

# Neutron Survey Meter

Model **TPS-451C**

- Wide Measuring Energy Range
- Both in Digital and Analog display





The Neutron Survey Meter is designed to detect neutron in the surrounding areas of neutron generators such as accelerators, neutron sources, nuclear fusion experimental equipment and nuclear reactors. The Neutron Survey Meter is devised to accurately indicate neutron dose equivalents from thermal neutrons in the energy range of up to approximately 15 MeV, and can measure neutron doses in the measurement unit  $\mu\text{Sv/h}$  with good sensitivity.

## Features

- 1 The usage of highly sensitive  $^3\text{He}$  counter**  
The highly sensitive  $^3\text{He}$  counter, which is capable of measuring from  $0.01 \mu\text{Sv/h}$ , is able to measure the lowest neutron dose in the environmental radiation level.
- 2 The usage of Sv display**  
With the calibrated Sv, it is possible to measure dose equivalents without knowing the energy of incident neutrons.  
As shown in the energy response characteristic curve chart, the energy response characteristic of the Neutron survey Meter closely conforms to the ideal dose equivalent conversion curve of the ICRP pub.74.
- 3 Wide measuring energy range**  
It is possible to measure energies in the wide range from  $0.025 \text{ eV}$  to approximately  $15 \text{ MeV}$ .
- 4 Excellent direction dependence**  
The minimum deviation for any direction so that measurement in neutron doses can be measured in all directions.
- 5 Digital and analog displays**  
Dose rate is displayed both in digit and analog ; therefore, it is possible to read out the measured value from the digital display while reading dose rate changes on the analog display.
- 6 Display of dose rate and accumulated dose**  
It is possible to select and display either the dose rate or accumulated dose as you wish.
- 7 Double power supply system**  
Two lithium batteries enable continuous operation for more than 100 hours. Or, it is possible to use power with the AC adaptor.
- 8 Portable and lightweight**  
The Neutron Survey Meter is small and lightweight for easy transportation.
- 9 Has a monitor speaker**  
You can verify counts aurally.
- 10 Has a recorder**  
You can connect the recorder for continuous recording.

## Specifications

Type of radiation measured	Neutron
Detector	$^3\text{He}$ proportional counter (Sensitive area : Approximately $25.4\phi \times 70\text{mm}^{\text{L}}$ )
Measuring energy range	$0.025\text{eV}$ – about $15\text{MeV}$ (complying with the ICRP74 response)
Measuring range	Dose rate : $0.01 - 10\text{mSv/h}$ Accumulated dose : $0.01 - 9,999 \mu\text{Sv}$
Measuring range	Analog : $0.1 \mu\text{Sv/h} - 10\text{mSv/h}$ 5-digit logarithmic rate meter Digital : $0.01 - 9.999 \mu\text{Sv/h}$ $0.01 - 9.999 \mu\text{Sv/h}$ 4-digit liquid crystal display
Direction dependence	$\pm 20\%$ or less
Neutron sensitivity	Approx. $1.4\text{s}^{-1} / \mu\text{Sv} \cdot \text{h}^{-1}$
Gamma-ray sensitivity	Non sensitive to up to approximately $100\text{mSv/h}$ (against gamma-ray from $^{60}\text{Co}$ source)
Moderator	Polythylene (high density)
Internal absorbent	Boron compound (for correction of energy characteristic)
Operating temperature range	$-10 \sim +45^{\circ}\text{C}$ within 90% R.H. (without condensation)
External output	Sound logic : TTL level Recorder : $\text{DCO} \sim +10\text{mV}$ ( $0.1 \mu\text{Sv/h} \sim 10\text{mSv/h}$ )
Power (battery)	Two lithium batteries (K-BATT-18), operational for more than 80hours continuously Operational with the dedicated adapter (K-AD-1) connected to AC $100\text{V } 3\text{VA}$

