

AreaExpert

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AREA RADIATION MONITOR USER'S GUIDE

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GENERAL WARNINGS

-  Carefully read this User's Guide before using this device. After reading the guide, store it in a location easily accessible by all users.
-  Verify that there is no physical damage to the device and that all accessories are included.
-  Perform the installation and first activation processes of the device as described under the INSTALLATION section on page 8.
-  Avoid impact, excessive temperature, moisture and dust during the use and transportation of the device. These may void the warranty.
-  Do not use this device for purposes other than its intent of use.
-  To activate the device, wait until **0⁰⁰** mR/h appears on the screen after powering-up. (The booting process takes approximately one minute).

SECURITY WARNINGS

-  Ensure that the power outlet is grounded and complies with conditions written on the device's power label. It is recommended that the device be connected to an Uninterruptable Power Supply (UPS). Any failure caused by connection to an inappropriate power supply shall void the warranty.
-  Verify that the device is OFF (O) before connecting to the power outlet. Verify that the power cord is securely attached to both the power outlet and the device's power socket.
-  The device is designed for interior use. The device location should be devoid of wet areas and the device should not come in contact with water.
-  The device should not be exposed to direct sunlight and should be kept away from high temperature sources.
-  For accurate measurements, the device should be mounted on a wall using the included mounting hardware in such a way that the LEDs are positioned above the LCD screen.
-  Hard or sharp objects that may damage the LCD Touchscreen should not be used.
-  The device should be kept in the OFF (O) position when not in use.



STP (Shielded Twisted Pair) Ethernet cables should be used for the device to avoid loss of data due to distance.



There are no internal adjustments or calibration settings that may be done by the user within the conditions of the warranty. REFER ALL SERVICING TO THE AUTHORIZED QUALIFIED SERVICE REPRESENTATIVE!



At the end of its life cycle, disposing the device may be harmful to the environment and human health. Upon reaching the end of its life cycle, the device should be disposed of in accordance with local and national regulations.

WARRANTY INFORMATION

The device, including all the parts, is warranted by our company against defects in material and workmanship.

The warranty period begins at date of shipment and is valid for two (2) years.

Maintenance, repairs and part replacements for all electrical, electronic and mechanical failures that are outside of misuse or wrong use during the warranty period, shall be performed at no charge.

Failures caused by not complying with the conditions listed in the User's Guide are not covered by the warranty.

The device being subjected to abnormal physical and electrical impacts, static discharge, lightning, fire and any other natural disasters are not covered by the warranty.

GENERAL INTRODUCTION

The “**AreaExpert**” Area Radiation Monitor is a device designed for continuously measuring, logging and reporting of ionized radiation doses in areas with ionized radiation.

The device is capable of measuring ionized radiation within the range of 0-1 R/h with $\pm 10\%$ accuracy. It has a 7" (inch) user friendly color touchscreen.

With the wall-mount option, the device is easy to track and program with its color touchscreen and has many superior qualities. The device is designed by combining an energy compensated GM detector, dedicated electronic circuitry and embedded computer hardware and software.

The device's internal rechargeable battery prevents potential data loss in cases of power outages. The device can operate for approximately 1 hour depending on the status of the battery.

The green, yellow and red LEDs on the front panel provide information about the device's operational status and the ionized radiation dose levels in the area.

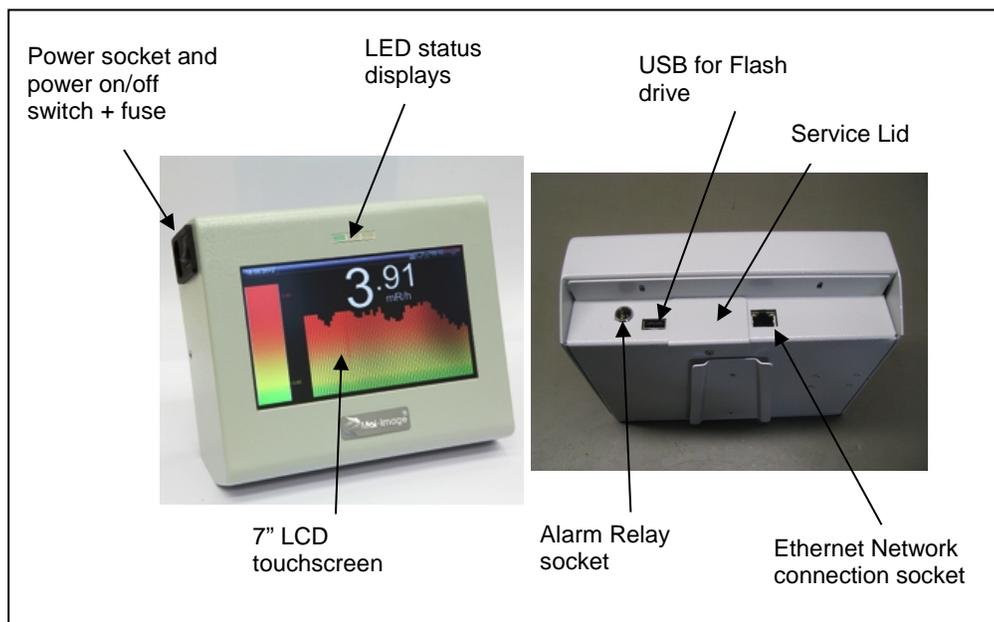
A 220V, 2A relay output allowing an external alarming device connection is available at the bottom of the device. USB and Ethernet connectors for data transfer are located next to the alarm relay socket.

The high and low alarm levels, the dose unit (mR/h or $\mu\text{Sv/h}$), date and time settings and Turkish and English language options can be selected by the user.

Hourly, daily and monthly histograms can be viewed on the touchscreen by choosing the relevant time frame. This information can be transferred to any data storage device over the USB connection.

It is possible to connect multiple area monitors over one network, monitor the current measurement value of each area monitor and receive related reports through a PC (optional).

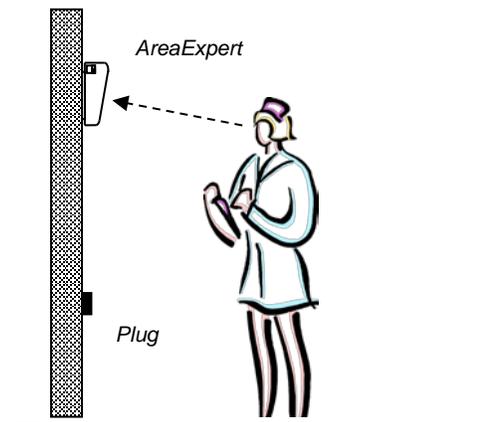
When desired, it is also possible to track area monitors placed in a company's headquarters located in different towns, cities or countries over the web by using the CenterExpert network software.



"AreaExpert" Area Radiation Monitor General view

INSTALLATION

- Before installing the device, please carefully read this User's Guide.
- Check and maintain the Calibration Certificate sent by the manufacturer.
- The device should be firmly fixed to a wall using the wall mounting hardware so that it can be easily read.
- Make sure that the device is not subject to direct sunlight.
- It is required to have a properly grounded power outlet not more than 1 meter away from the device.
- During the initial installation, please ensure that the device's power switch is in the OFF (O) position before attaching the power cord.



AreaExpert typical wall mounting method

DEVICE ACTIVATION

- Place the power switch to the ON (I) position.
- Approximately one minute after powering-on, the device will be ready for the measurement. 0^{00} mR/h will be displayed on the screen.
- During power-up, if the power cord is plugged in, the green LED will blink in short intervals and then switch to steady-on. A steady-on LED indicates that the device is connected to the line and the battery is being charged.
- If the power switch is placed in the ON (I) position before plugging in the power cord, the green LED will blink in short or long intervals depending on the battery status. If the battery is full, the green LED will blink in short intervals, while a low battery will cause the green LED to blink in long intervals.

- In the case of a power outage, the device will either continue working or automatically shut down based on the battery charge status. If the battery charge is under 20% the device will automatically shut down.
- The device has a predefined 0.6 mR/h low alarm limit and 2 mR/h high alarm limit level. Please refer to the Alarm Levels section on page 18 to set the desired limit levels.
- When the measurements are within the set range of limits, the yellow LED will blink in 1 second intervals.
- When the measurements exceed the high alarm limit level, the yellow LED will switch to steady-on and the red LED will blink in 0.5 second intervals.
- An audible alarm is also sounded when the low and high alarm levels are exceeded.
- Please refer to DEVICE OPERATION section beginning on page 10 for the details of the menus as well as for the changes on the LCD screen during operation.

ON/OFF patterns for green LED status display: 

	<p><u>Long blinking:</u> States that the battery charge level is higher than 20%. Device is not connected to mains.</p>
	<p><u>Short blinking:</u> States that the battery charge level is lower than 20%. Device is not connected to mains.</p>
	<p><u>Continuous ON state:</u> States that the device is connected to the mains.</p>

DEVICE SHUTDOWN

- Touch the Power Off button located in the upper right of the touchscreen and confirm the power off request. Wait for a few seconds for the device to save the data.
- After the message "You may now safely shut down your device" is displayed, place the power switch to the OFF (O) position.

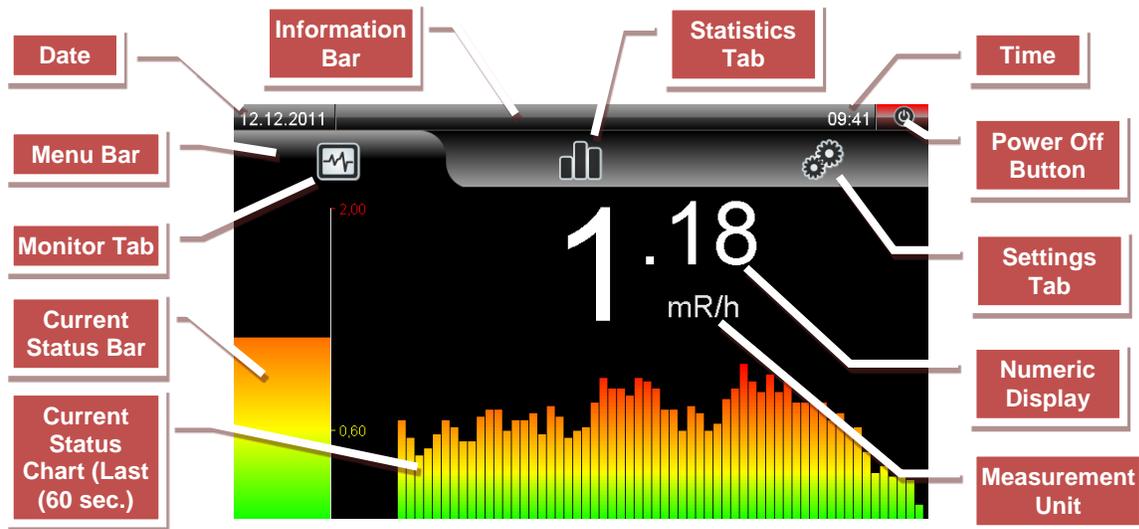
Note: If the device is turned off directly through the power switch without touching the Power Off button on the touchscreen, data losses may occur.
- When the device is not in use, the power switch must be in the OFF (O) position to preserve battery life.

