

# IC3 Ion Chamber

# Operating Manual



**Revision 1**  
**May 2024**

Return remarks



*In order to improve updating of this manual, send us your comments and corrections by email to the following address:*

**Sales@rotemi.co.il**

*Your "Return Remarks" will help us to provide you a better service. Thank you. References to be recalled with the "Return Remarks":*

- ↔ *Title, reference and index of manual*
- ↔ *Chapter, paragraph and page concerned*

**REVISION LOG: IC3 Ion Chamber**

Revision #	Date	Revised Pages	Comments

*We reserve the right to change specifications without advance notice.*

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## 1. The IC3 Meter

### 1.1. General Description

The **IC3** is a battery operated, auto ranging, portable ion chamber survey meter designed for highly stable and accurate measurement of dose rates and accumulated dose of gamma, x-ray and beta radiation.

The meter covers a measuring range of 1  $\mu\text{Sv/h}$  to 1 Sv/h (0.01 mR/h to 100 R/h ) in the dose rate mode, and 0.01  $\mu\text{Sv}$  to 10 Sv (1uR to 999 R ) in the integrated dose mode. The auto ranging meter utilizes a combination display consisting of a smoothed digital readout for minimum fluctuation and a two-decade analog bar which displays raw radiation data and provides a fast response.

The **IC3** survey meter combines an ionization chamber vented to atmospheric pressure, and a micro-controller to offer optimal performances and special features. Furthermore, it is a compact hand-held, lightweight, rugged meter, easy to use and maintain.



Figure 1-1. IC3 Meter

## **1.2. Features**

- Wide measuring range.
- Rugged, sturdy construction combined with low cost replacement parts.
- Automatic Air Pressure (altitude) compensation.
- Automatic temperature compensation.
- Built-in WRM2 socket for use with a wide range of transmitters.
- Internal alarm thresholds for exposure rate.
- Color coded display according to field range.
- Dual-output display combines a digital dose rate display and the choice of bar graph or accumulated dose displays.
- Display backlight offers selection of illumination intensity.
- Special sleep mode enhances battery life and allows the instrument to remotely read and transmit data when the display is not required.
- Built-in USB Type C power and communication connection.
- Capability to provide online rate graph.
- Capability to store reading and download to PC.
- Easy to use, ergonomic menu which can be configured using external software.

## **1.3. Applications**

- Survey instrument, with simple data storage and downloading to external software.
- Supports ALARA principles by allowing operators to obtain readings remotely from the radiation fields.
- Real-time exposure rate monitoring connected to a WRM2 transmitter. Transmitted data conforms to existing MGPI monitoring software (i.e. WinWRM2, TeleView 2000).

## 2. IC3 Specifications

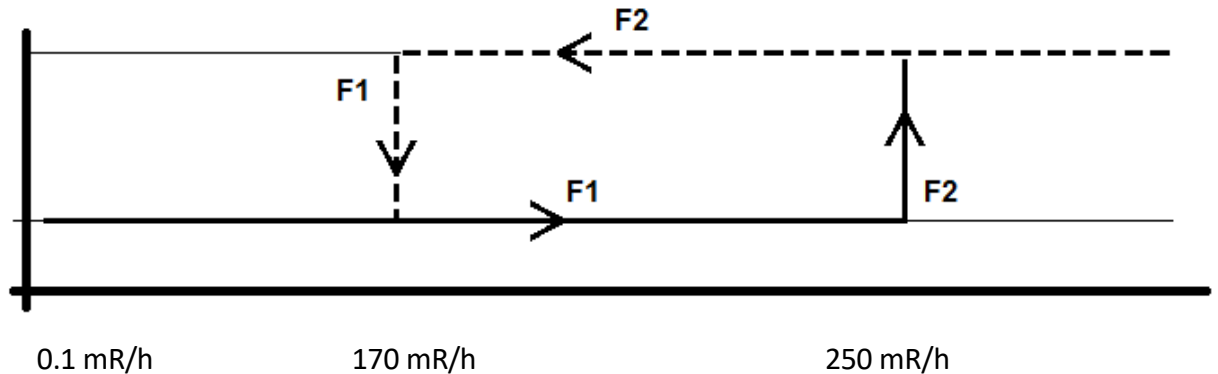
Measuring Range	1 $\mu$ Sv/hr to 1 Sv/hr (0.1 mR/hr to 100 R/hr)
Accuracy ( $^{137}\text{Cs}$ )	$\pm 10\%$ of reading within measuring range
Gamma Energy Dependence	Better than $\pm 20\%$ from 20 keV to 3 MeV
Beta Energy Dependence	Better than $\pm 20\%$ from 200 keV
Angular Dependence ( $^{137}\text{Cs}$ )	Less than $\pm 30\%$ (for $\pm 90^\circ$ of front direction)
Ion Chamber Volume	350 cm <sup>3</sup>
Chamber Wall and Cover Thickness	1000 mg/cm <sup>2</sup> (tissue equivalent)
Window Thickness	7 mg/cm <sup>2</sup> Mylar
X-Ray Pulse reading	From 50 nano-sec Pulses, 25 keV
Response Time	2 sec's. for readings above 1 mR/h 5 sec's. for auto-ranging change, from Low Range to High Range (2 sec's. +3 additional seconds for auto ranging delay)
Power Source	USB Connector from Mains Four 1.5 Volt AA batteries - 120 hours of continuous operation Built in automatic battery check
Display	Color TFT Display 3 digits with auto ranging units of measurement
Data Logging	100 data records
Temperature Range	Operation: -10°C to +50°C (15°F - 122°F) Storage: -20°C to +60°C (-5°F - 140°F)
Humidity Range	Up to 95% RH (noncondensing)
Dimensions	Width: 13cm (5.1"), length: 24cm (9.5"), height: 14cm (5.5")
Weight	1,000 g (2.4lb) including batteries
Casing	High impact ABS
Data Connection	USB for calibration, configuration, upgrade firmware and download stored data points Optional Internal 900 MHz or 2.4 GHz RF Radio/Wifi (WRM2)
Threshold Alarms	2 x levels, User selectable

