

Caution

LumaCon

Even though the use of the LumaCon is self-explanatory, please read the underneath carefully.

Make sure the projector does not touch the front of the lens. This risk is bigger when the "Macro extender" is applied.



Do not move the projector by hand nor block the projector while it is moving.



Use the included PC only for the LumaCon. The PC is optimized for the software, other use will affect the performance.



If applicable use the lens-support to release the lens from weight-related stress



Installation guide

Version 1.01-t730

For the electrical connections, simply connect the different connectors according to their color (blue to blue etc.)

Iiyama T1531 monitor



HP t730 Personal computer



① Monitor connection

② USB connectors

③ Power connector

① USB (to PC)

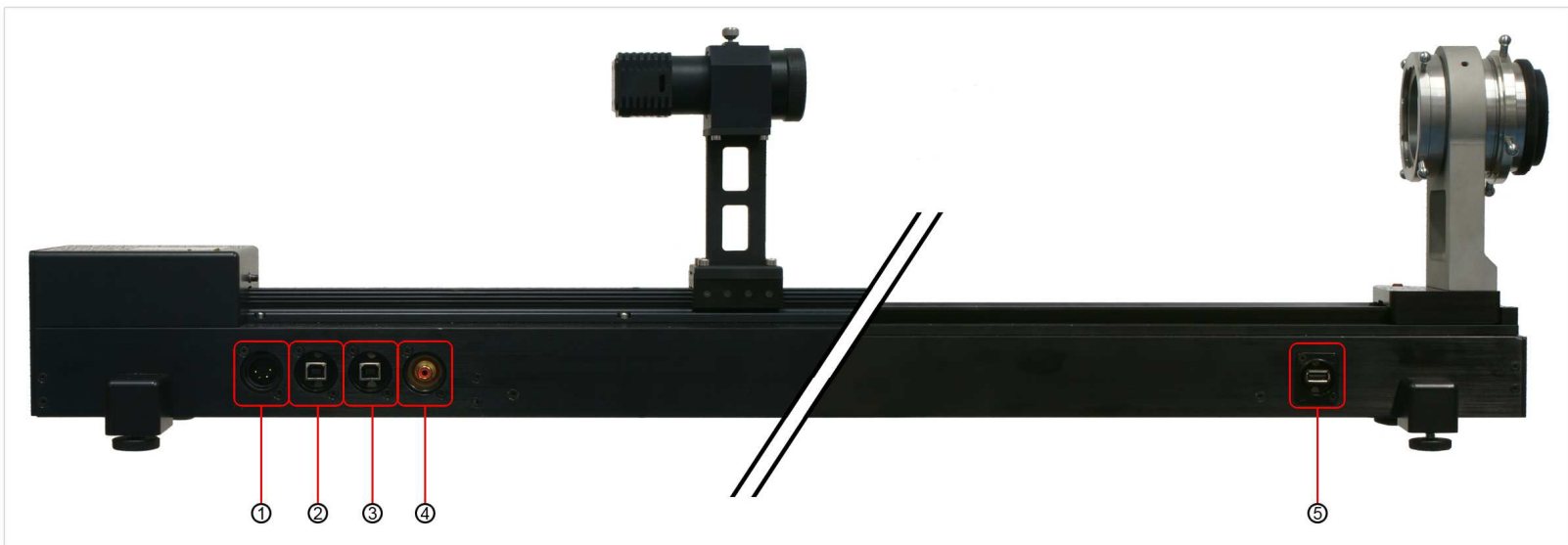
② PC connection

③ Mains connection



Power supply (to PC)

LumaCon rear-view



① Power supply

④ To light-source

⑤ USB (to camera)

