

RnView 3

User Manual

В	07/2013	HRE-Spectro and update V3.1.1	J.D. GUICHARD	C. BERTRAND
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CONTENTS

1. PREPARATION	
1.1. INSTALLING RNVIEW 3 1.2. INSTALLING USB DRIVERS	3 3
2. GENERAL INSTRUCTIONS	7
2.1. MENU STRUCTURE 2.2. REGIONAL SETTINGS 2.3. CONNECTING AN INSTRUMENT	7 7 7
3. USING THE SOFTWARE	8
3.1. CONFIGURATION	8
3.1.1. Choosing the language	8 8
3.1.3. Communication ports	8
3.2. CONTROLLING AN INSTRUMENT	9
3.2.2. Stop and Start	
3.3. MEASUREMENT RESULTS	14 15
3.4.1. Graph display	15
3.4.2. Volumic activity	17
3.4.5. MAINTENANCE	
3.6. About	

1. PREPARATION

RnView 3 is the operating software for use with the instruments of measure eDPRW, Radhome HR3 and Radhome HRE-Spectro developed by ALGADE.

RnView 3 monitors and configures the measuring instruments. It reads displays and converts the data recorded by the devices.



1.1. Installing RnView 3



Caution: Administrator rights are required to install the software. Get in touch with your systems administrator if necessary. In addition, write permission will be required on the directory of installation.

Run the installation program *Setup_RnView3_VXX.exe*.

Follow the instructions on the screen to choose the language and the installation directory. The end user must have write permission on the chosen installation directory.

The installation program copies the necessary files on the hard drive. On completion, a shortcut to *RnView3.exe* is available from the Windows *Start* menu.

1.2. Installing USB drivers



Caution: Administrator rights are required to install the software. Get in touch with your systems administrator if necessary.

Windows will request USB drivers on the very first connection with a Radhome HR3, a Radhome HRE-spectro or the USB-IR reader used with an exposure meter eDPRW. The installation procedure will have to be repeated for any new connection on different USB port.

Installation under Windows XP

a. Upon connection with the instrument or the USB-IR reader, the found new hardware window will come up. Select « No, not this time » and click on « Next ».



b. Select « Install from a list or specific location » and click on « Next ».

Found New Hardware Wi	zard
	This weard helps you initial software for: USB Device
- Sec	I your hardware came with an installation CD of floppy disk, inset it now.
	What do you want the wizard to do?
	Click Next to continue
	jinstal tree software automatically (Fiscommended) instal trem a tot or specific location (Advanced) Click Next to continue (Back Next) Cancel

c. Tick the option « Include this location in the search » and click on « Browse » to select the directory where **RnView3** has been installed. Validate by clicking on « Next ».

Please c	noose your sear	ch and instal	lation options.		50
⊙ <u>S</u> e	arch for the best dr	iver in these loc	ations.		
Us pal	the check boxes the and removable	below to limit or media. The bes	expand the defau t driver found will t	it search, wi se installed.	nich includes local
	Search remova	ble media (llopp	y, CD-ROM)		
	Include this loc	ation in the sear	ich:		
	C:\download\			-	Browse
OD	n't search. I will ch	cose the driver	to install.		
Ch the	ose this option to driver you choose	select the devic will be the best	e driver from a list match for your ha	Windows o rdware.	loes not guarante
			(Profi	Mada	

d. The installation might have to be repeated a second time.

e. Upon completion, the instrument or the USB-IR reader should appear in Windows Device Manager (Right click > « properties » on My Computer, « Hardware » tab) under « Ports » as « USB Serial Port ».



f. Make a note of the corresponding port number, as it will be needed for the configuration of RnView 3 on first use.

Installation under Windows 7

If Windows is not configured to search for drivers automatically on the internet, the installation must be carried out manually from the device manager (Access from Windows Control Panel)

Find the device from the list of devices (a yellow exclamation mark indicates the devices not yet installed), right click > « Update the driver ». Windows will display the following screen:



Select « Browse my computer for driver software ».

	se for driver sof	tware on your co	mputer		
rch	for driver software in	this location:			
U	ers\Tim\Documents		3	-	Browse
•	Let me pick from	n a list of device of talled driver software of the software o	drivers on my co compatible with the	omp devic	iuter e, and all driver

Use «Browse » to find the directory where the USB/RS485 drivers are located (By default, this directory will be where **RnView3** was installed) and tick «Include subfolders ». Click on «Next ».