## 3. Ordering Information

BAK-0268	IC3 Ion Chamber – Lockable Battery Cover
BAK-0245	IC3 Ion Chamber – Battery Cover

## 4. HIGH & LOW Range Modes of Operation

The IC3 is a survey meter with auto ranging capabilities. To accurately measure the full radiation range, the electronics in the EM board contain two amplifiers for different measuring ranges. The measuring mode switches into HIGH RANGE at 250 mR/h (2.5 mSv/h) and back into LOW RANGE at 170 mR/h (1.7 mSv/h). This switchover is performed automatically according to the radiation reading level.



In the HIGH RANGE, the units are expressed in R/h; in LOW RANGE, the units are expressed in mR/h.

For increasing Dose Rate fields: The meter reading uses the factor F1 till 250 mR/h and F2 above 250 mR/h, and for decreasing dose rate fields: The meter reading uses the factor F2 till 170 mR/h and F1 below 170 mR/h

## 5. Operating Instructions

### 5.1. Preparation for Use

Remove the instrument from the shipping container and inspect for any physical damage. In the case of damage, report it immediately to your local distributor.

***Do not attempt to install or operate damaged equipment since safety and performance may be affected.***

NOTE: The manufacturer recommends that the end user / owner perform periodic inspections (during daily performance checks) of the meter to ensure proper operational use and safety.

#### 5.1.1. General Inspections to be performed:

Check that the Beta Shield has not been damaged or deformed during shipment.

Check that the Battery Cover has not been damaged during shipment.

Shake the meter and check that there are no loose pieces in the instrument.



## 5.2. Starting-up

- Remove the battery compartment cover located on the handle of the Meter by lifting the locking catch upwards with your fingernail. To close the cover simply press it into the handle. A battery cover with locking capabilities is available.



Opened Battery Cover

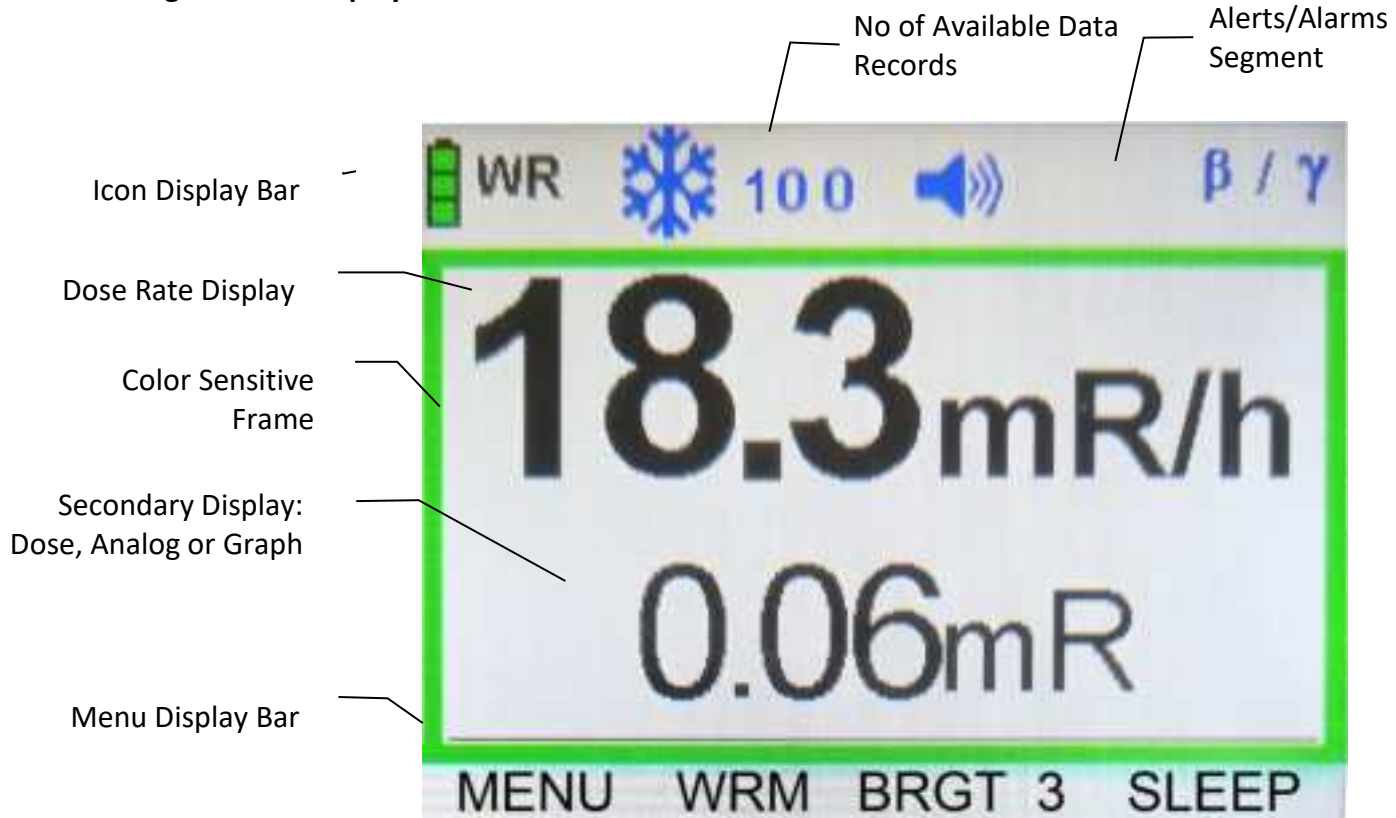
- Insert 4 x 1.5 v AA battery cells into the battery compartment as per the polarity shown in the diagram.
- Press the **ON/OFF** push-button to turn the meter on by holding the **ON/OFF** button for five (5) seconds.
- If the initial screen shows the firmware version, serial number and battery icon, the connection is established.



