



USER GUIDE

PM5000 REMOTE CONTROL

Software for
PM5000
Radiation Portal Monitor

Equipment	PM5000 Radiation Portal Monitor
Software	PM5000 Remote Control
Manufacturer	Polimaster

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Validity

The software guide has passed validity and correctness check.

It contains instructions and descriptions that are considered to be true for the **PM5000 Remote Control** software as of the time of this Software Guide publication.

Documented Software and its settings are subject to change with no substantial effect on its functionality. Polimaster reserves the right to change Software in such a way not mentioning it in Software Guides.

Developed by **Polimaster**.

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INTRODUCTION

NOTE ABOUT THE GUIDE

The Software Guide familiarizes users with technical specifications and functions of the “**PM5000 Remote Control**” software.

Software Guide provides full and detailed information on “**PM5000 Remote Control**” software interface structure, describes all the program functions and software-hardware communication.

GETTING STARTED

Carefully study this Software Guide before installation and first software run. It is recommended to avoid wrong actions and to enhance software operational reliability. Upon reading retain this Software Guide for future references.

SYMBOLS USED IN THE GUIDE

The following symbols are used in the Software Guide to accentuate some important information. Symbols are given as follows:



Attention!

This mark is used in the guide to warn of something important, that may lead to data loss or hardware malfunction if ignored.



Note!

This is used in the guide to denote some advice or recommendations for improvement in software use effectiveness.

For easier navigation within the guide, it is thematically divided by chapters and sections.

Step-by-step instructions go with screen captures for reference.

SOFTWARE OVERVIEW

“PM5000 Remote Control” software, developed by the **Polimaster** company, enables user to connect to the Radiation Portal Monitor PM5000 and do further monitoring of the radiation situation in real-time mode¹. Operation history including the monitoring data can be saved into PC.

“PM5000 Remote Control” software (further – Software) is installed on the personal computer (further – PC) and is intended to be used with the Radiation Portal Monitor (further – Monitor) manufactured by the Polimaster company.



Attention!

Any attempt to communicate with other devices using this software may have unpredictable results.



“PM5000 Remote Control” software should be used by qualified and properly trained personnel.

“PM5000 Remote Control” software communicates with the Monitor by the Ethernet and RS232 channels.



User must have at least initial experience in working with PCs under Windows family system to operate the **“PM5000 Remote Control”** software.

¹ Documented software and its settings are subject to change with no substantial effect on its functionality. Polimaster reserves the right to change the software in such a way not mentioning it in Software Guides.

SOFTWARE APPLICATION RANGE

Software enables continuous monitoring of radiation situation (online measurement of gamma- and neutron radiation) in real-time mode.

Software generates radiation profile of the Objects movement (vehicles or any moving object) through the Monitor's detection area when movement sensors (entry sensor detects presence of the Object in the Monitor detection area.

Software as well enables setting of Monitor parameters and all its modules.

Software is intended for:

- ◆ Improvement of effectiveness and operational safety of:
 - Border police and customs,
 - Security services and Emergence response services;
 - Medical institutions;
 - Carriers,
 - Atomic plants,
 - Emergency services,
 - Civil protection,
 - Fire-fighting service,
 - Police.
- ◆ Early warning of possible radiation contamination or terrorist attack.

SOFTWARE FUNCTIONS

- ◆ Communication with the Monitor by the Ethernet and RS232 channels;
- ◆ Monitoring of the radiation situation within the Monitor detection area in real-time mode;
- ◆ Generation of the Object movement radiation profile when the Object is detected by the movement sensors;
- ◆ Generation of *Daily Files*. Saving *Daily Files* every 24 hours;
- ◆ Generation and display of measurement graphs based on the *Daily Files* in real-time mode;
- ◆ Reading the operation history from the Monitor memory. Saving the read history into PC. Deletion of the operation history from the Monitor memory;
- ◆ Analyze occupancies;
- ◆ Configuration of every available Monitor parameter;
- ◆ Configuration of every available Monitor' detector parameter;
- ◆ Configuration of alarm devices connection parameters;
- ◆ Configuration of video cameras connection parameters;
- ◆ Uploading of detectors' firmware;
- ◆ Restricted access to the software and Monitor functions based on the user access level.

SYSTEM REQUIREMENTS

Hardware and software requirements for proper **“PM5000 Remote Control”** software installation and operation.

PC CONFIGURATION REQUIREMENTS

- ◆ IBM PC with Windows 7, Windows 10 (32x, 64x) Operation System;
- ◆ At least 2 GB of free HDD space;
- ◆ At least 1 GB of RAM;
- ◆ CD-ROM (for software installation);

SOFTWARE REQUIREMENTS

Special and application software required for proper software operation:

- ◆ Microsoft .NET Framework version 4.5 or higher.

SOFTWARE INSTALLATION



Close all working Windows applications before “**PM5000 Remote Control**” software installation.

Follow the below described procedure to install “**PM5000 Remote Control**” software and corresponding documentation.

Insert the supplied installation CD into the computer’s CD drive and do the following.

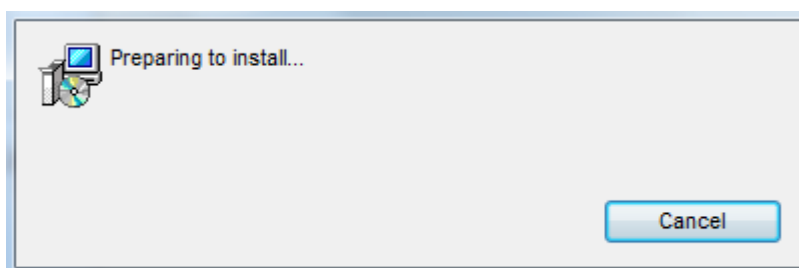
INSTALLATION START

Start the installer to initiate the installation process. To do it:

1. Use any Disk Browser to open contents of supplied installation CD;
2. Run the **setup.exe** file from the root folder.

Installer will start its work:

Сразу после запуска установщик произведет автоматическую проверку ПК пользователя на предмет наличия специального программного обеспечения **Microsoft .NET Framework** версии 4.5 или выше.



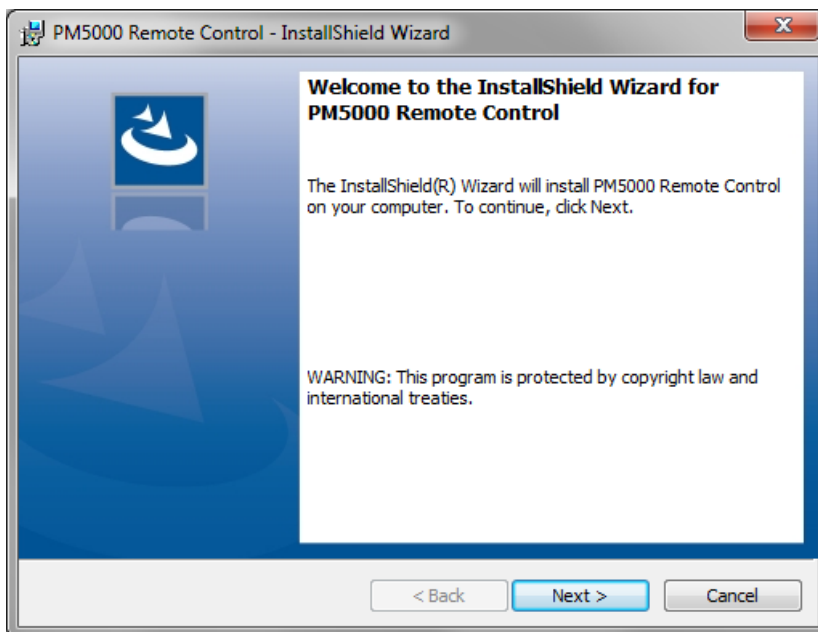
“**PM5000 Remote Control**” software is based on the Microsoft.NET Framework platform, version 4.5. The installer will automatically check if the special OS Microsoft.NET Framework (version 4.0 or higher) is installed on the PC.

If installer diagnoses lacking of Microsoft.NET platform, it will automatically install it. If there are installation problems, see “**INSTALLATION OF MICROSOFT .NET FRAMEWORK**”.

If Microsoft.NET Framework is already installed on the PC, the installer will continue further preparation to install “**PM5000 Remote Control**” software.

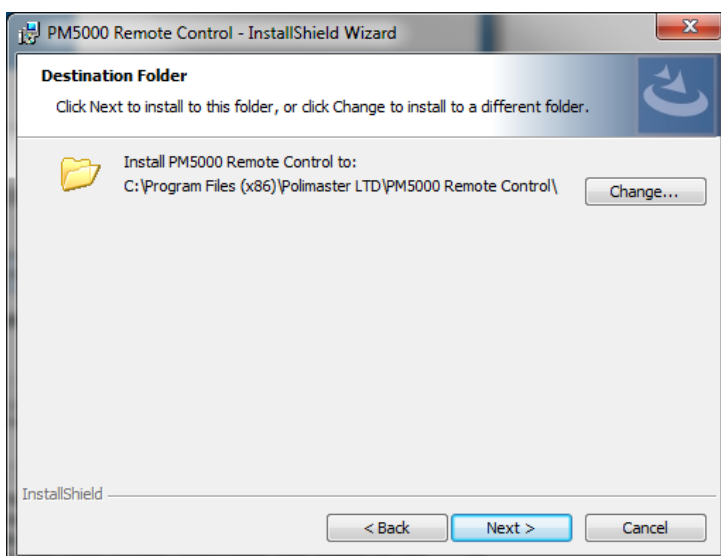


During the installation the user is recommended to fulfill all requirements of the master program.
By default the software is installed into the C:\Program Files\Polimaster LTD\PM5000 RemoteControl\ folder of the system disk.

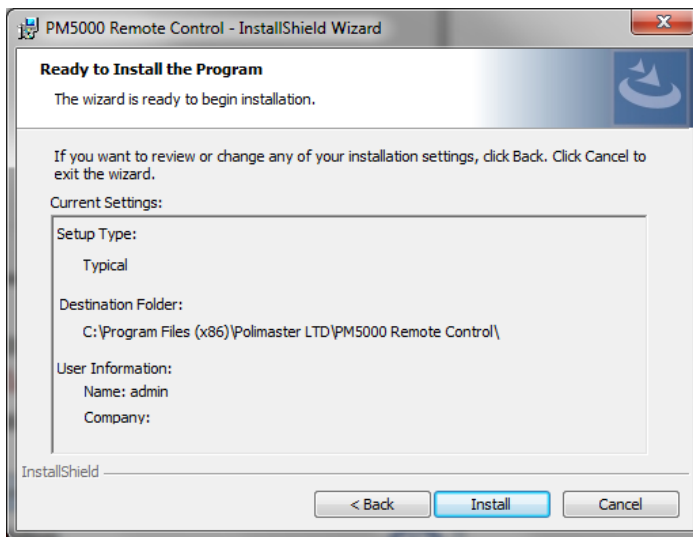


Click “**Next**” to continue.

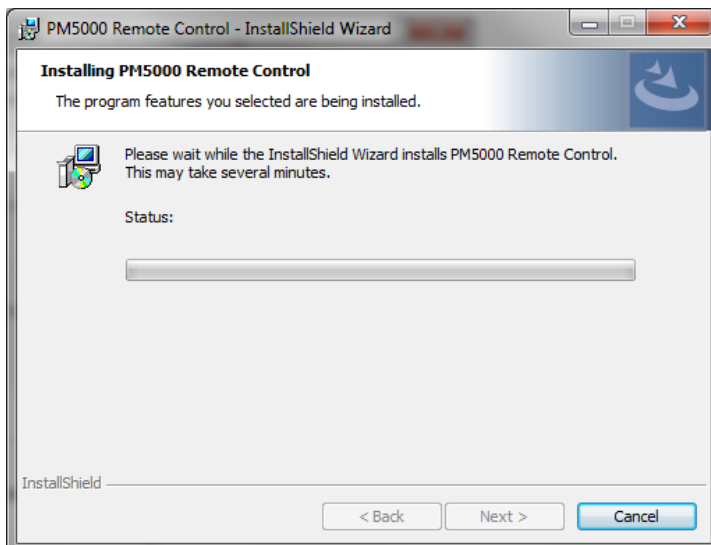
The master suggests a default installation folder:



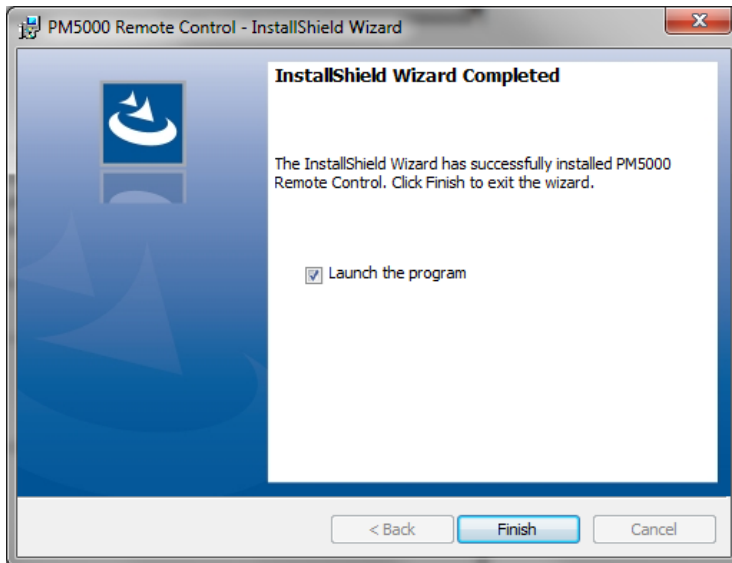
If you want to change the installation settings, press “**Back**”. Press “**Next**” to start the installation.



To complete the installer operation and to start installation of the “**PM5000 Remote Control**” software: press the “**Install**” button:



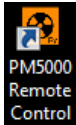
The window displaying installation progress bar will appear. Installation of the “**PM5000 Remote Control**” software will take several seconds.



Click “**Finish**” to exit the setup window and complete installation of “**PM5000 Remote Control**” software.

The program will launch automatically, if the “**Launch the program**” checkbox is selected.

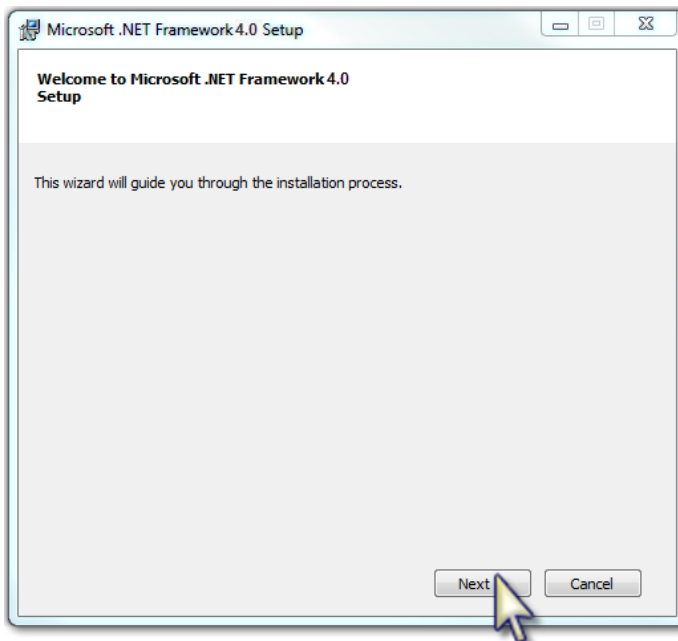
When installation is over, start the software. Press “**Start**” in the main Windows

menu, or click a desktop quick access icon .