Upon completion, the instrument or the USB-IR reader should appear in Windows Device Manager as « USB Serial Port ».



Make a note of the corresponding port number, as it will be required to configure RnView 3 on first use.

2. GENERAL INSTRUCTIONS

2.1. Menu structure

Upon starting the software, the main screen appears. The various functions are accessible from the toolbar:

File	Instrument	Parameters	Volumic Activity	Maintenance	?
>> Default directory Language >>English French Open Close	>> Read Initialization Start Stop Configuration				
Save as Export >> Spectrums (Lin Spectrums (Col Raw data Calculated data Screen capture	Communications es) umns)				
Print Exit					

2.2. Regional Settings

RnView 3 uses the following regional settings:

- Decimal point separator « . »
- Date format DD/MM/YYYY
- Hour format: hh:min

2.3. Connecting an instrument

A USB link is used for communication with an instrument such as Radhome HR3 or Radhome HRE-Spectro.

Communication with an instrument such as eDPRW is made via an infra red connection with a USB-IR reader (supplied by ALGADE with the eDPRW). The exposure meter must be positioned within view of the USB-IR reader, within 30 cm at the most.

RnView 3 communicates with the device via a virtual COM port, created during the installation of the USB drivers.

3. USING THE SOFTWARE

The various functions available are indicated in **bold**. Paths will be given in the following pattern: **command1** >> **command2** >> **command3**. Example: File >> Export >> Calculated Measures.

3.1. Configuration

3.1.1. Choosing the language

Choice of English or French, via the menu File >> Language

3.1.2. Default directory

The menu **File** >> **Default directory** will allow the definition of the working directory. Selecting « Latest directory » will keep the directory used in memory from one session to the next.

 Latest directory 		
Selected directory :	C:\	
Selected directory :	C:\	

3.1.3. Communication ports

Go to **Probe** >> **Communications** to select the port number allowing communication with the instrument. This information should have been noted down during step 1.2.

rties
COM14 +
57600 🔫
Cancel Of

NB: To find out the port number, open Windows Device Manager (Right Click> « Properties » on My Computer, « Hardware » tab). In the « Ports » section, make a note of the element appearing under « USB Serial Port » followed by its port number **COMn**.

3.2. Controlling an instrument

3.2.1. Complete initialization

Initializing an instrument will allow:

- Setting of the internal clock •
- Modification of the operating parameters such as the integration period •
- Memory reset
- ٠ Start of a new acquisition

Click on the menu Instrument >> Initialization. The clock setting panel will appear.

System Cloc	k	
	23/07/2013 08:26	
V Use Syste	m Clock	
Probe Clock		
	23/07/2013 08:29	
······	Kana	Cancel

To leave the instrument internal clock unchanged, click on « Keep ».

To synchronize the instrument clock on the PC clock, tick « Use System Clock » and click on « Modify ». To set the instrument clock manually, uncheck the box « Use System Clock », enter the date and time and click on « Modify ».

The Initialization panel is made up of 7 tabs, and displays the instrument current parameters.

« General » Tab:

-
*

This tab displays information on the identification of the instrument (non modifiable): Number, type, internal software version, maintenance information.

The language used for the instrument display screen can be chosen from this tab.

For Radhome HR3 and Radhome HRE-Spectro, a PIN code can be chosen to restrict access to the instrument menus. The «Blind» mode can be activated from this tab. While in this mode, the message "measure in progress" will appear instead of the values measured.

« Measurement »

eneral	Measurement	Battery	Spectro	Alarms	Configurati	on	Misc
Time pa	irameters			Relative	Humidity		
Acquis	sition period	15	mn 👻	Coeffic	ient a0	5.35	5000000
				Coefficient a1		0.148900000	
Radon		ir	1	Coefficient a2		0.02	2700000
Radon coefficient			11.50	Coeffic	cient b1	-0.02	26790000
Background noise (pulses/h)			0.0	Coefficient b0		1.276000000	
Background noise meas. time (h) 72			The second se				
Attenuation factor (<1) 1.000			Flow		0.000000000		
Temper	ature			Соети	cient a	0.00	000000
Coeffic	tient 0.0	1000000	9	Coefficient b Coefficient c Minimum flow (I/h)		0.001955000	
coenic	ioni ono	1000000					
Offset	-39	.630000000					1.00
Jick Forma	at Memory				Initialize		Clos

Choose the measuring period (acquisition period) with the down arrow. The coefficients determined during calibration are displayed, but cannot be modified.

