VISO SYSTEMS

REF-800

User Manual

Revision: SEP2025

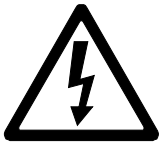
Contents

Safety Information

Warning! This product is not for household use.

Read this manual before installing and operating REF-800, 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

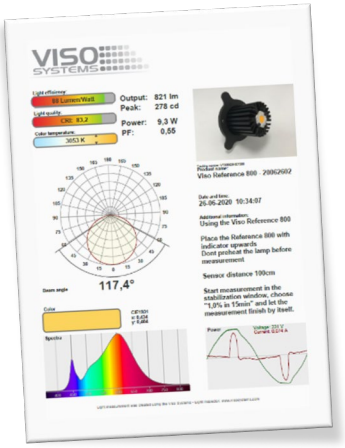
Viso Systems products are supplied in compliance with Directive 2012/19/EU on waste - electrical and electronic equipment (WEEE) together with the RoHS Directive 2011/65/EU with amendments 2015/863. Help preserve the environment! Ensure that this product is recycled at the end of its lifetime. Your supplier can give details of local arrangements for the disposal of Viso Systems products.

REF-800 Viso reference lamp

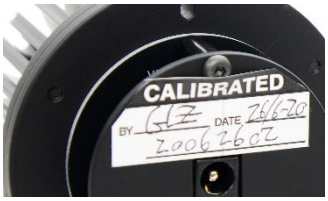
Checking the Calibration Status

Use REF-800 every 3 months or so to check your calibration status.

A special Viso reference light source (REF-800) is included in every new Viso system (in older systems, another type of reference lamp was included). The REF-800 light source has its own power supply, and both parts are labelled with identical calibration date and numbers. Never measure without the original power supply.



Right after factory calibration of your system, the reference light source was measured, and a certificate was issued. The certificate is part of the delivery. The certificate can also be downloaded from Viso's website using the calibration number on the labels.



With the reference lamp you can quickly check your calibration status:

- Check whether the total flux in lumen and peak candela is close to the original values.
- Check whether the shape of the spectrum is close to the original shape.
- Check whether the spectrum looks spiky or jagged.

If you are not happy with the result, the system needs to be calibrated. Viso recommends calibration every year, or minimum every 2 years. Viso provides calibration service, or you may do your own calibrations using the Viso CALI-T50 or other traceable calibration light sources.

Compare results with the expected accuracy that you can find in the system specifications in the back of the user manuals:

https://data.visosystems.com/content/manuals/lightspion_user_manual.pdf

https://data.visosystems.com/content/manuals/basespion_user_manual.pdf

https://data.visosystems.com/content/manuals/labspion_user_manual.pdf

On the next pages, you will find procedures that fit your specific system.

Getting help

Share your measurement result with us directly from the software (Help -> Support -> Share Measurement. Add a comment and an email address.

Also, photos/videos from the lab and setup are almost always also necessary to establish a full understanding of the problem. Even large videos can also be shared directly through the software. Go to Help -> Support -> Share Measurement.

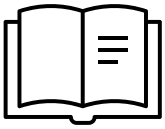
So, to give the best possible support, we urge you to provide this information straight away with the first contact.

Storing your REF-800

Make sure not to damage the COB on the REF-800 and never store the REF-800 with the power supply connected.

Always keep your REF-800 dust-free in the original packaging materials at moderate room temperatures and with a relative humidity of 20-60%.

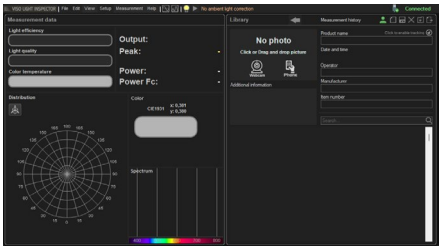
LabSpion: Check-up Procedure



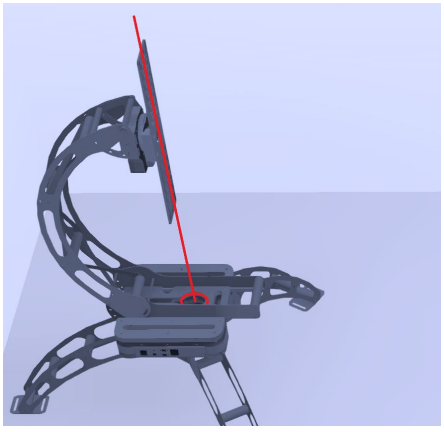
1 **Read through** the whole procedure before you start.

2 **System basics**
Make sure that your software and firmware is up to date – go to the Help menu and check. We recommend installing the latest software beta version. See latest versions here:
https://www.visosystems.com/download-light-inspector/

3 **Laboratory**
Perform reference measurements in a completely dark space with black surfaces. Making the measurement in a space that does not live up to these requirements may affect precision. Make sure that the laboratory's ambient temperature is 25 deg.



