

Millisecond Counter

1012833 (115 V, 50/60 Hz)

1012832 (230 V, 50/60 Hz)

Instruction sheet

10/15 SD



- 1 4-mm-socket "Start"
- 2 4-mm socket "Stop"
- 3 4-mm socket "Ground"
- 4 Power supply socket
- 5 4-digit display

1. Safety instructions

The millisecond counter conforms to the safety regulations for electrical test, control and laboratory equipment as specified in DIN EN 61010 Part 1. It is intended for use in dry rooms suitable for electrical equipment or installations.

Safe operation of the equipment is guaranteed, provided it is used correctly. However, there is no guarantee of safety if the equipment is used in an improper or careless manner.

If it is deemed that the equipment can no longer be operated without risk (e.g. visible damage has occurred), the equipment should be switched off immediately.

- Use the equipment in dry rooms only.
- Only operate using the supplied plug-in power supply.
- Do not exceed the maximum input voltage of 5 V for the start and stop inputs.

2. Description

The millisecond counter is a compact counter for measuring times in the millisecond range. It is particularly well suited for use in experiments with the free-fall apparatus 1000738. Counting starts with a signal to the "Start" input and stops on one to the "Stop" input. Zero calibration is carried out automatically for each start. Both inputs respond to a rising edge and feature internal pull-up resistors.

The millisecond counter 1012833 is for operation with a mains voltage of 115 V ($\pm 10\%$), and the unit 1012832 is for operation with a mains voltage of 230 V ($\pm 10\%$).

3. Contents

- 1 Counter
- 1 Plug-in power supply
- 1 Instruction sheet

4. Technical data

Inputs:

Connectors:	4-mm safety sockets
Internal resistance	
"Start" input:	2.4 k Ω
"Stop" input:	5.6 k Ω
Edges for "Start" and "Stop" inputs:	Rising
Trigger threshold for	
"Start" input:	Low 0...0.5 V, high 1...5 V
"Stop" input:	Low 0...1 V, High 2...5 V

Display:

Display:	4-digit LED display
Measuring range:	1...9999 ms
Resolution:	1 ms
Precision:	Quartz precision

General data:

Voltage supply:	Plug-in power supply 12 V AC, 500 mA
Dimensions:	100x75x35 mm ³ approx
Weight:	400 g approx. incl. plug-in power supply

5. Operation

5.1 General operation

- Connect a 12 V AC plug-in power to the millisecond counter (4).

Connect both inputs (1 + 2) to ground (3).

- Opening the "Start" input (1) (disconnecting the ground) starts the measurement.

Measurement ceases as soon as the "Stop" input (2) is opened.

The display will go back to displaying zero as soon as both inputs are connected to ground again.

Both inputs should be connected via normally closed switches (see Fig. 1).

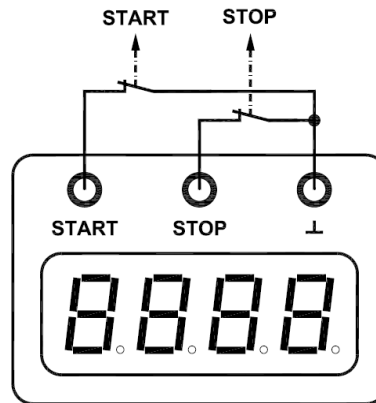


Fig. 1 Schematic diagram for connection of the inputs

5.2 Set-up with free-fall apparatus

Additionally required:

1 Free fall apparatus 1000738

- Connect the inputs (1, 2, 3) of the millisecond counter to the 3 sockets of the free-fall apparatus making you sure you match all the colours (see Fig. 2).
- Connect a 12 V AC plug-in power to the millisecond counter (4).

Measurement starts as soon as the steel ball is released from the start console and stops when it hits the trap plate. Zero calibration is carried out as soon as the steel ball is placed on the start console. The timer is then ready to carry out another measurement.

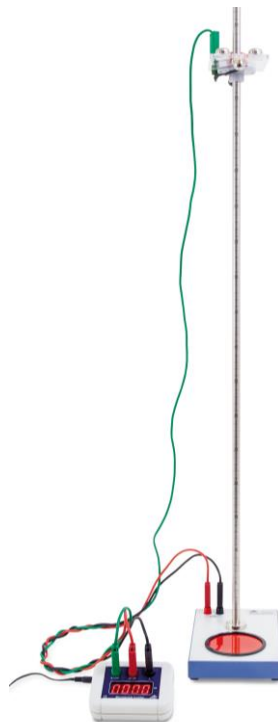
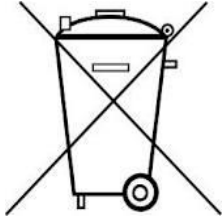


Fig. 2 Millisecond counter and free fall apparatus

6. Care and maintenance

- Before cleaning the equipment, disconnect it from its power supply.
- Do not clean the unit with volatile solvents or abrasive cleaners.
- Use a soft, damp cloth to clean it.

7. Disposal

- The packaging should be disposed of at local recycling points.
 - Should you need to dispose of the equipment itself, never throw it away in normal domestic waste. Local regulations for the disposal of electrical equipment will apply.
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- Do not dispose of the battery in the regular household garbage. Follow the local regulations (In Germany: BattG; EU: 2006/66/EG).