« Battery » tab

eneral	Measurement	Battery	Spectro	Alarms	Configuration	Misc	
Calcul	ations		Powe	er saving			
Batte	ry coefficient	0.014900	Sci	reen brighti	ness (%)	80	
				Automatic	standby		
Contr	ol		Tin	Time before standby (s)			
Warning level (V) 11.0		Auto exit from menu (s)			30		
Minir	Minimum level (V) 10.5		Auto disconnect time (s)			10	
	at Memory				Initialize	Close	
ick Form							

Displays information relative to the instrument power monitoring.

For eDPRW and Radhome HR3, automatic standby can be activated from this tab. Standby will automatically switch the screen off after a pre-selected time of idleness, while operating on battery and no action is carried out, allowing considerable battery energy saving.

Standby does not interrupt data acquisition and measure recording. Other parameters are factory set and cannot be modified.

	General Measurement Battery Spectro				Alarms	Configuration	Misc
	- Main m Minir Maxir	neasurement num channel	40		Custo Nur	omized Windows mber of windows	0
	Pulse o Dead	letector Time (ms)	D A		Wir 1 2	ndow Channe 0 0	to 0 to 0
-					1000	25	
9	Ouick Form	at Memory				Initialize	C

The measure of radon is carried out by a 128 channel spectrometry. The «Radon Calculation » zone gives information on the spectral window determined during calibration of the instrument, and used by the latter for the calculation of volume activity during the integration period. Up to 3 customized windows can be defined in addition to the Radon window.

« Alarms » Tab

If volumic activity reaches predefined thresholds, the visual and audible alarms of the Radhome HRE-Spectro can be activated on this tab. For example, on the following screen capture :

Alarm configuration Thresholds (Bq/m3) T3 0 T2 1000 T2 1000 T4 200 T5 Configuration T4 200 T5 Configuration T5		Measu	rement	Battery	Spectro	Alarms	Configuration	Misc
Thresholds (Bq/m3) Image: Constraint of the state	Alarm	configurat	ion					
(Bq/m3) Activity is greater than T3 T3 Image: Constraint of the state of the st	Thres	holds	00	0 🙆 🚳				
T3 0 Image: Constraint of the second	(Bq/m	3)			Activity is r	reater than	72	
T2 1000 Image: Activity is greater than T1 and less than T2 T1 200 Image: Activity is less than T1	T 3	0			Activity is g	reater than	T2 and lace than 7	F3
T1 200 Z Activity is less than T1	T2	1000			Activity is g	reater than	Ti and loss than	ra
Activity is less than 11	Τ1	200			Activity is g	reater than	Th and less than	12

Threshold #1 is set to 200 Bq.m⁻³ and threshold #2 is set to 1000 Bq.m⁻³.

When volumic activity is below 200 Bq.m⁻³, the green led is activated. When volumic activity is between 200 Bq.m⁻³ and 1000 Bq.m⁻³ the orange led is activated. When volumic activity is above 1000 Bq.m⁻³, the red led and the buzzer are activated.

« Configuration » tab

This tab is used when the instrument is configured in our premises, and is not modifiable by the end user.

« Misc » tab

General	Measurement	Battery	Spectro	Alarms	Configuration	Misc
Misc. Inf	formation			Amb	iant measurement	
Name	Dupont	t		Wait	ting time (s)	0
Numbe	er 123456	8		Cou	ting time (s)	0
Comm	ents Radhor	ne HRE-Spe	ctro	Heati	ing imum temperature	• (°C) 10
				Mod	bus Ibus slave addres:	s 1
Quick Forma	at Memory				Initialize	Clo

Information relative to the end user can be entered on this tab:

- Name
- Identification number
- Comments

For Modbus enabled devices, the modbus slave address is also entered on this tab.