DEVICE OPERATION

Operation – Software Specifications

The touchscreen consists of the following sections.

- Information Bar
- Menu Bar
- Menu Screens
 - Monitor Tab
 - Statistics Tab
 - Settings Tab



Main Screen and Touchscreen Buttons

Information Bar

The Information Bar is stationary at the top edge of the screen. This bar informs the user about the status of the device. The icons and fields used in the Information Bar are described below.



- Date: This field displays the currently set date when the device menu is on the main screen. (reference the **Setting the Date** section on page 21)
- Back Button: This button replaces the date field when viewing sub-menus and is used to return to the previous menu.



- **Information Messages:** This is the field dedicated to post messages to user.
- **Information Icons:** The following icons appear on the information bar let user to know the status as well as the operations executed by the device.

	Set of icons for battery levels & mains connection states (reference the Battery Information Icons section below).
	The device is not logging data (Due to low battery).
	An unexpected error occurred and a corresponding error code is generated.
	The device is transferring chosen data to the <i>CenterExpert</i> application.
	The device is synchronized with <i>CenterExpert</i> .
	A USB memory device is connected to the device.
	The device menus are disabled by <i>CenterExpert</i> (Only the Shutdown button will be active).
	The device is in the network connection request listening mode.
	Low level alarm is muted.
	Low& High level alarms are muted.

o **Battery Information Icons*:**

Device is connected to Mains power		Device is running on battery power	
	Charge level ≥%80 (Full charge)		Charge level ≥%80 (Full charge)
	%80> Charge level ≥%50 (Charging**)		%80> Charge level ≥%50
	%50> Charge level ≥%20 (Charging**)		%50> Charge level ≥%20
	%20> Charge level ≥%1 (Charging**)		%20> Charge level ≥%1
	Charge level <%1 (Charging**)		Charge level <%1

* It may take 2-5 seconds after plugging & unplugging the device for these changes to appear on the screen.

** The device can only be charged while the power switch is **ON (I)**.

- **Time:** This field displays the currently set time (reference the **Setting the Time** section on page 21).
- **Power Off button:** This button is used for safe shutdown.



Menu Bar

This area is used to switch between the device menus. If the Menu Bar is not displayed, touch the screen.

Note: *If the screen is not touched for approximately one minute, the Menu Bar is hidden and the device enters “Full Screen Display” mode, displaying the measurement in a larger size. (reference the **Full Screen Display** section below)*



Menu Screens

Monitor Screen

This screen continuously displays the actual ionized radiation dose both numerically and in bar graph forms.

Current Status Bar: This shows the dosage value based on the two alarm levels (low alarm, high alarm) defined by the user. If the measured radiation dose is higher than the set high limit value, the bar scale is automatically adjusted as per the set value (reference the **Alarm Levels** section on page 18).

Current Status Chart: This shows a histogram of the ionized radiation dose in the past one minute.

Numeric Display: This shows the latest dose value along with the selected unit (reference the **Setting the Display Unit** section on page 22).

Full Screen Display

Regardless of which menu is currently being used (Monitor, Statistics or Settings), if the screen is not touched for a period of one minute, the Menu Bar will be hidden and the measurement screen will be displayed. Touching the screen will redisplay the Menu Bar.

Note: *If the screen is locked by CenterExpert, the device will not exit from the full screen display. The lock mode is shown with the  icon in the Information Bar. (reference **Information Icons** on page 11)*

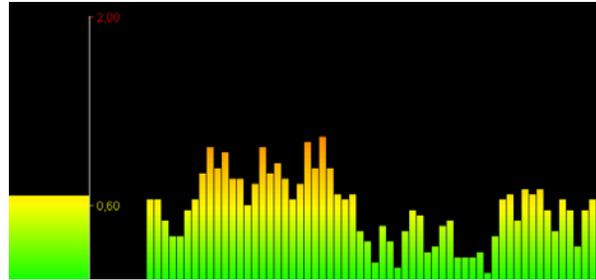
Changing the Monitor Display Layout

The user can change the monitor display layout as follows:

- Numeric Display and Current Status Bar
- Current Status Bar and Current Status Chart
- Numeric Display, Current Status Bar and Current Status Chart



Numeric Display and Current Status Bar



Current Status Bar and Current Status Chart

Touching the related section for 5 seconds is enough to switch to the desired display mode. For example, in order to switch to the Current Status Bar and Current Status Chart screen from the Numeric Display and Current Status Bar screen, touch the Numeric Display section for 5 seconds – the Numeric Display, Current Status Bar and Current Status Chart will be displayed. Then, touch the Current Status Chart section for 5 seconds – the Numeric Display is removed from the screen and the Current Status Bar and Current Status Chart will be displayed. To switch back to the Numeric Display and Current Status Bar, touch the Current Status Chart section for 5 seconds then touch the Numeric Display section for 5 seconds.

Statistics Screen

The statistics screen displays a statistical presentation of the logged data and is described below under the Histogram and Alarm Log Screen sections.

Histogram

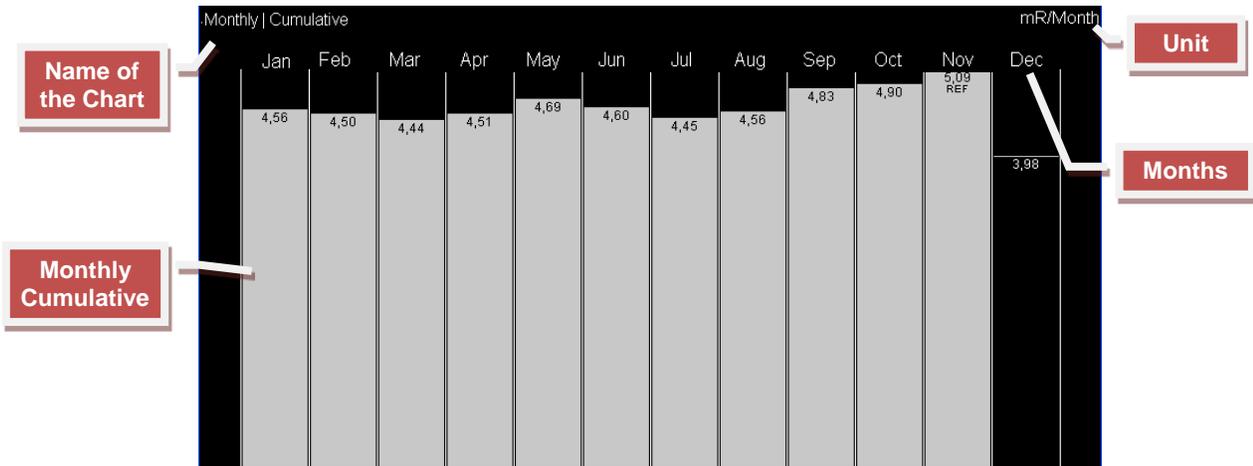
The Histogram module displays statistical graphics in bar graphs as per the user selected time scale (hourly, daily, weekly or monthly) and statistical process (Cumulative, Mean (Average) or Maximum). Note that all charts are based on the data stored in the past one year period. In the Cumulative statistical presentation, the current time period is shown only as a horizontal line indicating that the current cumulative process is not yet completed.

Monthly Statistics

Statistics from the past one year are shown in a single screen. The current month is displayed at the far right.

Monthly Cumulative

The Monthly Cumulative screen presents cumulative radiation dose, measured for a period of one year on a monthly basis. This display offers a monthly comparative study.



Monthly-Cumulative Histogram

- * REF indicates the month with respect to which the visual normalization was done.
- ** The last month was left uncolored in order to emphasize that it is incomplete.

Monthly Mean (Average)

This is a colored chart based on the user-defined high and low limit values and displays the average monthly values from the past 1 year.

Monthly Maximum

This is colored chart based on the user-defined high and low limit values and displays the maximum detected monthly values from the past one year.

Weekly Statistics

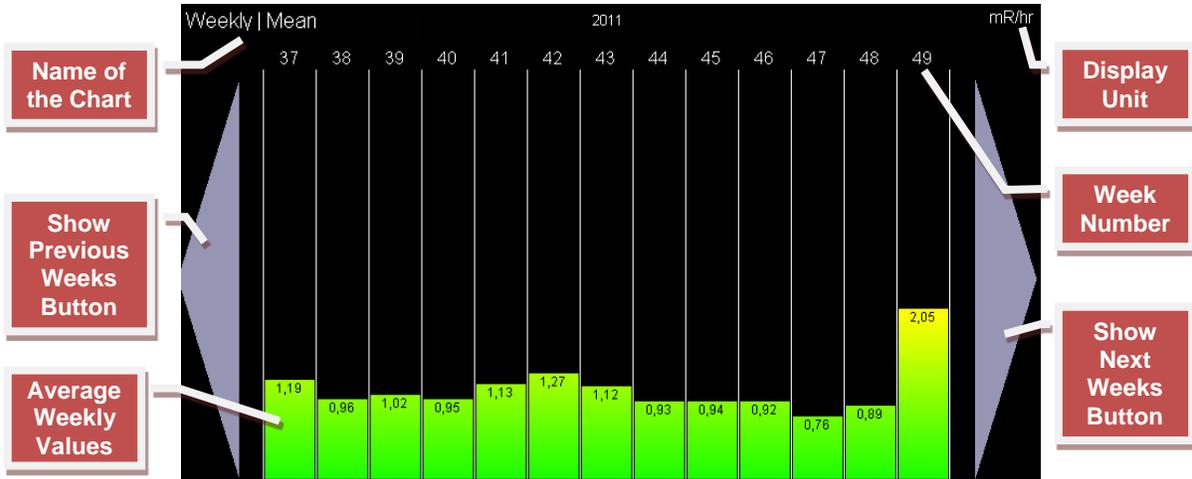
Statistics from the past one year are shown on multiple screens. The current week is displayed on the far right.

