

RadStar RS800

Operating Instructions



RS800 FEATURES

- Hourly and average readings
- Internal memory to retain data
- Accurate measurement in a wide range of temperatures and relative humidity
 - Sensors to measure relative humidity and temperature
 - Nominal sensitivity: 24 cph/pCi/L



1.0 SETTING UP THE RS800:

1.1 Plug power adapter marked “RadStar Power Supply” into any 120VAC outlet.

1.2 Plug free end of power adapter into left side of RS800 – green LED should come on – indicating that the NiCad batteries are charging. Leave power cord plugged in at all times during a radon test to ensure that the batteries remain charged. If no power is available, as in new construction, the unit may be run on the batteries alone for a typical 48hr test as long as the unit has been charging overnight with the power adapter.

**Note: The RadStar sample LCD display shown below indicates #.#.
The actual screen will show a version number such as Ver 1.5**

2.0 TURNING UNIT ON:

Insert key into unit and turn it one click to the right to the [Keypad On] position. The unit will beep and the display will activate and read:

RS800 Ver #.#
VIEW?

3.0 SETTING UP PARAMETERS:

3.1. ERASING STORED DATA

3.1.1 Using the [Next] button on the front panel, scroll through the options until the display reads:

RS800 Ver #.#
ERASE?

3.1.2 Press and hold the [Enter] button (there will be an audible tone coming from the unit) until the display reads:

RS800 Ver #.#
DATA ERASED!



This will erase any prior test stored in the memory so that the unit will test from the first hour.

Important: If prior data is not erased, new test data will be appended to the previous test data.

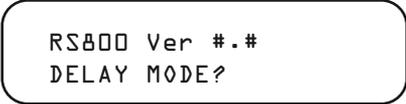
Note: If at any time there is some confusion during the setup of parameters, simply press the [Reset] button to re-initialize the unit so that you can scroll through the parameters again. This process will not change any of the other parameters that are entered [Delay Setting, Battery Saver].

3.2 DELAY MODE

This mode allows you to choose to run the unit with no delay, a 12 hour delay (the unit will print out or download from the 13th hour), or a 24 hour delay (the unit will print out or download from the 25th hour). The unit will still test from the first hour no matter which delay mode is selected. All of the data can be retrieved by simply entering the “No Delay” mode.

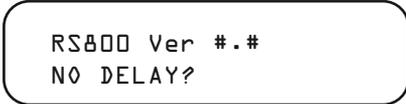
The 12 hour delay can be used to delay start of a test if closed house conditions were not in place on arrival at a home to be tested and the 24 hour delay can be used for post-mitigation testing.

3.2.1 With the key still in the [Keypad On] position, use the [Next] button to scroll to the delay mode. The display will read:



```
RS800 Ver #.#  
DELAY MODE?
```

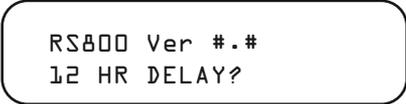
3.2.2 Press [Enter] button once. The display will read:



```
RS800 Ver #.#  
NO DELAY?
```

Note: Test Duration per EPA Protocols must be at least 48 hours.

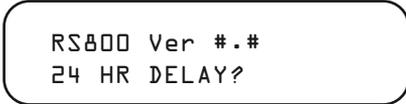
3.2.3 Press [Next] button again. The display will read:



```
RS800 Ver #.#  
12 HR DELAY?
```

Note: Test Duration per EPA Protocols must be at least 60 hours.

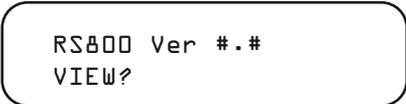
3.2.4 Press [Next] button again. The display will read:



```
RS800 Ver #.#  
24 HR DELAY?
```

Note: Test Duration per EPA Protocols must be at least 72 hours.

3.2.5 After selecting the desired delay mode, press the [Enter] button once. The display will read:



```
RS800 Ver #.#  
VIEW?
```

3.3 BATTERY SAVER MODE

This mode (if activated) will shut off the display ten seconds after testing has begun (recommended). It allows for longer battery backup time in case of a power outage or if running the unit on batteries only.

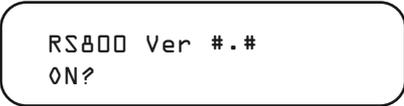
3.3.1 With the key still in the [Keypad On] position, use the [Next] button to scroll to the Battery Saver Mode. The display will read:



RS800 Ver #.#
BATTERY SAVER?

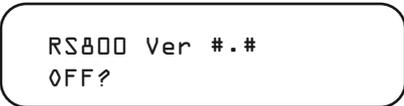
3.3.2 Press [Enter] button once. The display will read:

RECOMMENDED:



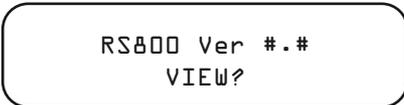
RS800 Ver #.#
ON?

