

Printer

Power Socket

RS-232 Serial Port

Air Outlet
Air Inlet Filter

On-Off Switch

Infra-red
LED

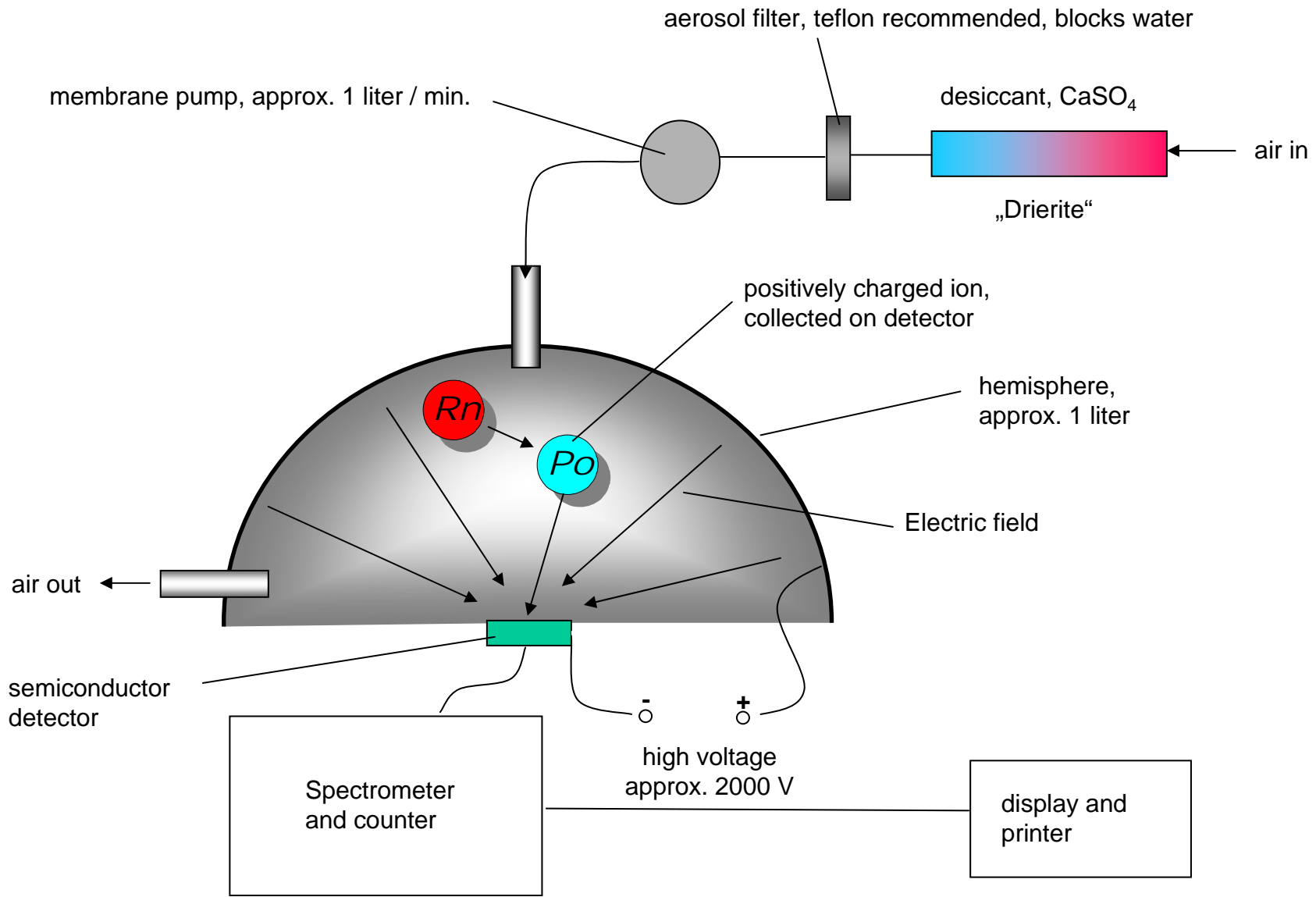
to charge battery
connect power cord
before switching on

LCD

Menu Key
Enter Key

Left Arrow Key
Right Arrow Key





aerosol filter, teflon recommended, blocks water

membrane pump, approx. 1 liter / min.