Weekly Cumulative

The Weekly Cumulative screen presents cumulative radiation dose, measured for a period of one year on a weekly basis. This display offers a weekly comparative study.

Weekly Mean (Average)

This is a colored chart based on the user-defined high and low limit values and displays the average weekly values from the past one year.



Weekly-Mean (Average) Histogram

Weekly Maximum

This is a colored chart based on the user-defined high and low limit values and displays the maximum detected weekly values from the past one year.

Daily Statistics

Statistics from the past one year are shown on multiple screens. The current day is displayed on the far right.

Daily Cumulative

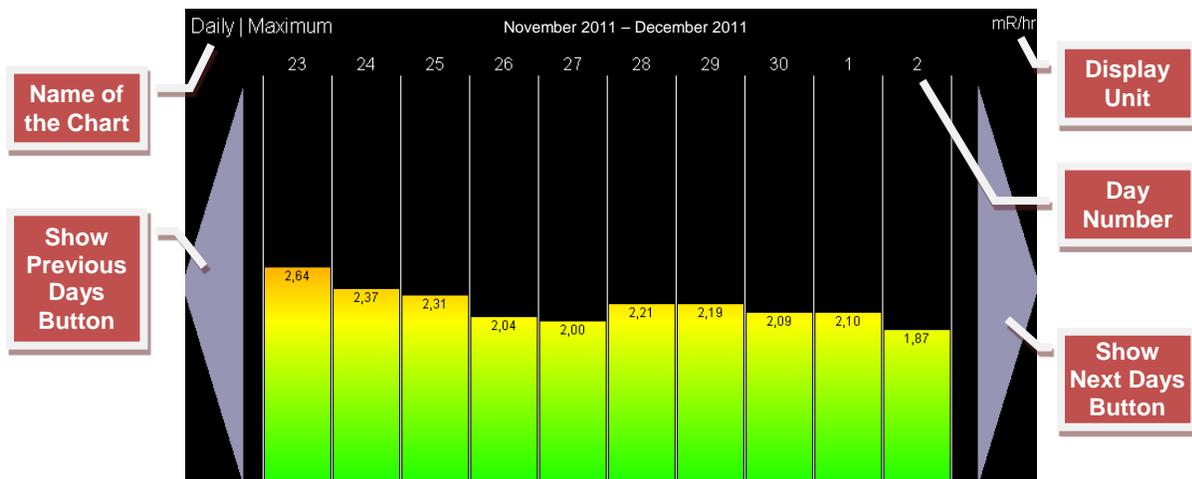
The Daily Cumulative screen presents cumulative radiation dose, measured for a period of one year on a monthly basis. This display offers a daily comparative study.

Daily Mean (Average)

This is a colored chart based on the user-defined high and low limit values and displays the daily average values from the past one year.

Daily Maximum

This is a colored chart based on the user-defined high and low limit values and displays the maximum detected daily values from the past one year.



Daily-Maximum Histogram

Hourly Statistics

Statistics for a date selected by user are displayed on the screen. When the Hourly time scale is chosen, a calendar will appear on the screen. The user will then select the desired date. A confirmation screen will appear.



Day Selection Screen for Hourly Statistics

Hourly Cumulative

The Hourly Cumulative screen presents cumulative radiation dose, by the device during the selected day. This display offers an hourly comparative study. (Colored based on the user-defined high and low limit values).

Hourly Mean (Average)

This is a colored chart based on the user-defined high and low limit values and displays the hourly detected values for the selected day.

Hourly Maximum

This is a colored chart based on the user-defined high and low limit values and displays the maximum detected hourly values for the selected day.

Alarm Log Screen

The Event Module displays exceeded alarm limits as set by the user (*reference the **Setting Alarm Levels** section on page 18*); e.g. the device activating a low or high alarm. The Alarm screen displays the latest 10 alarms with date/time tag and duration of the alarm. The most recent alarm is placed at the top of the list.

Alarm logs begin by exceeding the low limit value and end by dropping below the low limit value. The contents of an alarm log consist of the following parameters.

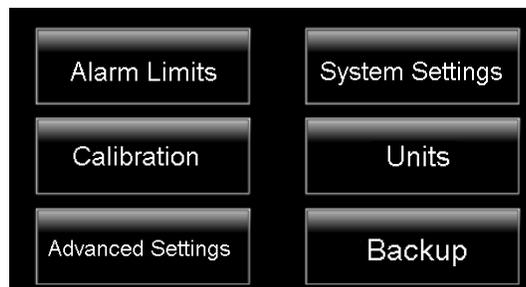
- Maximum value detected during the log
- Start date and time of the log
- Total duration of the log

Max Value 4,15 mR/hr	14.11.2012 / 19:43:53	Total Time :81 sn
Max Value 1,52 mR/hr	14.11.2012 / 19:43:52	Total Time :1 sn
Max Value 1,63 mR/hr	14.11.2012 / 19:43:50	Total Time :3 sn

The displayed logs are also stored in files separately (*reference the **Backing Up Alarm Events** section on page 27*).

Settings Screen

The Settings Screen allows the setting of all device settings. By factory default, this screen is protected with a password. The password can be disabled (*reference the **Password Settings** section on page 20*).



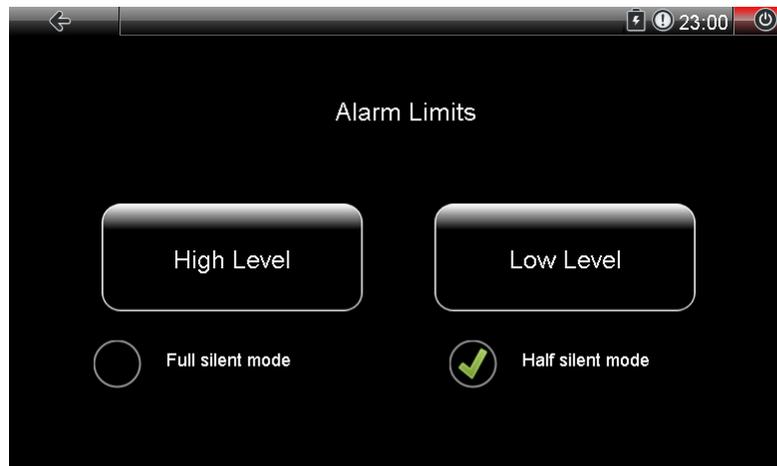
Settings Menu

Alarm Levels

The data obtained by the device are evaluated based on two user-defined alarm levels. Alarm levels consist of two stages: high and low alarm levels.

Setting Alarm Levels

- To access the Alarm Level Settings screen, touch the Alarm Limits button on the Settings menu.

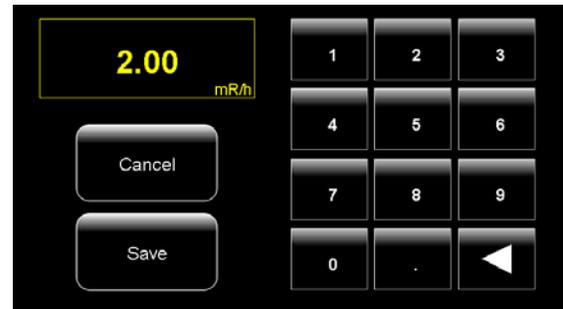


Silent modes selection & Alarm limits entry screen

- Before entering into intended alarm limit's setting, the user can select one of the two "silent modes";
 - Half silent mode: Only readings higher than high alarm limit are accompanied by an alarm sound.
 - Full silent mode: Neither high level nor low level alarms are accompanied by alarm sounds. (High level alarm has an on-off pattern with higher frequency than that of low level alarm.)
- Select the "High" or "Low" alarm level to be set.
- The Alarm Level Setting screen is displayed. A new value for the selected level can be entered. The currently set value for the High Level is shown in red and the Low Level is shown in yellow.



High Level Setting Screen

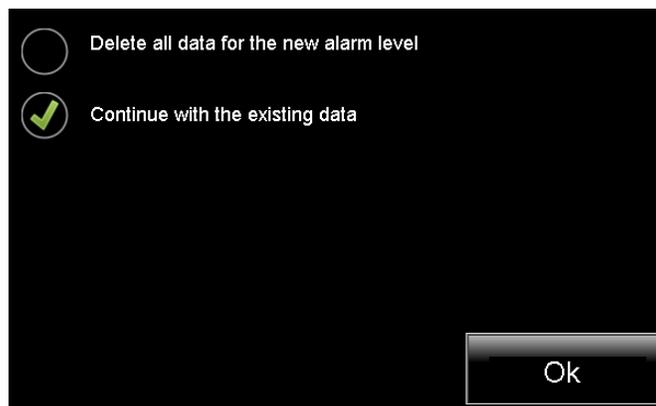


Low Level Setting Screen

- The new alarm level value is entered using the keys on the screen. To abort changes to the selected alarm level, touch the Cancel button. To save the changes, touch the Save button. The new alarm level is assigned to the system.

Note: *The High Level alarm cannot be lower than the current Low Level alarm or higher than 1,000 mR/h. Similarly, the Low Level alarm cannot be zero or higher than the High Level alarm.*

- After saving the changes, a notification message is displayed and the New Alarm Application Screen appears, inquiring about keeping current data or deleting all data for the new alarm levels.



New Alarm Application Screen

- If the **Delete all data for the new alarm level** option is chosen, upon touching the OK button, all data, statistics and alarm logs stored on the device will be erased. (This process may take a few seconds). If the **Continue with the existing data option** is chosen and the OK button is touched, the device will continue operating with the current data.

