

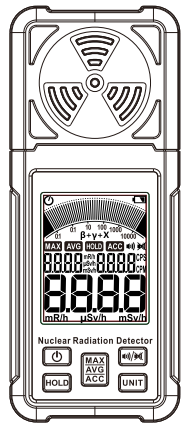
说明书做货要求：

序号	项目	内容			
1	尺寸	展开尺寸：260x200 mm，折叠后尺寸：65x100 mm			
2	材质	80克书纸			
3	颜色	黑色，双面印刷			
4	外观要求	印刷完整清晰，版面整洁，无分层、残损、毛边等缺陷。			
5	装订方式	折页			
6	表面处理	/			
7	其它				
型号	HT629	版本号	V02	物料编码	H01-04-0151
设计	罗樊	日期	2023-12-04		
审核	林枝	<b>HABOTEST®</b> 东莞市华博精测仪表科技有限公司			
批准	<b>FAYER</b>				

此页不印刷，只供参考

# User manual

## Nuclear Radiation Detector



Before using the instrument, please read this manual carefully, and save it well for future using.

### Notice to user

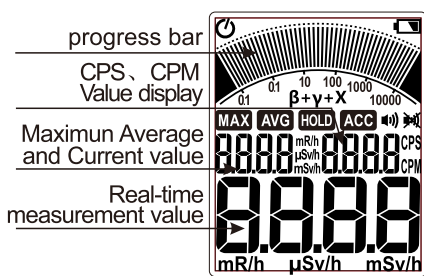
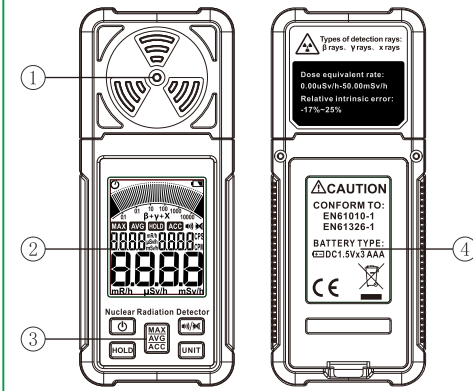
- Please read the manual carefully, especially the warning and caution instructions
- Strictly follow this manual to use the instrument, otherwise the protective function provided by the instrument may be damaged or weakened.
- Before using the instrument, please check if there are cracks or damaged plastic parts on the instrument casing. If there are any, please do not use it again
- When the low battery indicator on the instrument appears, please replace the battery in a timely manner to prevent measurement errors.
- Do not use instruments in areas

with explosive gases or vapors or in damp environments.

### Product Description

This product uses a Geiger-Miller counter. Counter for detecting the intensity of ionizing radiation (beta particles, gamma rays and x-rays). Made based on the ability of radiation to ionize gases. Use a gas tube or a small chamber as a probe. When the voltage applied to the probe reaches a certain range. Each time the ray is ionized in the tube to produce a pair of ions, it can be amplified to produce an electric pulse of the same size. And recorded by the connected electronic device. The number of rays per unit time thus measured.

- ① Status indicator lamp
- ② Display screen
- ③ Keys
- ④ Cell cover



### How to operate

1. Short press  $\text{ON}$  button turn on, Long press  $\text{ON}$  button shutdown
2. Short press  $\text{UNIT}$  button Select  $\mu\text{Sv/h}$ ,  $\text{mR/h}$ ,  $\text{mSv/h}$  unit
3. Long press  $\text{UNIT}$  button Select CPS, CPM unit
4. press  $\text{BELL}$  button Open/close buzzer.

5. press  $\text{MAX}$  button Select display MAX, AVG, ACC
6. press  $\text{HOLD}$  button, Hold data display
7. Long press  $\text{HOLD}$  button, Open/close Auto shutdown function

### Product parameters

Product name	Nuclear radiation detector
Types of detection rays	Y rays, x rays, B rays
Detector	Energy Compensation GM Tube (Geiger Counter Meter)
dose equivalent rate	0.00-50000 $\mu\text{Sv/h}$ (50mSv/h)
Cumulative	0.00 $\mu\text{Sv}$ -5000mSv

dose equivalent	
Energy range	48keV-1.5MeV $\pm$ 30%(for137Cs-)
Language	80CPM/ $\mu\text{Sv}$ (For Co-60)
Dosage unit	$\mu\text{Sv/h}$ , $\text{mR/h}$ , cps, cpm Switch
Relative intrinsic error	-17%~25%