desiccant, CaSO_4

air in

„Drierite“

positively charged ion,
collected on detector

hemisphere,
approx. 1 liter

Electric field

air out

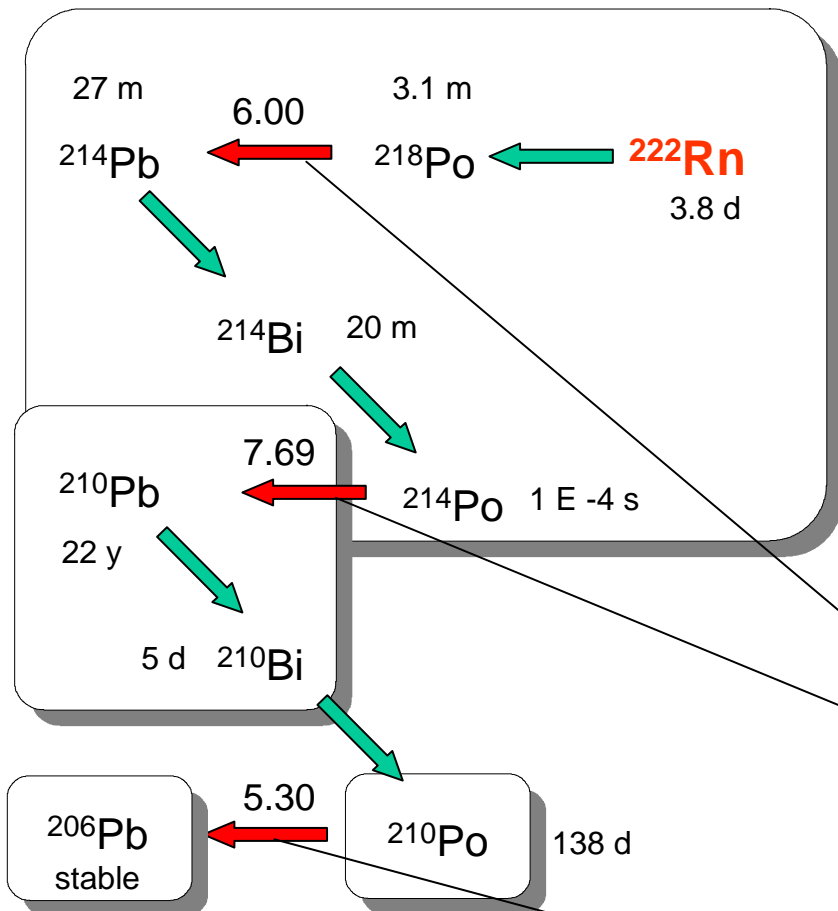
semiconductor
detector

Spectrometer
and counter

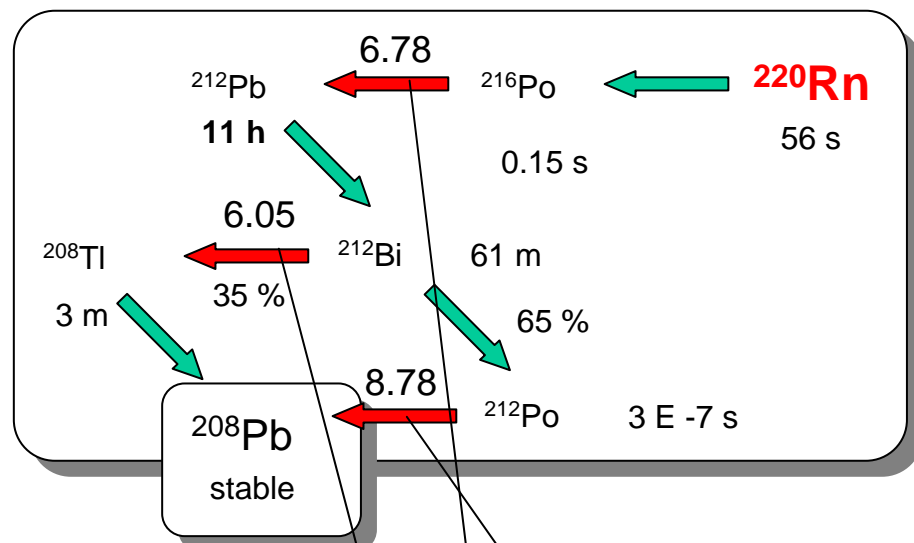
high voltage
approx. 2000 V

display and
printer

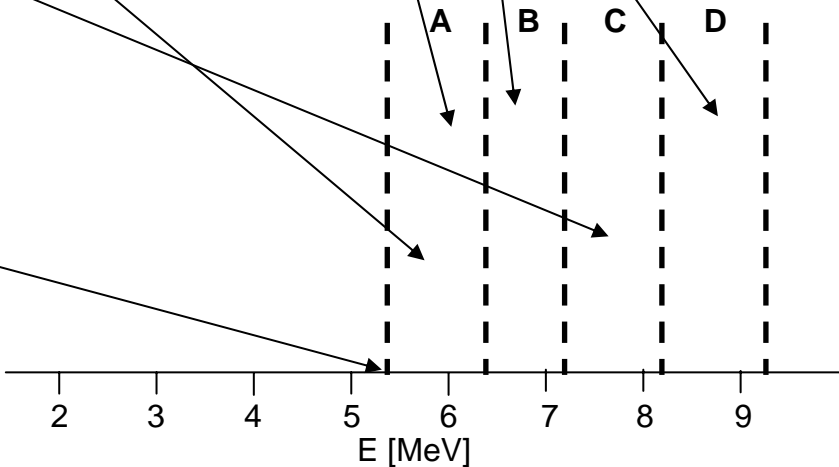
Radon



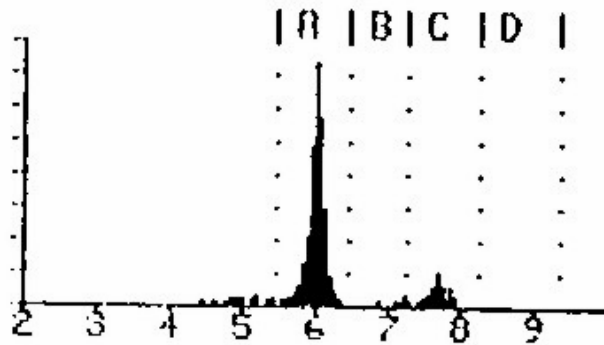
Thoron



