



# BODY SCAN

FULL BODY CONTAMINATION MONITOR

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## FULL BODY CONTAMINATION MONITOR

BODY SCAN is used where human surface contamination is to be monitored for a certain limit. This is at the exit from controlled operational areas, such as in nuclear plants. The human contamination monitor's measuring task is to tell with high statistical accuracy whether a person's surface contamination has exceeded the limit. For uncontaminated persons, on the other hand, a contamination alarm should be prevented with high statistical accuracy. Contamination should be measured in the shortest possible time to allow a faster flow of people. The BODY SCAN has been modified based on experience with existing models, and with regard to measurement geometry, user-friendliness and ease of service. Using the latest electronic components, the monitor constantly checks itself for malfunctions and operating errors. With an additional program for networking several monitors, the user can query measuring statuses and results, and system statuses, from multiple locations. Remote monitoring and error analysis are also possible from any location. Through the use of 24 model SZ 860 or 24 model PDK 860 plastic scintillation detectors, the entire measurement surface is captured with

the same homogeneity. These detectors are easy to maintain, with foil that trained personnel can change quickly. The simplified detector arrangement allows faster replacement of defective detectors. Optional gamma plastic detectors can be introduced for monitoring incorporations and small parts (file compartment). All electronic components are easily accessible behind a service door for quick maintenance and replacement.

### Measurement Mode

The measurement principle is based on two steps for each person (front and back measurement). The optimized detector arrangement makes it possible to capture almost the entire surface of the person being measured. The person's size is irrelevant. The head detector is automatically positioned and is secured by a light curtain. During measurement, the positions of the hands, feet, head and body are monitored constantly to prevent positioning errors. For easy handling, the touchscreen and detailed instructions over a speaker guide the user into the correct position. If no person or contamination is being measured, the background is automatically and continuously monitored. During measurement, the loudspeaker indicates the remaining measurement time and all measurement values are displayed at the same time. For alarms, various threshold values can be set. The measurement results can be shown in cps, Bq, and Bq/cm<sup>2</sup>, as desired.



Hand detector



Foot detector

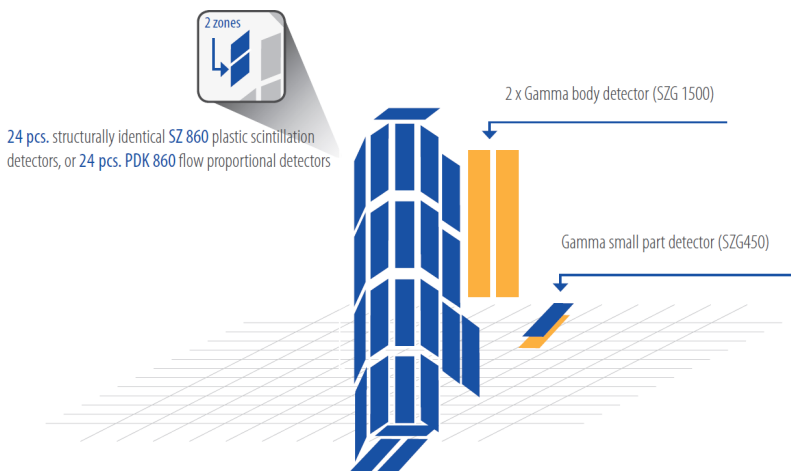
## Detectors

### Scintillation detectors:

The large-surface SZ 860 plastic scintillation detectors are used in various contamination monitoring devices. Notable features include a large 860 cm<sup>2</sup> active area with a unique structure for uniform reaction in all active areas, with no dead points. The multi-layer aluminized Mylar surface ensures long service life and the surface density provides efficient beta detection. The large area scintillation detectors offer high efficiency with alpha and beta radiation and excellent long-term stability. The active area is divided into two independent sectors, each with its own high voltage, amplifier and counter. The window is protected by its pane and a stainless-steel grate. The individually adjustable design is easy to maintain and allows optional modifications for different applications - for example an optional thicker Mylar layer, window protection with a fine or dense grid. These detectors are used in devices for monitoring undergarments, hands, feet and the entire body. It is fast and easy to replace a detector. No special tools are required and positioning of the detector is supported by a user-friendly plug-in system.