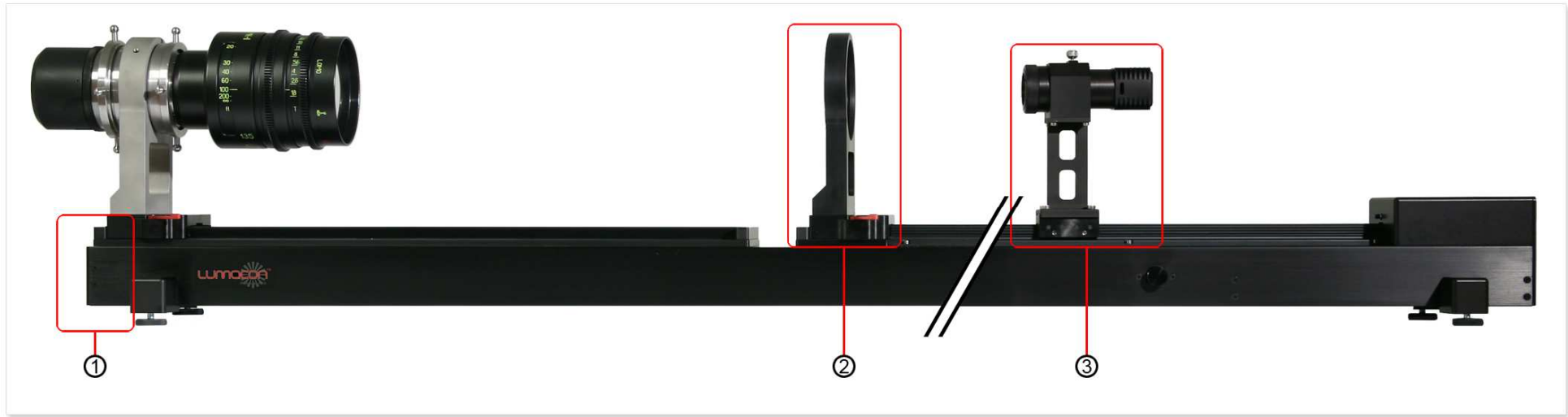
② & ③ USB (to PC)



Power supply (to LumaCon)

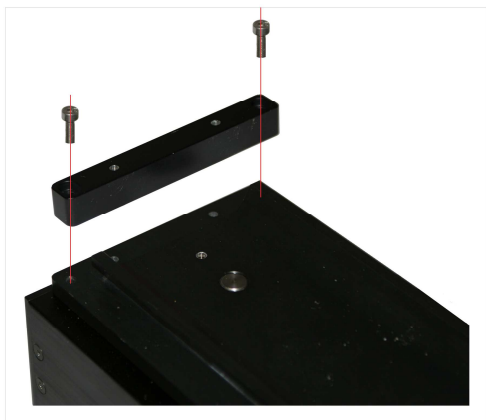
Installation guide

Version 1.01-t730



② The field-lens can be slid on- & off the rail

① Installing the lens-mount



- Release the 2 hex-screws that hold the end-locking in place
- Slide the mount onto the rail
- Reinstall the end-locking and the 2 hex-screws.

③ Assembling the light-source



- Mount the housing on the actuator using the 3 hex-screws
- Slide the light-source into the housing
- Secure the light-source in the housing using the top-screw
- In the front of the housing you can apply the different targets