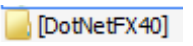
INSTALLATION OF MICROSOFT .NET FRAMEWORK

Installer after start will immediately check the PC for special software installed - **Microsoft .NET Framework** version 4.5 or higher.

If the installer diagnoses lacking of this software, it will automatically install it. Follow all installer guidelines during the installation process.



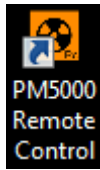
Click “**Finish**” when ready to exit the **Microsoft .NET Framework** master installer. Install **Microsoft .NET Framework** manually if automatic installation doesn’t start:

1. Use any file manager to open CD contents;
2. Start the **dotNetFx40_Full_x86_x64.exe** file from the root folder  “**DotNetFX40**” of the installation CD.

During the installation the user is recommended to fulfill all requirements of the **Microsoft .NET Framework** master program.

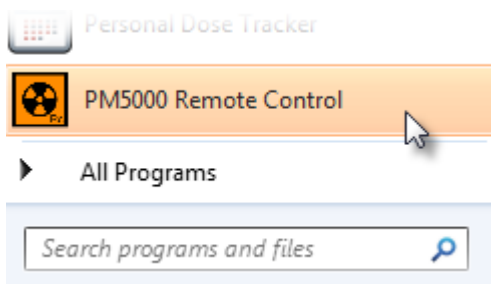
Upon installation press “**Finish**” button to exit the **Microsoft .NET Framework** installer.

SOFTWARE START



Installer creates all the necessary “**PM5000 Remote Control**” shortcut icons in the PC desktop and in the Main Windows Menu.

Program starts from the **Main Windows Menu**: **Start > PM5000 Remote Control** or from the desktop quick access icon.



After it the main program window of “**PM5000 Remote Control**” software will be opened (see “**MAIN PROGRAM WINDOW**”).

SOFTWARE EXIT

For proper program exit use  close button in the main program window.

PROGRAM OPERATION



ATTENTION!

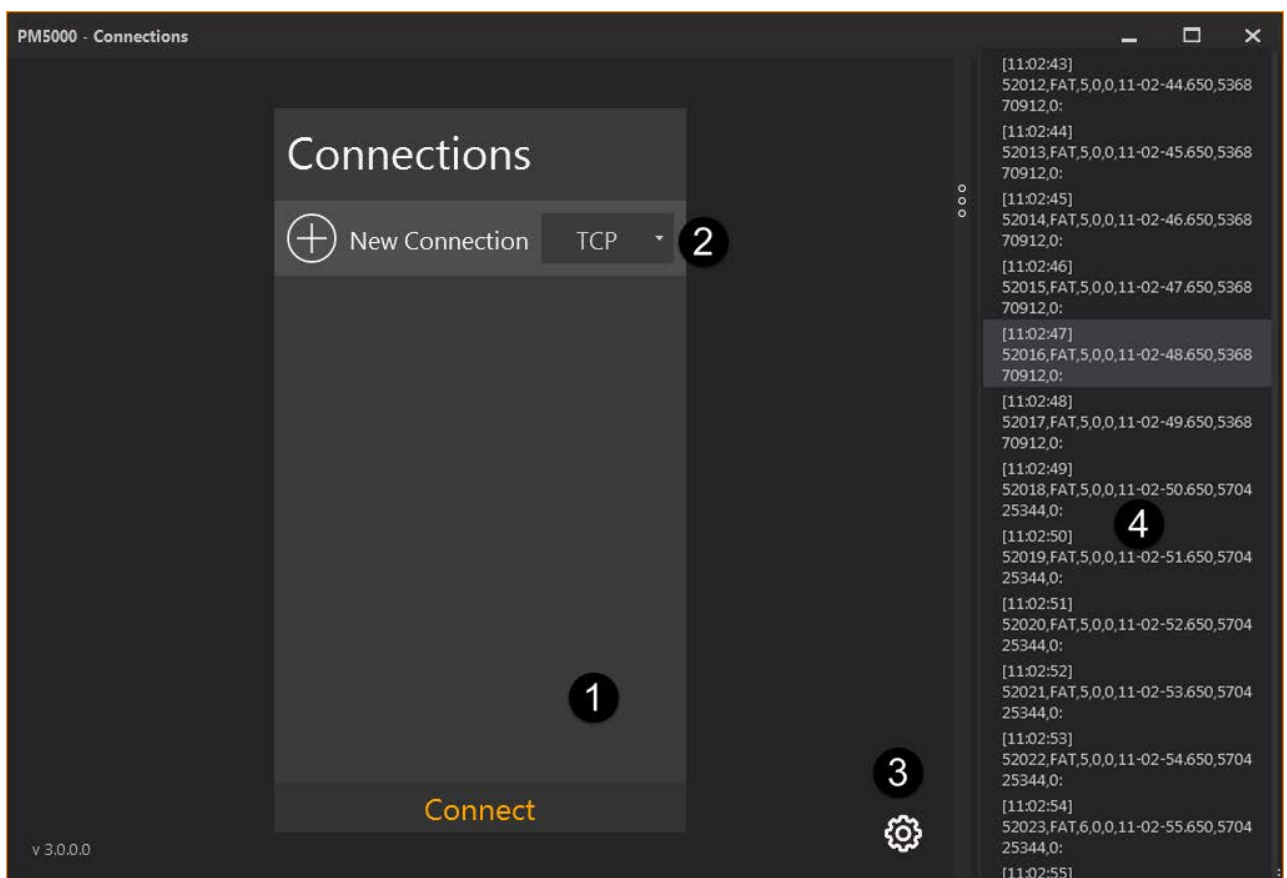
Connections list is empty at **initial** software load Software cannot connect to the Monitor. **Operator** or **Administrator** must adjust connections settings.

Please, contact your system administrator or a properly qualified technician specialist if there any problems.

PROGRAM START WINDOW

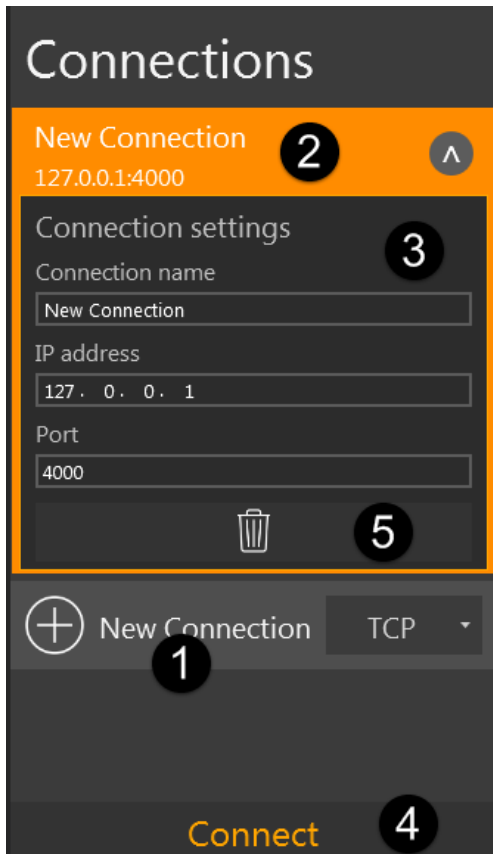
After the software start opens the Program Start window, giving the possibility to:

1. Change connection settings;
2. Select the monitor communication type (Ethernet (TCP)/RS-232);
3. Open the settings window;
4. Review the log file.




“Connections” field gives the possibility to:

- Create the new connection;
- Edit the current connection address;
- Delete the current connection address.




Connection process

1. Select the “**New Connection**” button in the “**Connections**” field;
2. Press the  button to open the “**New Connection**” field;
3. In the “**Connection Settings**” field enter the necessary data in the “**Connection name**”, “**IP address**” and “**Port**”;
4. Press the “**Connect**” button to establish the connection;
5. To delete the connection press the “**Delete**” button.

Software will connect to the Monitor in several seconds (to the controller address set in the Connections List).

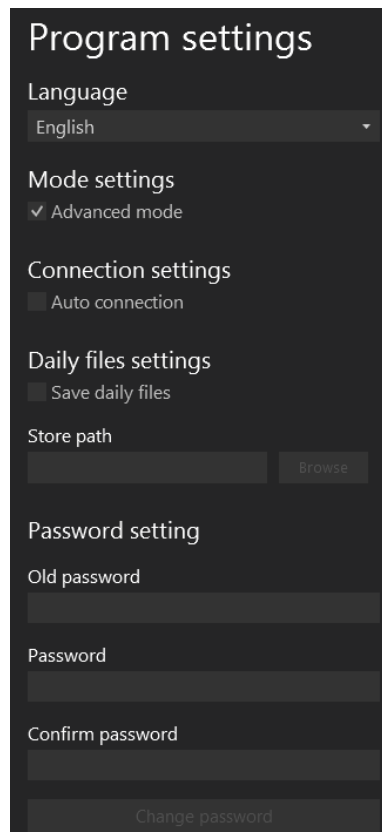
After successful connection to the Monitor the Main program window will be opened.

PROGRAM SETTINGS

To enter the Program settings window press the  “Settings” button on the Program start window.

Program Settings window contains the following features:

- Selecting the operation language: English or Russian;
- Enabling the advanced mode: the ability to activate the “In motion” and “Long dwell” modes;
- Enabling the automatic connection of the program and monitor;
- Saving the Daily Files and setting of the file save path;
- Changing the Password.

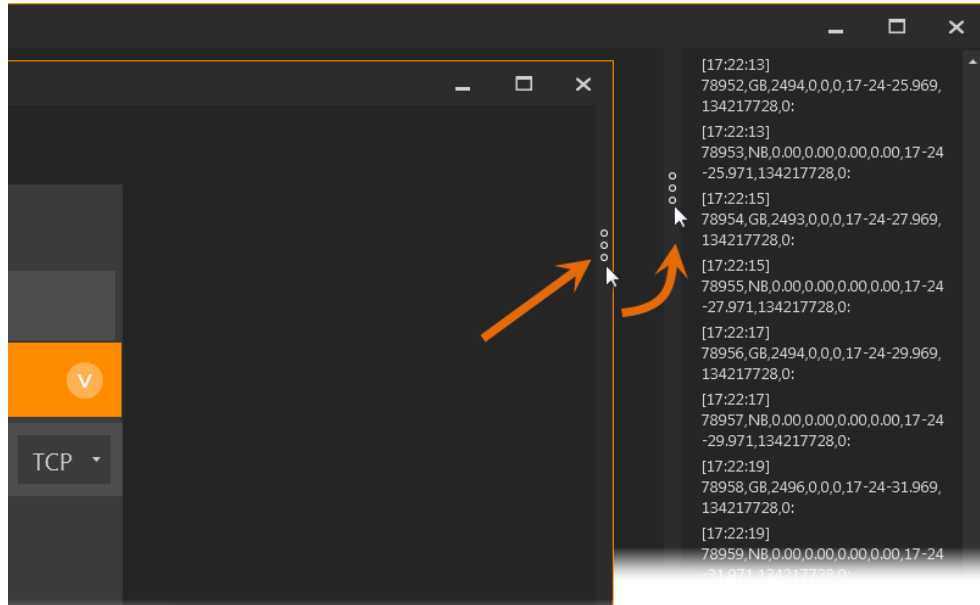


The screenshot shows the 'Program settings' window with a dark background. It contains several sections: 'Language' with a dropdown menu set to 'English'; 'Mode settings' with a checked checkbox for 'Advanced mode'; 'Connection settings' with an unchecked checkbox for 'Auto connection'; 'Daily files settings' with an unchecked checkbox for 'Save daily files'; 'Store path' with a text input field and a 'Browse' button; 'Password setting' with three text input fields for 'Old password', 'Password', and 'Confirm password'; and a 'Change password' button at the bottom.

After the changes are made, press the  button to return to the start window.

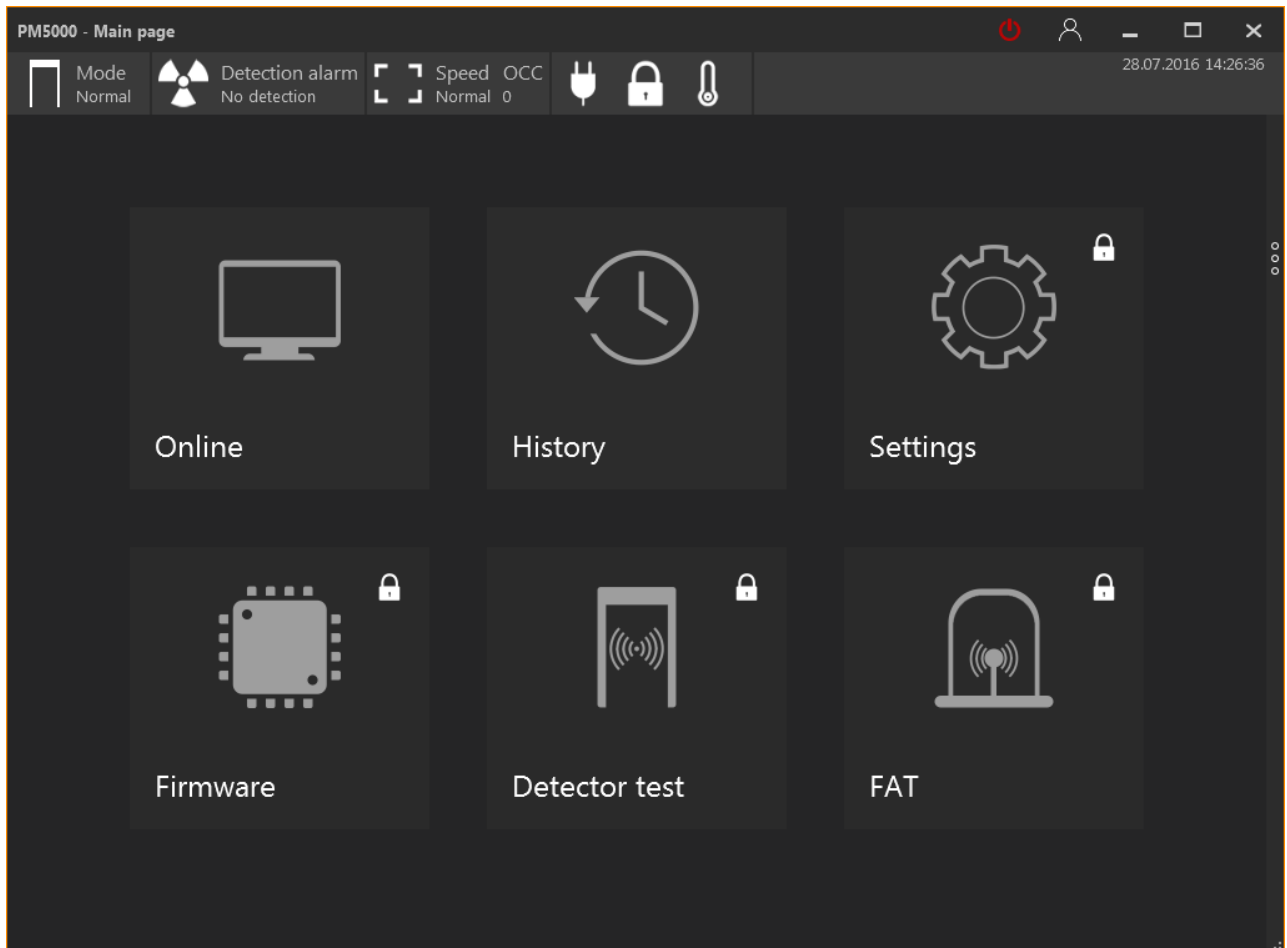
Viewing of the log file

Viewing of the exchange log file is available both on the program start window and on the main window.