4 **Connect and start software**
Start your software and connect everything including the sensor at least one hour in advance. Do not mount or turn on the REF-800 at this stage.

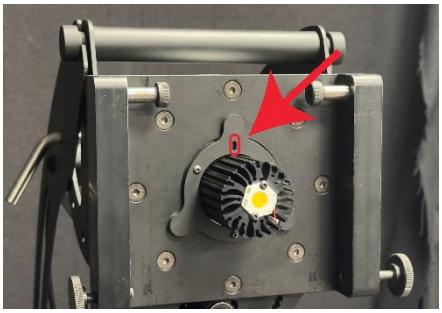


5 **Sensor Distance and alignment.**

For Tripod users:
Lock the gonio base.
Push the whole tower back or forth to align the front of the arm with the rotational center of the gonio base.
Move the sensor tripod to adjust to a distance of 200 +/- 0.5 cm measured to the gonio arm.
Using the small alignment mirror, align the sensor as carefully as possible by using the procedure in the LabSpion user manual page 18 ff
https://data.visosystems.com/content/manuals/labspion_user_manual.pdf

For LabRail owners:
Lock the gonio base. Adjust the sensor distance to 200 cm +/- 0.5 cm through the software[1].

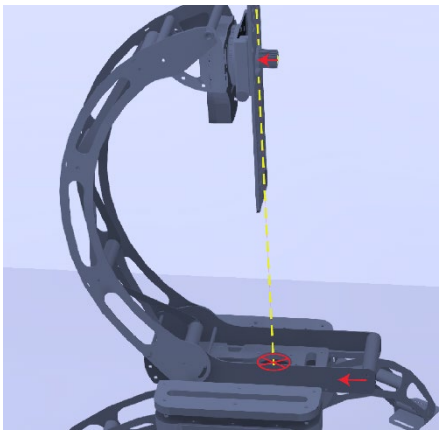
[1] To make sure 200 cm is the actual distance, you may may manually measure the distance to front of the sensor head. Since the optical center is inside the sensor head, add 5.9 cm (LabSensor model I) or 11.5 cm (LabSensor model II) to get the correct distance.



6 **Placing the REF-800**

<u>For owners of LabSpion models before medio 2024:</u>
Turn the lamp bracket into a vertical position. Place the REF-800 with the indicator (the oblong hole in the base) upwards directly in middle hole in the lamp bracket.

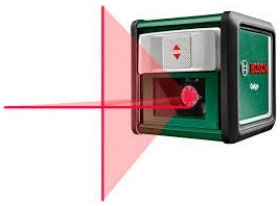
<u>For owners of LabSpion models after medio 2024 (in image):</u>
Remove the lamp bracket. Place the REF-800 with the indicator (the oblong hole in the base) in the middle of the lamp bracket frame.



7 **Pushing the REF-800 to the gonio center**

Push the tower slightly back until the light source (yellow COB area) is in the gonio vertical rotation axis (shown as a dashed yellow line).

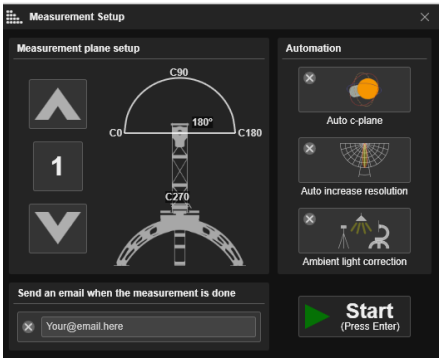
Use LabTarget to achieve this (if you have LabTarget installed)
Or, use your Bosch Quigo laser tool:



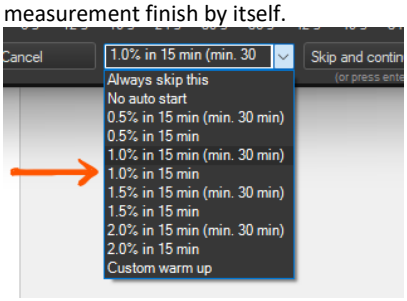
<u>Tripod users:</u> Measure the distance with the sensor laser – and check that it is still 200 cm +/- 0.5 cm.

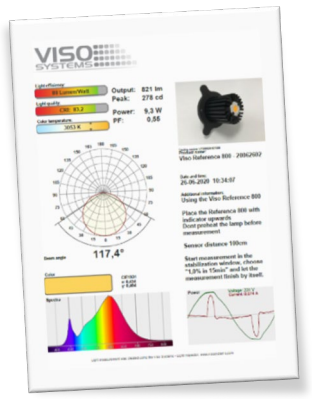
8 **Connecting the REF-800**

Connect REF-800 to the built-in mains outlet on the gonio base.
Do not turn it on.
Use a stable, sine wave mains supply (100/110/220/230/240 V, 50/60 Hz).
Do not preheat the light source before measurement.
Unlock the base.



