

approved
by PTB
(government
authority)

Case 6605.5



- High sensitivity due to large scintillator:
Dose rate measurements down to a few nSv/h,
instrumental background approx. 1 nSv/h only
- Measuring quantity J_s (AD-b) or $H^*(10)$ (AD-b/H, /E)
- Wide energy range: 20/23 keV to 7 MeV
- Gets all the benefits from the 6150AD:
 - Automatic range selection
 - Smart time constant
 - Digital calibration providing high accuracy
 - Simultaneously measures current value, average value, and maximum value of dose rate, as well as dose
 - Alarm thresholds for both dose and dose rate including one freely programmable threshold each
- Low power consumption, supply from 6150AD

SCINTILLATOR PROBE 6150AD-b (/H, /E)

Plastic Scintillator Probe for the
Dose Rate Meter 6150AD[®] for
measuring photon radiation
(gamma and X-radiation)

6150AD[®] is our trademark
(German registration number 303 55 582)

APPLICATION

The Scintillator Probe 6150AD-b is a portable probe for the Dose Rate Meter 6150AD to measure photon radiation (gamma and X-radiation). A cylindrical three by three inches organic scintillator serves as the radiation detector. Particular advantages of the Scintillator Probe are its wide energy range and its high sensitivity. The Scintillator Probe is thus particularly well suited for fast and accurate measurements of low radiation levels down to or even below natural background. Due to that feature the probe received its name: the »b« in 6150AD-b means »background«. Other applications are, for example, measurement of scattered radiation and measurements around CRTs (cathode ray tubes) or other sources of X-rays.

This data sheet only specifies the Scintillator Probe, not the 6150AD meter it is used with. It is assumed throughout this data sheet that the reader is familiar with the 6150AD (see the 6150AD data sheet).

The 6150AD-b is designed for the classical quantity J_s . The 6150AD-b/H is designed for Ambient Dose Equivalent $H^*(10)$. The AD-b/E is the same as the AD-b/H except a different internal probe code requiring 6150AD »/E« basic meters. The German PTB approval only applies to the »6150AD-b/E« model. This shall eliminate classical J_s models. However, for international use we strongly recommend »/H« models over »/E« models. See the table below for the compatibility of 6150AD-b probes and 6150AD meters.

	Quantity	compatible with these meters
6150AD-b	J_s	6150AD5 (/H), 6150AD6 (/H)
6150AD-b/H	$H^*(10)$	
6150AD-b/E		

SCOPE OF DELIVERY and ACCESSORIES

The Scintillator Probe comes with a helical probe cable and the removable carrying strap. The Dose Rate Meter 6150AD is *not* included.

Loudspeaker Attachments (optional accessories)

Even at natural background conditions the Scintillator Probe generates more pulses than the 6150AD's piezo buzzer can produce. Therefore, two loudspeaker attachments are available allowing to represent dose rate indication acoustically:

- 826.1.6: This attachment comprises its own loudspeaker.
- 826.1.5: This attachment does not contain any loudspeaker but provides a socket to connect the earphone 6112B-134C. Only the user will hear the sounds, which is helpful for undercover investigations.

Source Holder 761.11 (optional accessory)

The source holder 761.11, if used with a check source 6706 or equivalent (333 kBq Cs-137), allows a reproducible radiological check.

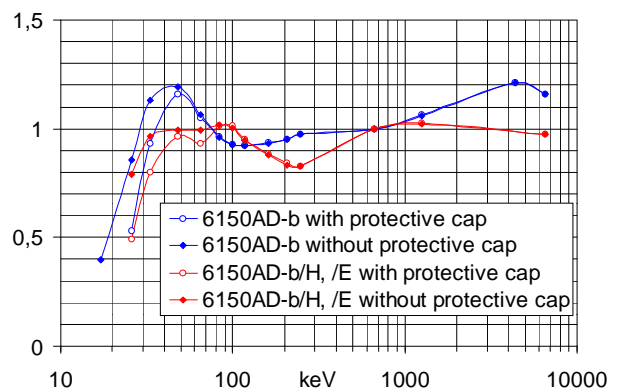
Aluminium Case 6605.5 (optional accessory)

This case (see photo on the front page) is recommended for safe transport and storage.

TECHNICAL DATA

Scintillator Probe 6150AD-b, /H, /E	
Detector	cylindrical organic scintillator, diameter 3", height 3", density 1.032 g/cm ³
Measuring quantity	/H, /E models: ambient dose equivalent $H^*(10)$; others: exposure dose J_s
Energy range and angular range (without protective cap)	6150AD-b: max. $\pm 30\%$ at energies from 23 keV to 7 MeV, max. $\pm 20\%$ referred to 0° at angles within $\pm 80^\circ$
	6150AD-b/H, /E: max. $\pm 40\%$ at any energy and direction within the ranges 20 keV to 7 MeV and $\pm 60^\circ$ (0° direction is perpendicular on the circular front face)
Indicated dose rate range	analogue: 10 nSv/h to 100 μ Sv/h digital: 1 nSv/h to 99.9 μ Sv/h
Linearity of dose rate measurement	deviation typically $\pm 5\%$, max. $\pm 10\%$, calibration with Cs-137
Instrumental background	typically 1 nSv/h
Overload	overrange indication up to 5 mSv/h (after that, recovery of low instrumental background may require one or two days).
Digital dose range	0.00 μ Sv - 999 μ Sv
Predefined alarm thresholds	Dose rate: 7.5 μ Sv/h, 25 μ Sv/h, disabled
	Dose: none
Programmable alarm thresholds	one freely programmable threshold for each dose and dose rate
Temperature range	-20°C to + 50°C, deviation max. $\pm 10\%$ referred to indication at +20°C
Humidity	nominal range 0 to 95% within specified temperature range
Atmospheric pressure	nominal range 60 to 130 kPa (600 to 1300 mbar)
Geotropism	none (no change of response as a result of gravitational effects)
Power supply	4.75 Volt out of 6150AD
Battery life including the 6150AD	with a 6LR61 alkaline battery: approx. 120 hours at low dose rates with the 6150AD's illumination off
Housing	natural colour aluminium, waterproof, protection class IP 67 according to DIN 40050
Dimensions	353 x 195 x 96 mm ³
Weight	approx. 2.5 kg including the 6150AD, the probe will float on water

*Energy Response
Normalised to Indication at Cs-137 (662 keV)*



- SUBJECT TO CHANGE WITHOUT NOTICE -