Note: In cases where the Instrument has been stored without batteries for more than a few days, the internal clock may have stopped and not be accurate. This inaccuracy may cause the M-Cal or D-Cal errors to be skipped. We recommend that after storing the instruments without batteries, the IC3 meter be connected to the RMVC Software which will automatically update the internal clock in the Meter.






Following a successful self-test startup and offset adjustment, the meter is ready for use.




### Integral Mode Display



## 5.3. The Display

### 5.3.1. Icon Display Bar

ICON	Explanation	Indication	
	Battery Condition	$V > 5.2v$	 green
		$5.2v > V > 5v$	
		$5.0v > V > 4.6v$	 Yellow
		$4.6v > V > 4.1v$	 Red
		$V < 4.1v$	 Empty Frame

<b>WR</b>	<b>Indication of active range</b> WR- Wide Range (Auto ranging) HR – High Range only LR – Low Range only	The Menu enables the user to manually select one of the three options, and the active option will be displayed here.
	<b>Freeze Mode Activated</b>	The Menu enables the user to activate or deactivate the Freeze Mode. The highest dose rate of the detector will be frozen on the display.
<b>100</b>	<b>Available lines for stored records</b>	Capable of storing 100 data records. Each time the STORE button is pressed, the number of available lines will decrease. Once the data is transferred to a P.C. via our RMVC software, the number will revert to 100.
	<b>Speaker Activated</b>	
	<b>External Communication Activated</b> WRM2/BT/RTLS	The version provides only WRM2 communication capabilities
<b>β / γ</b>	<b>Beta Lid Position</b>	The Meter is capable of automatically detecting if the Beta cover is fully open (β/ γ), fully closed (γ) somewhere in the middle. In this case, the meter will display ( <b>DOOR</b> ) and provide an audio signal.

### 5.3.2. Alarms Segment and priority

ICON	Explanation
<b>M-O.F</b>	Overflow Condition on Meter(>4R/h)
<b>L.BAT</b>	Meter battery voltage too low, must be replaced.
<b>M-IC</b>	The Ion Chamber is malfunctioning
<b>M-HV</b>	High Voltage to the Ion Chamber is malfunctioning
<b>M-CAL</b>	The Calibration to the Detector is overdue

### 5.3.3. Menu Display Bar


The IC3 Menu provides several lines containing operational functions. Upon power up the First Line is displayed. Each additional line is accessed by clicking with a short press on the MENU Command (POWER Button).

The order of the commands and the used commands in this menu can be configured using our RMV software which is freely available off our website. The Menu provides for 4 lines with 3


commands on each line. There is one more command that is available and can be inserted in place of any of the commands below:

MENU	FRZ	SPK	GRAPH
MENU	THR	RANGE	DOSE
MENU	WRM	BRGT 1	SLEEP
MENU	STORE	CAL	ANALOG

#### **5.3.3.1. Freeze [FRZ] Mode**

This mode freezes the highest reading until the user clicks on FRZ again to release. A Freeze icon  will be displayed to show the instrument is currently in the Freeze mode.

#### **5.3.3.2. Speaker [SPK] Mode**

This mode activates the Speaker to provide clicks and error alerts. The SPK Icon  will be displayed to show the instrument is currently providing audio feedback to the user. If earphones are connected to the USB Port, the clicks will be muted on the meter and a varying warble will be heard on the earphones.

