PHYWE excellence in science

Single photon counter MiniPIX, set

09075-00

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Fig. 1: Single photon counter MiniPIX, set 09075-00

Operating instructions

CE The unit complies with the applicable EU-guidelines

CONTENTS

1 SAEFTY PRECAUTIONS

Caution!

- Carefully read these operating instructions completely before operating this instrument. This is necessary to avoid damage to it, as well as for user-safety.
- Intended for indoor use, dust-free.
- Make sure that no liquids get onto the appliance.
- The appliance is only intended for use in dry rooms that do not present a risk of explosion.
- Only use the instrument for the purpose for which it is in-
- tended.
- Do not disassemble. The wire bond connection may be irreversibly damaged.
- Do not insert any objects into the sensor window.
- The maximum length of the USB cable is 3 m.

2 PURPOSE AND CHARACTERISTICS

The set consists of a radiation camera, a radioisotope source and accessories to better understand nuclear and particle physics.
The set brings the latest CERN technology into classrooms and allows students to discover the invisible world of radiation.

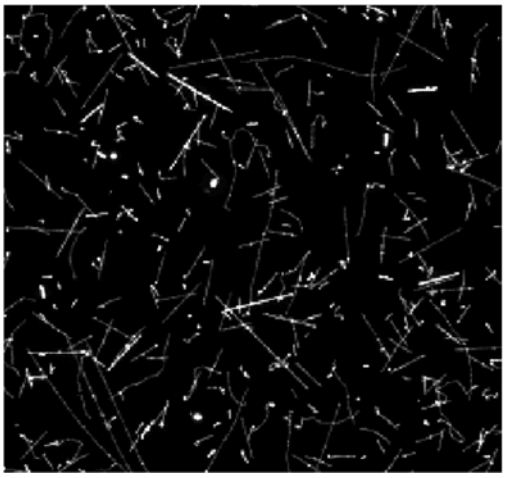

Fig. 2 Illustration of the single particle sensitivity of the Timepix device. The traces of various particles of the background radiation (mainly muons and a few protons) were recorded in 5 minutes on board an aircraft. No noise (zero) can be seen in the dark areas.

3 EXPERIMENTS

The construction and use are described in the following experiments:

P2525000 Measurement of natural background radiation

P2525100 Measurement of the activity of a welding electrode

P2525200 Measurement of the activity of radioactive preparations

P2525300 Range of an alpha particle

P2525400 Shielding of alpha particles.

P2525500 Determination of the thickness of an aluminium sheet

P2525600 Collimation of an alpha particle beam

P2525700 Determination of the energy of an alpha particle

P2525800 The velocity of an alpha particle

P2525900 Measurement of cosmic background radiation

4 NOTES ON OPERATIONS

CE

This high-quality instrument fulfills all of the technical requirements that are complied in current EC guidelines. The characteristics of this product qualify it for the CE mark.

5 ACCESSORIES

Columbite, natural mineral	08464-01
Radioactive sources, set, 296 kBq	09047-50
Radioactive source Am-241, 74	09047-51

6 TECHNICAL DATA

(typical for 25°C)
Operating temperature range: 10… 40°C

- Pixet Basic software
- Thoriated electrodes (α-, β- and ɣ-source)
- Translational stage
- Camera holder
- Source holder
- Electrode holder
- Collimator
- Detector cap
- Shielding material: aluminium, stainless steel, copper, messing and lead plates
- USB cable
- Pixel size: 55 x 55 µm
- Sensor size 14 x 14 mm²
- Sensor resolution: 256 x 256 pixels
- Sensor size: 88.9 x 21 x 1
- Dynamic range in single image: 11.082
- Interface: USB 2.0 (full speed)
- Max. Frame rate: 55 fps
- Supplied in sturdy aluminium case
- Total weight: 3.4 kg
- Case dimensions (mm³) 206 x 130 x 160 (WxHxD)
- Mass approx. 3 kg

7 WASTE DISPOSAL

The packaging consists predominately of environmentally compatible materials that can be passed on for disposal by the local recycling service.

Should you no longer require this product, do not dispose of it with the household refuse.
Please return it to the address below for proper waste disposal.

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