VacuTec Meßtechnik GmbH
Dornblüthstr. 14a
01277 Dresden
Germany
Phone: +49 351 317 24 - 0
E-Mail: info@vacutec-gmbh.de
Web: www.vacutec-gmbh.de

Geiger-Mueller Tube

Type 70 013 A

REF 013 00 55

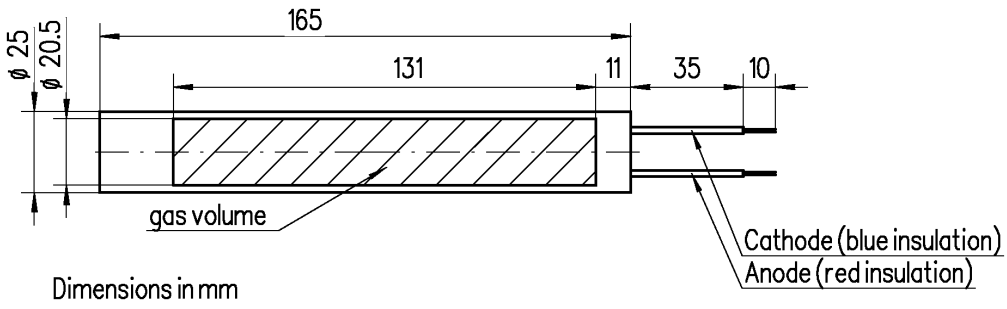
Application

The counter tube 70 013 A is an energy compensated halogen quenched Geiger-Mueller counter for measuring X-ray and γ-ray dose rates. The correction filter has been designed for measuring the Ambient Dose Equivalent H*(10) (in Sv/h) with a flat response within the photon energy range of 50 keV to 1.3 MeV for the counter tube being uniformly irradiated. The counter tube 70 013 A is recommended for dose rates within 0.3 μSv/h to 10 mSv/h.

Construction Type

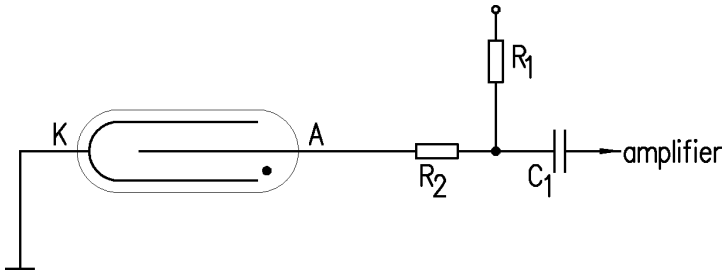
Chrome iron counter tube with correction filter, an insulating plastic coating and solderable wires

Mechanical Data



Measurement Circuit

The given data were measured by counting the pulses derived from the anode signal via the circuit R1, R2, C1 (R1 = 65 kOhm, C1 = 50 pF). The pulse height trigger level for the pulse counting is 2% of the pulse amplitude after the recovery time.



VacuTec Meßtechnik GmbH
Dornblüthstr. 14a
01277 Dresden
Germany
Phone: +49 351 317 24 - 0
E-Mail: info@vacutec-gmbh.de
Web: www.vacutec-gmbh.de

Type 70 013 A

REF 013 00 55

Technical Data

(All data refer to 25 °C ambient temperature as well as to the recommended operation conditions.)