### Conversion of radioactive units

#### (1). International Standards (1990)

1. Radioactive staff: 20mSv/year(10 $\mu\text{Sv/hour}$ )
2. General public:

1mSv/year(0.50 $\mu\text{Sv/hour}$ )

#### (2). Unit conversion

1 $\mu\text{Sv/h}$ =100 $\mu\text{R/h}$  1nC/kg.h=4 $\mu\text{R/h}$   
 $\mu\text{R}$ =Iy(The unit used for prospecting in the pronuclear industry)  
 Radioactivity:  
 1Ci=1000mCi  
 mCi=1000 $\mu\text{Ci}$   
 1Ci=3.7x10<sup>10</sup>Bq=37GBq  
 1mCi=3.7x10<sup>7</sup>Bq=37MBq  
 1 $\mu\text{Ci}$ =3.7x10<sup>4</sup>Bq=37KBq  
 1Bg=2.703x10<sup>-11</sup>Ci=27.03pci  
 Exposure:  
 1R=10<sup>3</sup>mR=10<sup>6</sup> $\mu\text{R}$   
 1R=2.58x10<sup>-4</sup>c/kg  
 Absorption metering:  
 1Gy=10<sup>3</sup>mGy=10<sup>6</sup> $\mu\text{Gy}$   
 1Gy=100rad100 $\mu\text{rad}$ =1 $\mu\text{Gy}$

Metering equivalent:  
 1Sv=10<sup>3</sup>mSv=10<sup>6</sup> $\mu\text{Sv}$   
 1Sv=100rem 100 $\mu\text{rem}$ =1 $\mu\text{Sv}$   
 Radon unit:  
 1Bg/L=0.27em=0.27x10<sup>-10</sup>Ci/L  
 Other:  
 1Sv is equivalent to 1Gy 1g radium=0.97Ci=1Ci

### (3) Calculation of radioisotope decay values

$A=A_0e^{-\lambda t}$   $t=T_{1/2}$ ;  
 A0 The known source strength A is how much time has elapsed, According to the radioactive decay calculation table look-up table calculation.

### (4) The relationship between radioactive source and distance:

The intensity of the radioactive source

is inversely proportional to the square of the distance.  
 $X=A.r/R^2A$ : The activity of the point source; R: Distance from source;  
 Note:Ra-226(t 1608)r=0.825ren.m2/hour. Curie  
 Cs-137(t 29.9years)r= 0.33ren.m2/hour. Curie  
 Co-60(t 5.23 years)r=1.32ren.m2/hour. Curie

### According to the radioactive decay calculation table, lookup the table to calculate the radioactive shielding:

Halved and reduced to 1/10 value (cm) for different substances				
Radioactive source	Pencil	Iron	Concrete	
	Halving 1/10	Halving 1/10	Halving 1/10	1/10

Cesium -137	0.65	2.2	1.6	5.4	4.9	16.3
ridium -192	0.55	1.9	1.3	4.3	4.3	14.0
Cobalt -60	1.10	4.0	2.0	6.7	6.3	20.3

### General maintenance

- The maintenance and service of this instrument must be carried out by professional and qualified maintenance personnel or maintenance departments.
- Please keep it dry and clean the

surface of the instrument with a soft cloth before use. Do not use cleaning agents or solvents.

- Please recycle and utilize damaged instrument accessories and packaging materials in a way that meets environmental requirements
- Please shut down the device promptly when not in use for a long time.
- Do not disassemble or replace components without permission to avoid malfunctions
- Please store in a dry place when not in use

### Battery installation or replacement

The instrument uses 3 AAA (No. 7) 1.5V batteries. Please follow the steps

below to install or replace the batteries

- 1) Turn off the power supply of the instrument
- 2) Use a screwdriver to unscrew the screws that secure the battery cover and remove the battery cover
- 3) Remove the old battery and install a new one according to the polarity marked in the battery box
- 4) After installing the new battery, cover the battery cover tightly and tighten the screws

### warning

- To avoid potential electric shock or personal injury caused by incorrect readings, Replace the battery immediately when  $\text{BATT}$  symbol is displayed on the display screen.
- Please use batteries of the same

model and do not use substandard batteries.

- To ensure safe operation and maintenance of the instrument, please remove the battery when not in use for a long time to prevent battery leakage and damage to the product.