3.3.3 Press [Next] button once. The display will read:



RS800 Ver #.#
OFF?

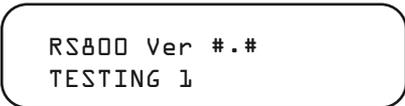
3.3.4 After the battery saver mode is selected (if you go by the mode you wanted, just keep pressing the [Next] button. This is also true for the Delay Mode, press the [Enter] button once. The display will read:



RS800 Ver #.#
VIEW?

4.0 MONITORING FOR RADON GAS:

4.1 After the Delay mode and Battery Saver mode have been entered, you may begin monitoring for radon gas by turning the keyswitch to the [Measure On] position. The key may be removed in this position to prevent tampering with the unit. The display should read:



RS800 Ver #.#
TESTING 1

4.2 The red LED next to the "Measure On" logo will stay on for forty seconds, then go out. This is a normal condition. Every thirty seconds while the RadStar is operating the red LED will blink.

Note: When the key is turned to the [Measure On] position to start a new radon test and the display is reading any other hour besides 1, the unit will "beep." This means the data needs to be erased from the prior test. See Section 3.1.

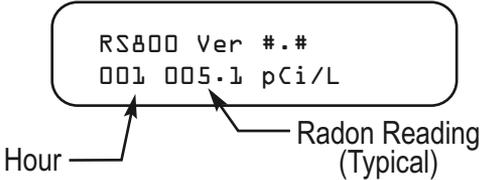
Note: Test Duration per EPA Protocols must be at least 48 hours.

5.0 OBTAINING A READING FROM THE RS800 DISPLAY:

5.1 Any time during or after a test, turn the keyswitch to [Keypad On] position. The display will read:

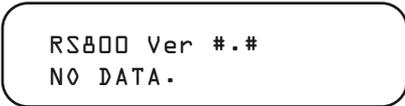


5.2 Press [Enter] button once. The display will read:



5.3 Press [Next] button to scroll through the hourly readings. To continue testing, simply turn the keyswitch to [Measure On] position. The unit will “beep” to signify continued testing.

Note: When a test is continued by going from [Keypad On] to [Measure On], the hour in which you were testing starts over again. Also, note that if you try to view the readings before the first hour is up, the display will read:



6.0 SETTING UP THE OPTIONAL PRINTER:

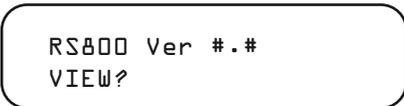
6.1 Plug the AC/DC adapter (the one marked “Printer Power Supply”) into any 120VAC outlet. Plug the power jack from the adapter into the back of the printer.

6.2 Connect the D-Sub cable supplied with the unit to the printer and the Radstar.

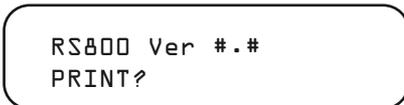
6.3 Turn the printer on via the rocker switch. The red LED should come on.

7.0 OBTAINING A TEST REPORT PRINTOUT:

7.1 After completing a test, turn the keyswitch to [Keypad On] position. The display will read:



7.2 Press [Next] button once. The display will read:



7.3 Press [Enter] button once. The unit will print the test report. See Fig. A for an explanation of the printout. **Note: if you try to get a printout within the first hour of testing, the RadStar display will read “No Data.”**

8.0 DOWNLOADING DATA FROM THE RADSTAR:

The RadStar comes with a Data Capture Utility Program (Windows XP and Vista compatible), and a USB/Serial Adapter Cable with driver. The accompanying RadStar Documentation Library describes the set-up and operation of these items. You may also view the Documentation and download the Program from the AccuStar Labs website www.accustarlabs.com

8.1 Install the RadStar Data Capture Utility Program and cable driver on your PC. In the Program, setup the correct RadStar model number and the correct COM port. Refer to the RadStar Documentation Library for specific instructions.

8.2 Connect the PC cable to the Print Port on the RadStar, and to your PC. Turn the RadStar keyswitch to [Keypad On] position. The display will read:

A rounded rectangular display showing the text "RS800 Ver #.#" on the first line and "VIEW?" on the second line.

8.3 Press the [Next] button on the RadStar twice. The display will read:

A rounded rectangular display showing the text "RS800 Ver #.#" on the first line and "DOWNLOAD?" on the second line.

8.4 In the Data Capture Utility Program on your PC, click Download. On the RadStar, press the [Enter] button once. The data will download to the PC. After the RadStar has finished downloading, the RadStar display will read:

A rounded rectangular display showing the text "RS800 Ver #.#" on the first line and "VIEW?" on the second line.

Note: If you try to download data from the RadStar within the first hour of testing, the display will read "No Data".

8.5 The test data downloaded into the Data Capture Utility can then be exported into a text file, comma delimited file or Excel chart. README files with the software describe the set-up and operation of the Data Capture Utility. Data Exported depends on the Delay Mode selected, see section 3.2.