Physical data

Sensitivity (662keV, ^{137}Cs)	7.5	counts/s / µSv/h
Dose rate range	(0.3 ... $\cdot 10^4$)	µSv/h
Photon energy range	(0.05 ... 1.3)	MeV
Background (shielded by 5 cm Pb with a 2 mm Al surface)	≤ 1	count/s
Length of the sensitive gas volume	131	mm
Cathode diameter	20.5	mm
Anode diameter	2	mm
Mass	137	g
Filling gas	Neon/Halogen	
Life expectancy	> 10^{10}	counts

Electrical data

Starting voltage	< 350	V
Plateau voltage range	(400 ... 600)	V
Plateau length	> 200	V
Plateau slope	< 0.1	%/V
Recommended supply voltage	500	V
Recommended anode resistor R2	≥ 4.7	MΩ
Dead time (R2 = 4.7 MΩ)	≤ 100	µs
Anode to cathode capacitance	≤ 5	pF

Limiting values

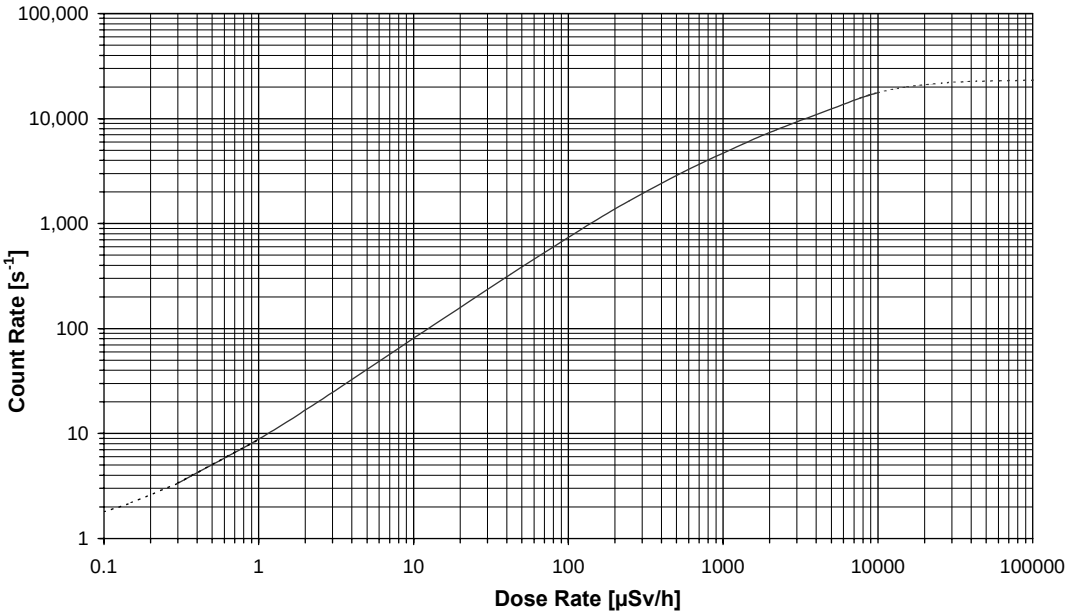
Storage temperature range	(–55 ... +70)	°C
Operating temperature range	(–40 ... +70)	°C

VacuTec Meßtechnik GmbH
Dornblüthstr. 14a
01277 Dresden
Germany
Phone: +49 351 317 24 - 0
E-Mail: info@vacutec-gmbh.de
Web: www.vacutec-gmbh.de