### Low-flow gas detectors:

The large-surface PDK 860 low-flow gas detectors are used in various contamination monitoring devices. Notable features include a large 860 cm<sup>2</sup> active area with a unique structure for uniform reaction in all active areas, with no dead points. The Mylar surface ensures long life. Due to the low flow rate of 2-4 L/min the operation is very economical. The window is protected by Mylar foil and a stainless-steel grate. The individually adjustable design is easy to maintain and allows optional modifications for different applications — for example, an optional thicker Mylar layer, window protection with a fine or dense grate, as well as various types of gas. The large area gas flow proportional detectors offer high efficiency with alpha and beta radiation and excellent long-term stability. The active area is divided into two independent sectors, each with its own amplifier, HV and counter. These detectors are used in devices for monitoring undergarments, hands, feet and the entire body. It is fast and easy to replace a detector. No special tools are required and positioning of the detector is supported by a user-friendly plug-in system.



Detector arrangement



Head detector

# Product Information

## BODY SCAN - FULL BODY CONTAMINATION MONITOR

Detectors	SZ 860 plastic scintillation detector	PDK 860 gas flow proportional detector
<b>Housing</b>	Robust plastic housing	Robust aluminium housing
<b>Detector assembly</b>	Thin-layer 2-zone plastic scintillation detector with ZnS coating and integrated photomultiplier, high voltage generation, impulse processing, Mylar foil and protective grate	Aluminium housing consisting of 2 zones each with integrated high voltage generation, impulse processing, Mylar foil and protective grate
<b>Transmission rate</b>	83%	83%
<b>Entry window</b>	480 mm x 180 mm Mylar / PE	480 mm x 180 mm Mylar / PE
<b>Active surface</b>	860 cm <sup>2</sup>	860 cm <sup>2</sup>
<b>Typ. Efficiency</b>		
<sup>241</sup> Am	17 %	19 %
<sup>90</sup> Sr	48 %	51 %
<sup>36</sup> Cl	22 %	38 %
<b>Background</b>	$\alpha < 0.1$ cps, $< 15$ cps	$\alpha < 0.1$ cps, $\beta < 10$ cps
<b>Spillover</b>	$< 50\%$ ( $\alpha$ in $\beta/\gamma$ channel, Am-241)	$< 1\%$ ( $\beta/\gamma$ in $\alpha$ channel, Cs-137)
<b>Dimension (L x W x H)</b>	500 mm x 180 mm x 60 mm	500 mm x 180 mm x 45 mm
<b>Weight</b>	approx. 1.2 kg	approx. 1.4 kg

### Detectors

<b>Temperature range</b>	
<b>Humidity</b>	operation (per IEC61098): $\leq 85\%$ non-condensing at max. 35 °C (storage temperature: $\leq 95\%$ non-condensing)

### Ambient Conditions

<b>Temperature range</b>	0 - 40 °C
<b>Humidity</b>	operation (per IEC61098): $\leq 85\%$ non-condensing at max. 35 °C

### Mechanical Data

<b>Dimensions</b>	(W x H x D) [mm]
<b>Open cabinet</b>	2400 x 750 x 1000 300 kg
<b>With doors</b>	2400 x 1000 x 1300 500 kg
<b>With doors + gamma detectors + lead shielding</b>	2400 x 1000 x 1300 1500 kg
<b>Material</b>	Stainless steel

**Berthold Technologies GmbH & Co. KG**  
 Calmbacher Straße 22 · 75323 Bad Wildbad · Germany  
 Tel. +49 (0)7081 177-0 · Fax +49 (0)7081 177-100  
 E-mail: info@berthold.com · www.berthold.com

This instrument is not intended to be used for diagnostic and/or therapeutic purposes for human beings and is not a medical device – according to the definitions of the European Council Directive 93/42/EEC concerning medical devices.