· The Specifications are subject to change without notice

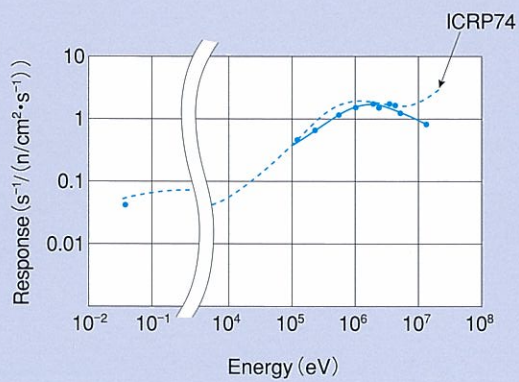


# Operational Panel

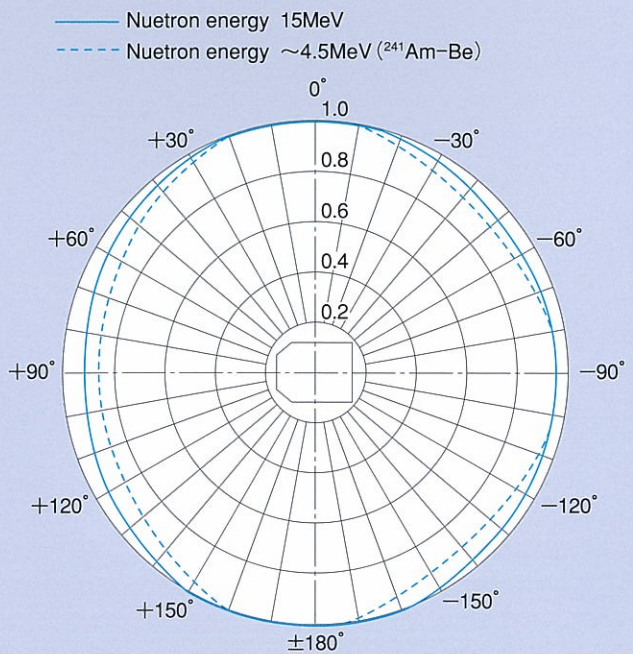


## Efficiency

### Energy Response



### Polar Response



# Standard Configuration

Main Unit .....1  
Accessories .....1set

{ AC Adaptor .....1  
Shoulder Belt .....1 }

## Option

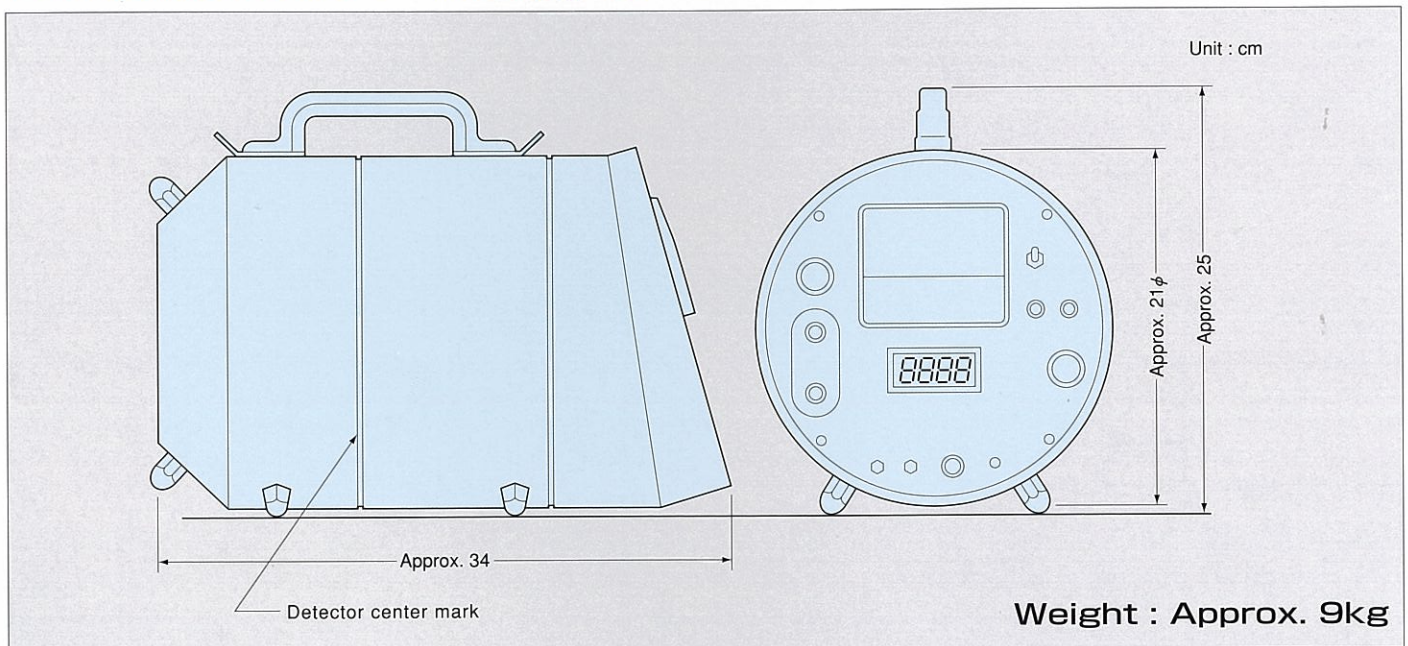
● Aluminum carrying case <BX-107>

## Consumables



TPS-451C Type  
lithium Battery K-BAT-18B

# Dimensions / Weight



\*The specifications and appearance of this product are subject to change without prior notice.

\*To maintain system performance, it is recommended to enter into a periodical check and maintenance contract.

## CAUTION

For correct and safe use of the product, before operating it please be sure to read the "Operation Manual" carefully.



We strive to provide quality products and services for our customers.



We operate with regard for the environment.

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