GammaTwin S

L'ottimizzazione allo stato dell'arte

Il Sistema componibile per la ricerca e la misura dell'attività: dai rottami metallici, minerali, cumuli e discariche, fino alla misura delle alte dosi, passando dalla contaminazione α, β e γ. Di fatto esso è composto da una parte indispensabile: il dosimetro GammaTwin S a cui si possono attaccare altre sonde, come i scintillatori NaI probe 2002 (qui in foto), i scintillatori plastici al ZnS per α, β e γ ed i GM per la misura delle dosi anche in immersione .

Il GammaTwin S con la sonda NaI probe 2002 in asta telescopica : il sistema ideale per la ricerca e la misura sui rottami metallici , sabbie, Minerali , semi-lavorati, discariche , metallurgia…etc.

Conforme 100% a UNI10897:2013

Active Radsys

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NaI-Scintillation Probe 2002

with photomultiplier for the detection of β- and γ-radiation

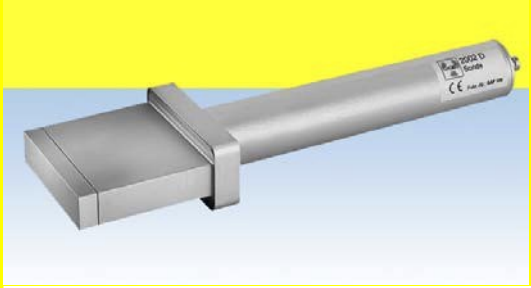
- high sensitivity
- large detector surface
- application fields:
  - nuclear medicine
  - environmental and scrap monitoring
  - security controls
    (police, customs, border authorities, factory inspectorates)
- by means of a probe cable connectible to the dose rate meters GRAETZ X5C *plus* and GammaTwin S (identified as pulse probe)

- power supply from the basic unit

Technical Data

Type of radiation:	β, γ
Energy range:	γ-radiation and X-rays: 25 keV - 2 MeV β-radiation: >100 keV
Detector:	(70 x 70 x 13) mm NaI (Tl)-scintillator with photo
Reference orientation:	vertical onto the square surface
Position of the detector:	middle of the detector cap
Reference point:	middle of the square surface
Background count rate*:	approx. 100 cps
Range of relative humidity:	0 up to 90%, no influence
Range of outside air pressure:	600 up to 1300 hPa, influence negligible
Indication ranges:	0 - 200 cps 200 - 2000 cps 2 - 20 kcps (20 kcps ≅ 13 µSv/h referred to Cs
Temperature range:	operation: -20 °C up to +50° °C storage: -30 °C up to +60 °C (NOTE: max. temperature change 10
Overload capacity:	up to approx. 3 mSv/h (referred to Cs 137)
After effect:	after exposure to radiation of 3 mSv/h, error after 20 minutes is approx. 5%
Voltage supply:	+5V from the basic unit
Housing:	aluminium, partly anodically oxidized, protection class IP 65 (hose-proof)
Dimensions / Weight:	(80 x 85 x 35) mm with 200 mm handle (Ø 33 mm) 530 g

* at 0,1 µSv/h



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04/2013
subject to
technical change

Dose Rate Meter

GRAETZ GammaTwin S

• small and handy dose rate meter for the measurement of gamma radiation and X-rays for ambient dose rate equivalent Ḣ*(10) and ambient dose equivalent H*(10) (local dose) [1)]
• built-in detector: energy compensated Geiger-Müller-tube
• large, digital indication of measured values on LC-display (backlit)
• selectable simultaneous or separate indication of dose and dose rate, additionally analog indication of dose rate (logarithmic bargraph)
• display of the dose rate history graph as a search function for the detection of radioactive sources
• 4 preset dose and dose rate alarm thresholds; upon request GRAETZ changes the standard alarm thresholds according to customer requirements
• additionally switchable acoustic single-pulse indication
• automatic and continuous storage of the dose into a non-volatile memory
• storage of the dose and of set parameters even during battery change
• permanent self test
• designed for rough use, housing made of aluminium, protection class IP54 (splash proof)
• menu-driven user navigation
• supplied with robust nylon bag
• connection facility for an external probe:
  - 18526 D or ABG170 for contamination measurement (α, β, γ)
  - immersion counter tube ZP1083 D (β, γ)
  - NaI-scintillation probe 2002 for high-sensitive measurements (β,γ)
• with connected probe:
  - display of measured values in cps
  - display of the pulse rate history graph as a search function for the detection of radioactive sources or contaminations
  - pre-selectable alarm thresholds: 2x background or 3x background

[1)] For detecting the personal dose a measuring instrument with the measure and Hp(10) is required.

GammaTwin S with pulse probe 18526 D

GammaTwin S with contamination probe ABG170

Technical Data	
Indication ranges: - dose rate - dose	 0 nSv/h - 50 mSv/h 0 nSv - 1 Sv
Measuring ranges: - dose rate - dose - cps	 0.5 µSv/h - 50 mSv/h 0.5 µSv - 1.0 Sv acc. technical data of the connected probe
Energy range:	40 keV - 1.3 MeV
Dose rate alarm thresholds:	7.5 µSv/h, 25 µSv/h, 40 µSv/h, 300 µSv/h
Dose alarm thresholds:	200 µSv, 500 µSv, 1000 µSv, 2000 µSv
Temperature range:	-20 °C up to +60 °C
Power supply:	2 batteries 1.5V (type AAA)
Acoustic alarm:	approx. 80 dB(A) measured in 30 cm distance
Dimensions:	(26 x 66 x 103) mm
Weight:	190 g (with batteries)

10/2012

Subject to technical change

GRAETZ Strahlungsmeßtechnik GmbH

Contamination Probe ABG170

thin-layer plastic scintillation detector with ZnS-coating,
integrated photomultiplier and detector electronics
high sensitivity
detection of α-, β- and γ-
contaminations detector surface 170
cm ^{2}
by using a probe cable connectible as pulse probe to
the GRAETZ dose rate meter “X5C plus”
display: cps or pulse summation with integration
time
power supply from the basic unit “X5C plus”
acoustic single-pulse indication at the “X5C plus”

Technical Data

Type of radiation:	α, β and γ
Indication range:	0 - 20 Kcps
Background counts:	15 - 25 cps
Active surface:	170 cm^2
Alarm threshold:	cps and pulse summation
Dimensions:	approx. (390x125x75) mm (handle included)
Weight:	approx. 790 g

Efficiencies for various radionuclides (average values of measurements with 100 cm^2 substances)			
C-14	~ 14 %	Tc-99m	~ 3 %
F-18	~ 18 %	In-111	~ 8 %
P-32	~ 25 %	I-123	~ 7 %
S-35	~ 5 %	I-125	~ 12 %
Cl-36	~ 42 %	I-131	~ 21 %
K-40	~ 30 %	Cs-137	~ 35 %
Co-57	~ 7 %	Au-198	~ 23 %
Co-60	~ 27 %	Tl-204	~ 43 %
Sr-89	~ 27 %	Am-241 α	~ 22 %
Sr-90 /Y-90 (referred to Sr-90)	~ 42 %	P-238 α	~ 12 %
		U-238 α	~ 26 %

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