To sum up, according to the instrument (eDPRW, Radhome HR3, or Radhome HRE-Spectro), the end user can change the following parameters:

- General tab: Language, PIN code, blind mode
- Measure tab: Acquisition period
- Battery tab: Automatic standby
- Spectro tab: Custom windows
- Alarms tab : Alarm thresholds / Leds and buzzer activation
- Misc tab: User information and Modbus address

Once the parameters have been modified, click on « Initialize »:

- The new parameters are sent to the instrument and checked
- The memory is reset
- Acquisition starts

The instrument is paused pending acquisition start. Exit **RnView 3**.

Acquisition will start at the nearest multiple of the chosen integration period. For example, for a start initiated at 15:24 with an integration period of 15 min, acquisition will start at 15:30 and the first measure will be available at 15:45.

3.2.2. Stop and Start

The menus **Instrument** >> **Start** and **Instrument** >> **Stop** enable the user to stop or start an acquisition without reinitializing the instrument. This must only be used if:

- The instrument clock does not need to be modified
- The memory does not need a reset
- Parameters do not need to be modified

NB: Acquisition stop and start are also accessible from the instrument keypad.

3.3. Measurement results

Click on the menu **Instrument** >> **Read**.

The memory panel appears:

The « Measures » tab gives a list of the acquisitions recorded, along with:

- Start date and time
- The acquisition period selected
- The number of measures recorded

Total number of measurements 1625 Number of acquisitions 7 Number of events 424	
Number of acquisitions 7 Number of events 424	
Number of events 424	
Measures Events	
Acquisition Start Date Hour Period Nh of Measurements	
1 16/05/2013 11:46:59 900s 17	
2 28/05/2013 14:59:45 3600s 68	
3 03/06/2013 12:00:12 3600s 22	
4 05/06/2013 14:00:10 3600s 43	
5 04/07/2013 10:33:39 900s 532	
6 10/0//2013 08:24:01 900s 869 7 22/07/2013 14:12:40 900s 74	
Read spectrums Cancel Read	

The « Events » tab gives a list of the radon alarm set off since initialization of the instrument. Click on « Erase » to erase the list from the memory.

From the «Measures » tab, select an acquisition and click on «Read » to transfer the corresponding measures to the PC. The curves obtained will be displayed once transfer is complete.

Uncheck « Read spectrums » if spectrum read out is not necessary. This will reduce transfer time by 30%.

3.4. Exploiting measurement results

3.4.1. Graph display

Display parameters are located on the far right of the screen. Two display modes are available:

Time Mode

Up to 3 time graphs can be displayed simultaneously. Select the signal to be displayed for each graph with the down arrow.

The following display options are available:

- Smoothing: facilitates the visualization of signals. Choose a value between 1 and 10 for curve smoothing.
- Colour: Click on the coloured boxes to change curve colour.
- Radon Parasite Filter: A filter can be applied to suppress possible abnormal peaks not issued from a radon signal (significant mechanical impact, electromagnetic disturbance...)
- Marker: Markers are displayed on the curves to highlight measurement points.
- Statistical Limits: A statistical envelope is displayed around the radon curve, from 1 to 5σ .
- Period(s): The integration period can be increased by combining several subsequent periods. Click on up or down arrows to set the total period.



Spectrum Mode

Each integration period has a corresponding spectrum. The spectrum obtained during the acquisition can be visualized in this mode.



Scroll through time with the cursor located below the graph.



As in time mode, a « Combination » option is available to increase the integration period so as to obtain a spectrum over a longer period of time.

Period (s)	86400	* *
	24 h	

Use navigation controls to adjust the graph scale horizontally or vertically.



Use the « Windows » area to display the various windows:

- The default window, factory set and used for the calculation of radon volume activity.
- Up to 3 customised windows.

To add a customised window:

- Tick « Customized Windows »
- Click on + to create a new window.
- The corresponding cursors are created by default on channels 0 and 127.
- Drag each cursor to the desired location.

Click on « Save» to save your window settings, and « Load » to restore the same settings for later use. « Default » restores factory window settings.

3.4.2. Volumic activity

This function calculates the radon mean volume activity measured over a given period. The radon curve must be on display to access it. Click on the menu « Volumic Activity ».