#### **5.3.3.3. GRAPH Mode**

This command activates a graph in the lower part of the display. The highest value of the graph is displayed to the left of the graph. The graph displays data for a period of 30 minutes, updates every second from right to left.

#### **5.3.3.4. THR (Threshold) Mode**

This command displays the three threshold levels and associated colors. The threshold levels can be set either directly through the touch screen of the IC3 or by connecting the meter to our RMVC Software which is freely available off our website. See paragraph 4.4.5 Threshold Selection for instructions on how to use the touchscreen or paragraph 8 Using RMVC to setup the IC3 meter.


#### **5.3.3.5. RANGE Mode**

This command allows the user to manually select either the HR (High Range), LR (Low Range) or WR (Wide Range) of the external Detector. An Icon (HR, LR or WR) will be displayed according to the selected range. (Partially operational).

#### **5.3.3.6. Dose Mode**

This command will display the accumulated Dose of the external detector since the instrument was powered up. The Dose will be cleared when the instrument is switched off.

#### **5.3.3.7. WRM Mode**

This command is used to activate the WRM2 transmitter in the instrument. A click will activate the WRM2. An appropriate icon  is displayed.


#### **5.3.3.8. Bright (BRGT #) Mode**

This command dims and brightens the screen. It will default to the second brightest selection upon power up. Using brighter screens will increase power consumption and reduce battery life.

#### **5.3.3.9. SLEEP Mode**

This command will activate the sleep mode of the instrument by closing the display. The IC3 will continue to measure the radiation levels and transmit data records to a remote station. The IC3 will activate the display if the instrument is moved, picked up or an alert/alarm occurs.

#### **5.3.3.10. STORE Mode**

This command will store up to 100 points of dose rate data. The number will decrease each time the button is pressed  - the displayed number represents the available points remaining. This data may be obtained by RMC in the RMVC software. Once the data is viewed through the software and the window closed – it will delete all data. The data may be saved to the user's computer.

#### **5.3.3.11. CAL Mode**

This command will allow you to manually input calibration factors into each of the calibration points.

#### **5.3.3.12. ANALOG Mode**

The Analog mode displays an auto scaling bar graph for raw radiation intensity indication. The bar graph displays radiation levels before they are processed by smoothing algorithms and is therefore very useful for searching for hot spots or other irregularities in the area being surveyed.



## 5.4. General Functions

### 5.4.1. Measuring Modes

The meter has two measuring modes:

1. Auto-Range – 1  $\mu\text{Sv/hr}$  to 2.5 mSv/h and 2.5 mSv/h to 1 Sv/h  
(0.1 mR/h to 250 mR/h and 0.25 R/h to 100 R/h)
2. High Range Only 0.1 mSv/h to 1 Sv/h (0.01 R/h to 100 R/h )

### 5.4.2. Auto Range Mode

In this mode the meter's total measuring range is from 1  $\mu\text{Sv/hr}$  to 1Sv/h (0.1 mR/h to 100 R/h).

For efficient measuring purposes, the total range is divided in two narrower ranges that are automatically switched:

Low Range: 1  $\mu\text{Sv/h}$  to 2.5 mSv/h (0.1 mR/h to 250 mR/h).

High Range: 2.5 mSv/h to 1 Sv/h (0.25 R/h to 100 R/h).

Switching from low range to high range is performed in a field of 2.5 mSv/h (250 mR/h).

Switching from high range to low range is performed in a field of 1.7 mSv/h (170 mR/h).

Response time in a field higher than 0.01 mSv/h (1 mR/h) is 2 seconds.

### 5.4.3. Dose Rate Display

Range: 1  $\mu\text{Sv/hr}$  to 1 Sv/hr (0.1 mR/hr to 100 R/hr)

The Display will change units of measurement according to the level of radiation being measured:

### 5.4.4. Measuring range in Dose mode

0.01  $\mu\text{Sv/h}$  to 9.99 Sv (1  $\mu\text{R}$  to 999 R)

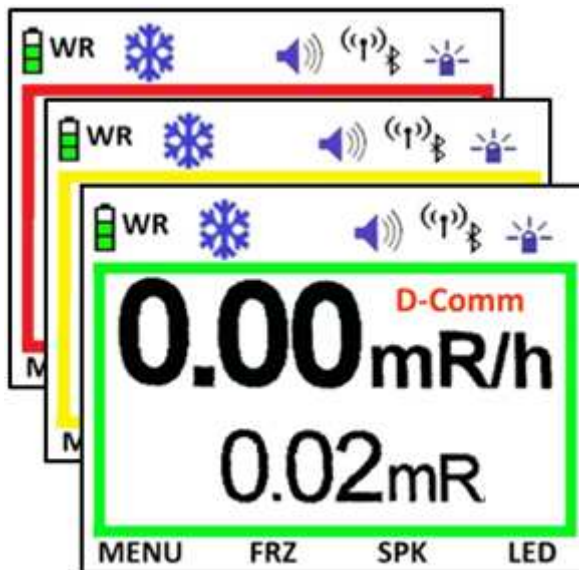
Readings are displayed digitally and updated every second.