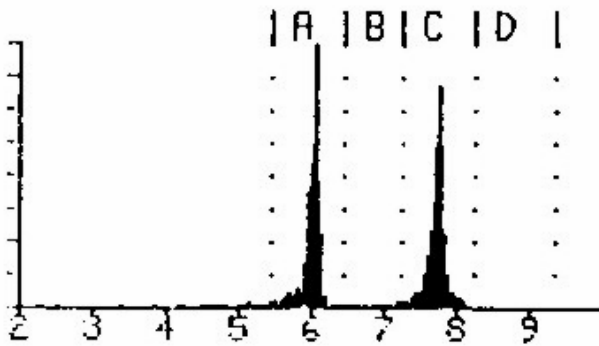
← alpha decay
↘ beta decay



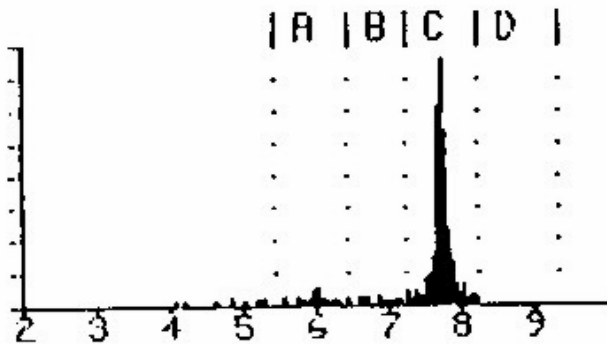
Po-218 Po-214



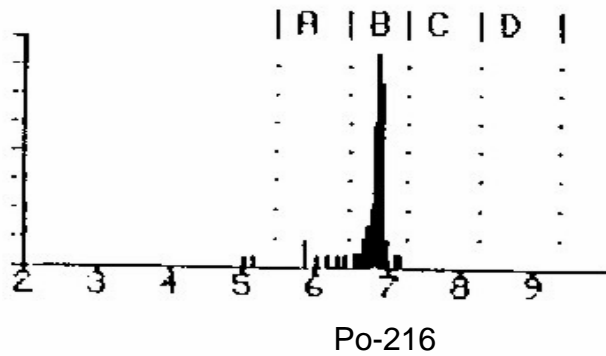
„new radon“, after < 1 h exposure to radon



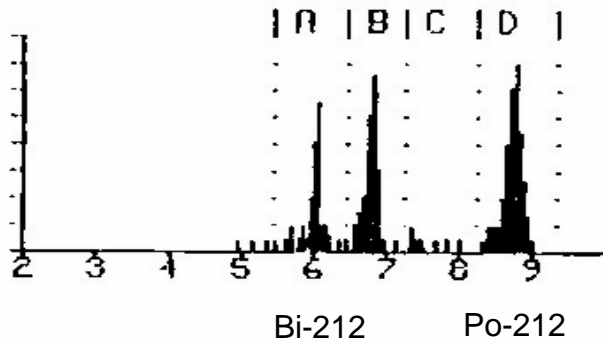
equilibrium, after > 3 h at constant radon level



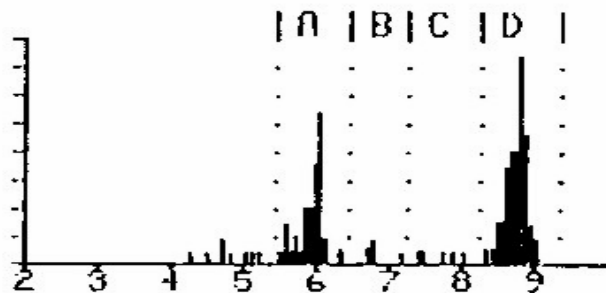
„old radon“, after 15 min purging with radon-free air,
decays with half-life of approx. 40 min.