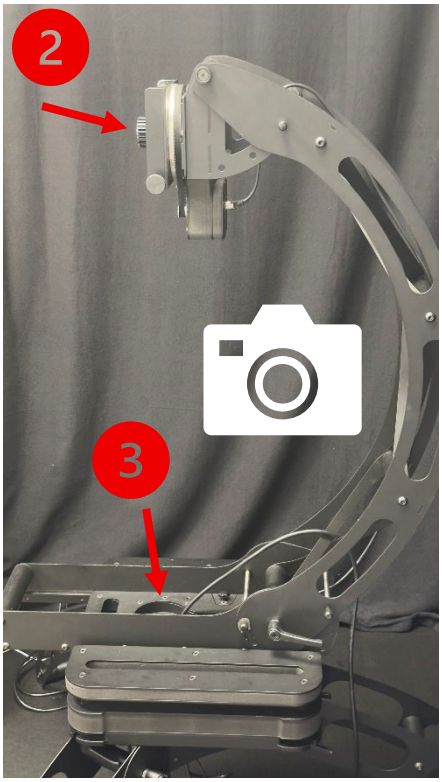
9 **Start a one-plane measurement** – 360 degrees, “basic” resolution = 5 degrees.
In the stabilization window, choose “1,0% in 15 min.” and let the measurement finish by itself.





10 Check your results
Locate the certificate from last factory calibration. Contact info@visosystems.com if you cannot locate it, and remember to inform us of your sensor serial number.

Then check against the certificate values.



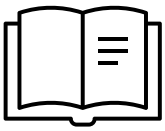
11 **IMPORTANT – Photo documentation**:
Take photos of your setup for documentation.
Enter as a minimum a photo like the one the left into the software, and save.

Guidelines

1. Make the photo straight from the side as shown.
2. Lift the camera to show the REF-800
3. and also the hole in the base. Zoom in to see the REF-800 and the base – not the legs and others

11 **Removal and storage**
Remove the REF-800, gently pull out the power supply plug, wrap in the original packaging materials, and store as recommended.

BaseSpion: Check-up Procedure



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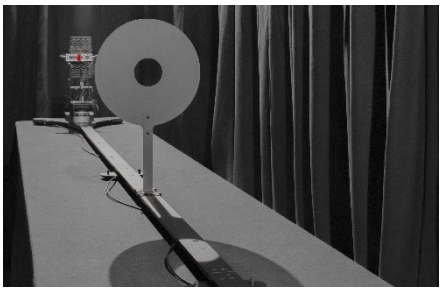

3 **Laboratory**
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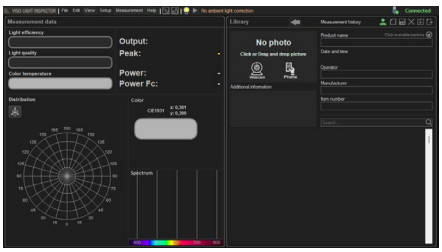
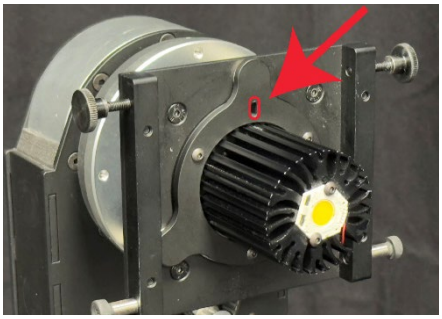
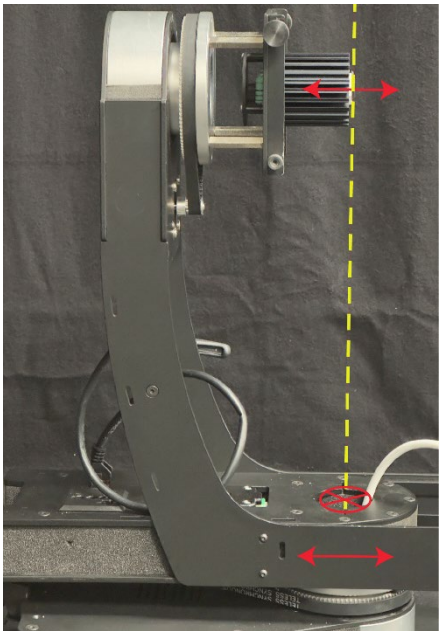


4 **Connect and start software**
Start your software and connect everything including the sensor at least one hour in advance. Do not mount or turn on the REF-800 at this stage.

