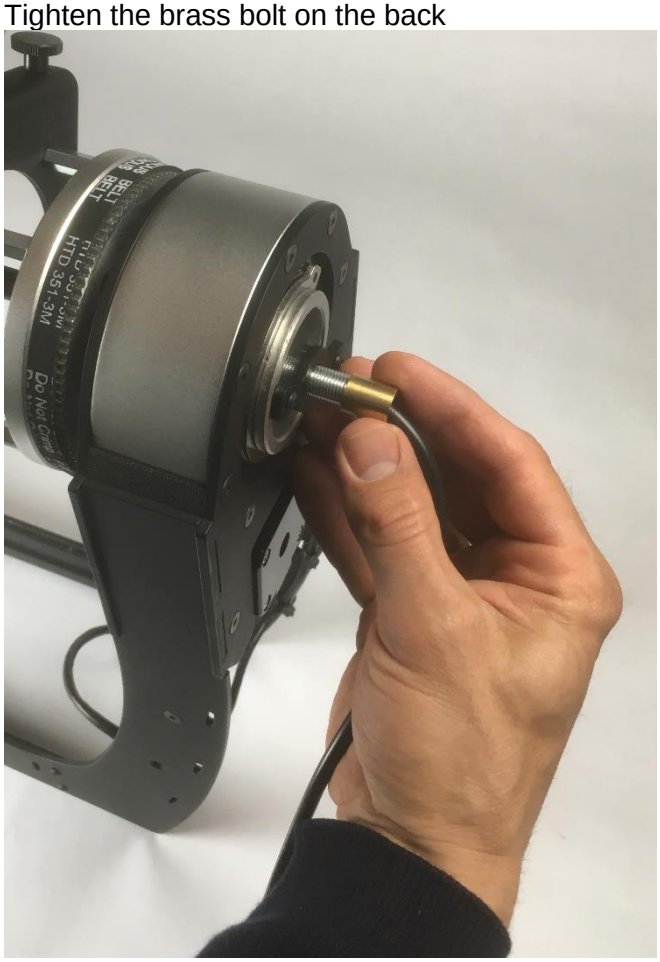
For an in depth walkthrough of the Light Inspector software, go to the **‘Light Inspector Manual’**.