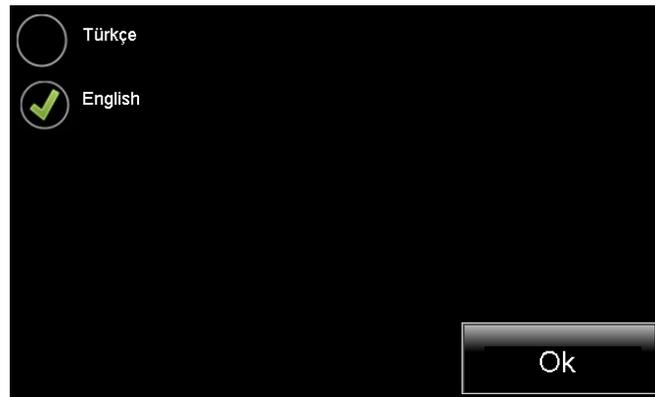
System Settings

The System Settings menu includes settings for the language, password, time and date of the device.

Setting the Language

To change the device's language settings:

- Touch the Language button on the System Settings menu.
- Choose one of the two language options, ***Turkish*** or ***English***.
- Touch the OK button to activate the new setting.

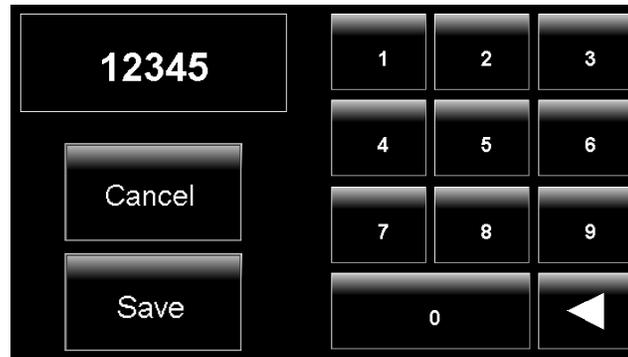


Language Setting Screen

Password Settings

The default factory password is "12345". The password can be changed as follows:

- Touch the Password button on the System Settings menu.
- This screen displays the previously set password.
- Enter the new password.
- To abort changing the password, touch the Cancel button. Touch the Save button to activate the new setting.



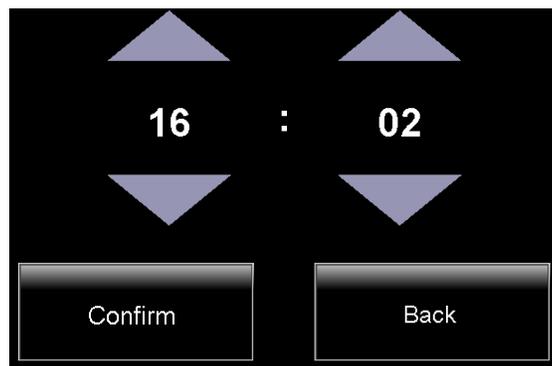
Password Setting Screen

- If a password is not required for accessing the Settings Menu, delete the displayed password on the Password Setting screen and touch the Save button. This will remove the password inquiry when accessing the Settings Menu.

Setting the Time

To change the currently set time of the device:

- Touch the Time button on the System Settings menu.
- Set the desired time by touching the up and down arrows.
- To abort changing the time, touch the Back button. Touch the Confirm button to save the new time setting.



Time Setting Screen

Setting the Date

To change the currently set date of the device:

- Touch the Date button on the System Settings menu.
- To exit the Date Setting screen, touch the Back button on the Information Bar.
- Select the desired month by touching the left and right arrows.

- Choose the date by touching the desired day on the calendar.
- A confirmation screen appears to confirm the selected date.
- If the displayed date is correct, save the set date by touching the Confirm button.
- If the displayed date is incorrect, touch the Back button to return to the Date Setting screen.



Date Setting Screen

Note: All statistical data will be reset after date changes (reference the **Histogram** section on page 13).

Calibration

Contact your supplier for detailed information about the calibration process.

Setting the Display Unit

The device handles all logs, including statistics and alarm logs, based on the mR/h unit. Only the unit displayed on the Monitor Screen can be altered. To change the displayed measurement unit:

- Touch the Units button on the Settings Menu.
- To exit the Units Setting screen, touch the Back button on the Information Bar.
- Choose one of the two unit options, **mR/h** or **μSv/h**.
- Touch the OK button to save the new setting.



Unit Setting Screen

Advanced Settings

The Advanced Settings contains functions for deleting device data, updating the device software, accessing *CenterExpert* over a network connection and viewing device information.

Delete Operations

The Delete Operations module is used to delete the data logs, alarm logs, statistics data and detected warning messages.

Deleting Data Logs

The device logs and stores per-second data in per-minute average values. To delete the stored data logs:

- From the Settings Menu, touch the Advanced Settings button then the Delete Operations button.
- Touch the Delete All Data button.
- A final confirmation message will appear on the screen before the deletion.
- To delete all stored data, touch the Confirm button. This begins the deletion process for the device's per-minute data. This process may take several seconds.
- To cancel data deletion, exit the process by touching the Back button.

Deleting Statistics Data

The device stores various statistics on the logged data. To delete these statistics:

- From the Settings Menu, touch the Advanced Settings button then the Delete Operations button.
- Touch the Delete All Statistics button.
- A final confirmation message will appear on the screen before the deletion.

- To delete all statistical data, touch the Confirm button. This begins the deletion of the device's statistics data. This process may take several seconds.
- To cancel statistics deletion, exit the process by pressing the Back button.

Deleting Alarm Logs

The device stores logs of events considered to be alarms based on the user-defined limit levels. To delete these alarm logs:

- From the Settings Menu, touch the Advanced Settings button then the Delete Operations button.
- Touch the Delete All Alarms button.
- A final confirmation message will appear on the screen before the deletion.
- To delete all alarm logs, touch the Confirm button. This begins the deletion of the device's alarm logs. This process may take several seconds.
- To cancel alarm logs deletion, exit the process by pressing the Back button.

Deleting Warnings

The device may, upon exceptions that may occur during operation, display a code number on the "Information Bar". In such a case, do the following to delete the warning:

- From the Settings Menu, touch the Advanced Settings button then the Delete Operations button.
- Touch the Delete Warning button.
- A final confirmation message will appear on the screen before the deletion.
- To delete all warnings, touch the Confirm button. This begins the deletion of the device's alerting data. This process may take a few seconds.
- To cancel warning deletion, exit the process by touching the Back button.

Updating Software via USB

The device's software can be upgraded to a newer version by using an update file located on a USB memory device. The latest version of software will be released on our website. (www.molimg.com)

To update the device software to the latest version:

- Carefully read descriptions and warnings about the update. (The descriptions and warnings listed on the website and in the file included with the update file.)

- Download the update file (with the ".aex" extension) to your computer released on the website. (Downloading the update file indicates that you accept the conditions listed in the description and warnings.)
- Transfer the ".aex" extension file you downloaded to a USB memory device.
- Verify that the device is powered by line voltage.
- Insert the USB memory device into the USB connector located below the screen.
- Verify that the USB icon appears on the Information Bar (*reference **Information Icons** on page 11*).
- From the Settings Menu, touch the Advanced Settings button then the Update button.
- The updating process will automatically begin. **DO NOT TURN OFF** the device during this process. This process may take several seconds.
- After finalizing the updating process, the device will automatically restart.

Note: *Mol-Image cannot be held liable for problems and/or data losses caused by not following the updating instructions and not abiding by the informational notes.*

Note: *USB memory sticks to be used with the device should have the following properties:*

- Maximum 32GB capacity and up to version USB 2.0.
- With FAT or FAT32 file format.
- Without any ROM partition or U3 technology.

Using Network Connection Listening Mode

For all obtained data to be detected over the network by the *CenterExpert* application, the network connection listening mode must be activated. In order to do this:

- From the Settings Menu, touch the Advanced Settings button then the Network button.
- Allow the device to be accessible over the network by touching the Listening Mode button. This process may take several seconds.
- The  icon will appear on the Information Bar.
- After switching to Listening Mode, the device will be detectable on the network by the *CenterExpert* application.
- To switch back to normal mode, touch the "Cancel" button. A confirmation message will appear on the screen before the cancelling Listening Mode.

Touch the Confirm button to return to Normal Mode or the Back button to continue Listening Mode.

- To exit the Network screen, touch the Back button on the Information Bar.

Accessing Device Information

To view the device information,

- From the Settings Menu, touch the Advanced Settings button then the Information button.
- This screen displays the device name, device serial number, connection IP address, software version, firmware version and the manufacturer.
- It also includes a status section that will display details of exceptions that may have occurred.
- To exit the Information screen, touch the Back button on the Information Bar.

Backup

The device logs the obtained data in per-minute average values. It also logs alarm events based on the user-defined high and low alarm levels. The per-minute average values, statistics data and alarm event logs can be backed up to a USB memory device. Two backup buttons are available: Data Backup and Event Backup.

Data Backup Process

To backup all per-minute values and statistics data logged by the device on a USB memory device:

- Verify that the device is powered by line voltage. (Data may be damaged by the battery running out of charge during the backup process.)
- Insert the USB memory device into the USB connector located below the screen.
- Verify that the USB icon appears on the Information Bar (*reference **Information Icons** on page 11*).
- From the Settings Menu, touch the Backup button.
- Touch the Data Backup button to begin transferring the data files onto the USB memory device. This process may take several seconds.
- A folder named "AreaExpert" will be created on the USB memory device.
- Each device will create a new folder named after its own serial number in the "AreaExpert" folder. (Therefore multiple devices may be consecutively backed up using the same USB memory device).
- Files will be created for each day in a folder called "data" located under each device's serial number folder in the "Data_year_month_day.txt" format.

- Each file includes the "LA" (Low Alarm) or "HA" (High Alarm) designation based on the per-minute average values the device has logged throughout that day and the alarm levels active during logging.
- The following events occurring during the day are also included in the daily log files:
 - Time changes
 - Pausing – continuing logging due to low battery
 - Alarm level changes
- The statistics file is a special file that can be analyzed by the *CenterExpert* software application.