#### 5.4.5. Threshold Selection

The IC3 meter can store two dose rate threshold levels which are reflected in three colored frames (green, yellow and red) in the Display, and provide a visual indication to the user of the radiation levels detected by the external detector.

These thresholds are set using the touch screen buttons on the Display or using the external RMV software which is freely available off our website.

Above Threshold 2	
From Threshold 1 to Threshold 2	
From 0.00 mR/h to Threshold 1	
User Threshold (THR.U)	



To see the current Threshold settings, click on the THR (Threshold) command in the Menu Display Bar. The black background marks the active thresholds.

The following will be displayed: **THR < 1** **THR < 2** **THR > 2** **THR. U = 3**

THR #1 is the first threshold to be selected.

The Menu changes to the following: **MENU DOWN UP NEXT**

<b>MENU</b>	Saves the current setting and displays the next MENU set. Once you have finished setting up the thresholds, click MENU.
<b>DOWN</b>	Reduces the value of the threshold by 1. You cannot reduce to less than 1.

<b>UP</b>	Increases the value by 1 until it reaches the value of the last threshold.
<b>NEXT</b>	Moves the black marker to the next threshold.

The **User threshold** provides an Audio Alert without changing background color. The data record will provide the status as *User Threshold*.

## 5.5. Meter & Detector Alerts and Alarms

In case of malfunction in the meter or detector an audible and visual alarm will be displayed. Pressing on any push button will mute audible alarm.

- D-HV High Voltage to the Meter is malfunctioning
- M-O.F Overflow Condition on Meter(>4R/h)
- ALARM Over threshold Condition (External Detector), un latch alarm.
- L.BAT Meter battery voltage too low, must be re place.
- M-IC The Ion Chamber is malfunctioning
- M-HV High Voltage to the Internal Detector is malfunctioning
- M-CAL The Calibration to the Internal Detector is overdue

## 5.6. Push-buttons Function

### 5.6.1. Push button function Control

- To power up the instrument, click on the On/Off Button
- To switch off the instrument, click, with a long press on the On/Off Button
- To switch between menu pages, a short press on the MENU (Power) Button

## 5.7. Meter display

The first big characters are used to display the external detector measuring reading.  
The second smaller character is used to display different options according to operator's request.



## 6. Battery Replacement

Remove the battery compartment cover located on the handle of the Meter by lifting the locking catch upwards.





Insert 4 x 1.5 v AA battery cells into the battery compartment as per the polarity shown in the diagram.

Press the **ON/OFF** push-button to turn the meter on by holding the ON/OFF button for five (5) seconds.

If the initial screen shows the firmware version, serial number and battery icon, the connection is established.

## **7. Communication**

*The IC3 meter offers several communication options:*

### **7.1. USB Port**

This External USB port is used for several purposes:

1. Provides Power to the IC3 Meter to enable it to operate without batteries and be a temporary area monitor.
2. Connects between the IC3 Meter and our RMVC Software to allow you to:
  - Setup the Parameters of the IC3 Meter.
  - Calibrate the IC3 Meter.
  - Download data online and produce graphs.

### **7.2. WRM2 Communication**

The IC3 Meter can support a WRM2 transmitter which is installed into the Control Box and activated via the Menu.

## **8. Calibration**

### **8.1. Purpose**

Provide guidance for calibration of the IC3 Meter.

### **8.2. References**

ANSI-323, American National Standard for Radiation Protection Instrumentation Test and Calibration, Portable Survey Instruments

### **8.3. Calibration via the Touch Panel on the instrument**

The IC3 Meter can be calibrated in the field without using any external programs. The calibration is achieved by clicking on the Menu pushbutton till the CAL. Command appears.

The CAL button should be setup (Using the RMVC software) to be the last Command in the Menu.

Click Cal, the Instrument will require the user to click Cal again to avoid activating the calibration function unintentionally, the following display appears:

Note that the Calibration Date will update immediately to a year from the time you clicked on the Cal command. Even if no modifications were made to the Factors.

The First Calibration Factor F1 is the gamma calibration factor (beta slide closed) and the second factor F2 is the beta calibration factor (Beta slide opened).

Both points should be measured at around 2.5 mSv/h (250 mR/h).



The DOWN and UP commands are used to change the F1 Factor. The reading above will automatically update according to the modifications and each time you click on DOWN or UP a new calibration factor is saved. You can exit this Display at any time by clicking the MENU command.

The NEXT command is used to change the next factor. Each time you click on DOWN or UP a new calibration factor is saved. You can change the next factor by clicking NEXT or exit this Display at any time by clicking the MENU command.

#### **8.4. Calibration via RMVC Software**

#### **8.5. Prerequisites**

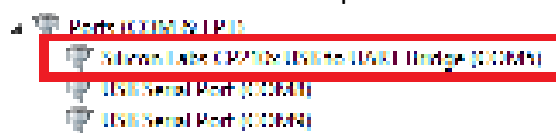
Examine the instrument for damage that could affect operation.