Screen guide

Software version 1.0.4

① Exposure indicator, use the dimmer to correct

RED : over exposure
Green : correct exposure
Yellow : under exposure

② Active measurement area

③ Current value

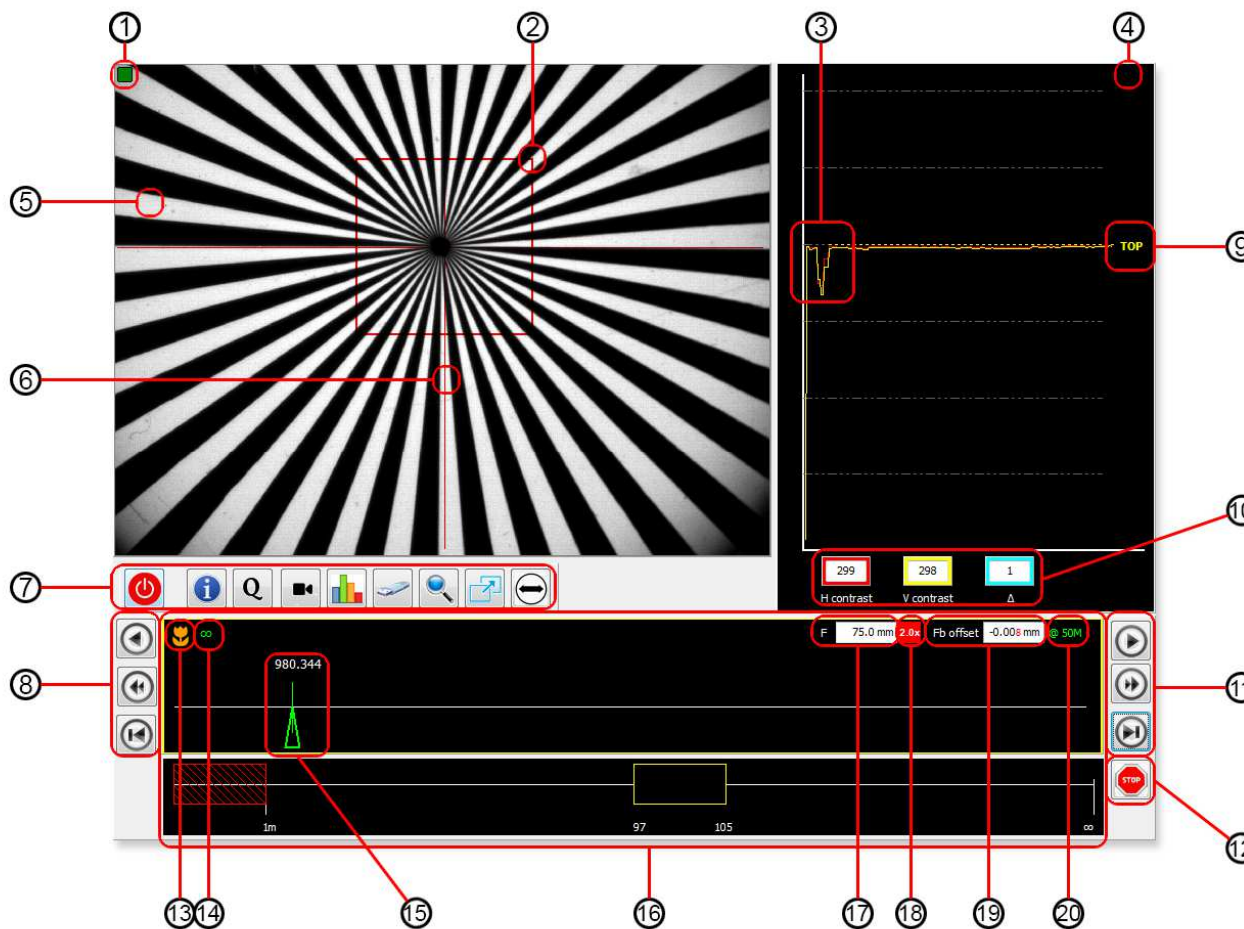
④ Graphical representation of the H & V-contrast values. This can be a line- or a bar-graph

⑤ Visualisation of the measurement

⑥ Cross-hair

⑦ Menu

⑧ Move the projector (shorten focal-distance)



⑨ The (up-to now) highest H- & V-contrast values

⑩ Numerical representation of the H & V-contrast values and the difference.

⑪ Move the projector (enlarge focal-distance)

⑫ Stop projector movement

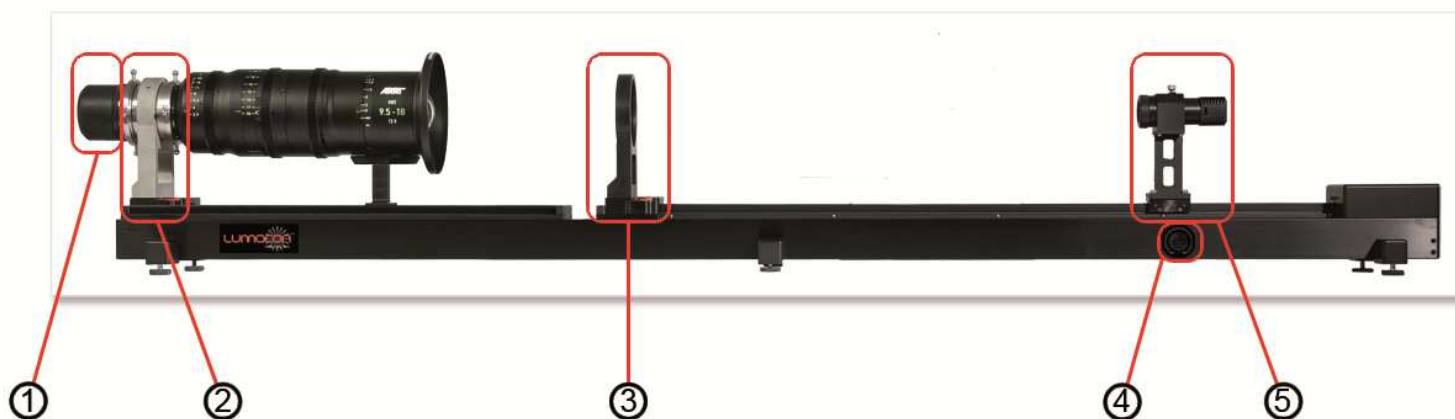
⑬ The macro option is installed
⑭ Current focal- distance