"No Delay" - All data from hour 001 is exported. Hours 001-004 are ignored when calculating Average, Min and Max. Plot on Excel chart starts at hour 005.

"12-Hour Delay" - All data from hour 013 is exported. Hours 013-016 are ignored when calculating Average, Min and Max. Plot on Excel chart starts at hour 017.

"24-Hour Delay" - All data from hour 025 is exported. Hours 025-028 are ignored when calculating Average, Min and Max. Plot on Excel chart starts at hour 029.

9.0 TRANSPORTING THE RADSTAR TO A PC OR PRINTER:

If desired, you may transport the RadStar to a PC or printer to retrieve the data. Turn keyswitch to [Off] position. The test data will be retained in the RadStar memory until you erase it. Remove key and disconnect power supply. When your destination is reached, simply insert key into unit and turn to [Keypad On] and print or download the data.

FIGURE A

EXAMPLE RS800 TEST RESULT PRINTOUT

RadStar RS800	
Radon Detector/Monitor	
Version 1.3	
Serial#: 01504	UNIT SERIAL NUMBER
Calib.#: 400	UNIT CALIBRATION FACTOR
TestID#: 10006	CUSTOMER TEST ID NUMBER
No Delay	
Interval Report	DELAY SETTING
Hour T B AC pCi/L Temp Humd Alpha	
001 007.3 069 018 0250	
002 * 021.0 072 018 0707	ALPHA COUNT
003 035.1 073 017 0950	
004 039.6 075 017 0998	
005 047.4 076 016 1025	* [INTERRUPT] REPRESENTS LOSS OF AC POWER
006 050.9 076 017 1600	
007 051.0 077 015 1680	
008 050.9 078 016 1600	
009 049.7 077 016 1580	
010 052.1 076 016 1720	* [INTERRUPT] REPRESENTS LOW BATTERY
011 052.6 075 016 1740	
012 052.1 073 016 1726	
013 055.1 072 017 1832	
014 052.9 070 017 1783	
015 052.6 070 017 1740	* [INTERRUPT] REPRESENTS PHYSICAL TAMPERING OF INSTRUMENT [TILT]
016 050.0 070 017 1603	
017 053.5 069 017 1870	
018 047.5 068 017 1028	
019 051.3 068 017 1697	
020 050.9 068 018 1600	RUNNING MEASUREMENT TIME IN HOURS
021 050.9 067 018 1500	
022 050.4 067 018 1586	RADON CONCENTRATION AVERAGED FROM THE 14 TH TO THE 15 TH HOUR
023 052.3 067 018 1758	
Avg: 051.3	
Max: 055.1	RELATIVE HUMIDITY FOR THE 20 TH HOUR
Min: 047.4	
Start Date/Time	TEMPERATURE FOR THE 22 ND HOUR
End Date/Time	
Address	AVERAGE RADON CONCENTRATION OVER TOTAL MEASUREMENT TIME [1 ST 4HRS EXCLUDED]
Location of Instrument	MAXIMUM RADON READING TAKEN OVER TOTAL MEASUREMENT TIME [13 TH HOUR]
Tested By	MINIMUM RADON READING TAKEN OVER TOTAL MEASUREMENT TIME [5 TH HOUR]
	USER ENTRY DATA

RS800 Instrument Specifications

Mode:	Continuous Monitor, Passive Diffusion
Principle of Operation:	Pulse Mode Ionization Chamber
Minimum Sensitivity:	0.4 cpm/pCi/L (minimum 96 alpha counts per hour @ 4 pCi/L)
Units:	picoCuries per liter (pCi/L)
Dynamic Range:	0.3 to 200 pCi/L
Linearity:	+/- 5% Corrected Curve
Data Storage (Nonvolatile):	Up to 240 hourly readings, wrap on over-run.
User Selectable Modes:	Continuous, 12 Hour Delay, 24 Hour Delay
Power:	120VAC 60Hz Transformer, 5-8 days rechargeable battery operation. User Selectable Battery Saver Mode (turns off LCD display during test)
Indicators:	2 X 16 LCD Display, Green AC Power LED, Red Testing LED
Key Switch:	3 Position, Removable Key [Off] [Keypad On] [Measure On]
Pushbuttons:	Momentary [Enter] [Next] [Reset]
Communications:	RS-232 port for printing or computer uploads
Tamper Protection:	Tilt switch, AC power fail detection, key switch lock-out, LCD blackout.
Environmental Sensors:	Relative Humidity 0% - 80% +/- 5% Temperature 50 °F - 90 °F +/- 2 °F
Operating Range:	Temperature 50 °F - 90 °F Humidity 0-80%, non-condensing
Size:	Height 7 inches (includes Carrying Handle) Width 8 inches Depth 4 ½ inches Weight 2 ½ pounds
Color:	Blue/Black
Mounting:	(2) ¼"x 20 Threaded Tripod Mounts



Technical Support, Calibration
and Repair Service.

800-767-3703

M-F 8:30am - 5:30pm ET

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