#### **8.6. Setup**

Connect a USB C cable from the IC3 Meter to the RMVC software.  
Start up the RMVC software.  
Click Connect in the main menu:

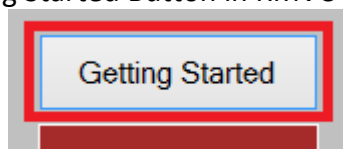


NOTE – if this is the first time connecting the IC3 Meter to the user computer, you will need to establish which com port is to be used. To do this go to Device Manager and check the com ports. The user should see a port like the one shown below:



If the correct port is not shown, follow the below instructions:

#### 6.4.5.1 Click on the Getting Started Button in RMVC

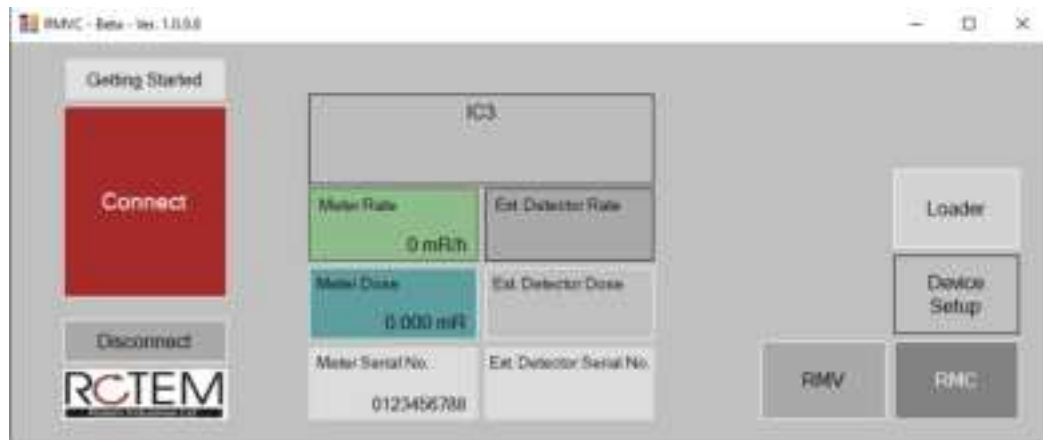


#### 6.4.5.2 Follow the onscreen instructions and download the VCP driver from the provided link. The following will be displayed:



Select or verify the correct Com Port and the correct baud rate (should be 115200). Click Connect.

Prior to clicking on RMC, ensure that the IC3 Meter is communicating to the software (radiological information is displayed in Meter Rate / Meter Dose and Meter Serial No. is displayed). Once this information is displayed click on RMC.



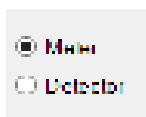
Enter in login information, User Name (this is user defined – for example user Windows Process ID) and password – ram.

The following screen will appear after logging into RMVC. The Accuracy Information may be updated per site procedures or protocols. Source information is per site procedure or protocols. Once updated; select OK. Note: The Calibration Due will track when the Calibration is Due and show a Calibrate Alarm (D-CAL) when overdue.



## 8.7. Calibration

Click Meter detector selection for calibration.



NOTE: In the table below, it is recommended to include a notation in the distance value to identify the points for calibration factors (F1, F2, etc.) – e.g. 58\*F1.

Sample entry below


1	248.5	250*F1	0
---	-------	--------	---

If this is not the initial calibration skip this step. Enter Source information into the provided chart in the software (Src. – Source Number; Ref. Point – Defined Dose Rate; Distance – Defined Distance from Source; Attenuator – user applied shielding factor for source – if none is utilized enter 0. See paragraph 8.8 below for an example of a calibration certificate.


#### 8.7.1. Recommended Calibration Points

Meter		GM Tube
DOSE RATES	CALIBRATION FACTORS	ZP1201 or Equivalent
2.5 mSv/h (250 mR/h)	F1 (Gamma) Closed Shield	
2.5 mSv/h (250 mR/h)	F2 (Gamma + Beta) Open Shield	
790 mSv/h (79 R/h)	OFLO 1 test	
5 Sv/h (500 R/h)	OFLO 2 test	


Higher calibration points may be used if the customer verifies acceptability of high range response in switchover range.

The above entered information may be saved as a template to be used for future calibrations. Click the save icon and name for later use. 

If not already performed, repeat procedure and create the second table for dose rate calibration point for the beta reading with the beta shield open making sure that the display shows Gamma & Beta

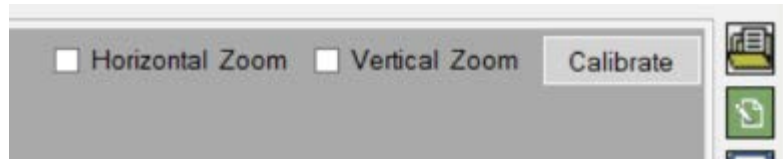
Select the Load Template Icon, then navigate to the storage location and select Open.   
Expose the detector to a radiation field appropriate for the desired point.  
In the associated point – click in the As Found Block. This will insert the dose rate information.

