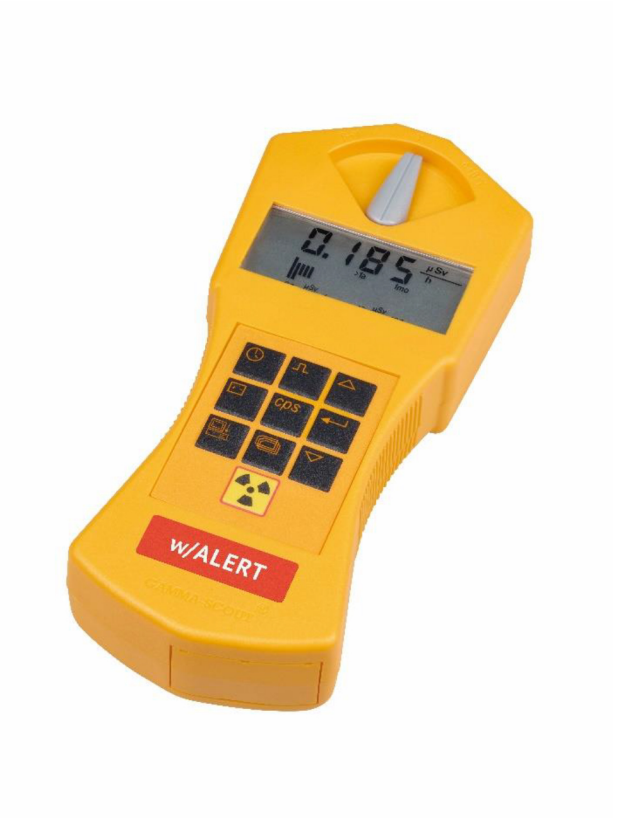
Manual
GAMMA-SCOUT Standard



Display	Liquid-crystal display (LCD), 4-digit, numeric with description, quasi-analogue logarithmic bar chart Operating mode indicators	
Radiation Detector	End-window counting tube to the Geiger-Müller principle Stainless steel housing Measuring length 38.1 mm, measuring diameter 9.1 mm Mica window 1.5 to 2 mg/cm^2 Zero rate <10 pulses per minute with screening by 3mm Al and 50 mm Pb operating temperature -20 to +60°C, operating voltage approx. 450 V calibrated scale 0.01 µSv/h to 5,000.00 µSv/h (above and below this, we refer to as the "display area")	
Radiation Types	a	from 4 MeV
	ß	from 0.2 MeV
	y	from 30 keV
Selection shield (for point radiation)	a + ß + y	without shielding
	ß + y	Al foil approx. 0.1 mm, shields a completely
	y	Al shield approx. 3 mm, shields a completely and ß to 2 MeV, weakens y by less than 7% based on Cs-137
Recycling	Devices can be returned free-of-charge and we will pass them on for recycling	
Power Consumption	Less than 10 microamperes under environmental radiation	
Memory	256,000 byte (100,000 data sets)	
Housing	Impact-resistant plastic	
Dimensions	Length 163 mm x width 72 mm x height 30 mm	
Interference Protection	European CE standard, US FCC-15 standard Data-reset is not a malfunction	
Service	GAMMA-SCOUT GmbH & Co. KG Abtsweg 15, D-69198 Schriesheim, GERMANY Fax: +49 (0) 62 20 / 66 40 email: drmirow@gamma-scout.com	
Media enquiries **IT-Support**	GAMMA-SCOUT GmbH & Co. KG Abtsweg 15, D-69198 Schriesheim, GERMANY Fax: +49 (0) 62 20 / 66 40 email: e.mirow@gamma-scout.com	
Last Revised	See back cover (Rights of modification reserved)	

Scientific definitions see „www.hpa.org.uk/radiation/glossary"