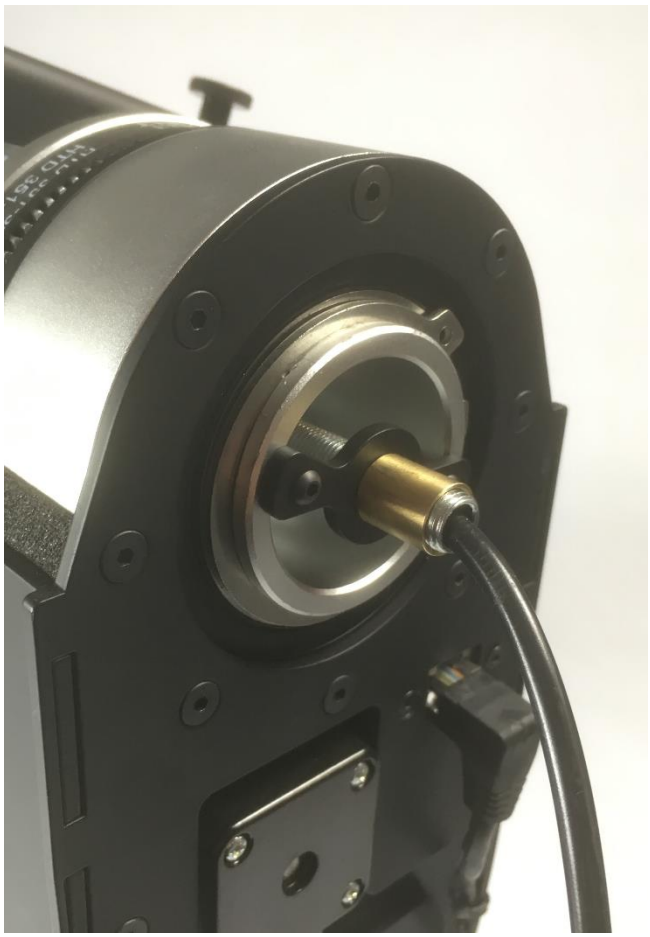
Attaching the E27 Bulb Holder

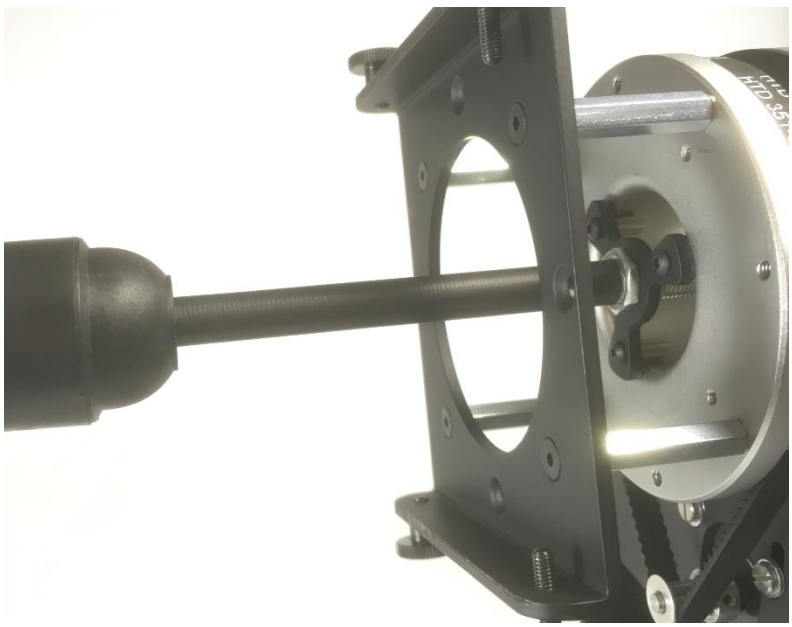
Loosen the brass bolt at the end

Put cable plug, brass bolt and the small loose bracket through the C-Plane head

Tighten the brass bolt on the back







Specifications

Measurement method…… Far Field

Physical dimensions

Shipping dimensions (L x W x H)…….. (See shipping dimensions)

Shipping weight…… 41 Kg

Dimensions (L x W x H)…….. (See dimensions)

Weight……..... 38 Kg

Sensor distance range…… 35 cm – 450 cm

Sensor distance……>= lamp length x10 (min x8)

Sensor distance setup…….Automatic detector on sensor rail

Lamp diameter range……..... 0 – 54cm

Lamp maximum weight…….. 9Kg

Electrical

Power supply input…….. 90 - 260 VAC, 50/60 Hz

Power consumption…… 60W (Idle 15 W)

USB current consumption…… 200 mA

Power analyser voltage range…… 90VAC-260VAC <+/- 0.5V

Power analyser current range…….. 0A-3A (Avg: +/- 0.5mA)

Power analyser power range…….. 0W-300W (Avg: +/- 0.1W)

Power analyser sample rate…….. 70.000 samples/sec

Photometric

Flux, lumen @ 0.35m…….. 0.5 – 3.500 +/- 4.00%

Flux, lumen @ 1,5m…… 4 – 67.000 +/- 4.00%

Flux, lumen @ 4.5m…… 35 – 600.000 +/- 4.00%

Intensity, candela @ 0,35m…… 0,1 – 1.250 <+/- 2,5%

Intensity, candela @ 1,5m…….. 1 – 22.000 <+/- 2,5%

Intensity, candela @ 4.5m…… 10 – 200.000 <+/- 2,5%

Colour temperature……1.000K-40.000K < avg +/- 35K

Colour rendering index…… 0-100 <+/- 0,7

Angular resolution BASIC MODE…….5 degree step
(About 20 sec measurement time per C-plane)
Angular resolution HIGH MODE……...1 degree step
(About 1 min measurement time per C-plane)
Angular resolution highest resolution…….. 0.1 degree step
(About 5 min measurement time per C-plane)

Spectrometer……. Ibsen Photonics FREEDOM
Custom viso (high sensitive transmission grating)
Spectrometer range……... 360-830nm (1024 pixels)
Spectrometer detector…… SONY ILX511B
Calibration…….. Fully calibrated
Re-calibration…… Every 1 year
(Maximum 2 years)

Control and interface

Control interface…….. USB 2.0
Control connector……... USB-B

Connections

AC power in (power supply)……. IEC 3-pin
AC power out lamp…… Universal socket
Light source adaptor…… E27, E14, B22, GU10
PC…….. USB A

Approvals

Power supply…….. cUL/UL, CE, CCC, TUV, FCC
Power analyzer - BaseSensor…… CE

Warranty

Warranty period…….. 2 years

Ordering information

BaseSpion…… P/N BASESP001