MAIN PROGRAM WINDOW

A simple graphical interface of the main program window represents a set of tools and commands. With their help user (depending on the access level) can monitor radiation situation, as well as control software and connected Monitor operation

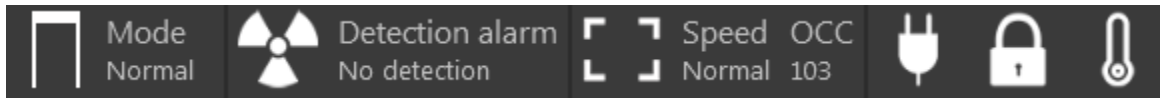


Main program window menu

Tabs of the main program window:

- **Monitor.** Working in this mode is available for both Operators and Administrators. It contains three sub-modes: “**Normal**”, “**Long dwell**” and “**In Moving**”.
- **History.** Working with the Monitor’s history. Read Monitor’s history provides detailed information on the radiation situation at the controlled area;
- **Settings.** Monitor, connections, detectors, cameras, alarm devices settings;
- **Firmware.** Monitor’s firmware update;
- **Detector test.** Checking of the monitoring system operation;
- **FAT.** False Alarm Test.

Monitor state field



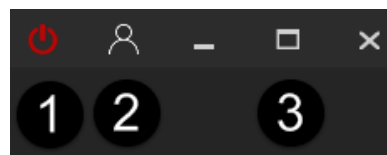
The “**Monitor State**” field represents an area displaying main information on the Monitor state and the highest temperature of the detectors, Object’s presence, state of the channels and notification on alarm events.

The “**Monitor State**” field constantly displays dynamically refreshed graphic and digital information after correct connection between software and Monitor is set.

Window and Monitor control buttons

Window control buttons are situated in the upper right corner of the window:

1. Log off button (returning to the program start window and Program settings window);
2. The login window button;
3. Window control buttons.



Detailed description of all the commands and functions of the main program window is given further in the Guide.

USER ACCESS MODES

“PM5000 Remote Control” software enables multi-user operation modes.

Available functions range is set by the manufacturer for every user access mode and cannot be edited.

There are two user access modes (levels) – **“Operator”** and **“Administrator”**. Every mode possesses its own access rights.

Select required access model after the software start depending on your tasks.

“OPERATOR” ACCESS MODE

By default software at initial start is loaded in “**Operator**” access mode.

This access level is not protected by password since “**Operator**” possesses little rights for software operation. So, the “**Operator**” access mode is meant for passive surveillance over radiation situation. This mode enables restricted access to software and Monitor functions and settings.

Enter “Operator” access mode

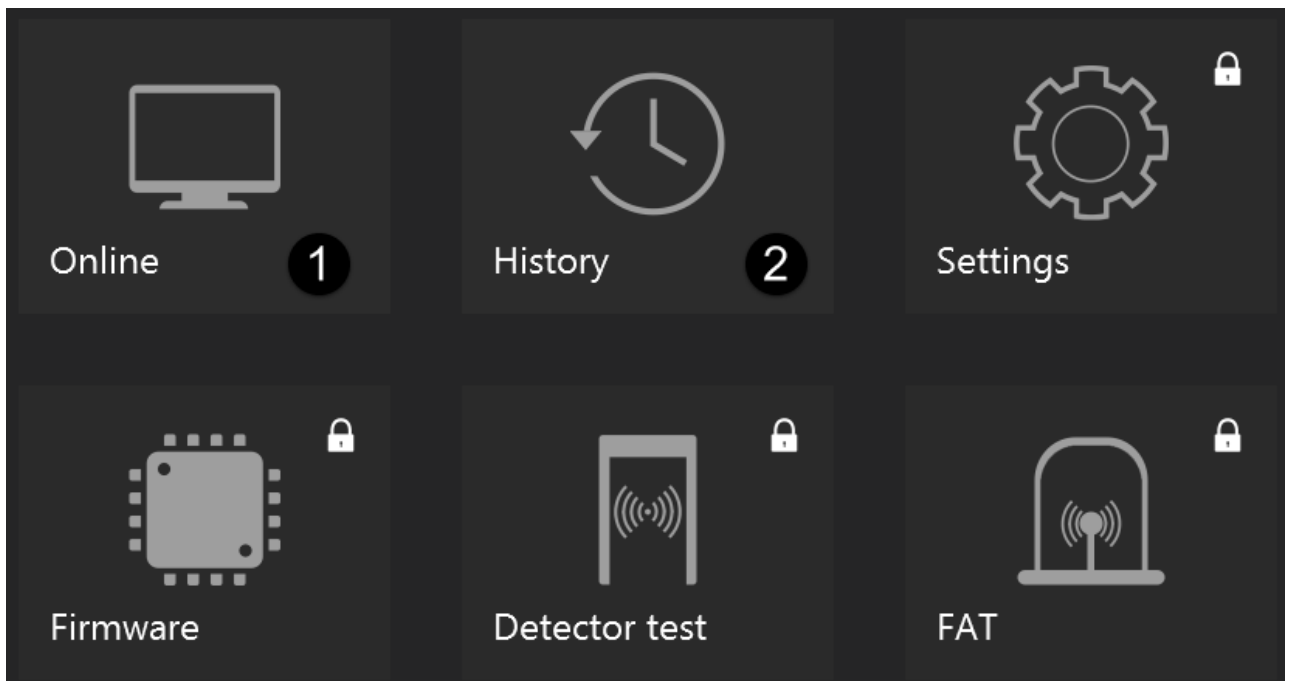
“**Operator**” is a default run level of software at every first start. Software switches to “**Operator**” access mode every time user exits the “**Administrator**” access mode.

Exit “Operator” access mode

B Software automatically exits “**Operator**” access mode upon loading in “**Administrator**” access mode.

“Operator” rights

After entering the “**Operator**” mode user has access to only two tabs of the main window - the “**Monitor**” and “**History**” modes.



Available software functions

- Software start;
- View general and detector-by-detector information on the Monitor state in real-time mode;
- View and control information displayed in the “Monitor State” alarm events field;
- View detailed information on the state of gamma- and neutron channels in real-time mode;
- Detailed view of the graphs;
- View software-Monitor connection settings (Connection Parameters, Daily Files);
- Capability to login as “**Administrator**” (if Operator is allowed to know the required password);

“ADMINISTRATOR” ACCESS MODE




Only properly and highly qualified technical experts are allowed to use the “Administrator” access mode.

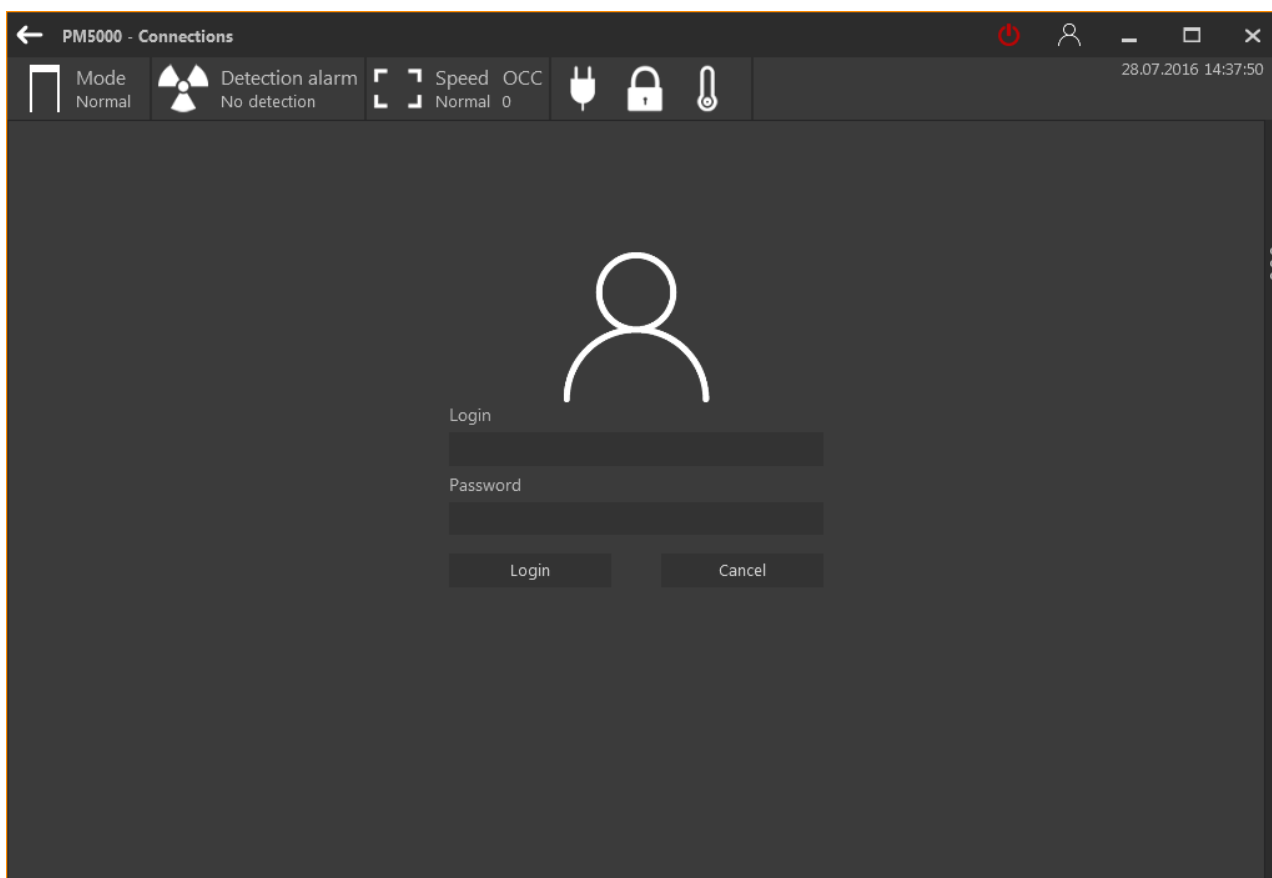
This access mode is password-protected since “Administrator” possesses **unrestricted access to all** software and Monitor functions and settings.

The “Administrator” access mode is meant for radiation monitoring by software means and for configuration of all software and Monitor settings.

“Administrator” as well possesses all rights of “Operator”.

Enter “Administrator” access mode

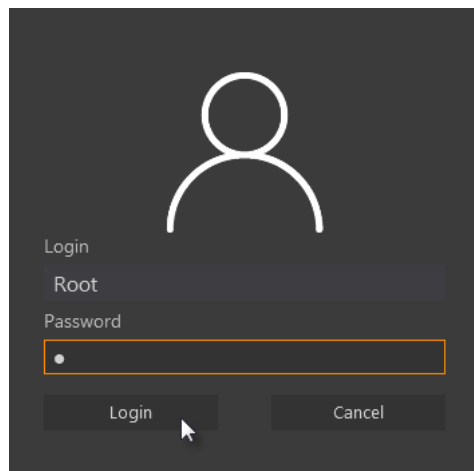
Press the Login button  to enter the “Administrator” mode. The login window opens.





Default login is “Root”, default password is “1”.

In the “**Login**” field enter “**Administrator**” access password and then press the “**Login**” button or press “**Enter**” on the PC keyboard. The “**Login**” button becomes active if at least one password character is entered.

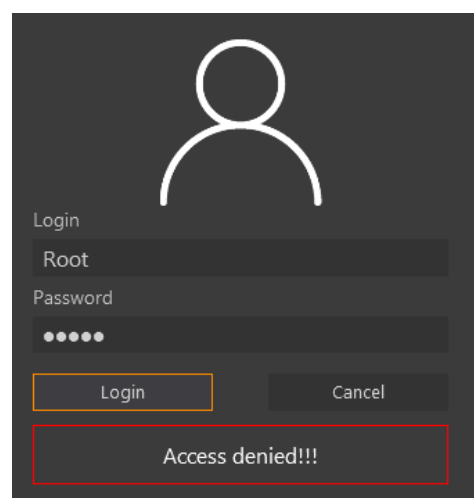


The image shows a login interface with a dark background. At the top is a white outline of a person. Below it are two input fields: 'Login' containing the text 'Root' and 'Password' containing a single dot. Below the fields are two buttons: 'Login' and 'Cancel'. The 'Login' button is highlighted with a yellow border, indicating it is active. A mouse cursor is pointing at the 'Login' button.



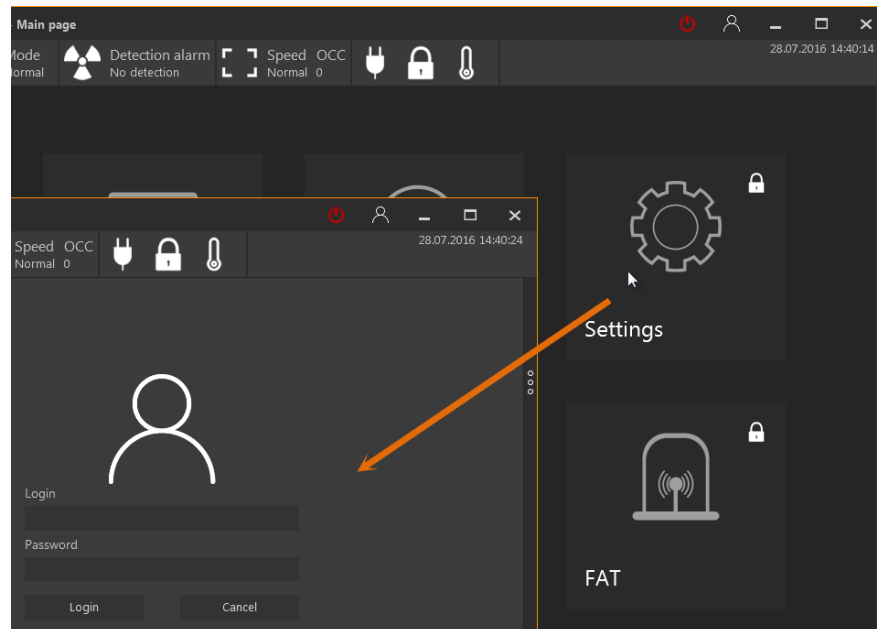
Password is case-sensitive.

