# Kata DGM-1500 Turva

- RADIATION DETECTED: Gamma and X-ray
- MEASUREMENT UNITS: microSv/h (µSv/h)
- LINEAR RANGE: Dose rate 0.01 - 100 000 microSv/h
  Dose 0.001 - 1000 milliSv
- SENSITIVITY: 150 cpm/microSv/h
- ACCURACY: ± 5 % of the reading when irradiated by Cs-137 at the calibration point at 20 deg. °C.
- LINEARITY: ± 10 % at 20 °C
- RESPONSE TIMES: Fast measurement mode 2.5 sec. Automatic measurement mode 3 min. at ambient radiation levels, at increased radiation levels (> 100 microSv/h) 5 sec. Accuracy measurement mode, at low level radiation, integration time long to 3 hours as far as, used in gamma radiation measuring of foodstuff, for example.
- DETECTOR TYPE: Ambient dose equivalent Hp(10) -energy compensated GM-tube, quenching type Neon/Halogen
- ENERGY DEPENDENCE: ± 30 %, 30 keV - 1.25 Mev
- PHYSICAL CHARACTERISTICS: Display type 4 -digit LCD-display 44 x 18 mm. Big dose rate showed like this 30E3 (30 000 microSv/h)
- OPERATING TEMPERATURE RANGE: -30°C to +55°C
- OVERALL DIMENSIONS: L x W x H1/H2, 14.7cm x 9.1cm x 5.2/3.2cm
- WEIGHT: 300 g with battery
- AUDIO SPEAKER: Piezoelectric speaker
- ALARMS: Adjustable dose rate and dose alarm level
- BATTERY: (1) 6LR61, 9 V battery, battery life 300 h (background level), low-battery indication
- MAIN ADAPTER: 9 VDC reg. / 2.5 W (3,5 mm plug) diode protected against wrong polarity
- Standard configuration incl. battery, calibration certification and user manual.

Cesium-137 measurement of foodstuff
Accuracy ± 200 Bq/l

**SPECIAL FEATURES:**

- Automatic calculation of Radon-Box 10 (R-10) or automatic calculation with foodstuff measurement of Cesium-137(Cs). <u>HAVE TO DEFINE ON REQUEST!</u>

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# Radon-Box 10


## KATA® - MEASUREMENT OF RADON

### 1 PREPARATIONS BEFORE THE MEASUREMENT PROCESS

Prior the beginning of every measurement Radon-Box 10 unit must be “cleaned”. Purpose of this cleaning process is the disposal of absorbed radon gas and moisture inside the unit. Cleaning is performed by keeping the Radon-Box 10 unit at ~105°C temperature (e.g. in electric oven) for 12 hours. After the heating process and after the unit has cooled down it must be put into airtight plastic bag. By keeping the unit at airtight environment ensures that the unit will not absorb radon gas from air before the actual measurement process.

### 2 MEASUREMENT PROCESS

Remove the Radon-Box 10 unit from the plastic bag and place it to the location from where the radon concentration should be determined. Ambient temperature should be 18 – 25 °C and relative humidity less than 80% through the measurement process. After seven (7) days put the unit into airtight plastic bag and close it carefully. The unit is now ready to be analyzed using the DGM-1500 Turva survey meter. Analyzing phase should be started within three hours after the Radon-Box 10 unit has been closed inside the plastic bag.

### 3 DEFINING THE RADON CONCENTRATION

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### *3.1 SELECTING THE PLACE*

Choose an applicable analyzing place (e.g. desktop) and make sure there are no stone walls near that spot.

### *3.2 MEASURE THE AMBIENT BACKGROUND RADIATION LEVEL*

1) Take the DGM-1500 Turva survey meter and turn it on.
2) Change the measurement mode to accuracy measurement by pressing the zero (0) button until h-letter (lowercase) is shown on the display. After an every hour the letter “h” on the display of DGM-1500 Turva will change its case to indicate that an hour has elapsed (1st hour “h”, 2nd hour “H”, 3rd hour “h” etc).
3) Place the DGM-1500 Turva survey meter at the place you chose and make sure the Radon-Box 10 unit is not close to DGM-1500 Turva at this time.
4) Wait at least two hours (recommendation is three hours) until the DGM-1500 Turva has accurately measured the ambient background radiation level.

### *3.3 ANALYZE THE CONTENT OF RADON-BOX 10*

1) Take the Radon-Box 10 unit out from the plastic bag and place it to exact location where the background radiation level was measured.
2) Take the DGM-1500 Turva and change the measurement mode to radon measurement by pressing the zero (0) button until the text “r-10” is shown on the display. NOTICE! Make sure you don’t press the zero (0) button down too long so that the mode goes past the radon measurement mode (“r-10” on display). Otherwise you have to repeat the ambient background radiation level measurement again.
3) While the “r-10” reading on the display of DGM-1500 Turva slide it inside the Radon-Box 10 unit from the hole at the right side.
4) After three hours the reading on the display of DGM-1500 Turva will indicate the radon gas level at the air (Bq/m3) from the place where the actual seven day measurement was performed.