






SPECTROMETRIC GAMMA RADIATION DETECTION UNITS

for use as part of stationary and mobile monitoring stations and robot devices

DETECTION UNIT		BDKG-201M	BDKG-203M	BDKG-205M	BDKG-211M	BDKG-219M
Detector		Scintillator, NaI(Tl) Ø25x16 mm	Scintillator, NaI(Tl) Ø25x40 mm	Scintillator, NaI(Tl) Ø40x40 mm	Scintillator, NaI(Tl) Ø63x63 mm	Scintillator, NaI(Tl) Ø63x160 mm
Energy range		20 keV – 3 MeV	20 keV – 3 MeV	20 keV – 3 MeV	20 keV – 3 MeV	20 keV – 3 MeV
Measurement range of ambient dose equivalent rate		50 nSv/h – 1 mSv/h	30 nSv/h – 500 µSv/h	30 nSv/h – 300 µSv/h	30 nSv/h – 120 µSv/h	30 nSv/h – 50 µSv/h
Limits of tolerable intrinsic relative error		±20%	±20%	±20%	±20%	±20%
Energy dependence relative to 662 keV (¹³⁷ Cs)		±15% (50 keV – 3 MeV)	±15% (50 keV – 3 MeV)	±15% (50 keV – 3 MeV)	±15% (50 keV – 3 MeV)	±15% (50 keV – 3 MeV)
Typical sensitivity to gamma radiation	²⁴¹ Am	cps/(µSv·h ⁻¹) 1400	cps/(µSv·h ⁻¹) 3600	cps/(µSv·h ⁻¹) 5400	cps/(µSv·h ⁻¹) 13900	cps/(µSv·h ⁻¹) 37000
	¹³⁷ Cs	165	400	800	2450	6000
	⁶⁰ Co	80	190	420	1300	2500
Response time for dose rate change from 0.1 to 1 µSv/h [accuracy error ≤±10%]		≤2 s	≤2 s	≤2 s	≤2 s	≤2 s
Spectrometry (Instrument spectrum)		+	+	+	+	+
Typical resolution at 662 keV (¹³⁷ Cs)		8.5%	8%	7.5%	7.5%	8%
Burn-up life		≥100 Sv	≥100 Sv	≥100 Sv	≥100 Sv	≥100 Sv
Number of ADC channels		1024	1024	1024	1024	1024
Protection class		IP68 [Can be used for measurements in fresh water at depths of up to 50 m (Withstands hydrostatic pressure up to 5 atm/0.6 MPa)]				
Interface		USB / RS232 / RS485 / Bluetooth (via interface adapter)				
Power supply		USB – USB port of a personal computer or other device; RS 232 – 5–9 VDC power source; RS 485 – 7–30 VDC power source; Bluetooth – interface adapter				
Mean operating life		≥15 years	≥15 years	≥15 years	≥15 years	≥15 years
Operation temperature range		-35°C to +55°C	-35°C to +55°C	-35°C to +55°C	-35°C to +55°C	-35°C to +55°C
Relative humidity with air temperature ≤35°C without condensation		≤98%	≤98%	≤98%	≤98%	≤98%
Overall dimensions, weight		Ø63x313 mm, 1 kg	Ø63x333 mm, 1 kg	Ø63x333 mm, 1 kg	Ø90x350 mm, 2 kg	Ø90x430 mm, 3.3 kg
Image						
Design and specifications are subject to change without notice						



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SPECTROMETRIC GAMMA RADIATION DETECTION UNITS

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DETECTION UNIT		BDKG-05M	BDKG-11M	BDKG-19M
Detector		Scintillator, NaI(Tl) Ø40x40 mm	Scintillator, NaI(Tl) Ø63x63 mm	Scintillator, NaI(Tl) Ø63x160 mm
Energy range		20 keV – 3 MeV	20 keV – 3 MeV	20 keV – 3 MeV
Measurement range of ambient dose equivalent rate		30 nSv/h – 300 µSv/h	30 nSv/h – 150 µSv/h	30 nSv/h – 50 µSv/h
Limits of tolerable intrinsic relative error		±20%	±20%	±20%
Energy dependence relative to 662 keV (¹³⁷ Cs)		±15% (50 keV – 3 MeV)	±15% (50 keV – 3 MeV)	±15% (50 keV – 3 MeV)
Typical sensitivity to gamma radiation	²⁴¹ Am	cps/(µSv·h ⁻¹) 5400	cps/(µSv·h ⁻¹) 13500	cps/(µSv·h ⁻¹) 37000
	¹³⁷ Cs ⁶⁰ Co	800 420	2200 1200	6000 2500
Response time for dose rate change from 0.1 to 1 µSv/h [accuracy error ≤±10%]		≤2 s	≤2 s	≤2 s
Spectrometry (Instrument spectrum)		+	+	+
Typical resolution at 662 keV (¹³⁷ Cs)		7.5%	7.5%	8%
Burn-up life		≥100 Sv	≥100 Sv	≥100 Sv
Number of ADC channels		1024	1024	1024
Protection class		IP54	IP54	IP54
Interface		USB / RS232 / Bluetooth (via interface adapter)		
Power supply		USB – USB port of a personal computer or other device; RS 232 – 5–9 VDC power source; Bluetooth – interface adapter		
Mean operating life		≥15 years	≥15 years	≥15 years
Operation temperature range		-20°C to +50°C	-20°C to +50°C	-20°C to +50°C
Relative humidity with air temperature ≤35°C without condensation		≤95%	≤95%	≤95%
Overall dimensions, weight		Ø60x300 mm, 0.9 kg	Ø78x320 mm, 1.7 kg	Ø78x350 mm, 3.0 kg
Image				
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