Software will display an error message if incorrect password is entered.



The image shows the same login interface as before, but with the 'Password' field containing four dots. The 'Login' button remains active. At the bottom of the screen, a red-bordered box displays the text 'Access denied!!!'.


Also, the “**Administrator**” password is required to enter a mode not available for the “**Operator**”. When you try to enter this mode the program switches to the login page.

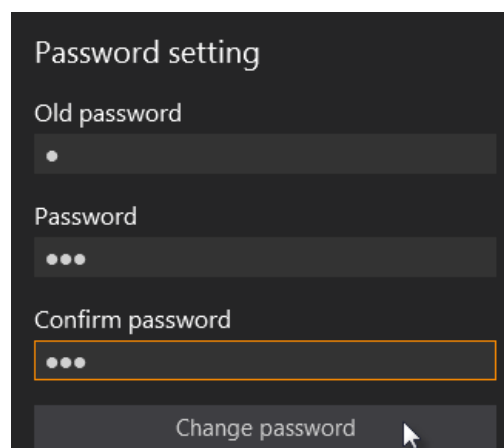


Edit “Administrator” password




Change “Administrator” access password immediately after software installation to prevent unauthorized access and to provide safe work.

Enter the Program settings window by pressing the  Settings button on the Program start window. Fill the appropriate Password settings fields. The Password changing button becomes active. Press it to finish the password changing procedure.



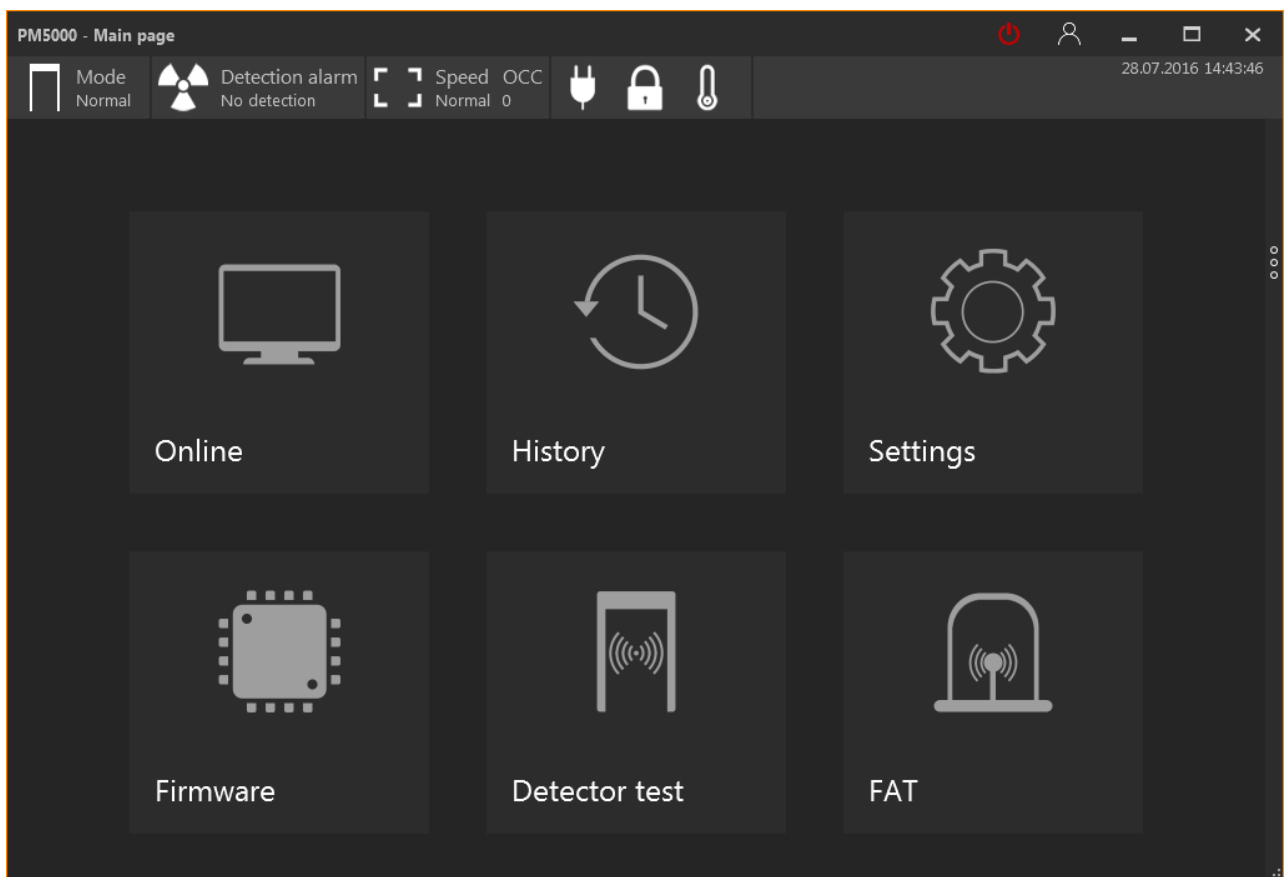
Password can contain letters, digits and other symbols. Password is case-sensitive.

Exit “Administrator” access mode

To exit the “Administrator” access mode: press the  “Logout” button.
After “Administrator” logout software will automatically enter the “Operator” access mode.

“Administrator” rights

In the “Administrator” mode all the tabs of the main window are available for the user.



Available software functions

- Software start;
- View information on the Monitor state in real-time mode;
- Control display of the alarm state events in the “**Monitor State**” field;
- View general and detector-by-detector information on the state of gamma- and neutron channels in real-time mode;

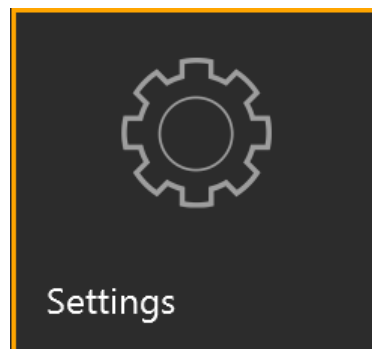
- Detailed view of the graphs;
- View, read and save Monitor operation history into PC;
- History filtration by the measurement date, event, source and values;
- View the settings of all the Monitoring system components (controller, alarms, video cameras, detectors). Save the settings into a file;
- Do the Monitor FAT test;
- Test the detectors;
- View and configure software-Monitor connection settings (Connections List; select connection address and port, create new connection addresses);
- View and change general and specific software settings;
- View and change Software-Monitor automatic connection settings (connection parameters and Daily Files);
- View and change operation settings of the Monitor and all detectors;
- Update firmware of detectors;
- View and change cameras connection settings;
- View and change alarm devices connection settings;
- Free access to **Program Settings**;
- Capability to login as **“Operator”**.

MONITOR AND DETECTORS SETTINGS

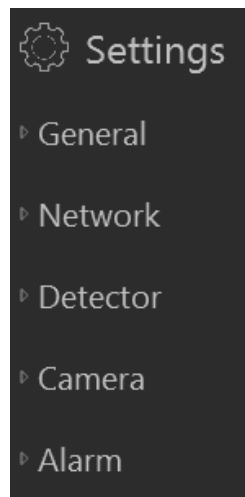


Only **“Administrator”** (full access) is allowed to configure Monitor and detectors settings since these settings are of high importance for the Monitoring system operation.

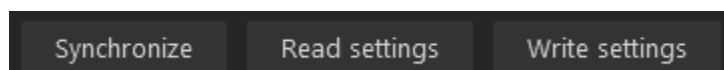
Login as **“Administrator”** (see **“ADMINISTRATOR”ACCESS MODE”**). Choose the **“Settings”** tab of the Main program window to enter the Monitor settings mode.



Monitor settings window will be opened. Settings window menu contains the following items:



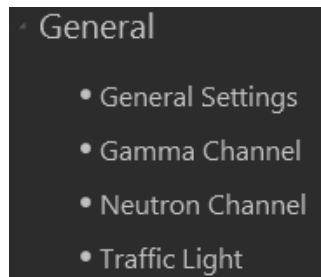
In the lower right corner are located the Synchronization (writing of the computer time to the monitor), Read and Write settings buttons.



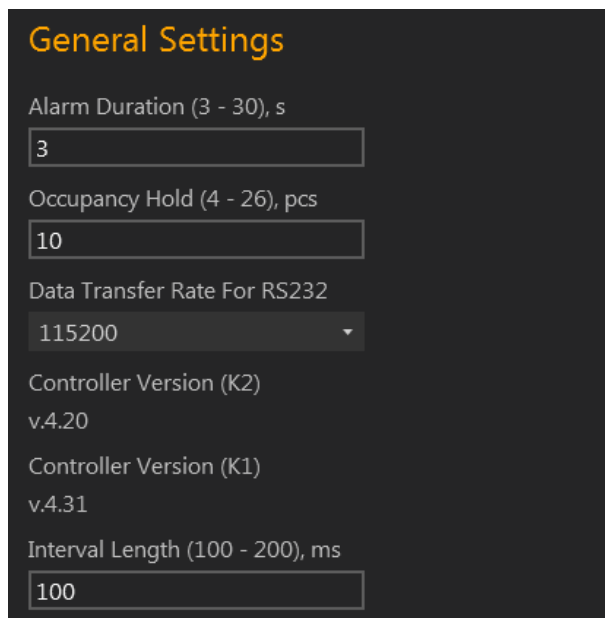
The selected settings field is opened by double-clicking on the corresponding menu item.

GENERAL SETTINGS

The **General settings** item contains the following sub-items:



General settings



General Settings

Alarm Duration (3 - 30), s
3

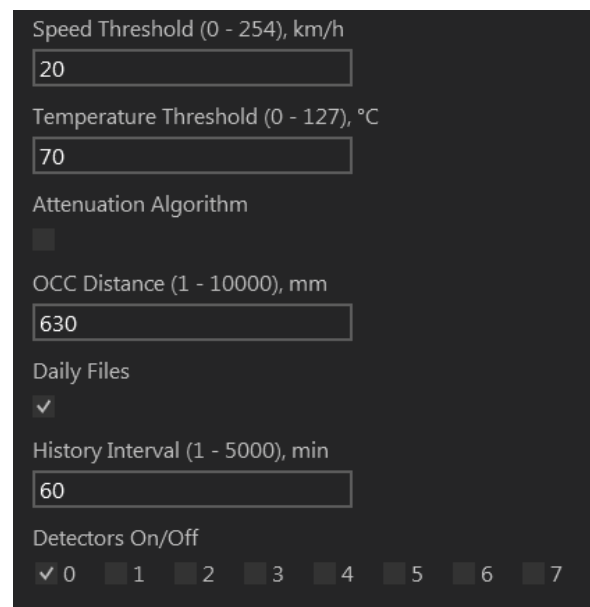
Occupancy Hold (4 - 26), pcs
10

Data Transfer Rate For RS232
115200

Controller Version (K2)
v.4.20

Controller Version (K1)
v.4.31

Interval Length (100 - 200), ms
100



Speed Threshold (0 - 254), km/h
20

Temperature Threshold (0 - 127), °C
70

Attenuation Algorithm
☐

OCC Distance (1 - 10000), mm
630

Daily Files
☒

History Interval (1 - 5000), min
60

Detectors On/Off
☒ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7

- ◆ **Alarm Duration, sec** – set a time period (seconds) for alarm operation. Setting range is 3...30 seconds;
- ◆ **Occupancy Hold** – set a quantity of time intervals for preliminary radiation background measurement. Setting range is 5 ... 25 intervals;
- ◆ **Data transfer Rate for RS232** - select the data transfer rate value from the drop-down list;
- ◆ **Version K1** - This field displays firmware version of the connected controller;
- ◆ **Version K2** - This field displays firmware version of the connected controller;
- ◆ **Interval Length, ms** - duration of the discretization interval (200 ms);
- ◆ **Speed Threshold, km/h** - set a speed threshold for Objects moving through the Monitor detection area in km/h. If the threshold is exceeded, then the “**Speed**” line in the “**Monitor State**” filed will display alarm. Allowed setting range is 0-254 km/h;
- ◆ **Temp. Threshold** - set a temperature Monitor’s threshold in °C. If the threshold is exceeded, then the “**Temperature**” line in the “**Monitor State**” filed will display *alarm*. Setting range is 0-127 °C;

- ◆ **Background Attenuation** – Enable this option to activate the “background attenuation” algorithm;
- ◆ **OCC Distance** - set a distance (cm) between entry/exit sensors. Setting range is 0 – 10 000 cm;
- ◆ **Daily Files** – Enable this option (flag) to activate transfer of Daily Files between controllers. This option must be flagged always;
- ◆ **History Interval** – set the interval of history recording to the built-in Monitor memory. Setting range is 1 ... 5000 min;
- ◆ **Detectors on/off** checkboxes.



The “Daily Files” option must be flagged always since software uses its data for measurement graphs.

