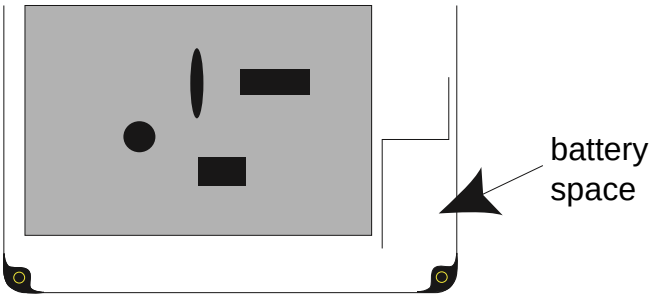
H29371 **Geigerteller** **NFU 348**

Purpose

The Geigerteller is a self-contained portable indicator of radioactivity.
It requires a 9 volt PP3 (6F22) battery, to power the internal circuit that generates the high voltage necessary for the built in GM tube.

Fitting the battery

Carefully remove the fixing screws at the four corners of the front panel, then lift the front panel and circuit out of the case. Be careful not to stretch the wiring between the two parts of the unit. Press the battery clip on to the end of the PP3 battery then push the battery into the clip provided in the bottom right corner of the case.



Replace the front panel, making sure no wires are trapped. Refit the four screws. Do not overtighten them.

version R01234.15.04

Expected battery life
Current consumption 4mA - using an optional plug in earpiece, or 30mA - using the internal loudspeaker.
A loudness control is provided.
Typical life in excess of 100 hours.

Outputs and controls
The device detects beta, gamma and high energy alpha radiation, giving a 'bleep' each time an event is detected. At the same time a positive square pulse (approx 9 volts, duration 120µs) is provided at the output sockets. This can be counted using the UNILAB Digital Scaler-Timer.
The unit has an on/off switch and a volume control.

PLACE SOURCE HERE

Operating Procedure
1. Switch on the unit.
2. Increase the volume until irregularbleeps can be heard. The unit is detecting the background count.
3. Observing correct handling procedures,bring radioactive sources or rock samples into the area directly in front of the GM tube.
4. Connecting an earpiece to the 3.5mmjack socket, allows you to hear the pulses in a noisy environment, or to avoid distracting other students working nearby.

Applications
The Geigerteller is ideal for introductory, qualitative work with radioactive sources.
It will detect alpha, beta and gamma radiation and, with appropriate sources, can be used:

- to estimate the range of alpha particles in air
- to investigate the use of different materials to block alpha particles
- to compare the ranges of alpha and beta particles, and gamma radiation

Connected to a suitable counter, the Geigerteller can be used to measure count rates in radioactive decay experiments, e.g. half-life of protactinium.
It can also be used as a portable instrument for field work, detecting the actviities of minerals and rocks.

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Precautions
Before performing any radioactivity experiments a full risk assessment must be made.

Appropriate safety procedures should be observed and safety equipment, such as gloves and handling tools, must be made available.

All GM tubes are delicate devices. Protect the instrument from mechanical shocks. NEVER connect a power supply to the output sockets.

Related items		**Cat number**
Radioactive sources:		
Source handling tool		A49608
Radium226 (if available) gives alpha, beta and gamma radiation		
Cobalt60	gamma	A49589
Strontium90	beta	A49578
Americium241	alpha	A49591

Absorbers
A set of 24 calibrated absorbers from tissue paper top 12mm lead plates A49633
Absorbers, set of 13 blocks and plates H27118
Mineral specimens:
Natural radioactive mineral specimens, box of four A49619

Safety advice
For your safety, this product should be used in accordance with these instructions; otherwise, the protection provided may be impaired. Risk of shock if the unit is opened. Use only the 3-core mains cable supplied with the unit.

Disclaimer
If the equipment is used in a way not specified by Philip Harris, then the protection provided may be impaired.

Warranty, repairs and spare parts
The Geigerteller is guaranteed for a period of one year from the date of delivery to the customer. This warranty does not apply to defects resulting from the action of a user such as misuse, improper wiring, any operations outside of its specification, improper maintenance or repair, or unauthorized modification.

Our liability is limited to repair or replacement of the product. Any failure during the warranty period should be referred to Customer Services.

In the event of a fault, apart from replacing the instrument fuse in the IEC socket, the power supply should be referred to the Philip Harris recommended repair agent.

version R01234.15.04

Disposal of Waste Electrical and Electronic Equipment (WEEE)

Do not dispose of this product with household waste

- For the proper treatment , recovery and recycling please take this product to an appropriate collection point.
- If you are unsure where this is, contact your Local Authority
- By disposing of this product correctly you will be providing positive help to the environment.

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Philip Harris Education, 2 Gregory Street, Hyde, Cheshire SK14 4RH

Orders and Information Tel: 0845 120 4521
Fax: 0800 138 8881
Repairs Tel: 0845 120 3211

E-mail: techsupport@philipharris.co.uk

Website: www.philipharris.co.uk

version R01234.15.04