Smart Radon Detector

FRD400

OPERATION MANUAL

"FRD400" is a fast & precision radon monitor. It's sensitivity is 0.8cpm/pCi/l by 400cc pulsed ion chamber & FTLAB's high stable special circuit technology. Minimum measurement time is just 30min after measurement start. Also the accuracy is < ±10% at 10pCi/l. Also 1.8inch TFT LCD & simple operating process gives user's convenience. Economic cost of FRD400 gives the best price performance among the conventional radon monitors. Although this radon monitor has a complex inside hardware and delicate measurement algorithm, its smart function will allow easy use if proper operating techniques are developed. Please read the following instructions carefully and always keep this manual within easy reach.

www.radonftlab.com

CONTENTS

1. FEATURES

FRD400 is fast & precision radon monitor which has the high sensitivity 0.8cpm/pCi/l, about 20~30 times more than conventional radon detector by FTLAB's high stable circuit technology shown Fig. 1.
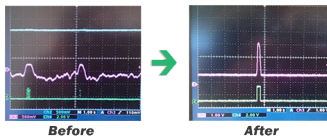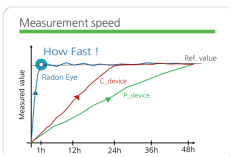

Fig. 1 enhanced detection waveform

Fig. 2 comparison the measurement speed of Radon detectors

Its first reliable data out below 60min from measurement start shown Fig. 2. Also the accuracy is <10% at 10pCi/l. (The accuracy and reproducibility spec were tested by the KTL(Korea Testing Laboratory) administrated by KOREAN government)

* Highest sensitivity, maximum speed among the conventional radon detectors for home owners.
* Bluetooth connection with smart phone (Android & IOS)
* 1 hour step data logger, data storage.
* Built−in microprocessor circuit assures excellent performance and accuracy.
* Individually calibrated by equipments which are already calibrated to traceable international standard.

2. SPECIFICATIONS

- Sensor Type : pulsed ion chamber 400cc
- First reliable data out : < 60min
- Data display interval : 10min update (60min moving average)
- Sensitivity : 0.8cpm/pCi/l at 10pCi/l (48cph/pCi/l)
- Operating range : 10℃ ~ 40℃, RH < 90%
- Range : 0.1 ~ 99.99 pCi/l
- Precision : < ±8% at 10pCi/l
- Accuracy : < ±10% at 10pCi/l (min. error <±0.35pCi/l)
- Power : DC 5V, 0.6A (5V DC Adaptor)
- Size : W167(mm) x D230(mm) x H78(mm), 1.45kg
- Data communication : Bluetooth LE (Android/iOS), USB to PC
- Data log : 10 slot, 60day/slot
- Display : 1.8 inch TFT−LCD
  (all test data have been measured at 25℃ ± 2℃)

3. DISPLAY

3-1. Radon measurement results display

3-2. Select Display Unit (Bq / ㎥ or pCi / L)

3-3. Vibration Display

3-4. Display measurement interval (10min or 60min)

3-5. Zigbee Connection Status

3-6. Status Display

    Time: Displays the measuring time

    Count: Measuring Pulse Count Display

    1Day: 1Day average display

    2Day: 2Day average display

    L: 1 month average display

    Peak value: display the maximum measured value during the measurement

3-7. > Button: the screen toggle button

    Main Screen, Log List screen, Information transitions

3-8. ∨ button: Step button

    Main screen - measured distance (10Min / 60Min) Change

    Log List Screen - Select Data List

3-9. ○ button: Select button

    Log List screen - Check the selected data list

4. MEASURING PROCEDURES
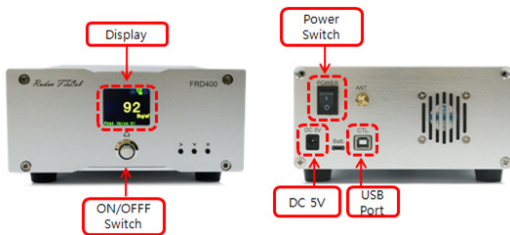
4-1. Measurement preparation

- Close the window and room door

- Place the FRD400 on the table or desk

- Avoid strong wind from fan

4-2. Power ON/OFF

- Power ON   ① Connect the DC 5V adapter at FRD400

              ② ON the Power switch on the back

- Power OFF : power switch OFF

4-3. Measuring

- When you power on, LCD screen will light up on the front, logo screen is visible.

- Standby time is 100%, and then proceeds to the measurement standby screen.

- In the measurement standby state, press the "ON/OFF switch" in the photo of the front. If the light up to the ON/OFF switch, the measurement is started. (Also it begins to Data storage)

- The measurement is completed, the on off end the measurement by pressing a switch. (data is automatically saved)

- First data out 10min after start

- Data update every 10 min

- Reliable data will be got about 1hour

4-4. Bluetooth connection & Data Down Load & Saving

- Start the App, "Fast Radon Detector" in smart phone

- Press the "connect" button to the device,

- Measured Radon data is displayed on the screen

- Press LOG button and Data Load, you can see the variation of radon concentration as a graph

- Clear button is for delete of measured data

- Save As button is for the saving the down loaded data to the memory of smart phone

5. APPLICATIONS for FRD400

- Indoor real time radon monitoring
- Inspection of radon concentration
- IoT Radon sensor
- Automatic ventilation system
- Radon suppressed system
- Air purifier

6. CAUTIONS

- It must be used only for the specified adapter
- Please don't touch the FRD400 during measurement
- Place the FRD400 on the table, not on the floor
- Do not operate the FRD400 in 100% RH
- The FRD400 should be used only indoors, 10℃ ~ 40℃(50F ~ 100F)
- Calibration values are valid for two years from date of manufacture

Radon FTLab