Gamma Channel

Gamma Channel

Number of gamma search intervals (4 - 26)

Gamma Background (10 - 200)

Gamma Hi Value (0 - 50000)

Gamma Lo Value (0 - 50000)

Gamma Algorithm

Detectors

☒ 0 ☐ 1 ☐ 2 ☐ 3

Sum 1

☒ 0 ☐ 1 ☐ 2 ☐ 3

Sum 2

☐ 0 ☐ 1 ☐ 2 ☐ 3

Sum 3

☐ 0 ☐ 1 ☐ 2 ☐ 3

Gamma Sigma (1 - 50)

- ◆ **Gamma search intervals** - set a quantity of averaging intervals of gamma-background measurement values. Setting range is 5 ... 25 intervals;
- ◆ **Gamma Background** –set a time period (seconds) for gamma-background measurement. Setting range is 10...200 sec;
- ◆ **Hi Value** (High threshold) - set a value of upper threshold for gamma-channel (background measurement without Object). Setting range is 0 ...50 000. Setting step is 100;
- ◆ **Gamma Lo Value** (Low threshold) - set a value of lower threshold for gamma-channel (background measurement without Object). Setting range is 0 ...50 000. Setting step is 100;

- ◆ **Sum Algorithm** - use this field to configure the detection algorithm and select the required detectors to detect various radiation sources. Counting rate sums of the selected detectors will be displayed in Monitoring mode. Change settings and restart the program to initialize the algorithm;
- ◆ **Sigma** - A sigma value is set in this field. Setting range is 1... 50;

Neutron Channel

Neutron Channel

Number Of Neutron Search Intervals (4 - 26)

Neutron Background (10 - 200)

Neutron Hi Value (0 - 500)

Neutron Lo Value (0 - 500)

Neutron Algorithm

Detectors

☐ 0 ☒ 1 ☒ 2 ☒ 3

Sum 1

☒ 0 ☒ 1 ☒ 2 ☒ 3

Sum 2

☐ 0 ☐ 1 ☐ 2 ☐ 3

Sum 3

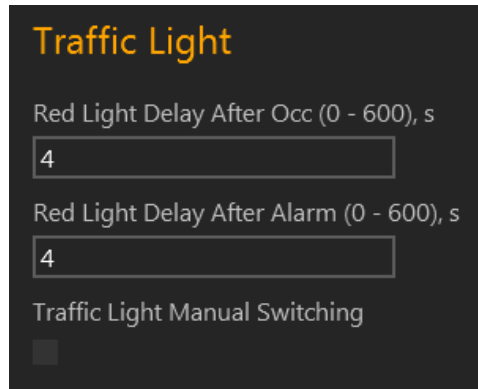
☐ 0 ☐ 1 ☐ 2 ☐ 3

Neutron Alarm Probability (0.4 - 0.999)

Neutron False Alarm Probability (0 - 0.2)

- ◆ **Neutron search intervals** - set a quantity of averaging intervals of neutron background measurement values. Setting range is 5 ... 25 intervals;
- ◆ **Neutron Background** –set a time period (seconds) for neutron background measurement. Setting range is 10 ... 200 sec;
- ◆ **Neutron Lo Value (Low threshold)** - set a value of lower threshold for neutron channel (background measurement without Object). Setting range is 0 ...50 000. Setting step is 100;
- ◆ **Neutron Lo Value (Low threshold)** - set a value of lower threshold for neutron channel (background measurement without Object). Setting range is 0 ...50 000. Setting step is 100;
- ◆ **Sum Algorithm** - use this field to configure the detection algorithm and select the required detectors to detect various radiation sources. Counting rate sums of the selected detectors will be displayed in Monitoring mode. Change settings and restart the program to initialize the algorithm.
- ◆ **Neutron alarm probability (Search sensitivity)** –set a search sensitivity coefficient value. The higher the search sensitivity is, the higher false response probability is. Recommended value – 0.95. Setting range is 0.4 ... 0.99;
- ◆ **Neutron False Alarm Probability** – set the **FAP** coefficient value (**False alarm probability**). Setting range is 0,0001 – 0,2.

Traffic Light

A screenshot of a settings window titled 'Traffic Light' in orange text. It contains three settings: 'Red Light Delay After Occ (0 - 600), s' with a value of 4, 'Red Light Delay After Alarm (0 - 600), s' with a value of 4, and 'Traffic Light Manual Switching' with an unchecked checkbox.

Traffic Light

Red Light Delay After Occ (0 - 600), s
4

Red Light Delay After Alarm (0 - 600), s
4

Traffic Light Manual Switching
☐

◆ **Red Light Delay after Occ** – set the value of the red light delay interval after the presence of the object in the detection area;

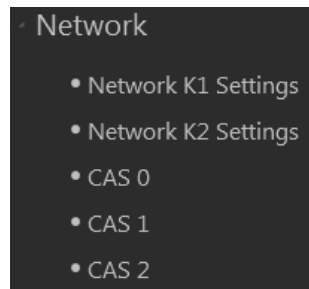
◆ **Red Light Delay after Alarm** – set the value of the red light delay interval after the alarm;

To view new settings: press **Read settings** button in the lower part of the window.

To write new settings into Monitor's memory: press **Write settings** button.

NETWORK SETTINGS

The **Network** item contains the following sub-items:



Network K1 and K2 settings

Network K1 Settings

Monitor IP-address
192.168.17.29

Monitor IP-mask
255.255.0.0

Monitor IP-gateway
192.168.17.1

Network K2 Settings

Monitor IP-address
192.168.17.30

Monitor IP-mask
255.255.0.0

Monitor IP-gateway
192.168.11.1

Firewall On/Off
☐

- ◆ **IP address** - A current IP address of the Monitor is displayed in this field;
- ◆ **IP Mask** - IP Mask address (it is set by the Administrator);
- ◆ **IP Gate** - IP Gate address (it is set by the Administrator);
- ◆ **Firewall enabled** – flagged option enables IP-filtration. Only the PC with IP set in the “Allowable IP 1...3” fields can be connected to the ports set in the “CAS 0, CAS 1, CAS 2” fields;
- ◆ **CAS IP address, CAS port** – a port number and IP address of the PC allowed for connection is set there.

CAS 0

CAS IP-address
192.168.13.8

CAS Port
4002

CAS 1

CAS IP-address
192.168.13.45

CAS Port
4001

CAS 2

CAS IP-address
192.168.13.7

CAS Port
4000

To view new settings: press **Read settings** button in the lower part of the window. To write new settings into Monitor’s memory press **Write settings** button.

DETECTORS SETTINGS



Only “**Administrator**” can configure settings of the detectors and upload their firmware.

Login as “**Administrator**” to have an opportunity to configure the detectors settings and/or upload their firmware.



By default the gamma channel detectors are listed first (**Detectors №№1-4**), followed by the neutron detectors (**Detectors №№5-8**).

Detector 0	
Detector Version	PM5000A Processing Unit v2.4.2 build Nov 12 2013 15:54:30
Detector On/Off	<input checked="" type="checkbox"/>
Online Occ	<input checked="" type="checkbox"/>
Detector Low Threshold (0.001 - 2.779)	0.030
Detector High Threshold (0.001 - 3.399)	3.300
Address (0 - 7)	0
Temperature Correction (-63 - 63)	0
Occ Timeout (0 - 10000), s	10
High Voltage (0 - 2200), V	65535
DAC Coefficient (-128 - 127)	0
Detector Supply Voltage (0 - 1), V	0.0
Detector Temperature (-100 - 300), °C	21.0



Disconnected detectors are inactive.

- ◆ **Detector Version** - A version number of the detector technological software is displayed in this field;
- ◆ **Detector on/off** – enable this option (flag) to display detector’s address;

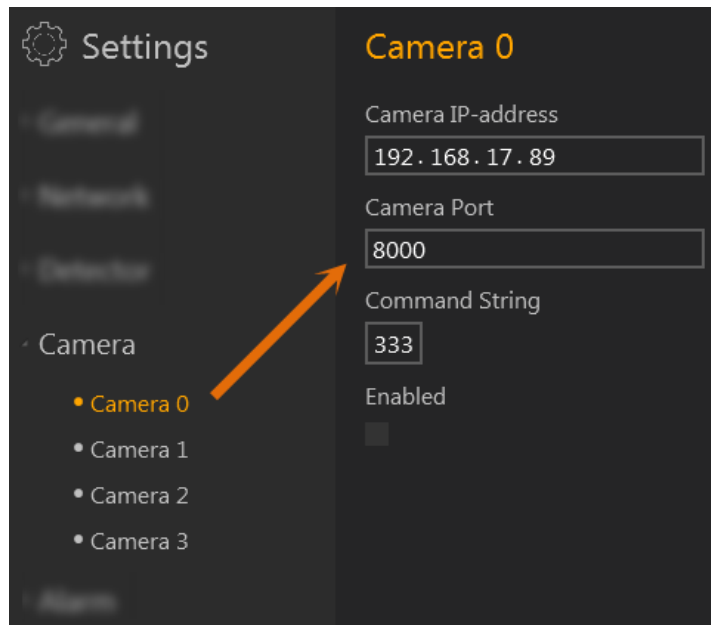
- ◆ **Online OCC** – enable this option (flag) to state that the Object presence detector is connected to this detector.
- ◆ **Detector Lo Threshold** (Low threshold) – set a value of lower threshold for gamma-channel detector (background measurement with an Object). Setting range is 0.001 ... 3.399 V;
- ◆ **Detector Hi Threshold** (High threshold) - set a value of upper threshold for gamma-channel detector (background measurement with an Object). Setting range is 0.001 ... 3.399 V;
- ◆ **Address** - The detector's address is displayed in this field;
- ◆ **Temperature Correction** - set temperature coefficient value. Setting range is -63 ... +63° C;
- ◆ **OCC Timeout** (timeout of presence) - set timeout of presence in this field. Setting range is 0 ... 10 000;
- ◆ **Hi Voltage** (High voltage) - set a high voltage value for the detector. Setting range is 0 ... 2200 V;
- ◆ **Коэффициент DAC** – set the DAC coefficient value. Setting range is 0 ... 128;
- ◆ **Supply Voltage** - Supply voltage of the detector is displayed in the field. The parameter cannot be edited;
- ◆ **Temperature** – Temperature (°C) of the detector is displayed in the field. The parameter cannot be edited.

To view new settings: press **Read settings** button in the lower part of the window.
To write new settings into Monitor's memory: press **Write settings** button.

CAMERAS SETTINGS

To be permitted to configure the cameras settings: login as “**Administrator**”.

Up to 4 video cameras can be connected to one Monitor. To do soft connection of the cameras to the system: adjust their IP addresses and connection ports.



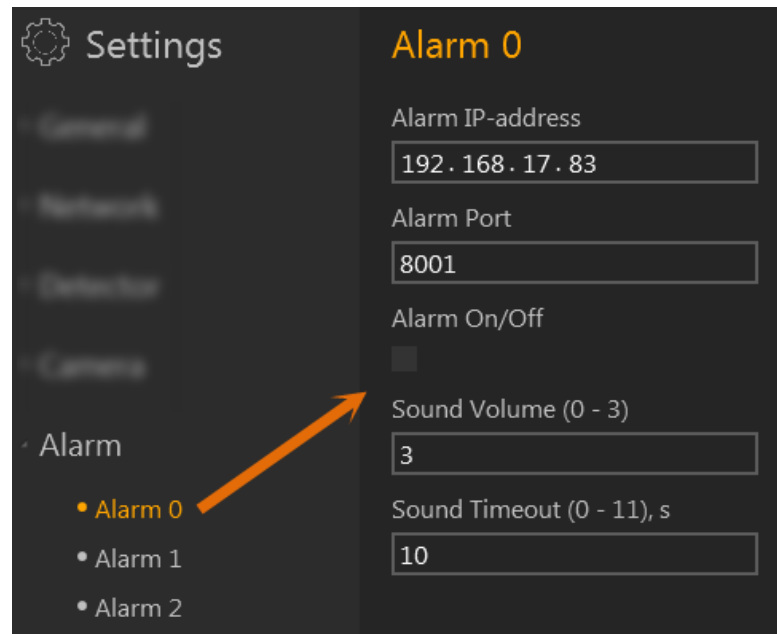
- ◆ **Camera IP Address:** – set here camera connection address;
- ◆ **Camera Port** – use arrow buttons to set connection port number;
- ◆ **Command string** – command to start the photos recording process;
- ◆ **Enabled** – enable this option (flag) for further setting procedure.

To view new settings: press **Read settings** button in the lower part of the window.

To write new settings into Monitor’s memory: press **Write settings** button.

ALARM DEVICES SETTINGS

To be permitted to configure the alarm devices settings: login as “**Administrator**”. Up to 3 alarm devices can be connected to one Monitor. To do soft connection of the remote alarm blocks to the system: adjust their IP addresses and connection ports.



- ◆ **Alarm IP Address:** – set here the connection address;
- ◆ **Alarm Port** – use arrow buttons to set connection port number;
- ◆ **Alarm on/off** – enable this option (flag) for further setting procedure;
- ◆ **Volume** – set the required volume for alarming. Setting range: **0 (Off)**, **1 (Low)**, **2 (Loud)**, **3 (Very loud)**;
- ◆ **Timeout .. s** – Alarm signal duration in seconds. Set the required duration. If **0** is selected, no sound alarm will be emitted.

To view new settings: press **Read settings** button in the lower part of the window.
To write new settings into Monitor’s memory: press **Write settings** button.

FIRMWARE UPDATE



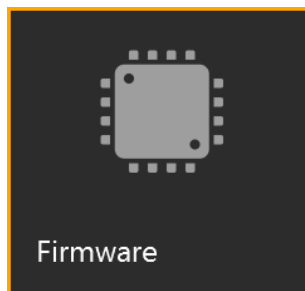
Measurement graphs are not refreshed when the update function (Firmware Update) of detectors firmware is working.

Only “**Administrator**” is allowed to update the detector’s firmware. This function is required when the manufacturer makes some modifications in hardware and software components of the Monitoring system.



Update firmware function requires special firmware update file of ***dat** format. Only “**Administrator**” is allowed to receive this file from Polimaster by separate request. The file must be saved on PC in user-selected folder.

Select the “Firmware” tab to enter the Firmware update mode.



The Firmware update window will be opened.

Firmware	Firmware buffer
<p>Loading firmware update file</p> <p>Select firmware update file</p> <p>Get Buffer</p>	
<p>Send firmware update file to the monitor</p> <p>This button will save the firmware update file to the monitor memory</p> <p>Upload</p>	
<p>Detectors Update Firmware</p> <p>Choose detector you want to update</p> <p>D0 <input type="checkbox"/></p> <p>Write detectors</p>	
<p>Monitor memory cleaning</p> <p>This button removes the firmware file from the monitor memory</p> <p>Clear Buffer</p>	

Uploading process of detectors technological software consists of two simple steps:

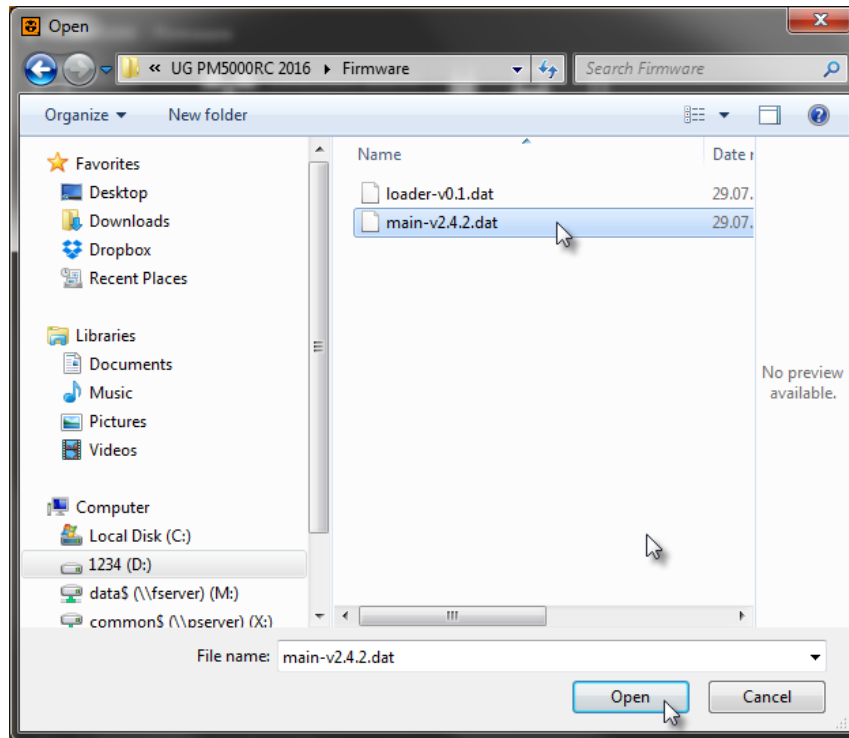
Step 1. Download the update file into software.