⑮ Focal-distance indicator

⑯ Position of the projector, the lower half is the coarse setting, the upper half is the fine setting

⑰ Focal length of the lens under test
⑱ Anamorphic indicator (1.3 or 2.0x)
⑲ Calculated Fb offset
⑲ The focal-distance the FB offset is based upon

Identifier



① Camera / focal plane microscope

② Lens mount

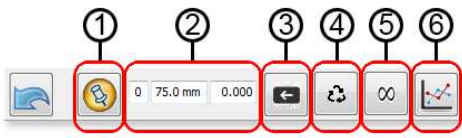
③ Field lens

④ Dimmer

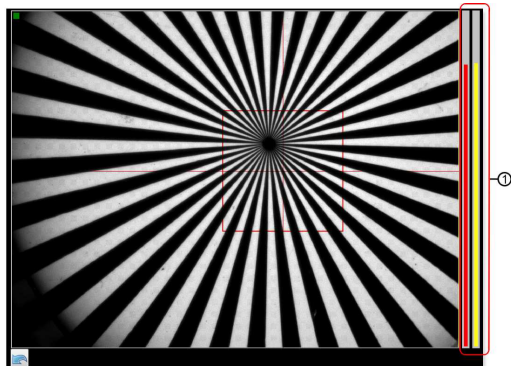
⑤ Projector with target

Menu guide

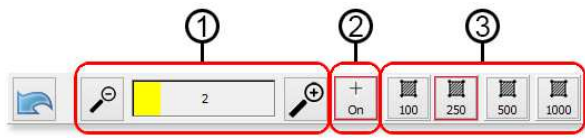
Software version 1.0.4



- ① Store the value
- ② Measurement-values
- ③ Remove last measurement
- ④ Reset measurement
- ⑤ Goto ∞
- ⑥ Draw graph

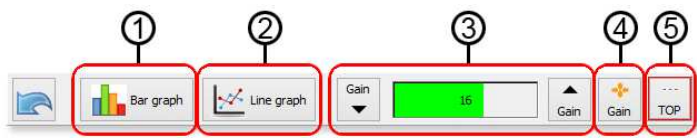


- ① Contrast indicator, horizontal (red) & vertical (yellow)

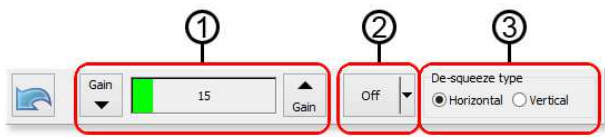


- ① Software zoom on the picture
- ② Crosshair on/off
- ③ Determines the size (H/V) of the measurement

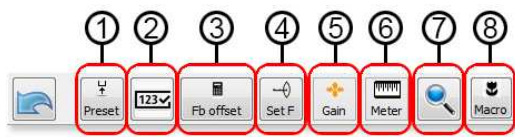
Generate an evaluation report (in pdf format). The filename is preset to the current time & date