As Found
4.95 mR/h

If a value was incorrectly entered into the wrong block; the user may select a different block and then click on the correct block again to update or the following icon may be clicked Remove Measure Points (Caution – this removes all the data). 

If the As Found data is within the sites requirement then the calibration is complete. If As Found is not within tolerance, then proceed to the next step.

To adjust the F1 Factors – click the calibrate button.



The following will be displayed for meter calibration:



The dose rate value will be displayed above the adjustment bar(s). To adjust the meter to the reference dose rate click on either the up or down arrows.


Once the desired meter dose rate is obtained; click on the associated Calibration Point (e.g., F1) update and then exit.

The Cal. Point Value will populate when the update box is checked:

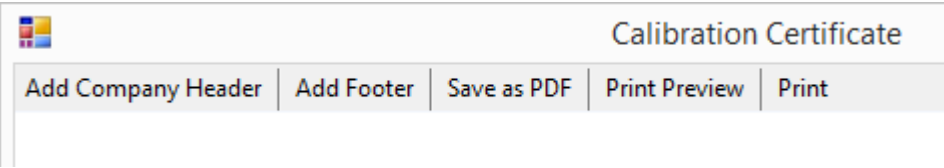
Site	Ref Point	Distance	Altitude	As Found	Err %	Cal Point	Err %
1	50.7 mR/h	10	10	51.1 mR/h	1	51.1 mR/h	1
1	50.7 mR/h	20	0	51.1 mR/h	1	51.1 mR/h	1
1	50.7 mR/h	30	0	51.1 mR/h	1	51.1 mR/h	1

Repeat steps 6.5.14 thru 6.5.17 for all other F Value Calibration Points. Once all Calibration Factors (F Values) are completed, complete the calibration by updating the remaining Values in the Cal. Point Column. (Expose the meter / detector to the appropriate value and click in the Ca. Pint Block of that point to update.)

Site	Ref Point	Distance	Altitude	As Found	Err %	Cal Point	Err %
1	50.7 mR/h	10	10	51.1 mR/h	1	51.1 mR/h	1
1	50.7 mR/h	20	0	51.1 mR/h	1	51.1 mR/h	1
1	50.7 mR/h	30	0	51.1 mR/h	1	51.1 mR/h	1
1	50.7 mR/h	40	0	51.1 mR/h	1	51.1 mR/h	1

Once completed; click on the icon for Create Calibration Certificate. 

Once the Calibration Certificate is started, the user may add a custom Header or Footer to the document prior to printing. Select either Add Company Header or Add Footer, and select the file to be utilized.





## 8.8. Calibration Certificate



### IC3 Calibration Certificate

Serial Number : 0123456788

Date : 08/08/2023

Accepted Accuracy :

Sources :

As left : 10 %

1 = Cs137-4GBq(110mCi)

As found : 20 %

2 = Cs137-40TBq(916Ci)

Src	Measuring Point	Distance	Attenuators	As Left	En%
1	2.286 mR/h	70"7	80	2.47 mR/h	8
1	22.17 mR/h	70"7	8	22.6 mR/h	2
1	195.0 mR/h	70"7	0	190.05 mR/h	-3
2	252.4 mR/h	70"7Cal	4000	239.17 mR/h	-5
2	2.078 R/h	70"7	400	2.06 R/h	-1
2	10.60 R/h	70"7	80	11.26 R/h	6
2	20.22 R/h	70"7	40	20.32 R/h	1
2	41.30 R/h	70"7	20	43.50 R/h	5
2	78.87 R/h	70"7	10	Overflow	OK
2	500.00 R/h	70"7	0	Overflow	OK