Press the “**Get buffer**” button in the “**Loading the firmware update file**” field.

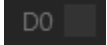


When **Administrator** presses this button, he/she cannot use any software functions or commands. Access to software functions and menus will be automatically restored when technological software of detectors is uploaded (or if **Administrator** rejects uploading).

A standard “**Open**” dialogue window will be opened. Select here an upload file of ***dat** format. Process will take some time.



Step 2. Upload the technological software of the detector(s).

Select detectors for updating in the “**Detectors update firmware**” field . Technological software versions are displayed near the names of the connected detectors. You can select any number of the connected detectors (within one and the same channel).



Carefully select detectors for firmware uploading since you can simultaneously upload technological software of detectors within one and the same channel range (gamma or neutron). You cannot upload firmware of both channels detectors simultaneously.

Select required detectors and press the “**Write detectors**” button in the “**Send firmware update file to the monitor**” field to finish the update process.

When “**Update Firmware**” function is activated, the “**Daily Files**” function is **temporarily blocked** since software stops requesting for new Daily Files. Hence, measurement graphs won’t be renewed. When detectors firmware will be uploaded, the “**Daily Files**” function starts its work automatically and measurement graphs will be renewed from this moment. Take into account when some important measurement must be taken since software will not receive measurement data when detectors firmware update function is active.

To remove the detector firmware update file from the monitor's memory press the **“Clear buffer”** button in the **“Monitor memory cleaning”** field.

SELF TESTING

Self-testing enables checking of the Monitoring system operational accuracy.

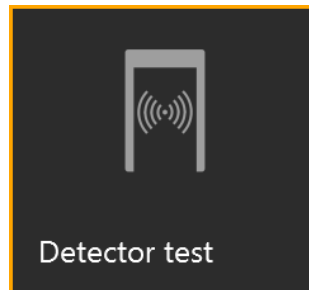


Self-testing is available for “**Administrator**” only.

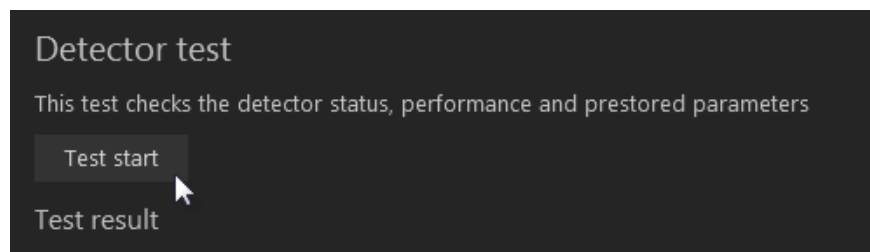
Login as “**Administrator**” to have an opportunity to enable the Monitor’s self test.

DETECTORS SELF TEST

To start the detectors test select the “**Detector test**” tab of the Main program window.



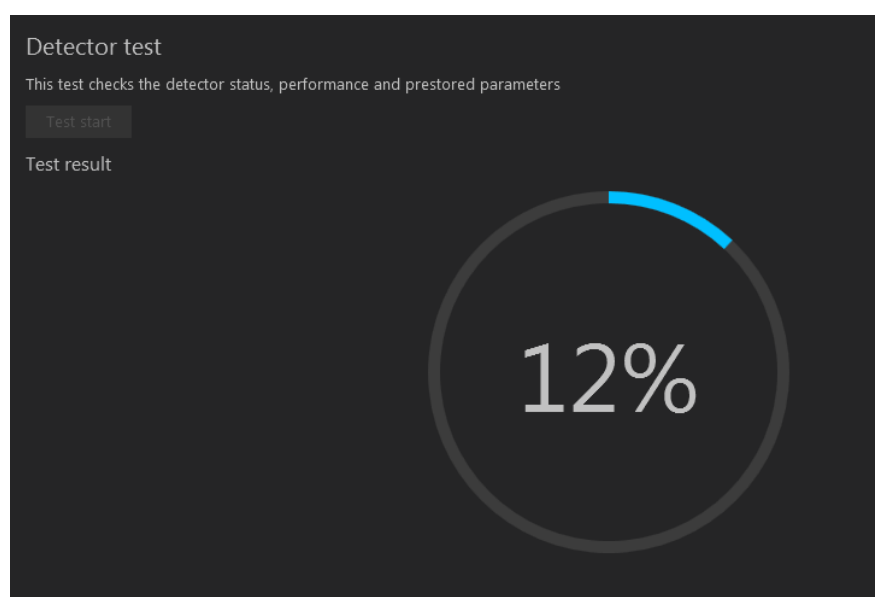
The detector self test window will be opened.



To start the process press the “Test start” button.

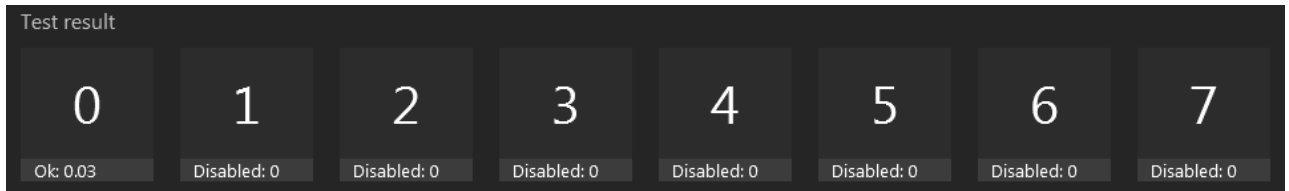
Self-testing of the detectors cannot be stopped ahead of time. Access to all software functions will be temporarily blocked.

Self-testing will take some time. It will be displayed in percent.



The system will automatically switch to Calibration when the testing is finished, and only after the Monitoring mode will be activated again.

Test results are displayed in the “**Test result**” field:



The results are within the **0.01-1** range.

0.01 means that false alarm probability of the detector is very low, i.e. it is normal. If the detector result is **1**, it means that this detector malfunctions.



The higher the test result (close to 1) of the detector is, the higher the false alarm probability of the detector is.

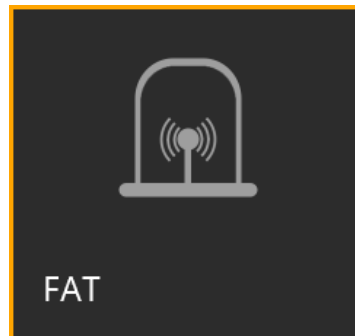
For not-connected detectors the “**Disabled**” message is displayed.



No measurement (monitoring) data can be taken during the self-testing. The measurement graph will have gaps.

MONITOR SELF TEST (FAT TEST)

To enter the “Monitor self test” mode select the “**FAT**” tab of the Main program window.



Software imitates Objects presents to check the Monitor false alarm rate.

FAT	Result	
This test checks the detector status, performance and prestored parameters Occupancy Signal Duration (1 - 200), s <input type="text" value="3"/>	The number of gamma alarms	0
Pause Between Occupancies (1 - 200), s <input type="text" value="3"/>	The number of neutron alarms	0
Number of Occupancy signals cycles (1 - 200) <input type="text" value="2"/>	The number of occupancies	0
Pause Between Occupancy signals cycles (1 - 200), s <input type="text" value="2"/>		
<input type="button" value="Read settings"/> <input type="button" value="Save settings"/>		
This button starts the background measuring <input type="button" value="Start"/>		

Set all the settings in the “**False Alarm Test Settings**” field:

- ◆ **Occupancy Signal Duration** – set the duration of the imitated Object “presence” within the Monitor detection area. The setting range is 0 – 200 s;
- ◆ **Pause Between Occupancy** – set the gap between two adjacent events of the imitated Object “presence” within the Monitor detection area. The setting range is 0 – 200 s;
- ◆ **Number of Occupancy Signals Cycles** – set the number of occupancy cycles. The setting range is 0 – 200 s;

◆ **Pause Between Occupancy Signals Cycles** – set the gap between the occupancy cycles. The setting range is 0 – 200 s;

To view new settings: press **Read settings** button in the lower part of the window.
To write new settings into Monitor's memory: press **Write settings** button.

Start FAT Test

To start the false alarm test press the **Start** button.

Access to all software functions will be temporarily blocked:

Software displays dynamically refreshed test data in the “**Result**” field.

Result	
The number of gamma alarms	0
The number of neutron alarms	0
The number of occupancies	8

- ◆ **Number of occupancies** – The field displays a number of imitated occupancies;
- ◆ **Number of alarms** – The field displays a number of false gamma-alarms. Acceptable test results are 0-2. If you get higher values, then consult a technician specialist;
- ◆ **Number of neutron alarms** - The field displays a number of false gamma-alarms. Acceptable test results are 0-2. If you get higher values, then consult a technician specialist.

The **FAT** test can be stopped when required. To so it, press the **Stop** button.
The **FAT** test can run endlessly, being repeated cyclically.



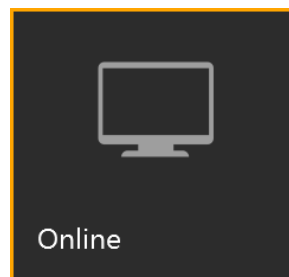
No measurement (monitoring) data can be taken during the self-testing. The measurement graph will have gaps.

ONLINE MONITORING MODE

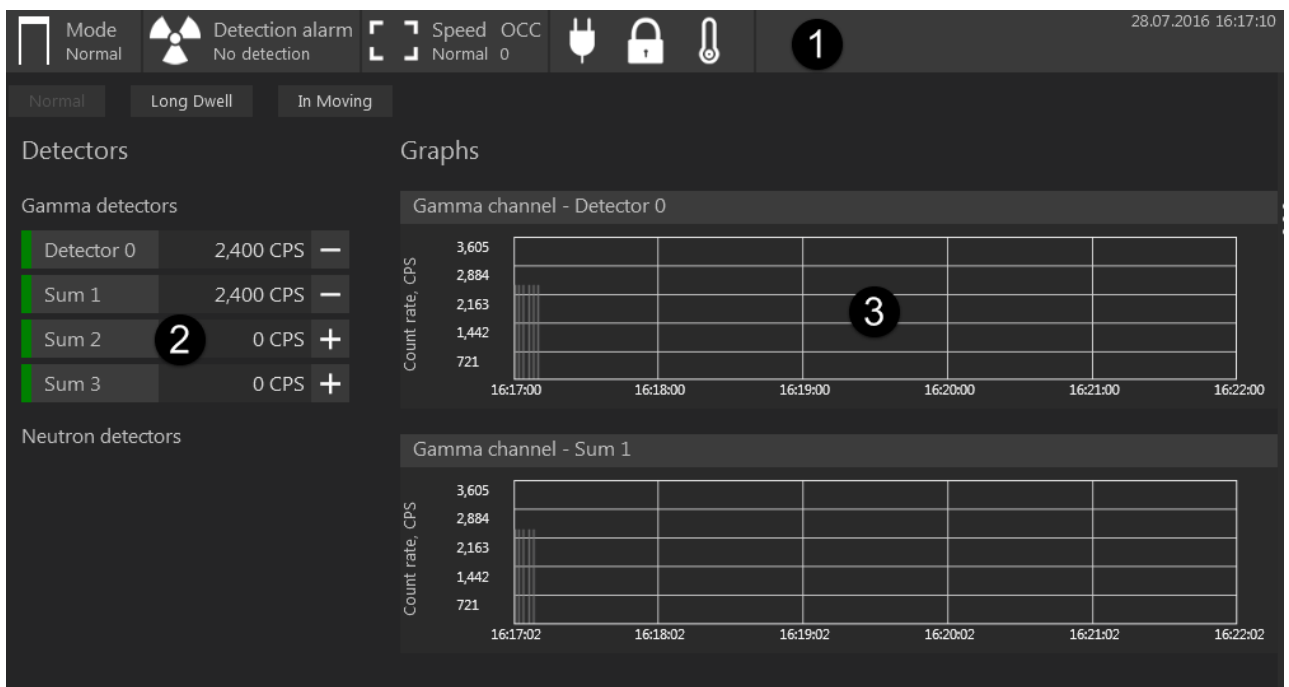
The “**Online**” mode is the main software operation mode. This mode is activated by default after software installation and start-up. Software enables continuous monitoring of radiation situation (online measurement of gamma- and neutron radiation) in real-time mode.



The monitoring mode is available for all access modes.



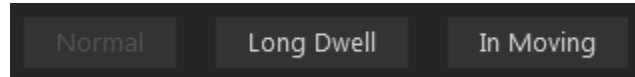
To enter the “**Online Monitoring**” mode select the “**Online**” tab of the Main program window.



- At the top of the “**Online**” mode window are located the submode selection buttons:
 - Normal;

- Long Dwell;
- In Moving (object detection mode with the monitor in movement).

The current mode button is not active.



2. In the left side of the window is situated the “**Detectors**” field to select the detectors and the count rate sums for each of the channels to be displayed in graphic form. The “**Detectors**” field displays a list of connected gamma and neutron detectors, their numbers, count rate sums for each channel, the count rates, as well as buttons to open the detectors graphs;
3. In the right side of the window is situated the “**Graphs**” field displaying the of the connected detectors operation in graphical form.

MEASUREMENT GRAPHS

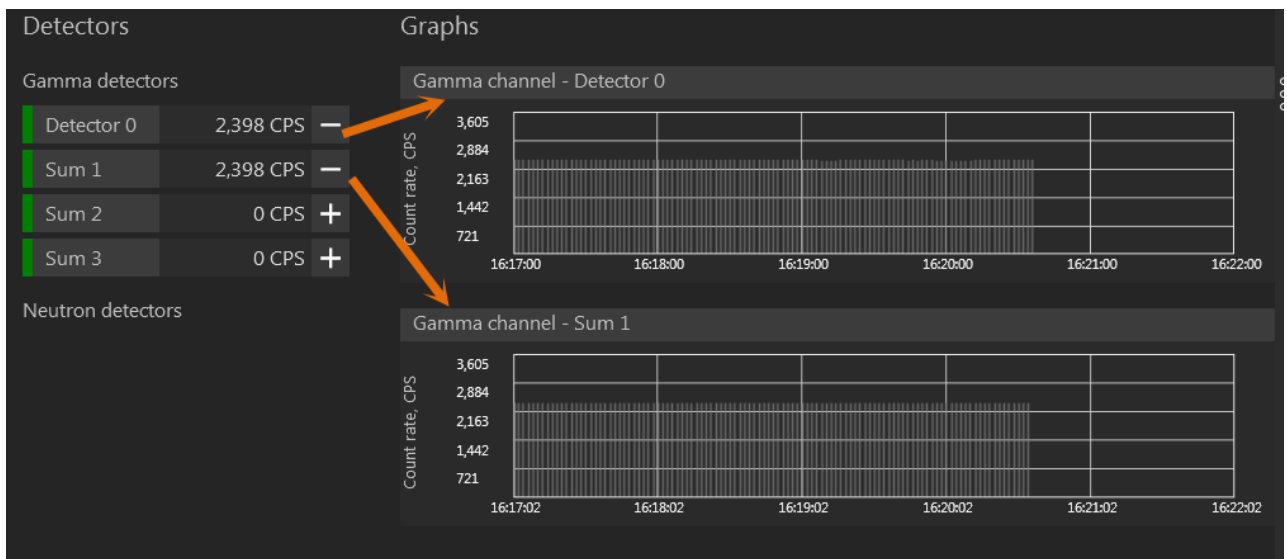
Software uses measurement graphs for precise and detailed presentation of radiation situation in real-time mode including information on the Object movement profile. Graphs represent measurement information before Objects get into the Monitor detection area, during Objects presence in the Monitor detection area and after Objects leave the detection area.

