GEIGER-MÜLLER TUBE

Halogen quenched γ radiation counter tube fitted in a filter. The energy response is flat to within ± 15% over the range 80 keV to 3.0 MeV referred to ^{137}Cs (661 keV). The ZP1301 is an energy compensated version of the ZP1300. Also available with long life artificial background as ZP1302.

QUICK REFERENCE DATA

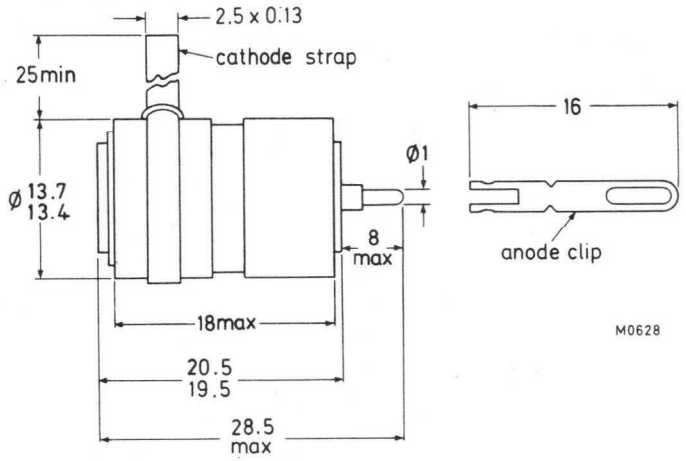
Dose rate range	10^{-1} to 2 x 10^4	mGy/h
Plateau threshold voltage	500	V
Plateau length	100	V
Recommended supply voltage	500	V
Chrome-iron cathode	80 to 100	mg/cm²

This data must be read in conjunction with General Information Geiger-Müller tubes.

MECHANICAL DATA

Dimensions in mm

Fig.1



CATHODE (ZP1300)

Thickness	80 to 100	mg/cm²
Sensitive length	8	mm
Material	chrome iron	

FILLING

helium, neon, halogen

CAPACITANCE

Anode to cathode	1.25	pF

OPERATING CHARACTERISTICS (Ambient temperature ≈ 25 °C)

Measured in circuit of Fig.2

Starting voltage	max.	400	V
Plateau threshold voltage	max.	500	V
Plateau length		100	V
Recommended supply voltage		550	V
Plateau slope	max.	0.3	%/V
Background (shielded with 50 mm Pb with an inner liner of 3 mm Al) at 550 V	max.	1	count/min
Dead time at 550 V	max.	13	μs

LIMITING VALUES (Absolute max. rating system)

Anode resistor	min.	2.2	MΩ
Anode voltage	max.	600	V
Ambient temperature	max.	+70	°C
continuous operating	min.	−40	°C
storage	max.	+75	°C

LIFE EXPECTANCY

Life expectancy at ≈ 25 °C		10^{10}	count

MEASURING CIRCUIT

R_1 = 2.2 MΩ

R_2 = 47 kΩ

C_1 = 1 pF

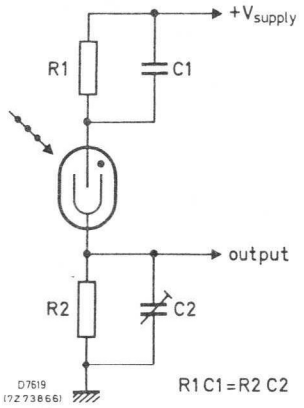
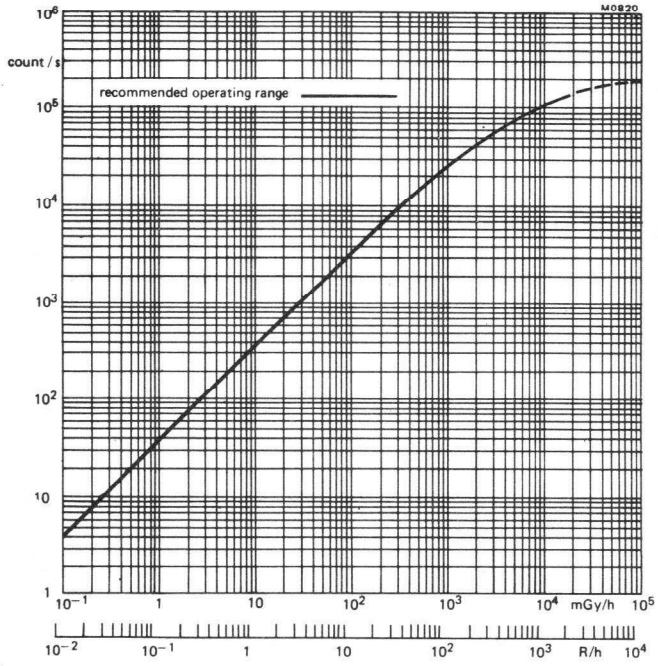
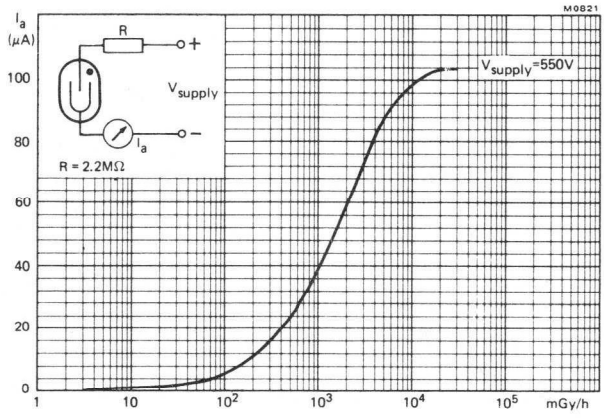


