



## Inclined plane, analog and digital multimeter, photoelectric sensor EQ001PJM

### Function

Intended for experimental study, physics laboratory and carrying out physics experiments on: mechanics of solids, movement in one dimension, scalar kinematics, trajectory, distance traveled, initial and final position, displacement, referential, position, movement and trajectory, mobile, trajectory and displacement, difference between displacement and distance traveled, Cartesian reference system, scalar quantity, vector quantity, uniform rectilinear motion (MRU), velocity, displacements in one dimension, meeting of two pieces of furniture in MRU with opposite directions on the same trajectory, characteristics of uniformly varied rectilinear motion (MRUV), acceleration, Torricellis equation, dynamics, frictional forces, Newtons first law of motion, frictional force depends on the nature of the surfaces in contact, frictional force in relation to the area of contact, Leonardo Da Vincis empirical law of friction, coefficient of static friction, Newtons first law of motion, force of kinetic friction, determination of coefficients of static friction and sliding kinetic friction, statics, driving force and its balancing in a mobile on the inclined plane, equilibrium conditions of a material point, force diagram, mechanical advantage of the simple machine inclined plane, conservation of energy, conservation of mechanical energy, rotational dynamics, center of mass, moment of inertia, linear and angular velocity, linear and angular velocities of solid and hollow cylinders, moment of inertia, moments of inertia of solid and hollow cylinders, kinetic energies of translation and rotation of cylinders, gravitational potential energy, potential energy, comparing the initial mechanical energy with the mechanical energy end,

conservation of translational and rotational mechanical energy, tables, graphs, trend line, function, etc.  
Note: External memory device for USB pen drive connection is not included.

## **Knowledge areas**

Physics

## **Key Experiments**

The movement and the trajectory.

What are the characteristics of the MRU?

The meeting of two pieces of furniture in MRU with opposite directions.

The MRUV and its characteristics, displacement in one dimension.

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

Determining the translational kinetic energy and potential energy of a sphere rolling on a ramp.

Conservation of mechanical energy, moment of inertia.

**[cidepedigital.com.br](http://cidepedigital.com.br) ✉ [cidepe@cidepe.com.br](mailto:cidepe@cidepe.com.br)**

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Av. Victor Barreto, 592 - CEP 92010-000 - Canoas - RS - Brasil