OPTICS

Experiment Manual

- simple
- fast
- safe

DL720-1CE

OPTICS

Diffusion of Light

O 1 Light spreads in a straight line
O 2 Punctual sources of light produce sharp shadows
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O 4 Eclipse of the moon (model)
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O 37 Position of the focal point of a thick planoconvex lens
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O 59 Subtractive mixture of colors
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Note:

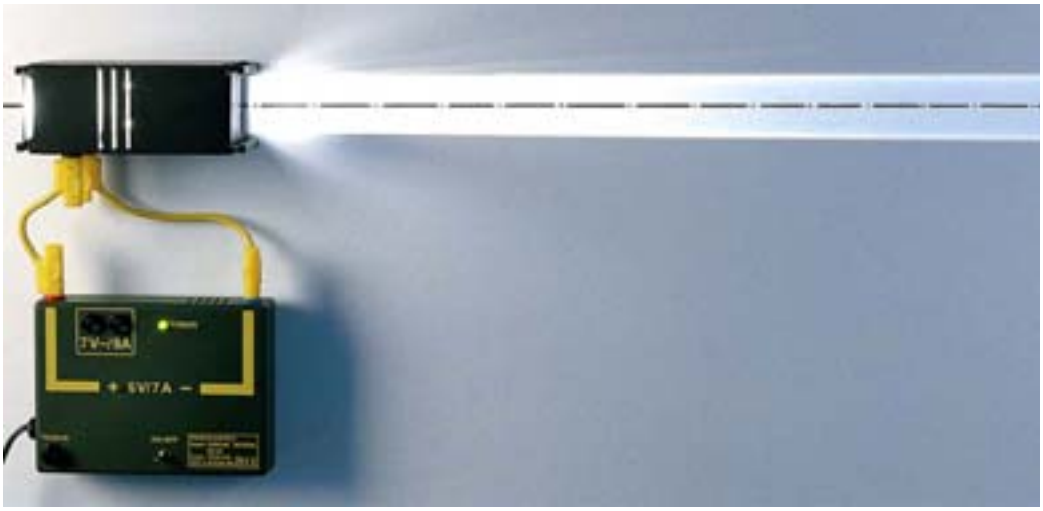
↑ ●This symbol on the fan light means that the pin in the light must be pulled out in order for the light to be emitted divergently.

LIGHT SPREADS IN A STRAIGHT LINE

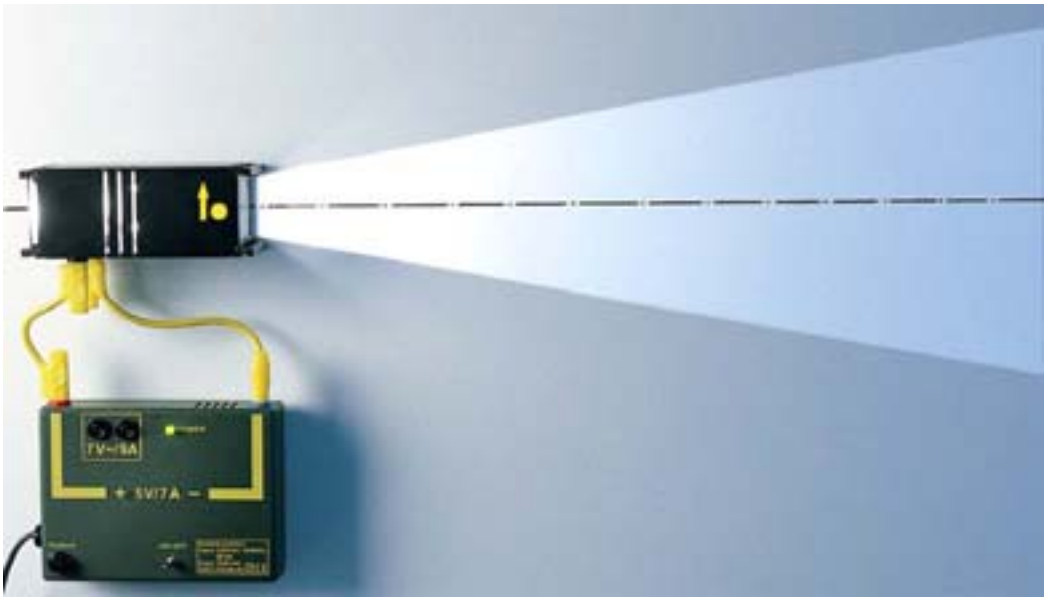
Apparatus:

1 Complete assembly panel
1 Magnetic xenon light
1 Shutter with 1 and 2 slits
1 Shutter with 3 and 5 slits
1 Planoconvex model lens
2 Connecting wires
Power supply