Physical Parameter	Si unit	Old unit	Relation
Activity	Becquerel (Bq) 1 Bq = 1/s	Curie (Ci)	1 Ci = 3.7 * 10^{10} Bq 1 Bq = 2.7 * 10^{-11} Ci = 27 pCi
Ion dose I	Coulomb / kg	Röntgen (R)	1 R = 2.58 * 10^{-4} C/kg 1 C/kg = 3876 R
Energy dose D	Gray (Gy)	Rad (rd)	1 rd = 0.01 Gy 1 Gy = 100 rd
Equivalent dose H	sievert (Sv)	Rem (rem)	1 rem = 0.01 Sv 1 Sv = 100 rem
Effective Dose H_E	sievert (Sv) 1 Sv = 1 J / kg		Calculated value / radiation protection

For relationship between Becquerel and sievert see pages 20-21.
For further information on Becquerel, see **Gamma FAQ** on ***www.gamma-scout.com***

Calibration

Under environmental radiation, the counter tube is not subject to fatigue and, therefore, will not require re-calibration. However, if the user holds ISO certification, periodical calibration is mandatory. For this purpose, we offer the following service:

Testing is sub-contracted to an assembly operation, which tests it for 72 hours against a master. The master is calibrated against a gauged reference source (Cs-137). A data log is then generated. To the best of our knowledge, this record is accepted as compliant by ISO auditors without exception.

Currently, this costs 50 Euro before sales taxes.

IT-Support

In order of problems by installing the product drivers or TOOLBOX software, do not hesitate to contact us:

GAMMA-SCOUT GmbH & Co. KG
Abtsweg 15
D-69198 Schriesheim
Germany
Fax: +49 (0) 6220 / 6640
E-Mail: e.mirow@gamma-scout.com

Conversion of Becquerel (activity) into µSv/h (dose rate)

The relationship between Becquerel (activity, i.e. the measure of the decay in the atom) and micro-sievert per hour (dose rate, i.e. the measure of the radiation at the device):

➔ **The values apply to a point source at a distance of 1m from the device**

Cs-137 at a distance of 1m with shield open			
1 GBq	86 µSv/h	100 µSv/h	1.17 GBq
100 MBq	8.6 µSv/h	10 µSv/h	117 MBq
10 MBq	0.86 µSv/h	1 µSv/h	11.7 MBq

Cs-137 at a distance of 1m with shield closed			
1 GBq	81 µSv/h	100 µSv/h	1.24 GBq
100 MBq	8,1 µSv/h	10 µSv/h	124 MBq
10 MBq	0.81 µSv/h	1 µSv/h	12.4 MBq

Co-60 at a distance of 1m with shield open			
1 GBq	372 µSv/h	100 µSv/h	0.27 GBq
100 MBq	37.2 µSv/h	10 µSv/h	27 MBq
10 MBq	3.72 µSv/h	1 µSv/h	2,7 MBq

Co-60 at a distance of 1m with shield closed			
1 GBq	339 µSv/h	100 µSv/h	0.30 GBq
100 MBq	33.9 µSv/h	10 µSv/h	30 MBq
10 MBq	3.39 µSv/h	1 µSv/h	3.0 MBq

Tc-99m at a distance of 1m with the shield open			
1 GBq	13 µSv/h	100 µSv/h	7.96 GBq
100 MBq	1.3 µSv/h	10 µSv/h	796 MBq
10 MBq	0.13 µSv/h	1 µSv/h	79.6 MBq

Tc-99m at a distance of 1m with the shield closed
Measurement not possible, dose rate too low

f-18 at a distance of 1m with the shield open			
1 GBq	154 µSv/h	100 µSv/h	0.65 GBq
100 MBq	15.4 µSv/h	10 µSv/h	65 MBq
10 MBq	1.54 µSv/h	1 µSv/h	6.5 MBq

f-18 at a distance of 1m with the shield closed			
1 GBq	147 µSv/h	100 µSv/h	0.68 GBq
100 MBq	14.7 µSv/h	10 µSv/h	68 MBq
10 MBq	1.47 µSv/h	1 µSv/h	6.8 MBq