Backing Up Alarm Events

According to the user-defined high and low limit values, the device logs the obtained data by evaluating them as alarm events. To back up the alarm logs on a USB memory device:

- Verify that the device is powered by line voltage. (Data may be damaged by the battery running out of charge during the backup process.)
- Insert the USB memory device into the USB connector located below the screen.
- Verify that the USB icon appears on the Information Bar (*reference **Information Icons** on page 11*).
- From the Settings Menu, touch the Backup button.
- Touch the Data Backup button to begin transferring the alarm event log files to the USB memory device. This process may take several seconds.
- A folder called "AreaExpert" will be created in the USB memory device.
- Each device will create a new folder named after its serial number in the "AreaExpert" folder. (Therefore multiple devices may be backed up multiple times using the same USB memory device.)
- Files will be created for each day in a folder called "alarm" located under each device's serial number folder in the "Event_year_month_day.txt" format.
- The log files include the following details of the alarm events detected by the device within that particular day:
 - Time of alarm start
 - Alarm Type – Category of maximum alarm activity in terms of alarm levels (High – Low Limit)
 - Total duration of the alarm (in seconds)
 - Maximum reached dose

CenterExpert

Installation

Java Runtime Environment

The CenterExpert needs Java Runtime Environment. If you do not have Java Runtime Environment Version 7 or higher on your computer, go to the Oracle web site and download and then Install JRE Version 7 or higher.

Installing CenterExpert Program

- Insert the CenterExpert CD.
- Click on CenterExpertInstall_X.XX.exe on the CenterExpert CD (X.XX is the version).
- Click on Install.
- When the program is installed, click the Start button on your computer. The CenterExpert program is under Programs, Capintec.

Note: *If you get a message from Java that some Java features are being blocked, click on the button to Allow Access.*

Configuring AreaExpert for the CenterExpert

The AreaExpert must be configured before it can be seen by the CenterExpert.

- On the AreaExpert, touch the Setup icon.
- Enter the default password: 12345.
- Touch the **Advanced Settings** button.
- Touch the **Network** button.
- Touch the **Listening Mode** button.

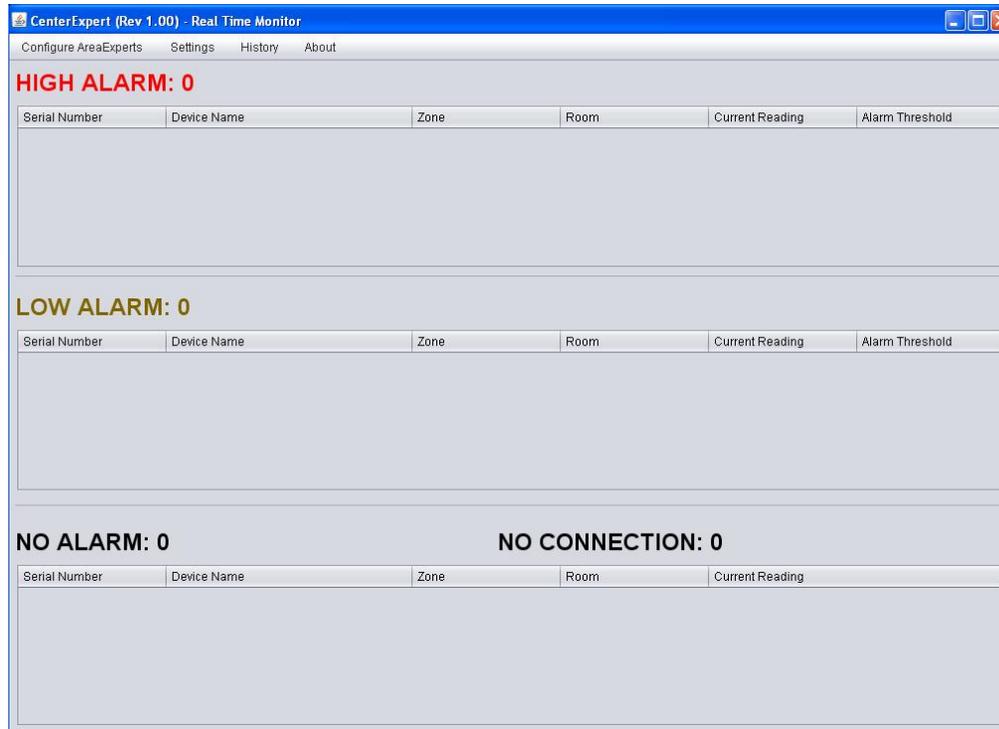
When Listening Mode is selected, the Flag icon will appear in the Information bar.

Serial Number and IP Address

- Touch the **Advanced Settings** button.
- Touch the **Information** button.
- The AreaExpert's Serial Number and IP Address will be listed and should be recorded.

CenterExpert Main Screen

When the CenterExpert is launched, the Main Screen appears:



Main Screen

The status and Current Reading of all AreaExperts in the CenterExpert will appear on the Main Screen

Selecting CenterExpert Units

The readings on the Main Screen can be displayed in mR/h or μ Sv/h.

- To select the unit, Click Settings
- Click on the desired unit. The ♦ symbol will appear in front of the selected unit.

Note: This selection is only for the display on the CenterExpert. It does not affect the display on the AreaExpert.

Adding AreaExperts to the CenterExpert

To add one or more AreaExperts to the CenterExpert:

- Click on Configure AreaExperts
- Click on Add AreaExpert to CenterExpert

CenterExpert (Rev 1.00) - Add AreaExpert to CenterExpert

AreaExperts Currently in CenterExpert

Serial Number	IP Address	Device Name	Zone	Room
---------------	------------	-------------	------	------

Automatically Scan Network and Add AreaExperts

Sub Net Address: 10.24.15

Manually Add an AreaExpert

Serial Number:

IP Address:

Add AreaExpert to CenterExpert

The AreaExperts in the system, along with their Serial Number, IP Address and Device Name will appear on this screen.

Automatically Scan Network and Add AreaExperts

All AreaExperts on the network can be automatically added to the CenterExpert.

The network's Sub Net Address will be displayed.

Click the **Scan and Add AreaExperts** button.

The number of AreaExperts added will be displayed.

The details of the AreaExperts added will be displayed in the list.

Manually Add an AreaExpert

AreaExperts can also be added manually.

- Enter the AreaExpert's Serial Number in the Serial Number text box.
- Enter the AreaExpert's complete IP Address in the IP Address text box.

The AreaExpert will be added to the CenterExpert and its details will be displayed on the list.

Returning to the Main Screen

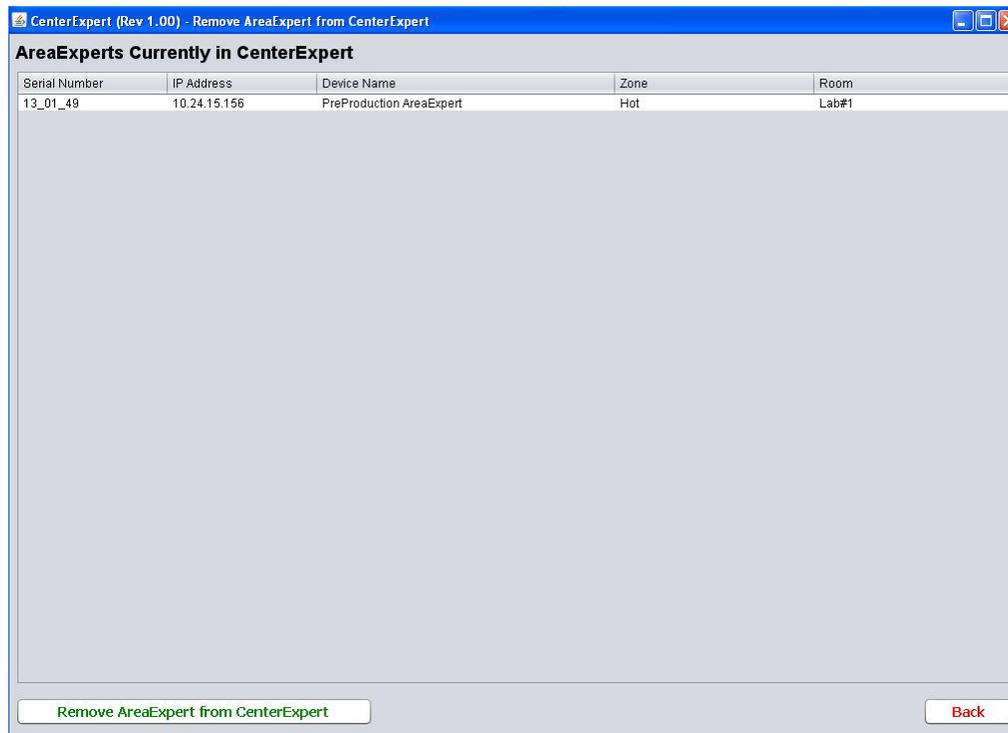
To return to the Main Screen, click the **Back** button.

The AreaExperts that have been added to the CenterExpert will be displayed on the Main Screen in the proper section with their readings displayed.

Removing AreaExperts from CenterExpert

To remove one or more AreaExperts from the CenterExpert:

- Click on **Configure AreaExperts**.
- Click on **Remove AreaExpert from CenterExpert**.



Remove AreaExpert from CenterExpert

The AreaExperts in the CenterExpert will be listed.

Removing an AreaExpert

- Highlight the AreaExpert to be removed.
- Click **Remove AreaExpert from CenterExpert**.

The AreaExpert will be removed from the list.