Software enables three-color way of measurement graphs presentation:

- ◆ **Grey color of the graph** – radiation background registered without Object presence is within the set range, higher or lower than the set range;
- ◆ **Yellow color of the graph** – radiation background registered with Object presence is within the set range;
- ◆ **Red color of the graph** – radiation level registered with Object presence exceeds the set range (thresholds). Gamma- and/or Neutron alarm.

Graphical information is accompanied by the corresponding information in the “*Monitor State*” field and count rate sum values, thus representing a full and detailed radiation monitoring.

To present the graphs (gamma- and neutron channels) in general view mode select the **+** button near the selected detector or the count rate sum. A general view of the both graphs will be displayed.



Measurement graphs are displayed according to the selected count rate sums for every channel (**Sum 1**, **Sum 2**, **Sum 3**) in the “**Neutron/Gamma Sum Count Rate**” field. **Sum1** represents a common value of **Sum 2** and **Sum 3**. Sum display depends on the sum algorithm setting (**Monitor Settings/Gamma Channel, Neutron Channel**). Use **Sum 1** and a corresponding graph to see a complete radiation monitoring situation.

Software simultaneously displays measurement data on both channels graphically and digitally:

◆ **Digitally:**

◆ **“Sum 1... Sum 3” field** - a dynamically changing count rate sums based on Daily Files. The count rate sum is counted by means of adding together count rate values of the detection units, selected in the sum algorithm field of the Monitor settings. The sums are displayed for gamma- and neutron channels;

◆ **“Monitor State” field;**

◆ **Alarm state events display field;**

◆ **Graphically:**

◆ **“Monitor State” field;**

◆ **Measurement graphs** - dynamically refreshed measurement graphs. The horizontal **X** axis displays dynamically refreshed time. Scale is 1/5 minute. The vertical **Y** axis displays dynamically refreshed count rate values (CPS – quantity of impulses per second).

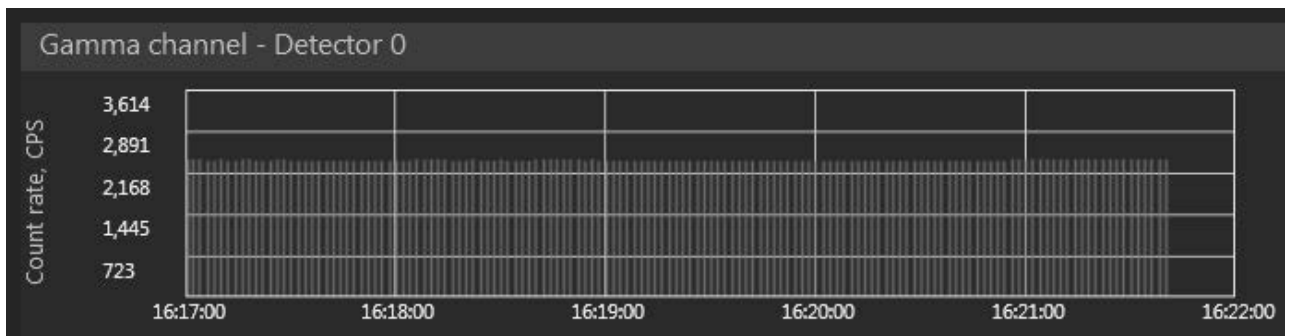
Software, besides general view of the graphs, enables a detailed view of the graph for every channel.



Attention!

If count rate values on the graphs are zero, while software is successfully communicating with the Monitor, then call a technician specialist. Such a situation can show that the Controller is disconnected and/or wrong settings are applied. Restart the Controller and/or configure the settings.

Gamma-channel



Count rate of summed up readings from gamma detection units (GDU) is displayed in the “**Sum 1...Sum 3**” field of the “**Gamma Sum Count Rate**” window. The count rate sum is generated on the basis of *Daily Files* readings by summing over all count rate values read from the GDUs, selected in the sum algorithm field of the Monitor settings.

A dynamically refreshed measurement graph is displayed in the right part of the field. The vertical axis displays count rate sum values, horizontal axis - measurement time.

Neutron channel



Count rate of summed up readings from neutron detection units (NDU) is displayed in the “**Sum 1...Sum 3**” field of the “**Neutron Sum Count Rate**” window. The count rate sum is generated on the basis of *Daily Files* readings by summing over all count rate values read from the NDUs, selected in the sum algorithm field of the Monitor settings.

A dynamically refreshed measurement graph is displayed in the right part of the field. Vertical axis represents count rate sum values, horizontal axis represents measurement time.



Note!

The yellow color of the measurement graph (without Object presence in the Monitor detection area) indicates normal background level as well as the level above/below the set thresholds. See the alarm event display field for precise information.

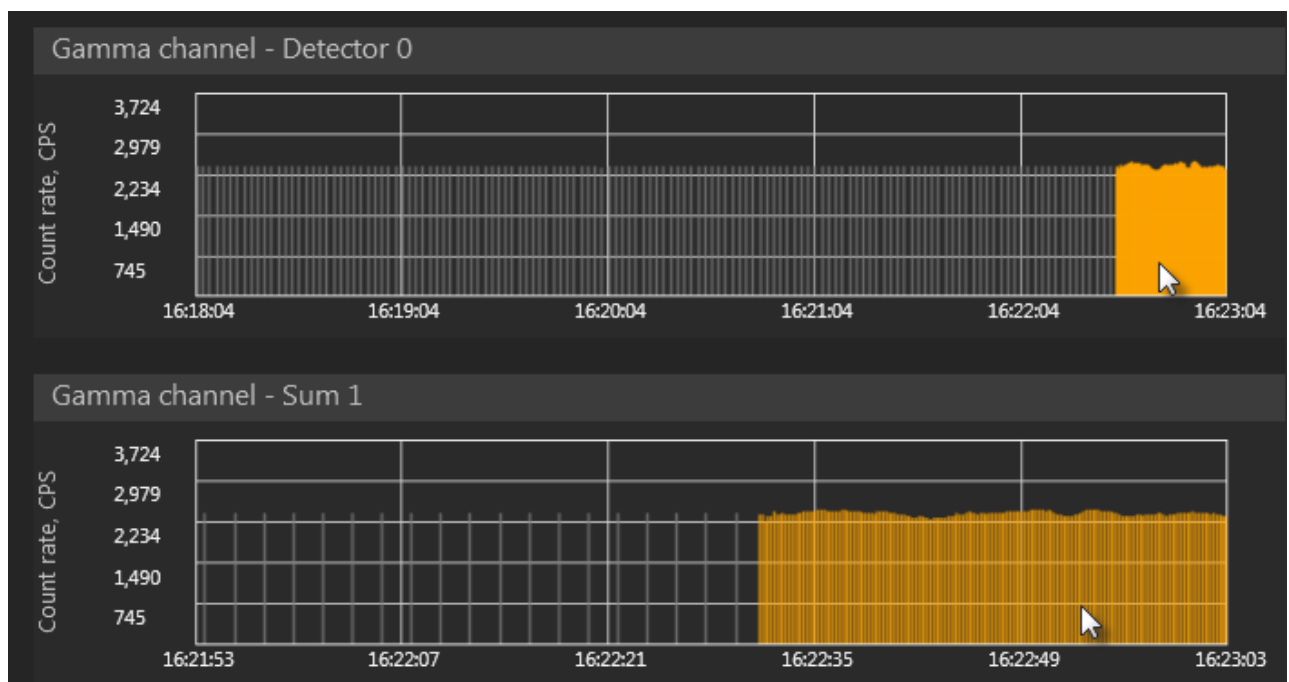
Detalization of graphs



Users of all access modes are enabled to use this function.

Function of graph detalisation (detailed view of the graph) represents display of measurement data with reference to 1/5 of a second (200 milliseconds) while in usual mode the graph data are displayed with reference to 1/5 of a minute.

To enable the detailed view of any graph: left-click any area on the graph where **Object presence** is registered (blue area if background level is normal or red area if there is an **Alarm**) and scroll the area with the mouse wheel.



Detailed measurement graph when the Object presence is registered, is being refreshed in real-time mode all the time the Object stays in the Monitor detection area.

Graph detalisation level depends on general Monitor settings since it is influenced by the set value of the “**Interval Length**” option. This time interval represents time period for software to read measurement data from the detectors.

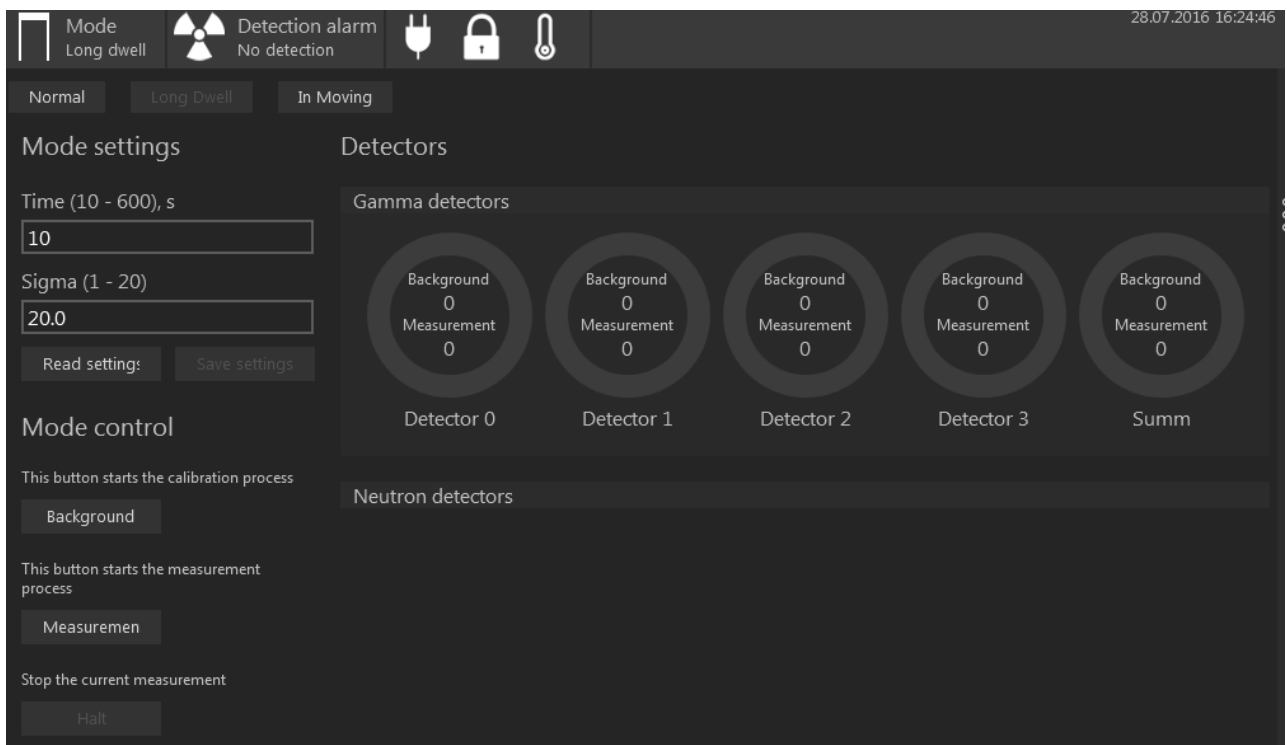
LONG-DWELL SCAN MODE

Software enables the long-dwell measurement of the objects located in the Monitor detection area with displaying the results in digital form.



During the long-dwell measurement the occupancy sensors are not analysed.

To enter the long-dwell scan mode press the **Long Dwell** button in the upper part of the “**Online**” mode window.



The Long Dwell scan mode window will be opened. The window contains:

1. “**Mode settings**” field, containing:
 - “**Time**” field. The duration of the measurement is determined by the operator and is set in the range of 10 - 600 seconds in increments of 10 seconds;
 - Standard **deviation (Sigma) value** field. Permissible standard deviation is determined by the operator and is set in the range of 1 - 20 in increments of 0.1;
 - “**Read settings**” and “**Write settings**” buttons to read the settings and the confirmation of the changes made;
2. “**Mode control**” field, containing:
 - “**Background**” button to start the calibration process;

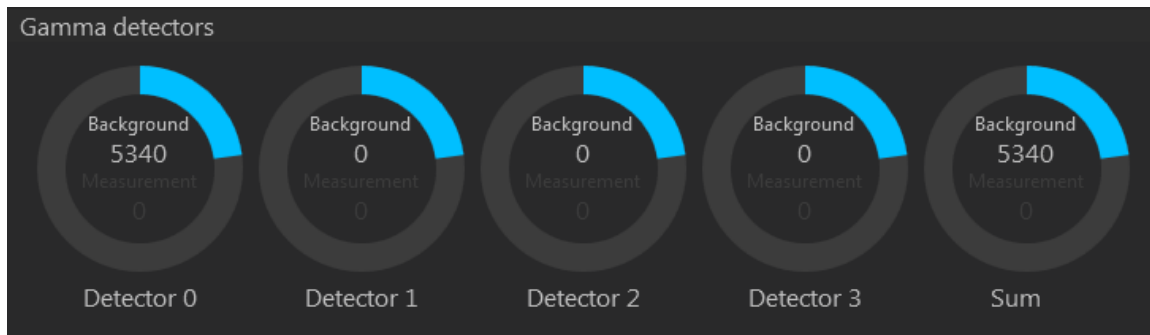
- “**Measurement**” button to start the measurement process;
 - **Halt** button to stop the calibration or measurement process.
3. “**Detectors**” field consists of the field displaying the gamma and neutron channels status, the count rate and count rate sum for each of the channels.

There are two long-dwell scan modes:

- **Calibration** measurement;
- **Main** measurement.

To carry out the long-dwell measurement:


1. Press the “**Background**” button to carry out the background calibration of the detection unit. During calibration the gamma and neutron radiation background level is being analysed. The calibration result will be displayed in the status field.