„new thoron“



thoron equilibrium, after sampling thoron rich air for > 12h



„old thoron“, after purging with thoron-free air, decays with half-life of 11 h

Sensitivity :

sniff (Po-218 only) : 0.25 cpm / pCi / l, (150 Bq/m³) / cpmA

normal (Po-218 + Po-214) : 0.5 cpm / pCi / l, (75 Bq/m³) / cpm(A+D)

Table: 3.12 Typical RAD7 precision based on counting statistics only.

Normal Mode with sensitivity 0.500 cpm/pCi/L. Table values are two-sigma uncertainty (or 95% confidence interval) in units of pCi/L (percent).

	37 Bq / m ³	148 Bq / m ³	740 Bq / m ³	3700 Bq / m ³
	1 pCi/L	4 pCi/L	20 pCi/L	100 pCi/L
1 hr	0.37 (37%)	0.73 (32%)	1.64 (8.2%)	3.65 (3.7%)
2 hr	0.26 (26%)	0.52 (13%)	1.15 (5.8%)	2.58 (2.6%)
6 hr	0.15 (15%)	0.30 (7.4%)	0.67 (3.4%)	1.49 (1.5%)
24 hr	0.07 (7.4%)	0.15 (3.8%)	0.33 (1.7%)	0.74 (0.7%)
48 hr	0.05 (5.3%)	0.10 (2.6%)	0.23 (1.2%)	0.53 (0.5%)
72 hr	0.04 (4.3%)	0.09 (2.1%)	0.19 (1.0%)	0.43 (0.4%)

menu →> Test

→

↕

←

- Test Status
- Test Start / Stop
- Test Save
- Test Clear
- Test Purge
- Test **Lock**

to select
 to start / stop a run with parameters defined under Setup
 save reading if stopped before cycle finished
 clear stopped reading

to unlock see manual page 19

> Data

- Data Read
- Data Print
- Data Com
- Data Summary
- Data Free
- Data Delete
- Data Renumber
- Data Erase

Data Read 11 or to change run #
 data to PC, needs null-modem, default 1200 baud, 8 bit, no parity, no handshaking
 number of free readings (max 999)
 rennumbers runs if one or more have been deleted
 deletes all readings

> Setup

Setup Protocol

Protocol : Sniff, 1-Day, 2-Day, Weeks, User, Grab, Wat-40, Wat250, Thoron,

	Cycle	Re cycle	Mode	Thoron	Pump
Sniff	00:05	0	Sniff	Off	Auto
1-day	00:30	48	Auto	Off	Auto
2-day	01:00	48	Auto	Off	Auto
Weeks	02:00	0	Auto	Off	Auto
User	xxx	xxx	xxx	xxx	xxx
Grab	00:05	4	Sniff	Off	Grab
Wat-40	00:05	4	Wat-40	Off	Grab
Wat250	00:05	4	Wat250	Off	Grab
Thoron	00:05	0	Sniff	On	Auto

> Setup

Setup Protocol
Setup Cycle
Setup Recycle
Setup Mode
Setup Thoron
Setup Pump
Setup Tone
Setup Format
Setup Units
Setup SavUser
Setup Clock
Setp Review

Protocol : Sniff, 1-Day, 2-Day, Weeks, User etc.

Time per cycle

Number of cycles, 00 collects data indefinitely

Mode : Auto, Wat-40, Wat250, Normal, Sniff

Pump : Auto, On, Grab, Off

Tone : Geiger, Off, Chime (beeps only at end of cycle)

Format : Off, Short, Med, Long (**includes spectrum printout**)

Units : Bq/m³, pCi/l

currents settings are saved as Protocol User

Shows current settings

Mode :

Sniff : Po-218 only

Normal : Po-218 + Po-214

Auto : 3 h Sniff, then Normal

Pump :

Auto : pump on for 4 min at
begining of new test. If RH > 10 %
pump stays on. Else runs 1 min every 5 min

Sniff : always on

Grab : 5 min on, then 5 min off, counting
starts after this delay. pump stays off.

> Special

If RADLINK is installed a special menu opens, allows RAD7 remote control