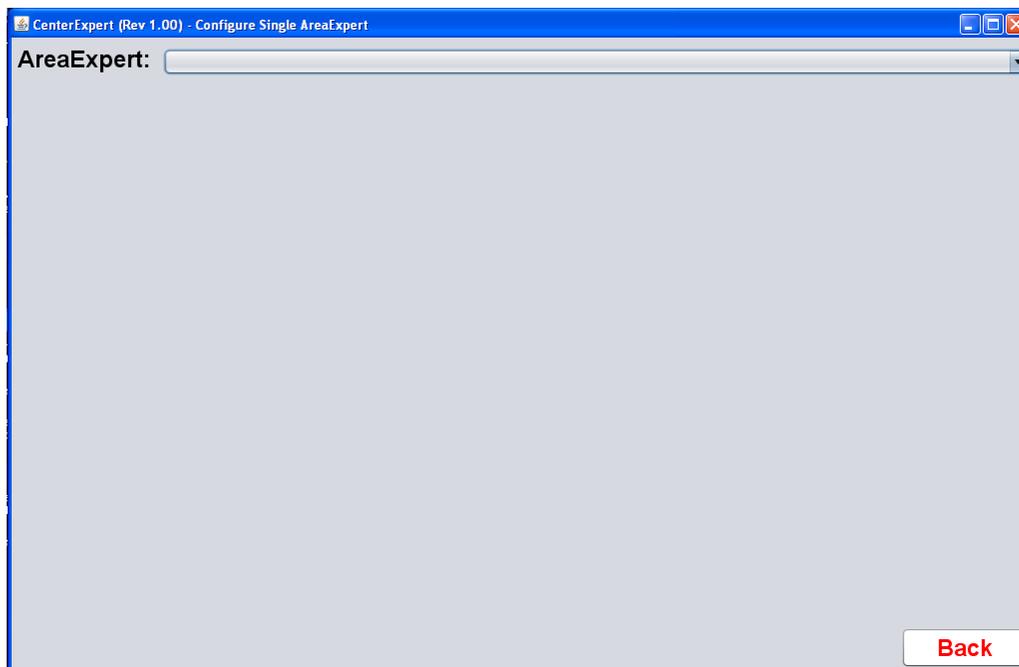
Returning to the Main Screen

To return to the Main Screen, click the **Back** button.

Configuring a Single AreaExpert

To Configure an AreaExpert:

- Click on Configure AreaExperts.
- Click on Configure Single AreaExpert.



Configure Single AreaExpert

To exit the screen, click **Back**.

To see the list of AreaExperts in the CenterExpert,

- Click on the drop-down list.

- Click on the AreaExpert to be configured.

CenterExpert (Rev 1.00) - Configure Single AreaExpert

AreaExpert: 13_01_49 PreProduction AreaExpert (Hot, Lab#1)

Device Name: PreProduction AreaExpert

Zone: Hot **Room:** Lab#1

Password: To disable password, enter blank. Otherwise enter number from 0 to 2000000000

High Alarm: 219.25 **uSv/h**

Low Alarm: 131.55 **uSv/h**

Display Units: mR/h uSv/h

Language: English Turkish

Screen Mode: Digits and Graphics Digits Only Graphics Only

Screen Lock: Unlocked Locked

Submit **Cancel**

Software Version: 1.88 **Display Type: 7 inches**

Power State: Line Powered **Battery Value: 100.0 %**

Warnings

No Warnings.

Configure AreaExpert

The current settings of the selected AreaExpert will be displayed.

Device Name

The AreaExpert may be given a name of up to 40 characters. The name should uniquely describe the AreaExpert.

Zone

The AreaExpert may be assigned to a zone. This field is optional. The maximum number of characters in a zone name is 20.

The name of the zone should describe the type of location, e.g. Unrestricted. The zone can be used to group all AreaExperts that have the same Low and High Alarms.

Room

The AreaExpert may be assigned a room name. This field is optional. The maximum number of characters in a room name is 20.

Password

The default password needed to enter any setup functions may be changed or disabled.

To disable the password, make the Password textbox blank.

To set the password, enter any number from 0 to 2000000000 in the Password textbox.

High Alarm

To change the High Alarm, enter the value in the High Alarm textbox. The value must be greater than the Low Alarm.

Low Alarm

To change the Low Alarm, enter the value in the Low Alarm textbox. The value must be less than the High Alarm.

Display Units

This is to set the units on the AreaExpert. Click on mR/h or μ Sv/h.

Language

This is the language that is used on the AreaExpert. Click on English or Turkish.

Screen Mode

The readings on the AreaExpert can be Digital, Graphical or both.

Click on Digits and Graphics, Digits, or Graphics.

Screen Lock

The AreaExpert screen can be locked.

Click on Unlocked or Locked.

When Locked is selected, the Lock icon will appear on the Information bar.

Submit Button

Click the Submit button to send all the setting to the AreaExpert and return to the Main Screen.

Cancel Button

Click the Cancel button to return to the Main Screen without sending any changes to the AreaExpert.

Configuring Multiple AreaExpert

To Configure multiple AreaExperts:

- Click on **Configure AreaExperts**.
- Click on **Configure Multiple AreaExperts**.

Serial Number	Device Name	Zone	Room
<input checked="" type="checkbox"/> 13_01_49	PreProduction AreaExpert	Hot	Lab#1

Password: To disable password, enter blank. Otherwise enter digit from 0 to 2000000000

Language: English Turkish

Units: mR/h uSv/h

Screen Mode: Digits and Graphics Digits Only Graphics Only

Screen Lock: Unlock Lock

Configure Multiple AreaExperts

The AreaExperts in the CenterExpert are listed and checked.

Selecting AreaExperts

To select which AreaExperts will be changed, check the box in front of their Serial Numbers.

Selecting the Changes

To select which settings should be sent to the AreaExperts, check the box in front of that setting.

Password

The default password needed to enter any setup functions may be changed or disabled.

To disable the password, make the Password textbox blank.

To set the password, enter any number from 0 to 2000000000 in the Password textbox.

Display Units

This is to set the units on the AreaExperts. Click on mR/h or $\mu\text{Sv/h}$.

Language

This is the language that is used on the AreaExperts. Click on English or Turkish.

Screen Mode

The readings on the AreaExperts can be Digital, Graphical or both.

Click on Digits and Graphics, Digits, or Graphics.

Screen Lock

The AreaExperts screens can be locked.

Click on Unlock or Lock

When Lock is selected, the Lock icon will appear on the Information bar.

Submit Button

Click the Submit button to send all the checked settings to the checked AreaExperts and return to the Main Screen.

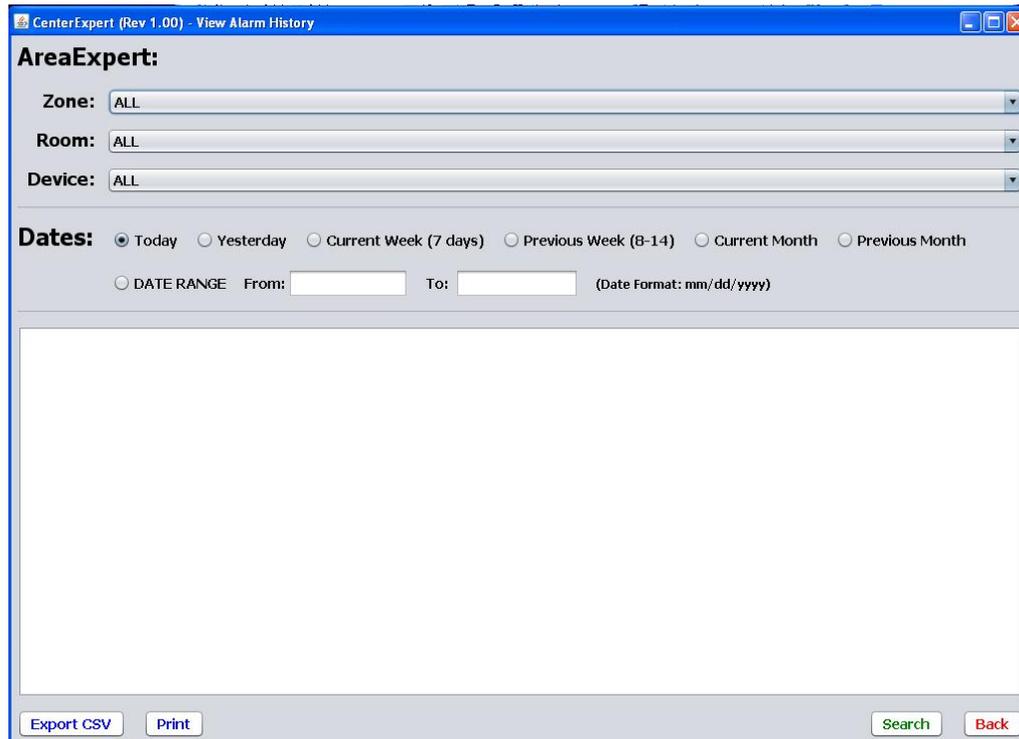
Cancel Button

Click the Cancel button to return to the Main Screen without sending any changes to the AreaExpert.

Viewing Alarm History

To view the Alarm History for one or more AreaExperts:

- Click on **History**.
- Click on **View Alarm**.



CenterExpert (Rev 1.00) - View Alarm History

AreaExpert:

Zone: ALL

Room: ALL

Device: ALL

Dates: Today Yesterday Current Week (7 days) Previous Week (8-14) Current Month Previous Month

DATE RANGE From: To: (Date Format: mm/dd/yyyy)

Export CSV Print Search Back

Alarm History

Selecting AreaExpert(s) to View

The Alarm History for one or more AreaExperts may be viewed.

The AreaExpert(s) can be selected by Zone, Room or Device Name.

The default is All AreaExperts.

Selecting by Zone

The default is All Zones.

Click on the Zone drop down list to display the Zones.

To display AreaExperts in a particular Zone, click on that Zone name.

Selecting by Room

The default is All rooms.

Click on the Room drop-down list to display the Rooms.

To display AreaExperts in a particular Room, click on that Room name.

Selecting by Device

The default is All devices.

Click on the Device drop-down list to display the Device names of all the AreaExperts.

To display a particular AreaExpert, click on its Device Name.

Selecting Time Period to View

The Alarm History can be viewed for the following time periods:

- Today
- Yesterday
- Current Week (the past 7 days)
- Previous Week (the past 8-14 days)
- Current Month
- Previous Month
- Date Range

The default is “today”.

Click on the desired time period.

Date Range

If Date Range is selected, the starting date (From) and the ending date (To) must be entered.

Displaying the Alarm History

When the desired AreaExpert(s) and the time period have been chosen, click the **Search** button.

If there is a conflict between the selected Zone, Room and Device, the message “Search was not able to find AreaExpert” will appear.