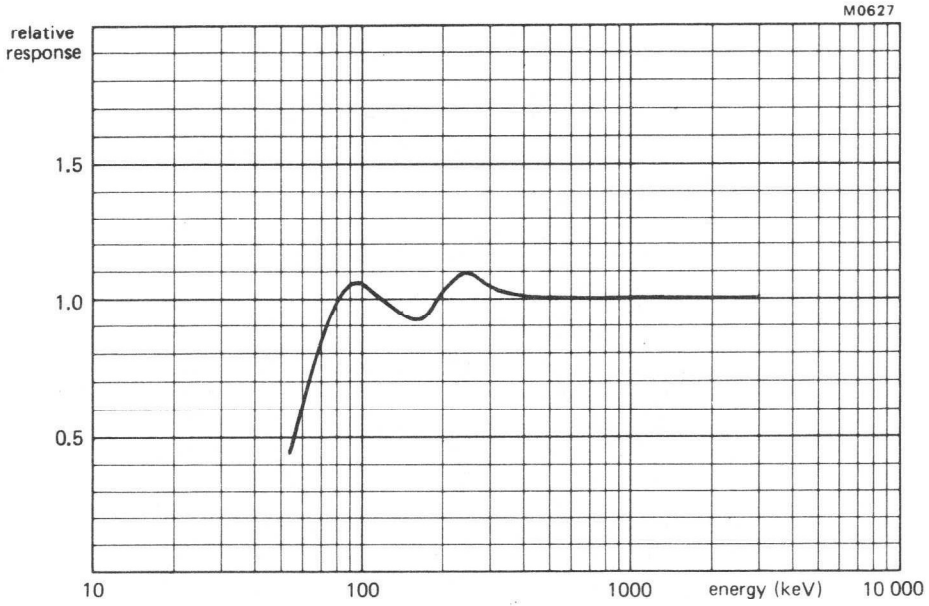
Fig.2



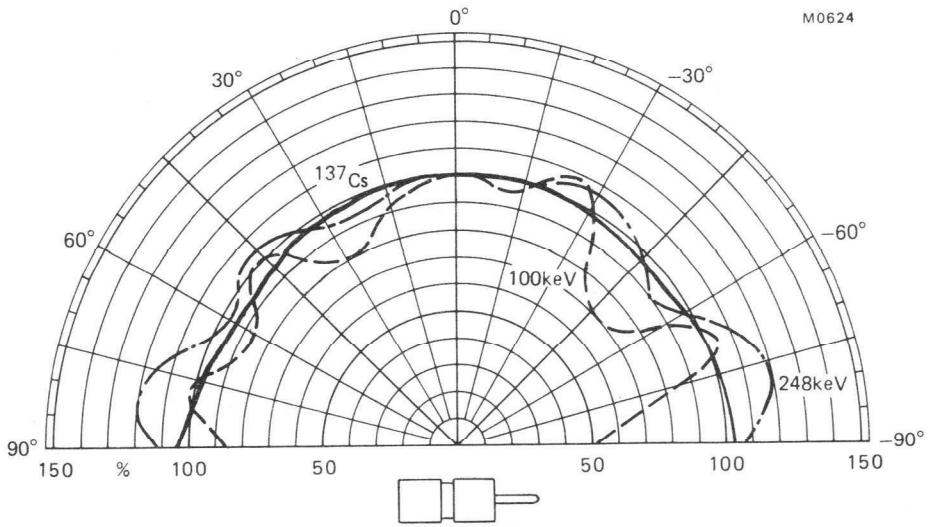
Typical counting rate as a function of dose rate (^{137}Cs)



Typical current as a function of dose rate (^{137}Cs)



Typical energy response relative to ^{137}Cs



Typical polar responses