2. Press the “**Measurement**” button. The progress bar will display the measurement process.



3. Press the “**Halt**” button to hold up the measurement;
4. The measurement result will be displayed in the monitor status field;
5. Monitor stays in measurement mode. It is possible to continue the measurement process if the result of the previous measurement is unsatisfactory;
6. Press the “**Normal**” or “**In Moving**” buttons to return to the selected mode, or

7. Press the  button to close the long-dwell scan mode and return to the Main program window.

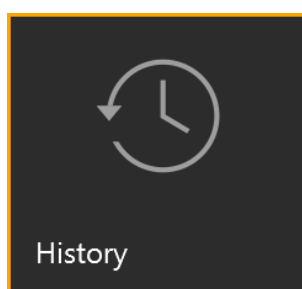
MEASUREMENT HISTORY



Both “**Operator**” and “**Administrator**” are allowed to work with the Monitor operation history.

All events of the Monitor’s operation are being constantly recorded into Controller’s built-in non-volatile memory from the very moment of the Monitor start.

To enter the “**History**” mode select the “**History**” tab on the main program window.



The “**History**” mode window will be opened.

PM5000 - History

Mode: Long dwell | Detection alarm: No detection | 28.07.2016 16:37:24

History

History is stored in the monitor memory and contains all the events associated with the operation of the monitor

[Read history](#)

This button deletes history of the monitor from the monitor memory

[Delete history](#)

Save history, read from the monitor, as a separate file

[Save history](#)

Event list

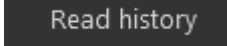
	Date	Event type	Channel	Value
B	7/8/2016 12:05:00 PM	Periodical count rates values on background	Gamma	D1: 2477 D2: 0 D3: 0 D4: 0
B	7/8/2016 12:07:00 PM	Periodical count rates values on background	Gamma	D1: 2476 D2: 0 D3: 0 D4: 0
B	7/8/2016 12:09:00 PM	Periodical count rates values on background	Gamma	D1: 2476 D2: 0 D3: 0 D4: 0
B	7/8/2016 12:13:00 PM	Periodical count rates values on background	Gamma	D1: 2493 D2: 0 D3: 0 D4: 0
B	7/8/2016 12:15:00 PM	Periodical count rates values on background	Gamma	D1: 2493 D2: 0 D3: 0 D4: 0
B	7/8/2016 12:17:00 PM	Periodical count rates values on background	Gamma	D1: 2499 D2: 0 D3: 0 D4: 0
B	7/8/2016 12:19:00 PM	Periodical count rates values on background	Gamma	D1: 2515 D2: 0 D3: 0 D4: 0
B	7/8/2016 12:21:00 PM	Periodical count rates values on background	Gamma	D1: 2505 D2: 0 D3: 0 D4: 0
B	7/8/2016 12:23:00 PM	Periodical count rates values on background	Gamma	D1: 2496 D2: 0 D3: 0 D4: 0
B	7/8/2016 12:25:00 PM	Periodical count rates values on background	Gamma	D1: 2487 D2: 0 D3: 0 D4: 0
B	7/8/2016 12:27:00 PM	Periodical count rates values on background	Gamma	D1: 2493 D2: 0 D3: 0 D4: 0
B	7/8/2016 12:29:00 PM	Periodical count rates values on background	Gamma	D1: 2496 D2: 0 D3: 0 D4: 0
B	7/8/2016 12:31:00 PM	Periodical count rates values on background	Gamma	D1: 2503 D2: 0 D3: 0 D4: 0

In the left part of the window are situated the “**Read history**”, “**Delete history**” and “**Save history**” buttons, in the right part of the window is situated the history events list.

READ HISTORY

Read Monitor’s history provides detailed information on the radiation situation at the controlled area.

The Monitor’s operation history is being recorded into its non-volatile memory from the very moment of the Radiation Portal Monitor start. History is being recorded all the time according to the settings.

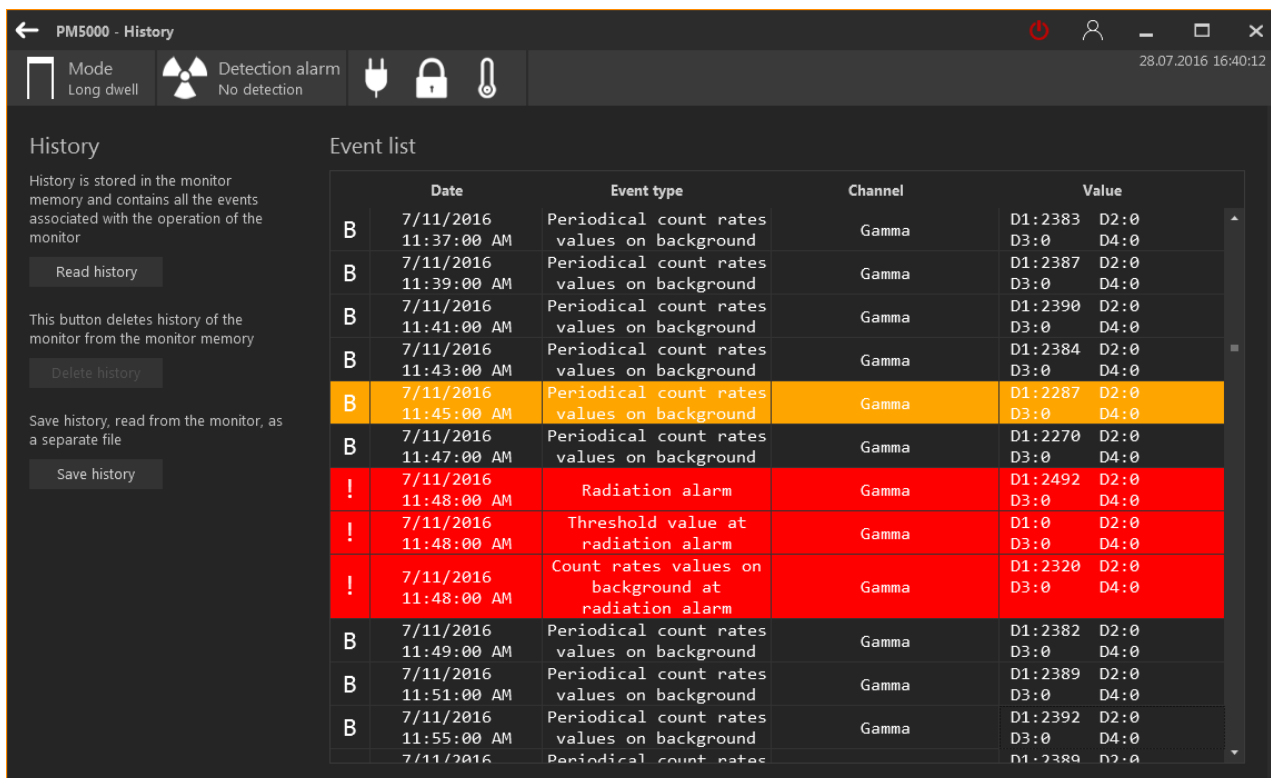
To read Monitor’s operation history press the  “**Read history**” button. Software will immediately start reading the history. History reading will take some time depending on the amount of accumulated data.



The *Daily Files* request function will be temporarily blocked during history reading. It is done to fasten the reading. So, software doesn’t refresh measurement graphs in real time mode during the reading process. When reading is finished, the work of *Daily Files* request function will be resumed, and measurement graphs will be refreshed in real time mode as usual. See the screen-shot below.

All read history data will be displayed in the “**History**” field as a table.

Monitor's operation history field



PM5000 - History

Mode: Long dwell | Detection alarm: No detection | 28.07.2016 16:40:12

History: History is stored in the monitor memory and contains all the events associated with the operation of the monitor. Buttons: Read history, Delete history, Save history.

Event list

	Date	Event type	Channel	Value
B	7/11/2016 11:37:00 AM	Periodical count rates values on background	Gamma	D1: 2383 D2: 0 D3: 0 D4: 0
B	7/11/2016 11:39:00 AM	Periodical count rates values on background	Gamma	D1: 2387 D2: 0 D3: 0 D4: 0
B	7/11/2016 11:41:00 AM	Periodical count rates values on background	Gamma	D1: 2390 D2: 0 D3: 0 D4: 0
B	7/11/2016 11:43:00 AM	Periodical count rates values on background	Gamma	D1: 2384 D2: 0 D3: 0 D4: 0
B	7/11/2016 11:45:00 AM	Periodical count rates values on background	Gamma	D1: 2287 D2: 0 D3: 0 D4: 0
B	7/11/2016 11:47:00 AM	Periodical count rates values on background	Gamma	D1: 2270 D2: 0 D3: 0 D4: 0
!	7/11/2016 11:48:00 AM	Radiation alarm	Gamma	D1: 2492 D2: 0 D3: 0 D4: 0
!	7/11/2016 11:48:00 AM	Threshold value at radiation alarm	Gamma	D1: 0 D2: 0 D3: 0 D4: 0
!	7/11/2016 11:48:00 AM	Count rates values on background at radiation alarm	Gamma	D1: 2320 D2: 0 D3: 0 D4: 0
B	7/11/2016 11:49:00 AM	Periodical count rates values on background	Gamma	D1: 2382 D2: 0 D3: 0 D4: 0
B	7/11/2016 11:51:00 AM	Periodical count rates values on background	Gamma	D1: 2389 D2: 0 D3: 0 D4: 0
B	7/11/2016 11:55:00 AM	Periodical count rates values on background	Gamma	D1: 2392 D2: 0 D3: 0 D4: 0
B	7/11/2016	Periodical count rates values on background	Gamma	D1: 2389 D2: 0 D3: 0 D4: 0

Monitor's operation history represents a set of the following events:

- ◆ **Monitor On** – Monitor is switched on;
- ◆ **Monitor Off** – Monitor is switched off;
- ◆ **Tamper** – Monitor gates are opened (tamper);
- ◆ **High background level** – high background level (gamma-, neutron);
- ◆ **Low background level** – low background level (gamma-, neutron);
- ◆ **Background** – gamma- and neutron background values;
- ◆ **Count rate value on background** – background count rate by the channel (gamma-, neutron);
- ◆ **Count rate value at radiation alarm** – count rate at alarm (by gamma-/neutron channels);
- ◆ **Alarm** – alarm event (by gamma-/neutron channels);
- ◆ **Threshold value at radiation alarm** – values of alarm registration thresholds by gamma-/neutron channels.

By default software represents all history events as a table in chronological order. Read Monitor's history is described according to the table columns:

- ◆ **Event code**;
- ◆ **Date** – time of event recording into Controller's non-volatile memory;
- ◆ **Event type** – event description;

- ◆ **Source** – event channel (gamma-/neutron);
- ◆ **Values** – count rate values.

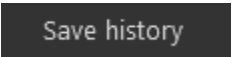


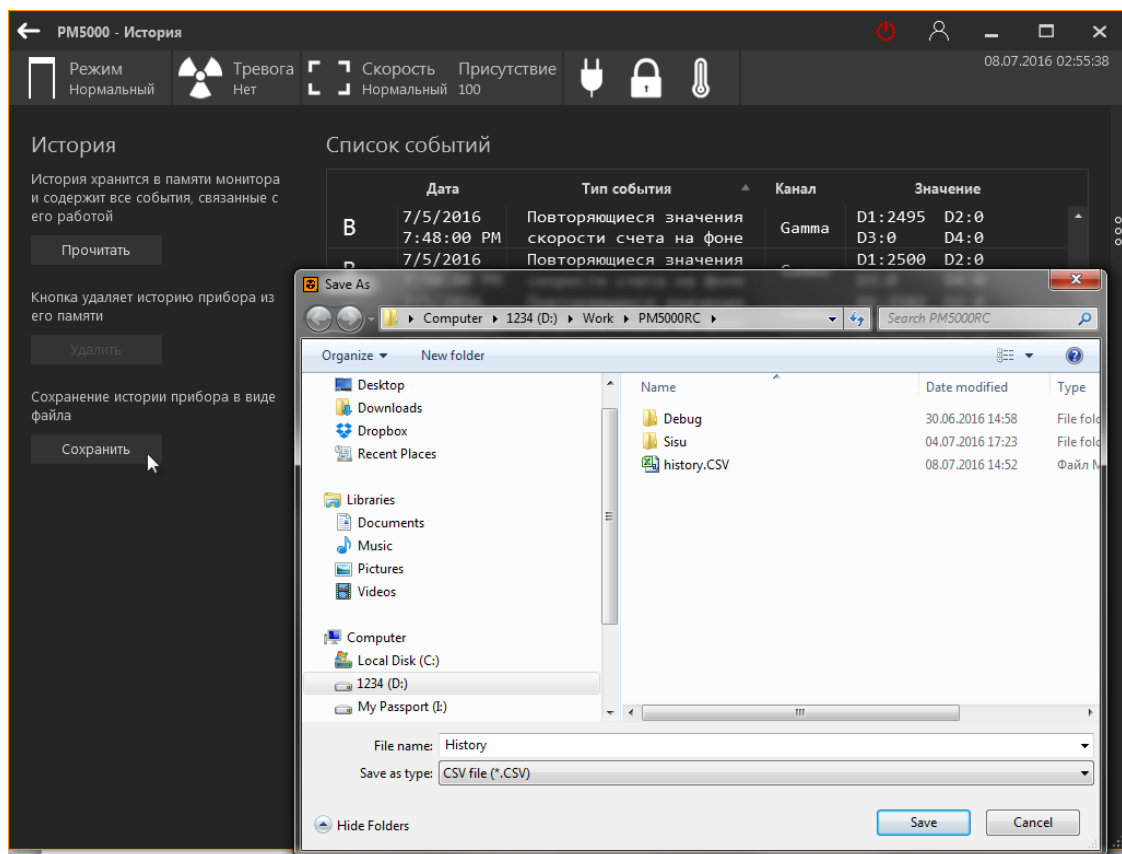
Read Monitor's history remains in the “**History**” field (i.e. it is not deleted) when software connects to another Monitor within the same program session. You must read the history again (press “**Read**” button) to see the operation history of new Monitor.

The “**History**” mode enables user to filter the read history by date, event type and channel.

SAVE HISTORY

Read Monitor's operation history can be saved as .csv file into user-defined folder on the PC.

To save read history: click the  button on the “**History**” field.




A standard Windows “**Save As...**” dialogue window will be opened suggesting user to set file name and destination folder. Press “**Save**” button to save the history file according to the set parameters.

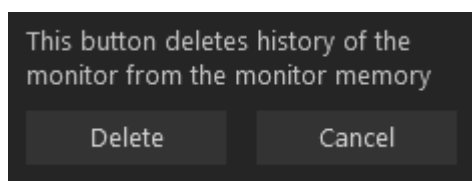
The history file can be viewed later by corresponding program.

DELETE HISTORY



Software enables deletion of **ALL** Monitor's operation history from its non-volatile memory up to current time irreversibly.

To delete Monitor's operation history from its non-volatile memory press the  button on the "**History**" field. History will be deleted momentarily. Program will ask for confirmation by displaying a corresponding dialogue window:



The program will display the "**Cancel**" button to the right of the "Delete" button to confirm the action. Select the "**Delete**" to delete the history irreversibly, or "**Cancel**" to cancel the deletion.

Thank you for choosing Polimaster!