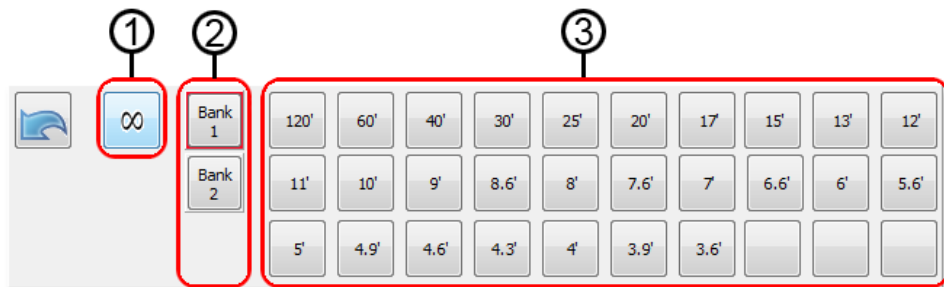
- ① & ② Type of graph; "bar graph" or "line graph"
- ③ Manual setting of the graph-gain
- ④ Momentary graph-gain
- ⑤ Turn the "top-line" on-off



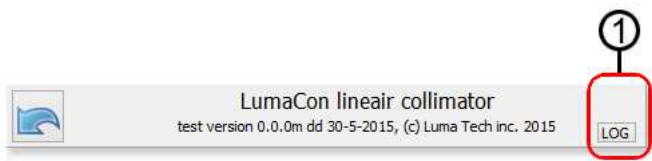
- ① Manual setting of the camera gain
- ② Anamorphic de-squeeze, choice of: off/1.3x/2.0x
- ③ Make the de-squeeze a horizontal- respectively a vertical fit



- ① Preset focus distances
- ② Manual input of focus distances
- ③ Calculate the Fb offset @ the focal length
- ④ Set the focal length of the lens under test
- ⑤ One-shot graph gain
- ⑥ Switch between metric & feet
- ⑦ Zoom menu
- ⑧ Macro option



- ① Go to the ∞ position (a field lens is required)
- ② Select the memory bank
- ③ Preset focus positions, depending on the feet- or meter setting presets can be selected



- Information about the software version.
- ① Generate a "log" file for support purposes



Switch of the software

Preparations

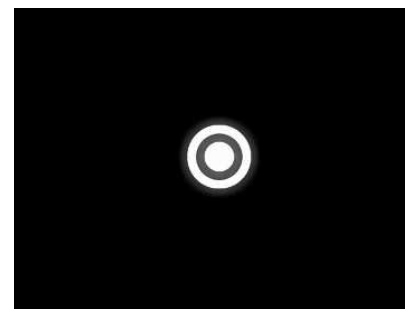
- Replace the camera with the focal-plane microscope.
- Install the pinhole target in the projector in place of Siemens star
- Place the field lens
- Set the system distance to infinity

Setup of the microscope

Adjust the 4 alignment screws on the microscope in such a way that you can see the pinhole as close to the image-center of the eyepiece as possible. Due to the high optical magnification (300 x) this initially requires some practice. The eye piece slides in- and out for your eye-focus(diopter)

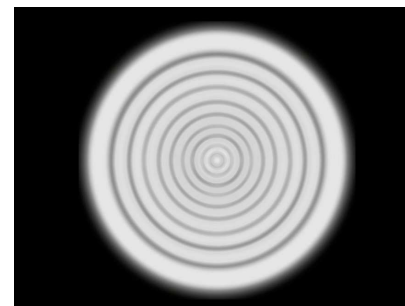
Reference result

A fault free lens-assembly. The pinhole light-source is reproduced in the microscope as generated.



Spherical aberration

If the air gaps between individual elements or groups within the lens-assembly are not correct, spherical aberrations will result. This is shown by multiple concentric rings



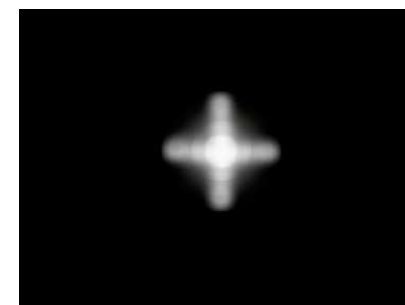
Coma

Caused by decentering of optical parts or components. This is a common problem after replacing the front- or rear elements.



Astigmatism

Caused by pinching (uneven mechanical pressure). This is a common issue when the front element is reinstalled with too much force.



Please note

- In some cases more than one issue may be present in a given lens. With experience you will be able to see multiple aberrations are layered together
- Anamorphic lenses are intentionally designed to have a (controlled) astigmatism. Therefore anamorphic lenses cannot be evaluated by the focal-plane microscope.

Goto <https://vimeo.com/user52526516> for instruction-videos