

Physik

Chemie · Biologie

Technik



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01/07-W2k-Wie

Operating instructions 337 468

Reflection light barrier (337 468)



1 Description

Reflection light barrier for use with counters and CASSY.

The light emitter and light receiver are located side by side at the tip of the reflection light barrier. A white or reflecting object in front of the light barrier scatters the emitted light backwards to the receiver and is detected.

The emitted infrared light is modulated which makes the light barrier insensitive to daylight and most lamps.

Utilisation e.g. for measuring frequencies of rotation, e.g. of a spinning top, especially for experiments where a fork light barrier would be difficult to install.

2 Scope of delivery

1 Reflection light barrier

3 Accessories

Clip plug 590 02

Double spring clip 590 021

For CASSY:

Timer S 524 074

4 Technical data

Diameter: 12 mm

Length: 10 cm

Connection: 6-pole plug with cable

Maximum count rate >1000 /s

Detection distance: 5 – 40 mm

5 Operation

Because the intensity of the reflected or back-scattered light depends strongly on the distance between the light barrier and the reflecting body, optimum functioning of the reflection light barrier is only possible within a specific distance range.

The example assumed is a white mark on a grey spinning top. Ideally the white material should scatter back more, light sufficient to trigger the light barrier ("bright"), while the grey body of the spinning top scatters back less light, not enough to trigger the light barrier ("dark").

If the light barrier is too close to the spinning top, the grey material will also scatter back more light and trigger the light barrier, which, in this case, only ever sees "bright" and can no longer distinguish between white and grey.

If the light barrier is too far away, "dark" will be constantly sensed because the white material does not scatter back sufficient light.

The optimum distance depends on the materials and is in the range of several centimetres.