



## Inclined plane with interface and sensors

EQ001IN

### Function

Intended for experimental study, physics laboratory and carrying out physics experiments on: Physics. Kinematics. Reference, position, movement and trajectory. What is meant by mobile. The trajectory and displacement. The difference between displacement and distance travelled. Cartesian reference system in the plane, orthogonal Cartesian plane. The quadrants. The coordinates of any point on the plane that contains the orthogonal Cartesian system. Differences between scalar magnitude and vector magnitude. Rectilinear and uniformly varied motion on an inclined plane. Uniformly varied rectilinear motion, MRUV, with positive acceleration. Dynamics. Friction forces and Newtons first law of motion. The force of friction and the nature of the surfaces in contact. The friction forces between surfaces of different nature that are in contact. The friction force, the apparent area and the real area of  $\mu$ contact of the surfaces. The force of kinetic friction. Determination of static, kinetic and sliding friction coefficients on an inclined plane. The sliding kinetic friction coefficient as a function of the slope angle tangent. The coefficient of kinetic friction of sliding a body on an inclined plane. The effect of lubricants on the coefficients of static and kinetic sliding friction. Static. The equilibrium conditions of a piece of furniture on an inclined plane. The weight force of a body is directly proportional to its mass. The balance of a material body under the action of coplanar forces. Measuring and calculating forces. Diagram of coplanar forces, forces that are in the same plane. The balancing forces on the x and y axes. Determining the percentage relative error. The driving force, the resistant force and the mechanical advantage of the inclined plane, simple machine. Measuring the weights

of different masses. Resistant strength and motor strength. The driving force acting on a body on an inclined plane depends on the slope of the ramp. Measuring motor forces for different slopes of the ramp. The incinerated plane is a simple machine. Determining the mechanical advantage of the inclined plane. Conservation of mechanical energy. The conservation of mechanical energy and the moment of inertia, etc.  
Note: Does not include an interface.

## **Knowledge areas**

Physics

## **Key Experiments**

The movement and the trajectory.

The VURM and its characteristics, interface

The frictional forces and Newton's first law of motion

The determination of the sliding static and kinetic friction coefficient

The equilibrium of a moving object on an inclined plane

The mechanical advantage of a simple machine, inclined plane

Rigid bodies, conservation of mechanical energy, with sensors and interface

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