Below is an example of Alarm History.

```
Zone: ALL
Room: ALL
Device: ALL

From: 05/01/2014 00:00:00, To: 05/31/2014 23:59:59
```

Start Time	Device	Zone	Room	Max (mR/h)	Time (Sec)	Alarm
05/27/2014 16:02:52	13_01_49 PreProduction AreaExpert	Hot	Lab#1	74.6	11	High
05/27/2014 16:03:09	13_01_49 PreProduction AreaExpert	Hot	Lab#1	18.6	5	Low
05/27/2014 16:04:30	13_01_49 PreProduction AreaExpert	Hot	Lab#1	10.19	4	Low
05/27/2014 16:31:39	13_01_49 PreProduction AreaExpert	Hot	Lab#1	39.13	49	High
05/27/2014 16:32:42	13_01_49 PreProduction AreaExpert	Hot	Lab#1	10.0	2	Low
05/27/2014 16:32:47	13_01_49 PreProduction AreaExpert	Hot	Lab#1	10.02	2	Low

Alarm History Example

Printing

To obtain a printout of the displayed Alarm History, click the **Print** button.

Exporting the Alarm History

To export the displayed Alarm History, click the **Export CSV** button.

A dialog box will appear to enter the file name.

When Save is clicked, the displayed data will be saved in the entered file name.

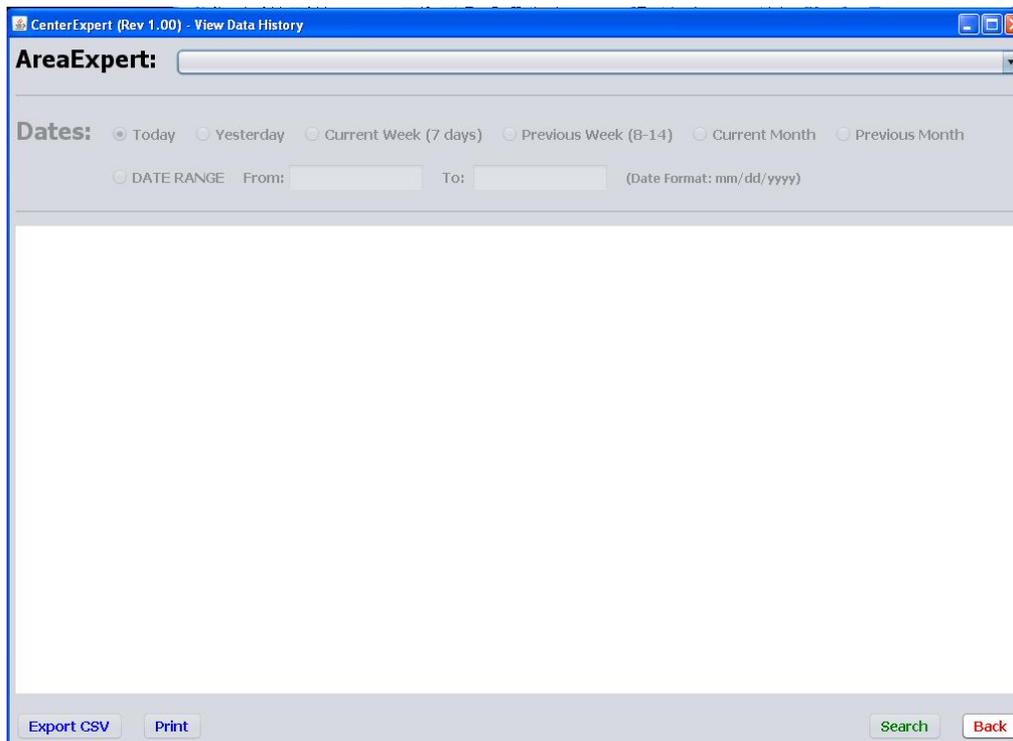
Returning to the Main Screen

To return to the Main Screen, click the **Back** button.

Viewing Data History

To view the Data History for an AreaExpert:

- Click on **History**.
- Click on **View Data**.



Data History

Selecting AreaExpert to View

- Click on the AreaExpert drop-down list.
- Click on the AreaExpert to view.

Selecting Time Period to View

The Data History can be viewed for the following time periods:

- Today
- Yesterday
- Current Week (the past 7 days)
- Previous Week (the past 8-14 days)
- Current Month
- Previous Month
- Date Range

The default is “today”.

Click on the desired time period.

Date Range

If Date Range is selected, the starting date (From) and the ending date (To) must be entered.

Displaying the Data History

When the desired AreaExpert and the time period have been chosen, click the **Search** button.

A graph of the data for the selected time period will be displayed.

Zooming

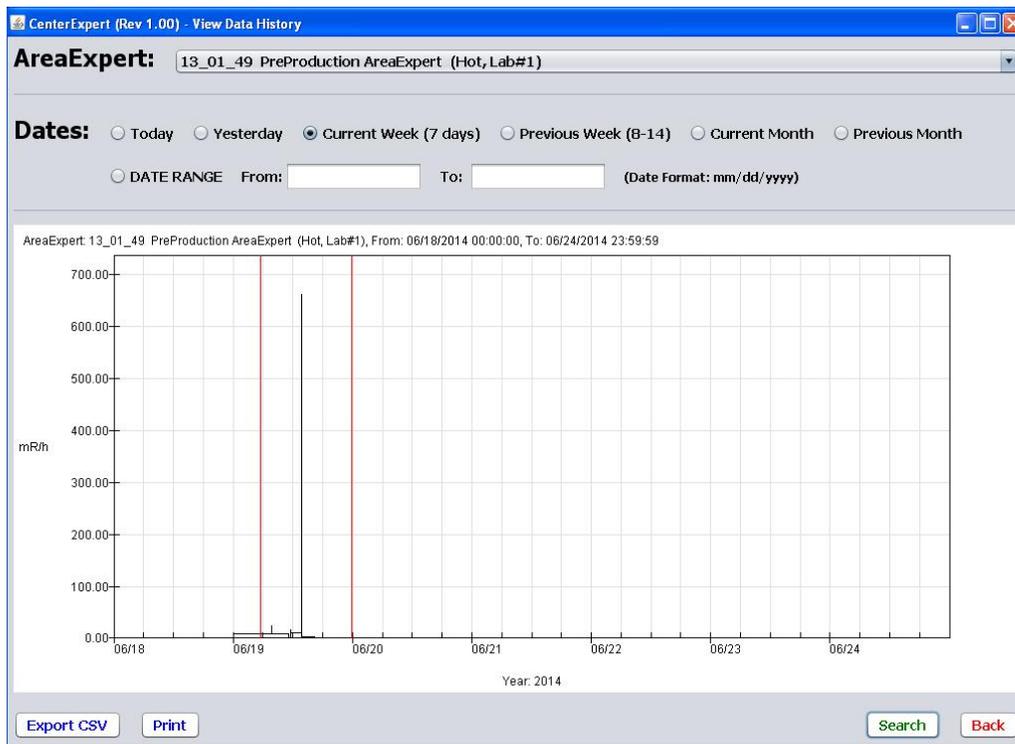
The displayed graph may be zoomed in (expanded) or zoomed out (returned to previous time).

Marking the Zoom Area

Click the left mouse button within the graph. A vertical red line (zoom line) will appear. Move the mouse and click the left button again. A second vertical red line (zoom line) will appear. To change the position of either line, click the left mouse button near that line.

If you only want to zoom in from the origin to a given point or from a given point to the end of the x-axis, only one zoom line is necessary.

Below is an example of data for the current week with two zoom lines.



Data History with Zoom Lines

Zooming in

To expand the marked area, move the mouse within that area and click the right mouse button.

To zoom in from the origin to a zoom line, move the mouse between the origin and the zoom line and click the right mouse button.

To zoom in from a zoom line to the end of the x-axis, move the mouse between the zoom line and the end of the x-axis and click the right mouse button.

Zooming out

To zoom out one level (return to the previous graph), move the mouse outside of the graph and click the right mouse button.

Clearing the Zoom line(s).

To clear the zoom line(s), move the mouse outside the graph and click the left mouse button.

Printing

To obtain a printout of the displayed graph, click the **Print** button.

Exporting the Data History

To export the Data History, click the **Export CSV** button.

A dialog box will appear to enter the file name.

When **Save** is clicked, the date/time and exposure for each data point in the full data set found by the Search will be saved in the csv file.

Returning to the Main Screen

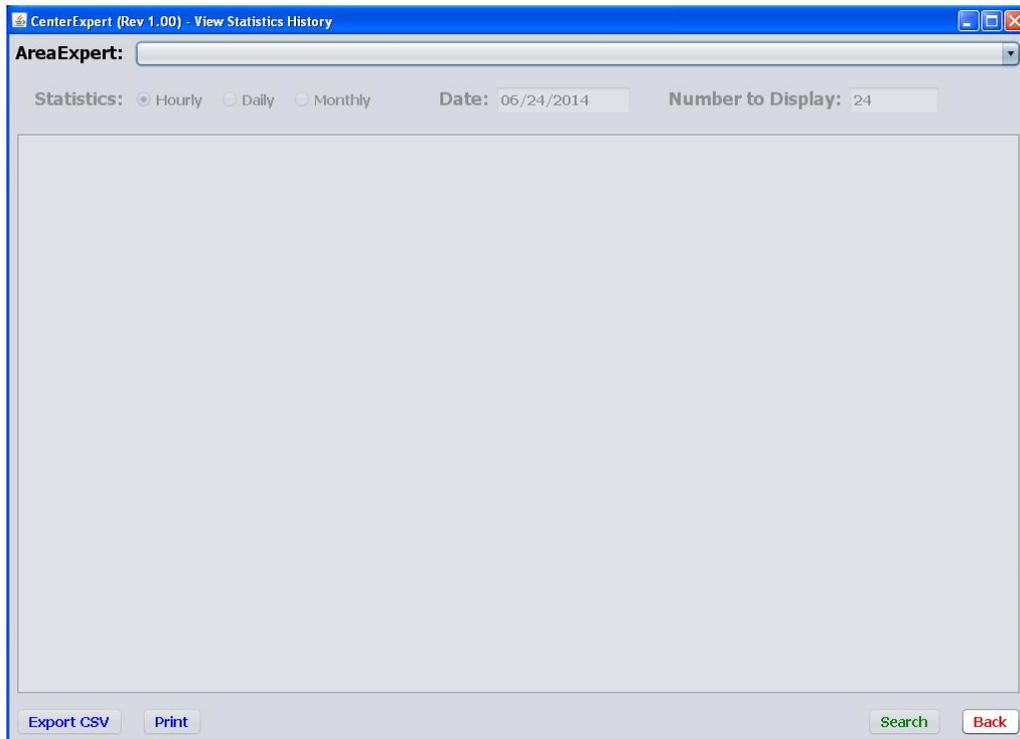
To return to the Main Screen, click the **Back** button.