5 **Sensor Distance and alignment.**
Lock the gonio base. Adjust the sensor distance to 200 cm moving it by hand (some models 150 cm, see the certificate).



6 **Placing the REF-800**
Remove the lamp bracket. Place the REF-800 with the indicator (the oblong hole in the base) in the middle of the lamp bracket frame.



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Push the tower slightly back or forth until the light source (yellow COB area) is in the gonio vertical rotation axis (shown as a dashed yellow line).

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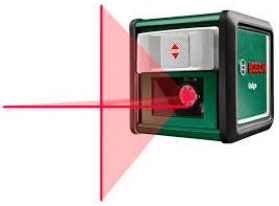

T

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Use a stable, sine wave mains supply (100/110/220/230/240 V, 50/60 Hz).
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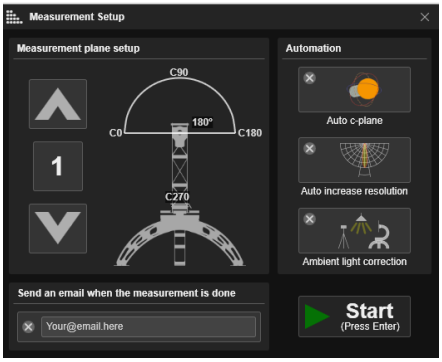
Unlock the base.



9 **Start a one-plane measurement** – 360 degrees, “basic” resolution = 5 degrees.
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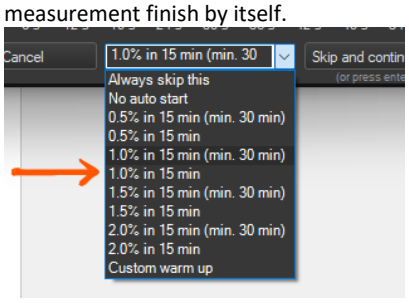

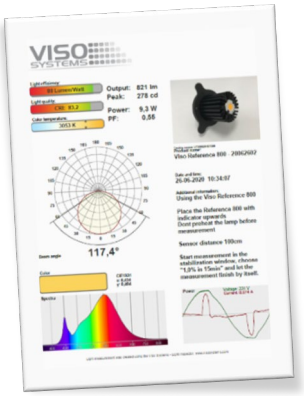

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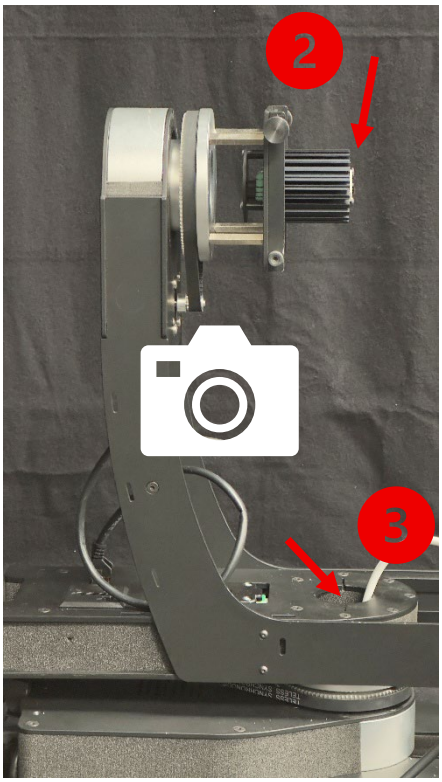

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LightSpion: Check-up Procedure

1. Make sure that your software and firmware is up to date – go to the Help menu and check. We recommend installing the latest beta version.
2. Perform reference measurements in a completely dark space with black surfaces. Making the measurement in a space that does not live up to these requirements may affect the precision.
3. Start your software and connect everything including the sensor at least one hour in advance. Do not mount or turn on the REF-800 at this stage. Make sure that the laboratory ambient temperature is 25 deg. Use a stable, sine wave mains supply (100/110/220/230/240 V, 50/60 Hz).
4. Place the REF-800 with the indicator (the oblong hole in the base) upwards on the lamp bracket.
5. Push the lamp holder back/forth to center the light source (yellow COB area) in the gonio vertical rotation axis.
6. Push the lamp holder up/down (using the height tool) to center the light source (yellow COB area) in sensor axis.
7. Connect REF-800 to the built-in mains outlet. Do not turn it on.
8. Do not preheat the light source before measurement.
9. Unlock the base.
10. Start a one-plane measurement – 360 degrees, “basic” resolution = 7.5 degrees.
11. In the stabilization window, choose “1,0% in 15 min.” and let the measurement finish by itself.
12. Check your results against the certificate values.
13. Take photos of your setup for documentation – straight from the side of the light including the gonio base
14. Remove the REF-800, gently pull out the power supply plug, wrap in the original packaging materials, and store as recommended.