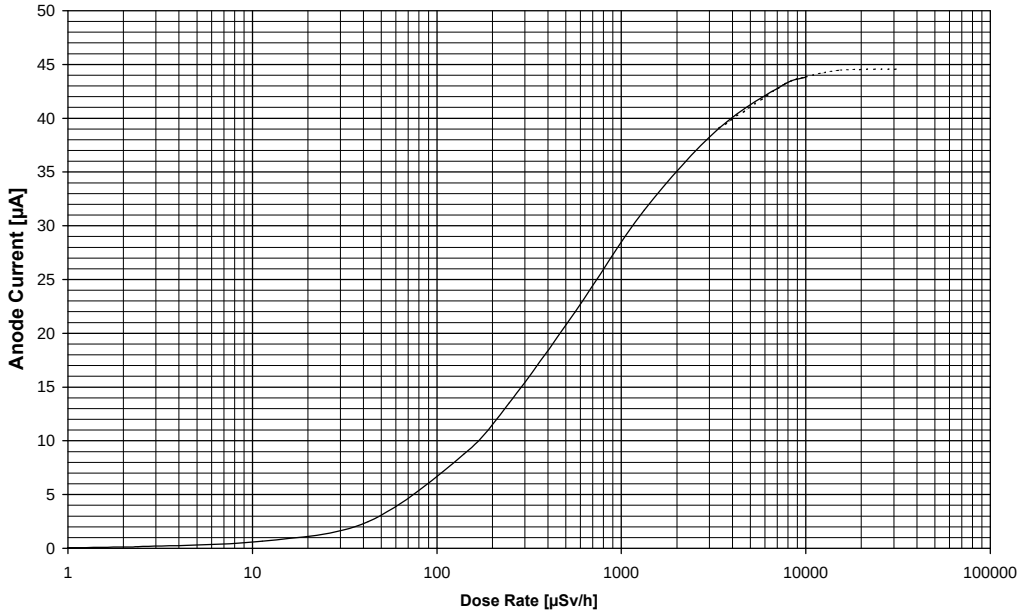
Type 70 013 A

REF 013 00 55

Pulse rate vs. dose rate (for ^{137}Cs)



Anode current vs. dose rate



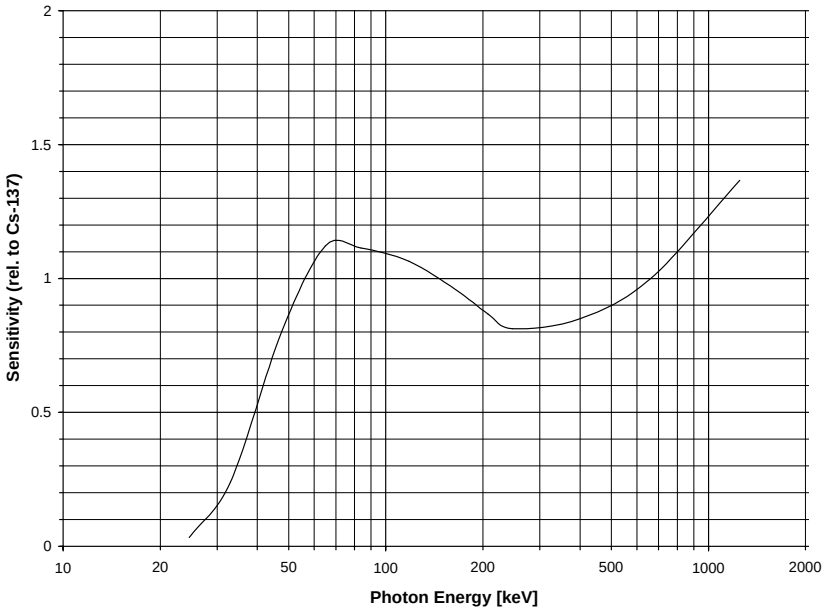
Only values given with tolerance ranges, or limits are guaranteed. All other values are for information only. Subject to change.

VacuTec Meßtechnik GmbH
Dornblüthstr. 14a
01277 Dresden
Germany
Phone: +49 351 317 24 - 0
E-Mail: info@vacutec-gmbh.de
Web: www.vacutec-gmbh.de

Type 70 013 A

REF 013 00 55

Relative energy dependence of the response (to ^{137}Cs)



The measurements were performed with filtered X-rays of the ISO narrow series in 25 keV to 248 keV and with the Cs-137 and Co-60 γ-lines at 662 keV and 1250 keV.

VacuTec Meßtechnik GmbH
Dornblüthstr. 14a
01277 Dresden
Germany
Phone: +49 351 317 24 - 0
E-Mail: info@vacutec-gmbh.de
Web: www.vacutec-gmbh.de

Type 70 013 A

REF 013 00 55

Angular dependence of the response (relative to ^{137}Cs at 0^0)