Viewing Statistics History

Statistics may be viewed for Cumulative Exposure, Maximum Exposure Rate and Mean Exposure Rate.

To view the Statistics History for an AreaExpert:

- Click on **History**.
- Click on View **Statistics**.



Statistics History

Selecting AreaExpert to View

Click on the AreaExpert drop down list.

Click on the AreaExpert to view.

Selecting Statistics Format:

The statistics can be viewed in the following formats:

- Hourly
- Daily
- Monthly

The default is Hourly.

Entering Date

The Date is the starting date.

For Hourly, the displayed data will begin at midnight for the entered date.

For Daily, the displayed data will begin on the entered date.

For Monthly, the displayed data will begin on the month for the entered date.

Entering Number to Display

The number of rows of data can be changed by the user.

For Hourly, the default is 24 (1 day).

For Daily, the default is 30 (30 day month).

For Monthly, the default is 12 (1 year).

Displaying the Statistics

When the desired AreaExpert, Statistics type, Date and Number to Display, have been selected, click the **Search** button.

The following will be displayed:

Hourly

- Date, Hour
- Mean Exposure Rate for each hour

- Maximum Exposure Rate for each hour
- Cumulative Exposure for each hour

Daily

- Date
- Mean Exposure Rate for each day
- Maximum Exposure Rate for each day
- Cumulative Exposure for each day

Monthly

- Month, Year
- Mean Exposure Rate for each month
- Maximum Exposure Rate for each month
- Cumulative Exposure for each month

Printing

To obtain a printout of the displayed Statistics History, click the **Print** button.

Exporting the Alarm History

To export the displayed Statistics History, click the **Export CSV** button.

A dialog box will appear to enter the file name.

When **Save** is clicked, the displayed data will be saved in the entered file name.

Returning to the Main Screen

To return to the Main Screen, click the **Back** button.

PERIODIC MAINTENANCE

This product does not require periodic maintenance. The operator of the device is obligated to perform all quality control procedures required under the local laws and regulations of the region the device is located in and keep records of these procedures. In case of failure, please contact technical service.

DEVICE CLEANING

Device cleaning may be performed by following the steps below:

- Turn the device off.
- Unplug the power cord before cleaning the device.
- The device can be wiped with a clean and slightly damp cloth.
- Do not use harsh chemicals or strong cleaning agents to clean the device.

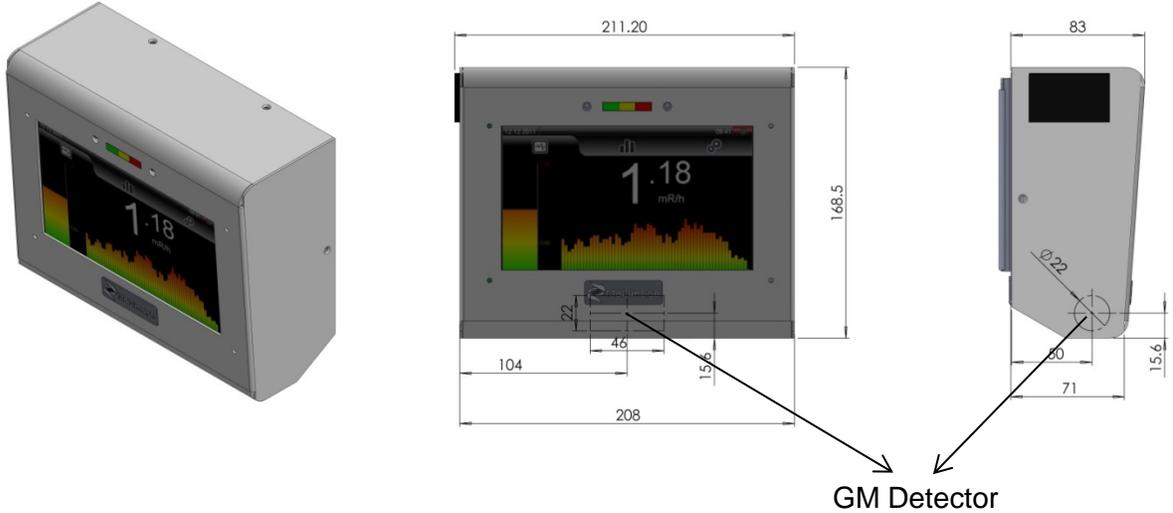
PACKAGE CONTENTS

- Area Monitor
- Power Cord
- User's Guide
- Wall mounting hardware
- External connector relay socket

TECHNICAL SPECIFICATIONS

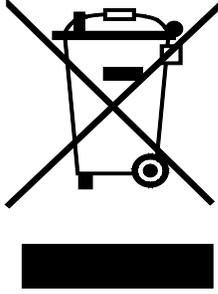
Detector	<ul style="list-style-type: none"> • Energy compensated GM detector
Display specifications	<ul style="list-style-type: none"> • 7" color touchscreen • All usage and settings are performed on the screen.
Measurement range	<ul style="list-style-type: none"> • 0 R/hr – 1000 mR/hr
Units	<ul style="list-style-type: none"> • mR/hr or μSv/hr (User-optional)
Accuracy	<ul style="list-style-type: none"> • $\pm 10\%$
Selectivity	<ul style="list-style-type: none"> • 55 μR/hr
Response time	<ul style="list-style-type: none"> • 1 second (reaches $\pm 10\%$ of continuous value in 3.5 sec)
Status LED displays	<ul style="list-style-type: none"> • 3 displays: Power status (Network or battery) – Low dosage speed – High dosage speed
Alarms	<ul style="list-style-type: none"> • Low/High dosage speed + Low battery • Sound alarm
High voltage level	<ul style="list-style-type: none"> • 550V
Detector dead time	<ul style="list-style-type: none"> • 100 μs
Contact	<ul style="list-style-type: none"> • Data exchange over USB and Ethernet • Connection over local network and internet (Optional)
Power requirements	<ul style="list-style-type: none"> • Input: 85-265VAC 50/60 Hz, 8W
Network structure	<ul style="list-style-type: none"> • 250 Area Monitors can be connected to local network • Group connections over the internet are possible (optional)
Continuous Operation Time	<ul style="list-style-type: none"> • In case of power outage, 1-hour uninterrupted operation with full battery
Dimensions (WxHxD)	<ul style="list-style-type: none"> • 207mm x 169mm x 78mm
Weight	<ul style="list-style-type: none"> • 1.7kg
Operational conditions	<ul style="list-style-type: none"> • Temperature range: 10°C / +60°C • Relative humidity: 10-95%

DIMENSIONS (mm)



TROUBLESHOOTING

PROBLEM	SOLUTION
Device is not powered.	<ul style="list-style-type: none"> • Ensure that the power cord is connected properly on both sides. • Turn the power switch to the ON (I) position. • Check line voltage. • Check the fuse. • If problem persists, contact authorized technical service.
Resolution problems following an update.	<ul style="list-style-type: none"> • Restart device according to the shutdown procedure. • If problem persists contact authorized technical service.
Device date and time values cannot be adjusted.	<ul style="list-style-type: none"> • Contact authorized technical service.

DISPOSAL INFORMATION

Do not dispose of this device in the garbage. Do not mix with household waste due to health-related and environmental reasons. To prevent the effects of unregulated disposal of the device on the environment and human health and to protect the global environment in the best manner, please separate the device from other types of waste and recycle it in order to facilitate sustainable re-use of material resources. At the end of its life cycle, dispose of the device according to local legislation. It is obligatory to abide by the disposal laws of your current country or region when disposing of waste electronic devices.

CONTACT INFORMATION**Manufacturer: Moleküler Görüntüleme Tic. ve San. A.Ş.***Headquarters:*

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Fax : +90 212 219 4288
E-mail: info@molimg.com

Factory:

Tübitak-MAM Teknoloji Serbest Bölgesi Şubesi
41470 Gebze / Kocaeli - TURKEY
Phone : +90 262 6444020 (pbx)
Fax : +90 262 6449235

Worldwide Licensed Distributor:**Capintec Inc.**

6 Arrow Road, Ramsey, NJ 07446, USA

Phone : (800) 631-3826 / (201) 825-9500
Fax : (201) 825-1336

Local Distributor:

CE DECLARATION OF CONFORMITY
AT Uygunluk Beyanı
EC Declaration of Conformity

Moleküler Görüntüleme Tic. Ve San. A.Ş. olarak, aşağıda adı ve model numarası bulunan ürün veya ürünlerin belirtilen AT yönetmelikleri ve ilgili harmonize standartlara uygun olduğunu beyan ederiz.

Ürün(ler):
Duvar Tipi Dijital Radyasyon Alan Monitörü

Model(ler):
MOL-E-013.01.01 Alan Monitörü 7"

Yönetmelik(ler):
2006 / 95 / AT Alçak gerilim yönetmeliği (LVD)
2004 / 108 / AT Elektromanyetik Uyumluluk

Standartlar:

EN 61010-1:2003 Ölçme, kontrol ve laboratuvarda kullanılan elektriksel donanım için güvenlik kuralları - Bölüm 1: Genel kurallar

EN 61326-1:2006 Ölçme, kontrol ve laboratuvar kullanımı için elektrikli donanım - EMU şartları - Bölüm 1: Genel şartlar

Beyan Tarihi:
Declaration Date:
31.10.2012

Moleküler Görüntüleme Ticaret ve Sanayi A.Ş.
Tübitak MAM Teknoloji Geliştirme Serbest Bölgesi
41470 Gebze / Kocaeli
Türkiye

We, Moleküler Görüntüleme Tic. Ve San. A.Ş., hereby declare that the following product(s) comply with the EC directives and related harmonized standards mentioned below.

Product(s):
Wall Mount Digital Radiation Area Monitor

Model(s):
MOL-E-013.01.01 Area Monitor 7"

Directive(s):
2006 / 95 / EC Low Voltage Directive
2004 / 108 / EC Electromagnetic Compatibility

Standards:

EN 61010-1:2003 Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements

EN 61326-1:2006 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements

İmza

H. ULAŞ ÖZCAN (Genel Müdür)