

# MDG-12S, MDG-13S Directional Dose Rate Meters



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## Purpose

The MDG-12S and MDG-13S are intended for directional dose rate measurements up to 10 Gy/h.

The meters are suitable for process measurements in areas with more sources, where only one source and/or one technological section should be monitored and the effect of other sources should be eliminated.

The MDG-12S and MDG-13S can be used as a part of large radiation monitoring systems with remote centralized indication, or in connection with the local display unit as an autonomous monitor, which provides the data indication locally at the place of measurement.

The meter's output can be customized for application in most of the common radiation monitoring systems based on different interfaces and communication protocols.

## Description

The MDG-12S and MDG-13S meters incorporate a semiconductor detector, tungsten or lead shielding collimation block and the microprocessor controller. These units are encapsulated in a water-proof cylindrical housing.

The internal detector shield reduces side radiation and back radiation. Optionally the angle with the maximum sensitivity and the sensitivity reduction level are adjustable according to the customer requirements.

The signals coming from the detector are processed in the controller and compared with two programmable alarm levels. Exceeding of the alarm levels is signaled. The values measured and the statuses of the meter are transferred via an RS-485 interface as standard into a host system or to a local display unit.

## Main Advantages

- No need of external shielding blocks for applications where directional response is required
- More compact, lower weight than the probe with external shielding
- Two programmable alarm levels
- Smart probe with serial RS-485 interface enabling direct connection to host system
- Optional outputs on request (RS-232, pulse rate, Ethernet, current loop, ...)

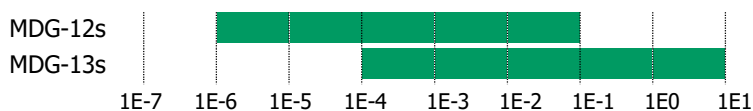
## Specification

Gamma energy range	25 keV ~ 1.5 MeV
Measurement range	
▪ MDG-12S	1E-6 ~ 1E-1 Gy/h
▪ MDG-13S	1E-4 ~ 1E1 Gy/h
Reference source	<sup>137</sup> Cs
Operating temperature range	5 ~ 50 °C (41 ~ 122 °F)
Power supply	24 VDC / 1.5 W
Electric protection	IP 66
Collimators angle	15°
Total integrated dose	>100 Gy*

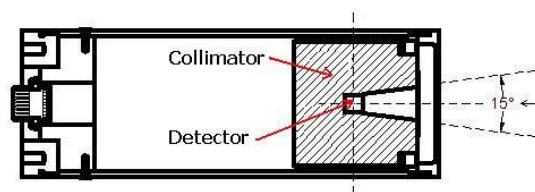
\* Total integrated dose applies to the electronic circuitry. Due to the shielding effect of collimator (and optional additional shielding), the radiation resistance may be by one or two decades higher.

## Models and Accessories

Type/Model	Short Name	Collimator	Detector	Side Radiation Reduction	Back Radiation Reduction	Diameters	Weight
<b>K0203-01</b>	MDG-12S-01	lead (Pb)	CdTe	95 %	99%	80 x 230 mm (3 x 9 in)	3.75 kg (8.3 lb)
<b>K0203-02</b>	MDG-12S-02	tungsten (W)	CdTe	95 %	99%	65 x 185 mm (2.5 x 7.3 in)	3 kg (6.6 lb)
<b>K0203-03</b>	MDG-12S-03	lead (Pb)	CdTe	90 %	99 %	65 x 185 mm (2.5 x 7.3 in)	1.5 kg (3.3 lb)
<b>K0204-01</b>	MDG-13S-01	lead (Pb)	Si	95 %	99%	80 x 230 mm (3 x 9 in)	3.75 kg (8.3 lb)
<b>K0204-02</b>	MDG-13S-02	tungsten (W)	Si	95 %	99%	65 x 185 mm (2.5 x 7.3 in)	3 kg (6.6 lb)
<b>K0204-03</b>	MDG-13S-03	lead (Pb)	Si	90 %	99 %	65 x 185 mm (2.5 x 7.3 in)	1.5 kg (3.3 lb)
<b>Optional Accessories</b>							
<b>K0204-51</b>	Additional internal 10 mm (0.4 in) of lead shielding for protection of the electronic circuitry to increase radiation resistance. Available for MDG-12S-01 (K0203-01) and MDG-13S-01 (K0204-01) long-version probes.						
<b>K0204-52</b>	Additional external 20 mm (0.8 in) of lead shielding for protection of the electronic circuitry to increase radiation resistance. Available for MDG-12S-01 (K0203-01) and MDG-13S-01 (K0204-01) long-version probes.						
<b>N/A</b>	Holder for mounting the MDG-12S / MDG-13S to the wall or other support.						
<b>N/A</b>	External check source for periodic checks of the response.						
<b>N/A</b>	Check source holder to keep the defined position between the source and detector.						
<b>Related Products</b>							
<b>N/A</b>	Dumb directional dose rate probes SDG-12S and SDG-13S are available with higher radiation resistance.						
<b>K0743</b>	LZJ-22 local display unit which displays and archives the data measured and indicates exceeding of pre-set alarm levels.						
<b>K0830</b>	ASU-50 Alarm Slave Unit with strong acoustic signalling and 3 lights for visual signalling (red / yellow / green)						



Measurement range in Gy/h



MDG-12/13S probe diagram



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