

Free Fall Apparatus

13.03.02

1980.00 Ae



Description:

This equipment is designed for use with an electronic counter to measure the elapsed time for a steel ball to fall freely through a given distance. Knowledge of the elapsed time t and the distance s make it possible to compute the acceleration a due to gravity. The equation $s = \frac{1}{2} \cdot a \cdot t^2$ can be used.

The equipment consists of a release mechanism which also acts as a start switch for the counter, a contact plate which acts as the stop switch and a steel ball. In addition an electronic counter is required.

The release mechanism consists of a coil with a ferrite core which acts as an electromagnet and holds the steel ball. The mechanism is supported by a bracket with 4 mm safety jack connectors and a 10 mm diameter metal rod for mounting to a laboratory stand. A slide with two holes which match 10 or 16 mm diameter steel balls is mounted on the bottom of the release mechanism.

The contact plate consists of a hinged steel plate which also acts as a short circuit between two contact points. When the steel ball strikes the plate, the connection between the contacts is broken. The contact plate is also mounted in a bracket with 4 mm safety jack connectors and a 10 mm diameter rod for mounting.

Required accessories:

Stabilized DC power supply no. 3620.50/51/60/62.

Electronic counter such as no. 2002.50.

Laboratory stand no. 0010.00 or 0001.00 + 0008.20.

2 ea. mounting brackets no. 0023.00 or 0023.10.

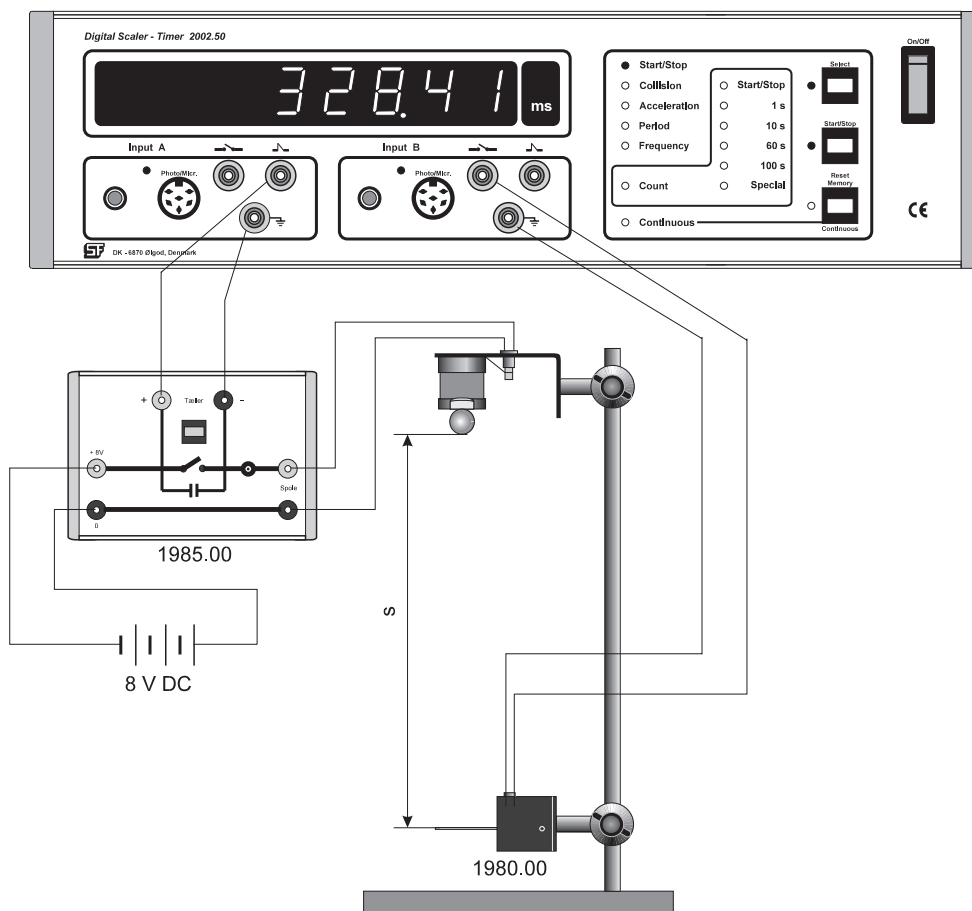
Laboratory test leads with 4 mm jacks.

Switch box no. 1985.00.



Frederiksen

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Operation:

Other counter types than the one described here can be used. Other types of Frederiksen counters include: no. 2001.00, 2001.50 and 2000.20. Also counter types MC24 and type AC7 from Impo can be used. In any case the falling ball is released by means of the switch box 1985.00 which also starts the counter. Other alternative setups which do not use the switch box are of course possible.

Technical data:

Coil resistance: 6-8 ohm
Bias voltage: 8 VDC

Spare parts:

steel ball (16 mm), order no. 1997.60
steel ball (10 mm), order no. 1997.80



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