CREATIVE CUSTOMER SATISFACTION

LIGHTING SOLUTION
LED Illuminators for Machine Vision

MFU series Operating Procedures

The MFU series uses collimated light to suppress undesirable light reflection and allow highly precise measurement. The MFU series also enables the accurate appearance inspection of transparent objects, such as glass objects, without causing blur or reduced contrast resulting from light refraction.

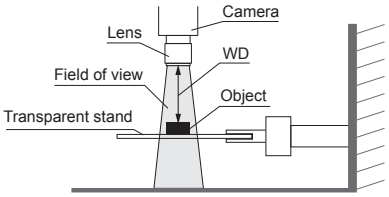
1. Position the object, and determine the imaging range.

① Place the object on an appropriate base, such as a transparent stand, in the center of the camera's field of view.

② Select a suitable camera lens and roughly adjust the object's position (i.e., the WD), so that it fits in the camera's field of view.

③ Focus the lens on the object.

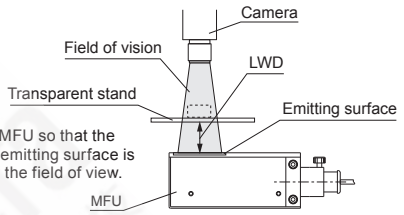
Note: Fully open the f-stop of lens.



2. Set up the MFU and determine the LWD to the object.

① Remove the object temporarily and set the MFU roughly in the center of the camera's field of view.

② Adjust the position of the MFU so that its emitting surface will be fully contained within the previously adjusted field of view (i.e., determine the LWD).



Note: Set up the MFU so that the size of the emitting surface is larger than the field of view.

3. Align the MFU light axis with the center of the field of view.

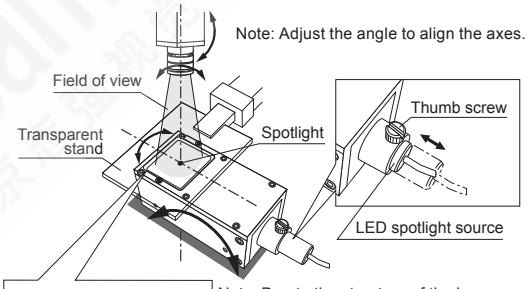
① Turn on the illumination power supply.
Note: Set the dimmer to minimum.

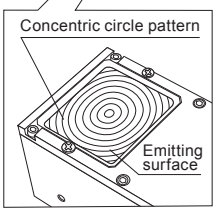
② Loosen the thumb screw, then slide the LED spotlight source to the innermost side to form a spotlight.

③ Adjust the position of the MFU so that the spotlight is in the center of the field of view.

④ Again, slide the LED spotlight source to the outside direction and irradiate the entire field of view uniformly.
Note: If the MFU light axis is not aligned with the lens axis, the image obtained will not be uniform. Adjust the angle of the MFU or camera so that they are perpendicular.

⑤ Secure the MFU and camera so that they do not move.
Note: To secure the MFU, refer to the catalog or drawings and prepare a mounting bracket that matches the dimensions of the MFU.





Note: Due to the structure of the lens, a concentric circle pattern will appear on the emitting surface. If the focus of the camera is on the emitting surface, the concentric circle pattern may appear in the image that is picked up. If the pattern disturbs the inspection, make the following adjustments.
・Focus of the lens.
・Move the light away from the object.
・Change the camera lens.

4. Light adjustment

① Set up the object.

② Set the dimmer so that the optimal object image appears on the imaging screen.
Note: Due to the structure of the product, the irradiated light will be darker on the outer side of the emitting surface and brighter around the center of the emitting surface.

③ If the LED spotlight source dimmed to minimum is still too bright, try the following light adjustments.
· Increase the shutter speed of the camera. · Adjust the camera gain.

Note: Read the operation manual of the camera, illumination power supply, and peripheral devices, and follow the procedures given by the manufacturers.

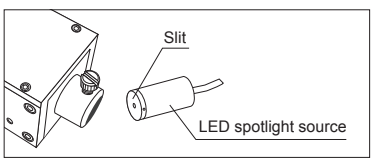
5. Accessories

The product is provided with three slits with diameters of 0.5, 1, and 2 mm, respectively.

The brightness and the degree of parallelism vary depending on the selected slit.

· The smaller the diameter, the less light there will be. The degree of parallelism, however, will become higher.
· The larger the diameter, the more light there will be. The degree of parallelism, however, will become lower.

Select the most suitable slit according to the usage environment.



CCS CCS Inc.
Headquarters Shimodachiuri-agaru, Karasuma-dori, Kamigyo-ku, Kyoto 602-8011 Japan Phone: +81-75-415-8284 / Fax: +81-75-415-8278
URL: http://www.ccs-grp.com E-mail: intlsales@ccs-inc.co.jp

Use our website to find your nearest CCS representative. http://www.ccs-grp.com/mvad/

Descriptions in this document are based on information available as of March 2011. 02004-01-0610_MFU