

INTELLIGENT GAMMA PROBE IGS421A/B-H

This high-sensitivity probe for measuring ambient equivalent dose rates $H^*(10)$ consists of three Geiger-Muller detectors and an integrated, microprocessor-based evaluation unit for calculating, storing and transmitting of the measurement and system data. The use of the two large volume low dose rate detectors (LD) allows detection of small changes in the dose rate at low environmental background levels with short counting times. The third detector (HD) is for the measurement of higher dose rates. The use of two low dose rate detectors also provides redundancy and therefore higher reliability. The hermetically-sealed detector housing protects the electronics and detectors from external meteorological conditions.

The gamma probe IGS421-H is available with two different interfaces. The A-type has a bidirectional RS 232 interface. The B-type is equipped with a RS 485 interface which allows the connection of up to 15 addressable probes. Additional photo-coupled input/outputs enable the connection to a rain sensor and the supervision and control of the battery-buffered power supply.

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GENERAL TECHNICAL DATA

Sensitivity range	10 nSv/h to 10 Sv/h (1 μ rem/h to 1000 rem/h)
Accuracy	$\pm 15\%$ (calibrated to Cs-137)
Operating temperature	-40°C to +60°C (-40°F to +140°F)
Supply voltage	8 V to 25 V
Power consumption	0.2 W
EMC proofed under	EN50081-1:1992 EN50082-2:1995
Diameter	80/115 mm (3.15/4.53 in.)
Height	635 mm (25 in.)
Weight	2300 g (5.07 lb)
Protection class	IP 68

INTERFACES

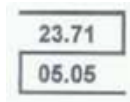
Type A	RS 232C serial, point-to-point connection (max. length 15 m / 49.21 feet)
Type B	RS 485 serial bus, up to 15 subscribers (max. length 1.500 m / 4921.23 feet)

FEATURES AND FUNCTIONS

- Measure values in 1-minute-intervals (Storage of the last 13 values)
- Calculate 10-minute-mean values (Storage of the last 12 mean values)
- Calculate 2-hours-mean values (Storage of the last 48 mean values)
- Calculate 24-hours-mean values (Storage of the last 4 mean values)
- Programmable integration time (min. 1 sec.)
- Automatic switching between detector tubes
- Correction for detector response characteristic
- Correction for detector background
- Location correction of cosmic ray
- Functional supervision of GM detectors
- Cyclic self-test
- Power supply / battery supervision
- Integrated humidity sensor to detect a damaged housing
- Pulse overload detection for LD and HD detector
- High voltage supervision LD/HD
- Precipitation detection with external rain sensor

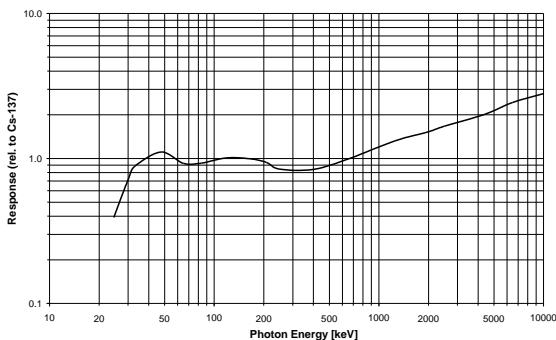
CERTIFICATES

Type-approval certificate of PTB



TECHNICAL DATA – LOW DOSE RANGE

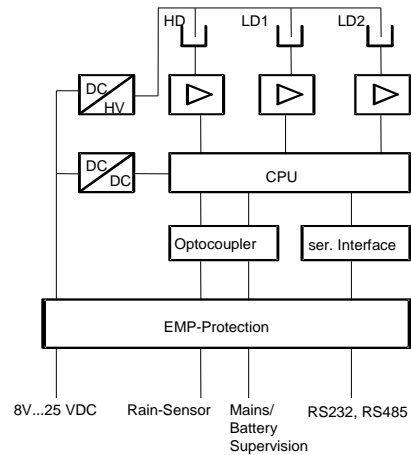
Detector	2 x GM detector 70 031A
Range	10 nSv/h to 2 mSv/h (1 µrem/h to 0.2 rem/h)
Sensitivity	1646 counts min ⁻¹ /µSv/h (16.46 cpm per µrem/h)
Detector background	38 counts min ⁻¹ (38 cpm)
Energy range	38 keV to 1.3 MeV (±25 %) 35 keV to 2.5 MeV (-29 % to +67 %)



CENTRAL PROCESSING UNIT [CPU]

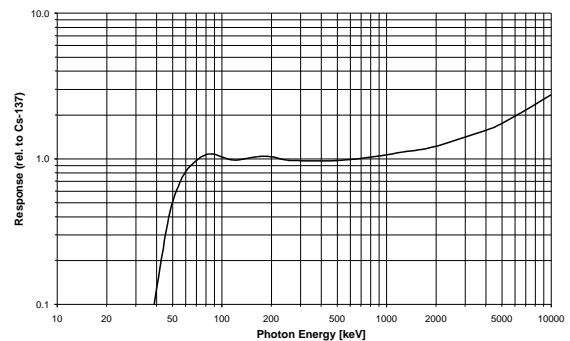
Microcontroller	80C515A
RAM	32 kByte
EPROM (program)	512 kByte
EEPROM (parameter)	512 kByte
Real Time Clock	
Watchdog Timer	

FUNCTION DIAGRAM



TECHNICAL DATA – HIGH DOSE RANGE

Detector	1x GM detector 70 018A
Range	0.1 mSv/h to 10 Sv/h (10 mrem/h to 1000 rem/h)
Sensitivity	1.03 counts min ⁻¹ (µSv/h) (10.3 cpm per mrem/h)
Energy range	70 keV to 1.3 MeV (±15%) 70 keV to 4.5 MeV (-29 % to +67 %)



IGS421A/B-H/00EN/09/2011

Technical contents are subject to change without notice!