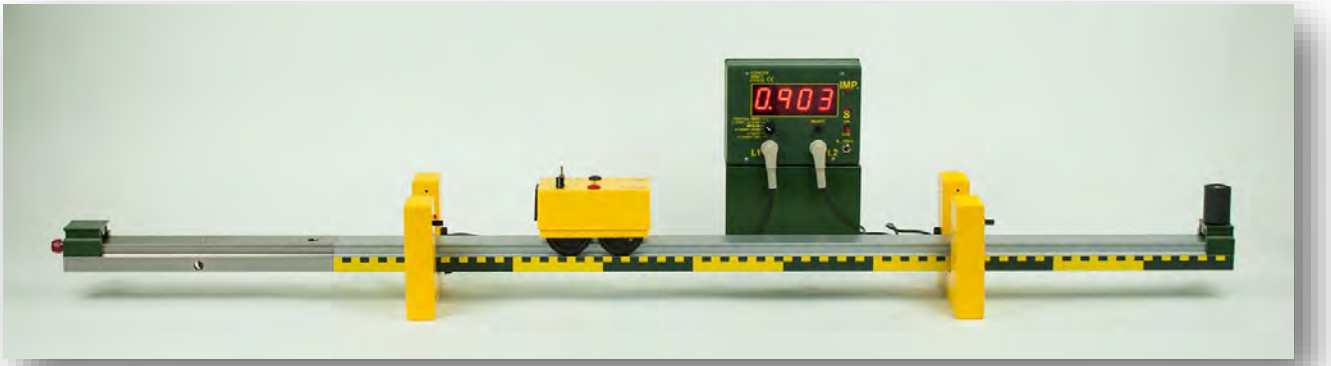
UNIFORM RECTILINEAR MOTION (TROLLEY WITH MOTOR)

MED 04.03a



Material:

Item-no.	Qty.	Description
DS101-3B	1	Stand rail with scale, L=1000 mm
P7210-5C	1	Stand rail NTL, L=300 mm, SE
P5310-1S	1	Rail bond SE, universal
DS103-1H	1	Holder for guide rail
DM362-1E	1	Baffle block
DS102-2G	1	Clamp saddle
DM300-3A	1	Trolley with variable speed
P1320-4A	2	Light gate "demo" 04
P3120-2Z	1	Universal timer "inno"
P3120-5B	1	S-shaped assembly platform

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Purpose

To demonstrate the simplest type of movement and to explain the term “speed”.

Preparation

Connect the 100 cm stand rail and the 30 cm stand rail with the support of the rail bond; afterwards fix the holder for guide rail on the right side of the track and attach the baffle block to this holder.

Position the two light gates at a distance of 60 cm of each other on a table; afterwards place the combined track on the light gates as shown on the image.

Place the two light gates at the 10 cm and 70 cm mark of the track, the small bridges of the light gate should be exactly on these marks.

Place the universal timer “inno” on the S-shaped assembly platform for a better visibility.

Connect the light gates to the universal timer, afterwards put the switch into the “L1 START – L2 STOP” position.

Place the trolley with variable speed on the track and test if it can pass through the light gates without touching them.

Once this is ensured place the trolley with variable speed on the left side of the track.

Experiment

Turn on the universal timer and adjust the brightness controller of the two light gates so that the diodes are just not lighting up.

Afterwards push the “reset”-button on the universal timer.

The speed controller on the trolley is set approximately in the middle. Turn on the trolley now.

We measure the time it takes the trolley to travel from the first to the second light barrier. If the path is divided by time, you get the path per second.

In the case of uniformity this value always remains the same - it is called speed.

Note

You get the path in centimeters per second. It is recommended to convert the value into m / s or km / h.

The rectilineariness of the movement is a further simplification which is why the arrow is not shown.

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