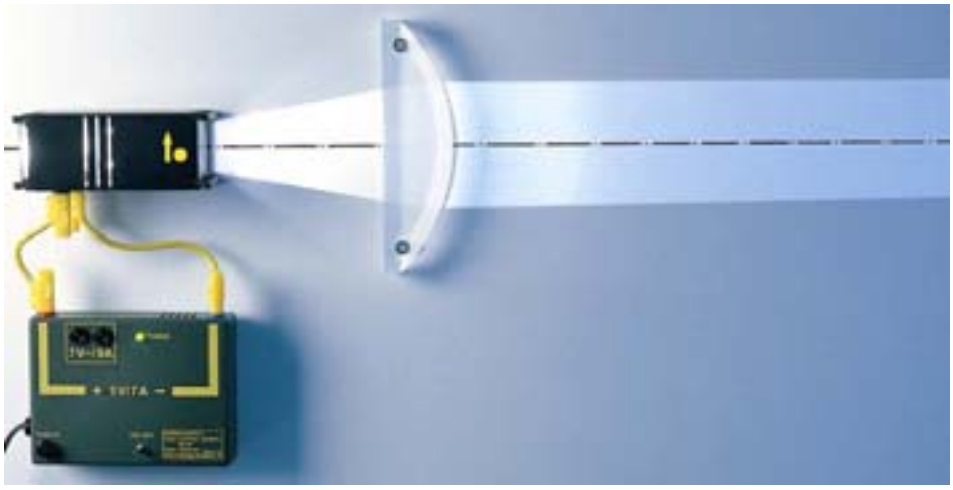
With the pin inside, a parallel light beam is emitted. When shutters with one, two or three slits are applied, the same number of thin light beams, parallel to one another, are generated. These are called light rays.



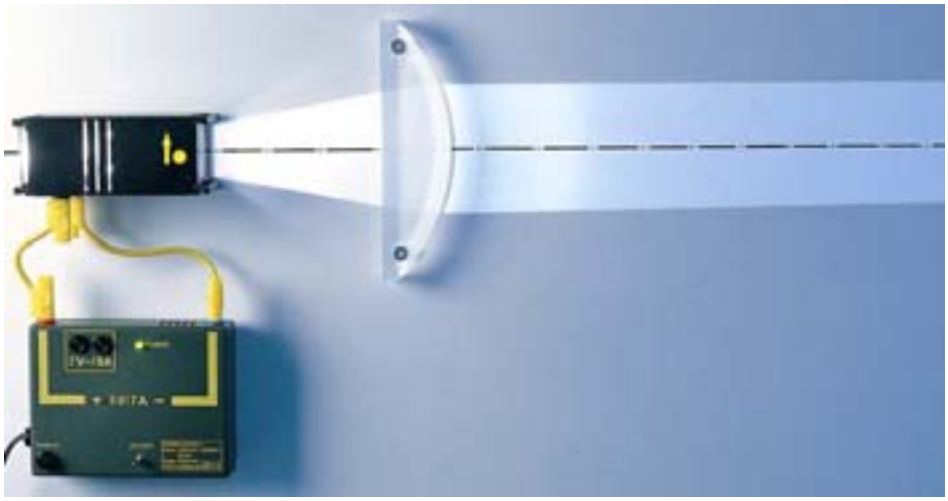
When the pin is pulled out, a divergent light beam is emitted, otherwise known as a cone of light. When shutters with slits are applied, divergent rays of light are created.

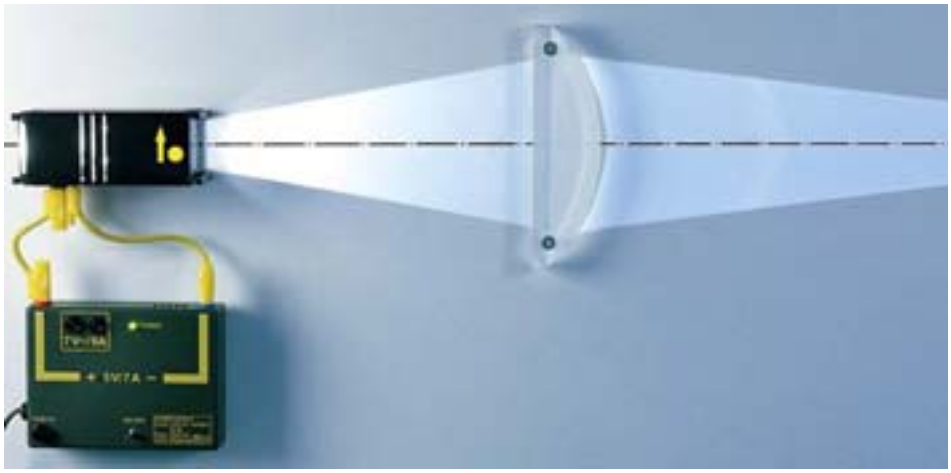


Placing a planoconvex lens in front of the light turns the divergent light beam into a parallel one.



Moving the planoconvex lens toward the source of light causes a divergent light beam while moving it away from the light source causes a convergent one.





The insertion of a shutter with three slits causes individual light rays to be created.

SUBTRACTIVE MIXTURE OF COLORS

Apparatus:

Color filters, subtractive, set of 3

The three color filters with the subtractive primary colors cyan, magenta and yellow are partially overlapped and held against a bright surface.

Where the filters overlap, the additive primary colors red, blue and green can be observed.

ADDITIVE MIXTURE OF COLORS

Apparatus:

1 Complete assembly panel
1 Magnetic xenon light
1 Three-color filter, additive, red, blue, green
1 Projection wedge
1 Set of 3 demonstration mirrors
2 Connecting wires
Power supply

The three-color, additive filter is inserted in front of the magnetic lamp. The pin being pulled out, the light projects a divergent light beam in the three additive primary colors red, green and blue.

Using the three mirrors, the three colored beams are made to overlap on the projection surface.

This results in the three subtractive primary colors cyan, magenta and yellow being produced.

White results where all three additive colors overlap.