Calibrated by : RAM

Calibration Date : 08/08/2023

Calibration Due : 08/08/2024

Reviewed by : \_\_\_\_\_

F1 : 0.76

F2 : 0.90

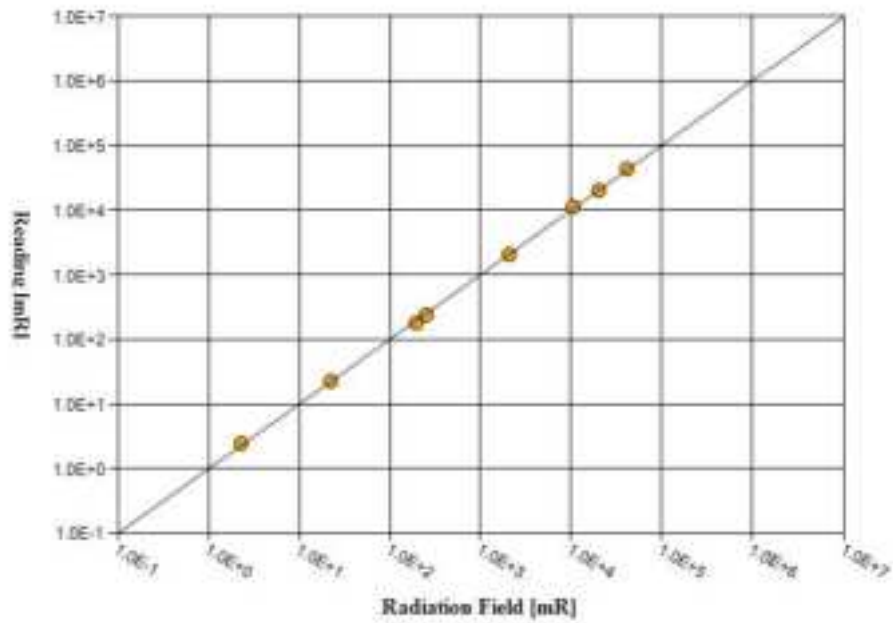
F3 : 1.00

F4 : 1.00

## Linearity Chart

Serial Number: 0123456788

Date: 06/08/2023



## 9. Using RMVC to setup the IC3 meter.

The RMVC Software Interface, along with the manual is freely available to be downloaded from our website at <https://www.rotam-radiation.co.il/service2/rotem-meter-view-3000/>

After Connecting the RMVC to the IC3 Meter, click Device Setup to see the following screen:

The screenshot shows the 'Device Setup' window for an IC3 meter. The window has a title bar with standard Windows controls and a toolbar with icons for help, settings, and printing. Below the toolbar, there are radio buttons for 'Meter' (selected) and 'Detector'. The main area is divided into two panes. The left pane has a teal background and contains sections for 'Device ID', 'Intervals', 'Thresholds', and 'Push Button Menu'. The right pane has a light gray background and contains fields for 'IC3' settings. At the bottom of the left pane are 'Update Device' and 'Exit' buttons.

Section	Field / Option	Value
Device ID	Device Name	IC3
	Firmware Version	1.00.11
	Serial Number	0123456788
	WRM Serial Number	012344
	Measuring Unit	<input type="radio"/> mR <input checked="" type="radio"/> uSv
	Wireless (WRM/Wi-Fi) Transmission	<input checked="" type="radio"/> Single <input type="radio"/> Dual
Intervals	Default Brightness Level	1
	Sleep Interval (Sec.)	50
	Rate Interval (Sec.)	0
Thresholds	Over Threshold Interval (Sec.)	0
	Threshold #1 mR/h (Green to Yellow)	1
	Threshold #2 mR/h (Yellow to Red)	2
Push Button Menu	User Threshold mR/h	3
	Freeze	-
	Speaker	-
Push Button Menu	Graph	-
	Threshold	-
	Range	-
Push Button Menu	Dose	-
	WRM/ST	-
	Bright	-
Push Button Menu	Sleep	-
	Store	-
	Cal	-
Push Button Menu	Analog	-

## 9.1. Settings

<b>Device Name:</b>	Read from the Instrument
<b>Firmware Version:</b>	Read from the Instrument
<b>Serial Number:</b>	Read from the Instrument and can be modified. Appears on the calibration Certificate and other hard copies of data generated from this software.
<b>WRM Serial Number:</b>	Used, when sending data to a remote station, to identify the origin of the data string
<b>Measuring Unit:</b>	User Selectable between Roentgen or Sievert units.
<b>Wireless Transmission:</b>	User Selectable
<b>Default brightness level:</b>	User Selectable, the dimmer the display, the larger the battery life span
<b>Intervals:</b>	
<b>Sleep Interval (Sec.):</b>	User Selectable to define the period time to pass before the display turns off. The instrument will continue to measure radiation, send data to a remote station and in case of an alert or alarm, the display will light up.
<b>Rate Interval (Sec.):</b>	Period of time between transmissions to PC and WRM2 Receiver.
<b>Threshold Interval (Sec.):</b>	Period of time between transmissions to PC and WRM2 Receiver when the instrument is in Over threshold interval status.
<b>Thresholds:</b>	
<b>Threshold #1 (Green to Yellow):</b>	User selectable, the Display outline will change color and an audio signal will be sounded.
<b>Threshold #2 (Yellow to Red):</b>	User selectable, the Display outline will change color and an audio signal will be sounded.
<b>User Threshold:</b>	Activates buzzer only. No color change, RMVC will display User threshold.
<b>Push Button Menu:</b>	User Selectable. Used to set up the menus in the display. See details in the table below

## 9.2. Push Button Menu

<b>FREEZE:</b>	Freeze the dose rate reading at the highest value
<b>SPK:</b>	Activate/Mute Speaker
<b>GRAPH:</b>	Display/Hide a graph of the dose rate
<b>THR:</b>	Display/Hide threshold settings
<b>RANGE:</b>	Display which detector is currently operating (High Range - HR or Low Range - LR)
<b>DOSE:</b>	Display/Hide Accumulated Dose
<b>WRM:</b>	Activate WRM2 communication
<b>BRGT #:</b>	Change the brightness of the display

- SLEEP:** Activate Sleep mode
- STORE:** Used to Store date records in the meter
- ANALOG:** Displays/Hides an Analog Display for the External Detector along with reading
- CAL:** Used to calibrate the two calibration points.

Once a command has been modified it will appear in red until the Update Device button is pressed.