

1. Specifications for "Smart RnDuo" radon monitor

Parameter	Details	Remark / advantages
Offered model no	"Smart RnDuo" Radon monitor	
Measured parameter	Either of selected Radon, Thoron or air Alpha activity is measured continuously in real time	
Detector type	ZnS-Ag scintillation detector	High sensitivity; Lower detection limit
Scintillation volume	0.15 L	Small detector volume without compromising on sensitivity facilitates measurement of small samples with minimal error.
Sensitivity	1.2 CPH/(Bq/m ³) for Radon 0.8 CPH/(Bq/m ³) for Thoron	
Sampling type	Both Diffusion and Flow mode of sampling with interchangeable sampler	
Sampling flow rate	0.7 L/min	
Measurement modes and measurement interval.	Radon mode : User selectable 15 / 60 min Thoron mode : User selectable 15 / 30 / 60 min Alpha mode : User settable 1 to 999 min Any of the above modes can be selected through touch screen menu of Smart RnDuo or from the remote PC through Raditek Explorer software	
Response time for Radon and thoron measurement	95% of radon value is to be attained within an hour 95% of Thoron value is to be attained within 5 minutes	
Minimum detection limit	15 Bq/m ³ at 1 α and 1 h cycle for radon / thoron	
Upper detection limit	10 MBq/m ³	Concentrations above 10 MBq/m ³ can also be measured with correction factors.
Thoron interference in radon measurement	< 5% with sniffing mode of sampling	
Date storage memory	Memory with storage capacity of 30,000 readings	Monitor can store more than 3 years of data with hourly measurements.
Data communication	2-wire RS 485 port data communication	
Display and interface	2.3" colour touch screen display with on screen operation menu.	
Diagnostic data	Display and storage of system diagnosis parameters such as battery voltage, PMT bias voltage, system temperature and humidity.	Remote diagnosis of Smart RnDuo is possible
Remote control by software	The operation of Smart RnDuo and its operating mode can be controlled remotely using the Raditek Explorer software exclusively developed for this monitor.	Very useful feature if the user intends to use Smart RnDuo at remote place or underground mines or inaccessible place like inside closed chamber or Geo gas sampling station.
Online and offline data viewing	The data of Smart RnDuo can be viewed on screen of Smart RnDuo and also on a remote PC with the Raditek Explorer software. Both online and offline data can be viewed.	The data can be viewed or copied to PC memory in a real time through RS485 connection. Even if the RS485 connection breaks, the data can be downloaded once the broken RS485 connection is resumed.
Remote data storage	The online and offline data can be saved on a remote PC with the Raditek Explorer software.	
Operating power	DC power: Operates with internal rechargeable battery. A fully charged battery lasts for continuous operation of up to 36hr. AC power: 12V DC adapter working with 110- 240 V AC 50 Hz mains power is supplied with monitor.	The external 12V DC supply is readily available or can be fetched from car battery or solar panel for extended operation time For continuous endless operation, monitor can be operated with external 12 V DC supply from mains power
Dimension and weight	34 cm x 18 cm x 14 cm, and weight is 3.8 Kg	Monitor is portable with these compact size and light weight.

2. Specifications for Radon Mass exhalation chamber Model MX-400

Used for:	To measure radon mass exhalation rate (per unit mass) /thoron surface exhalation rate (per unit exposed surface area) from Powder samples
Internal dimensions:	100 mm Diameter X 50 mm height
Volume:	0.4 Litre
Sampling	Both diffusion and flow mode
Compatibility:	compatible to "Smart RnDuo" for direct mounting the detector
Material:	Aluminium

3. Specifications for Radon accumulator Model FX-3000

Used for:	To measure in situ radon flux (per unit area of ground surface) from ground.
Internal dimensions:	200 mm Diameter X 105 mm height
Volume:	3 Litre
Surface area	314 cm ²
Sampling	Both diffusion and flow mode
Compatibility:	compatible to "Smart RnDuo" for direct mounting the detectorMaterial:
	Aluminium double walled
Pressure relief vent:	6 mm size connection

4. Specifications for water bubbler kit Model "Rn Aqua"

Used for:	To measure radon/thoron dissolved in water/liquid sample (per unit liquid volume)
Kit contents	sampling bottles – 10 nos, Bubbler – 2 Nos. 500 ml capacity syringe with long nozzle – one No.
Compatibility:	Designed for use with "Smart RnDuo"
Sample capacity:	50 ml
Head space volume:	50 ml

5.Specifications for Soil Probe Model SP-01

Used for:	To measure in-situ radon/thoron in pore space of soil.
Probe length	1 meter
sampling connector	5 mm size nozzle – one No.
probe handle:	detachable handle for removing the probe from ground
Compatibility:	Designed for use with "Smart RnDuo"
Material:	Hard S.S.

6. Specifications for Thoron accumulator Model FX-250

Used for:	To measure in situ thoron flux (per unit area of surface)
Internal dimensions:	70 mm Diameter X 70 mm height
Volume:	250 ml approx.
Surface area	28 cm ²
Sampling	flow mode by two nozzles attached on the chamber walls at 2 cm and 4 cm from bottom and opposite to each other.
Insertion depth mark:	Marking at one cm height along perimeter for indicating insertion depth of accumulator in soil.
Compatibility:	Designed for use with "Smart RnDuo"
Material:	Aluminum

for DTPS/DRPS wire mesh badge holder:

1. The Wire-mesh capped holder will have two parts.
2. The upper part will have two sections having wire-mesh, such that each section will have the dimension of $22 \times 22 \text{ mm}^2$.
3. The total dimension of the upper part will be: length 66 mm, thickness 12 mm, breadth 34 mm.
4. The base will have dimensions: length 66 mm, thickness 2 mm, breadth 34 mm.
5. The distance between the wire-mesh and the detector should be 1 cm.
6. The upper part should fit in tightly on the base.
7. The material of the badge should be acrylic/hard plastic.
8. A clip should be fitted at the back-side of the base to use it as personal dosimeter.