Time Selection	
Start	End
22/04/2013 12:00	25/04/2013 12:00
Time Gap :	3 j 0 h 0 m
lesult	
Average (Bq)	/m3)
Detection Threshold (Bq/	m3)
Statistic error at 2	σ
	haa Aaabu

Select a time interval and the tolerance for statistical error (2σ by default) and click on « Apply ». The time interval selected appears in bold on the curve, and the software computes:

- The average activity
- The detection threshold
- The statistical error



3.4.3. Saving and exporting

Measures obtained with the instrument can be saved in various formats. *NB: When the file obtained is a text file, Tab is used as the separator.*

Menu « File >> Save as »

A proprietary file is saved with the extension *.dia* It can be reopened at a later date via **File >> Open**.

Menu « File >> Export >> Screenshot »

For a screenshot of the current screen in jpg format.

Menu « File >> Export >> Spectrums (Lines or Columns) »

The list of spectrums is saved in a text file: the number of counts detected over the integration period is given for each channel.

Line format:

Meas O		Date	Hour	Channe	el 0	Channel	1	Channel 2		Channel	127
Meas 1		Date	Hour	Channe	el 0	Channel	1	Channel 2		Channel	127
Meas 2		Date	Hour	Channe	el 0	Channel	1	Channel 2		Channel	127
								• • •			
Meas n		Date	Hour	Channe	el O	Channel	1	Channel 2	• • •	Channel	127
Column	format:										
Meas O		Meas 1		Meas				Meas n			
Date		Date		Date				Date			
Hour		Hour		Hour				Hour			
Channel	0	Channel	0	Channel	0			Channe	10		
Channel	1	Channel	1	Channel	1			Channe	l 1		
Channel	2	Channel	2	Channel	2			Channe	12		
Channel	127	Channel	127	Channel	127			Channe	l 127		

Menu « File >> Export >> Raw Data »

This function saves the measures unprocessed in a text file, with the following format:

s #Acq #Spec Clock Total co Humidity Shocks Alarm status #Meas Clock Total count Count #1 Count #2 Count #3 Battery Temperature Battery status Heating Flow default #Meas: Measure absolute number #Acq: Acquisition number #Spec: Relative number of the measure within the acquisition Clock: Date/Time Total count: Total number of counts during the acquisition period Alpha: Number of counts in the radon window Count #1: Number of counts in main window (radon) Count #2: Number of counts in customized window 1 Count #3: Number of counts in customized window 2 Battery: Battery level Temperature: Temperature Humidity: Relative Humidity Shocks: Shock sensor Alarm status: Binary coded alarm status

Battery status: Binary coded power status Heating: Heating system status Flow default : Pumping system status

NB: Data obtained are only used for maintenance, and cannot be used directly by the user.

Menu « File >> Export >> Calculated Measures»

This function saves the calculated measures in SI units, in a text file, with the following format:

#Meas #Acq #Spec Clock Radon (Pulses/h) Radon (Bq/m3) Battery (V) Temperature (°C) Humidity (%) Shocks Alarm #1 Alarm #2 Battery status Mains Heating Flow default #Meas: Measure absolute number #Acq: Acquisition number #Spec: Relative number of the measure within the acquisition Clock: Date/Time Radon (Pulses/h): Radon count in pulses/h Radon (Bq/m3): Activity in Bq.m⁻³ Battery: Battery level in Volts Temperature (°C): Temperature in °C Humidity (%): Relative Humidity in % Shocks: shock sensor (= 1 in the event of an impact) Alarm #1 : Radon alarm #1 (= 1 if the alarm has been triggered) Alarm #2 : Radon alarm #2 (=1 if the alarm has been triggered) Battery status : Binary coded power status b7 = Unusedb6 = Unusedb5 = Unusedb4 = Mains power sourceb3 = Unusedb2 = Dead batteryb1 = Low batteryb0 = Sufficient battery levelMains: Mains power source

Heating: Heating system status

Flow default: Pumping system status (0 = OK)

3.5. Maintenance

Password protected, the Maintenance function allows modification of the instrument internal parameters.

lentification	
Enter Password	
Cancel	ок

3.6. About

