PM1703M-GN

SOFTWARE GUIDE

FOR INSTRUMENTS

PM1703GN
PM1703GNA
PM1703GNB
PM1703M
PM1703MA
PM1703MB

Equipment	**Instruments** **PM1703GN, PM1703GNA, PM1703GNB, PM1703M, PM1703MA, PM1703MB**
Software	**PM1703M-GN Software**
Manufacturer	**Polimaster**

Copyright

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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 PM1703M-GN 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** company.

CONTENTS

INTRODUCTION

NOTE ABOUT THE GUIDE

Polimaster **PM1703M-GN** Software is designed to work with Polimaster Instruments and is also intended for changing of the internal settings of the instrument by authorized persons.
The Software Guide familiarizes users with technical specifications and functions of the **PM1703M-GN** software.
Software Guide provides full and detailed information on software interface structure, describes all the program functions and software-hardware communication.

GETTING STARTED

Carefully study this Software Guide before starting work with the PM1703GN, PM1703GNA, PM1703GNB, PM1703M, PM1703MA and PM1703MB instruments. It is recommended to avoid wrong actions and to enhance software operational reliability.

Upon reading retain this Software Guide for future references.

SOFTWARE OVERVIEW

PM1703M-GN software (further – software) developed by the Polimaster company, enables operational control over radiation situation and output on the PC display of the data read in the real time mode by detector of the connected instrument.

Software is installed onto the user PC (further – PC) and in intended for operation only with the PM1703GN, PM1703GNA, PM1703GNB, PM1703M, PM1703MA and PM1703MB instruments manufactured by Polimaster company.

The instrument is connected to a PC by means of IrDA. IR adapter to communicate with PM1703 instruments is required.

User must have at least initial experience in working with PC under Windows family system to operate this Software.

SOFTWARE APPLICATION FIELD

The software is an integral part of the instrument, which is designed for the wide range of specialists to detect and locate radioactive and nuclear materials on their gamma or neutron radiation.
Graphically simple, convenient and intuitive user interface of the PM1703 software is designed for the wide range of specialists as well as for the customers without expertise and pretraining for:

- Providing personal safety while working with ionizing radiation sources when carrying out researches;
- Providing personal safety of personnel by means of constant dose and dose rate control, and instant alarm if there is personal radiation hazard;
- Early warning of possible radiation contamination or terrorist attack.

SOFTWARE IS INTENDED FOR:

- Reading out events information (further – instrument history) from the instrument's non-volatile memory;
- Conducting on-line real time measurement and displaying the results in digital and graphical mode;
- Measuring of the gamma radiation count rate;
- Read/record operation settings of the connected instrument:
    - DER threshold value;
    - History saving/recording interval;
    - Measurement units;
    - Enable/disable different alarm types.
- Save measurement history on PC (history export);

SYSTEM REQUIREMENTS:

- PC with Windows XP, Windows 7, Windows 8 (32x, 64x);

For instruments with IrDA interface:

- Standard infrared (IR) adapter (USB or built-in).

IR adapter is to be connected and set according to its documentation.

RECOMMENDED INTIAL PROCEDURES

1. **Install the software on the PC**

2. **Install the service program**

3. **Connect the IR adapter to the PC**

4. **Run the software.**
   The program can be run either before or after connection of the instrument to the PC

5. **Setup connection of the instrument to the PC**

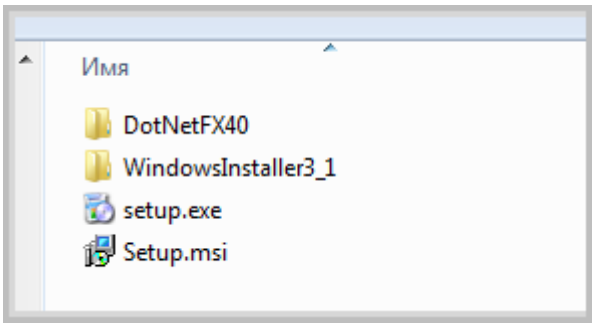
6. **Software is ready for use**

SOFTWARE OPERATION

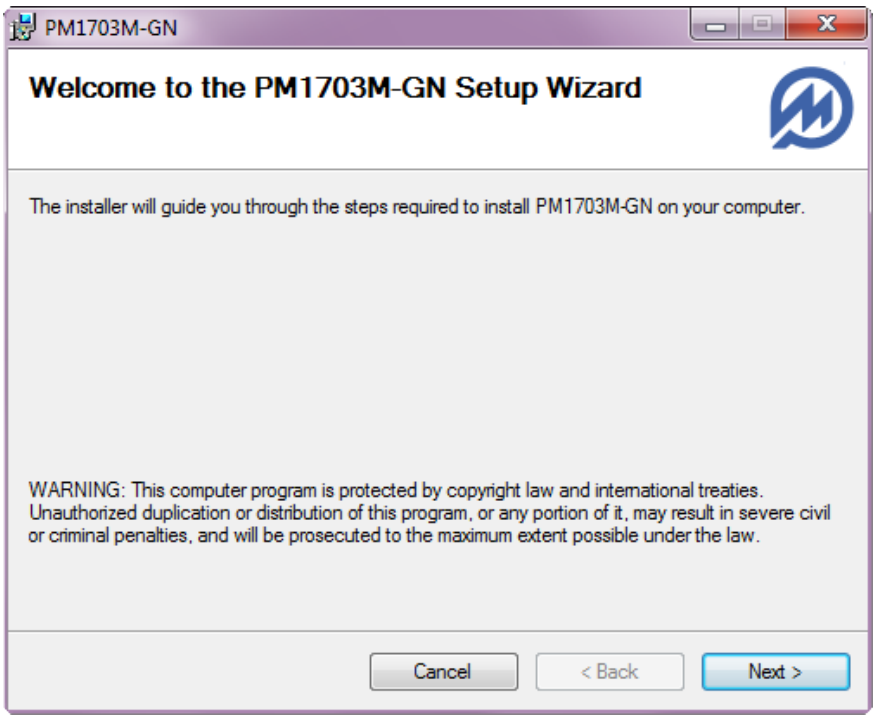
SOFTWARE INSTALLATION

To install the software it is necessary to carry out following procedure.

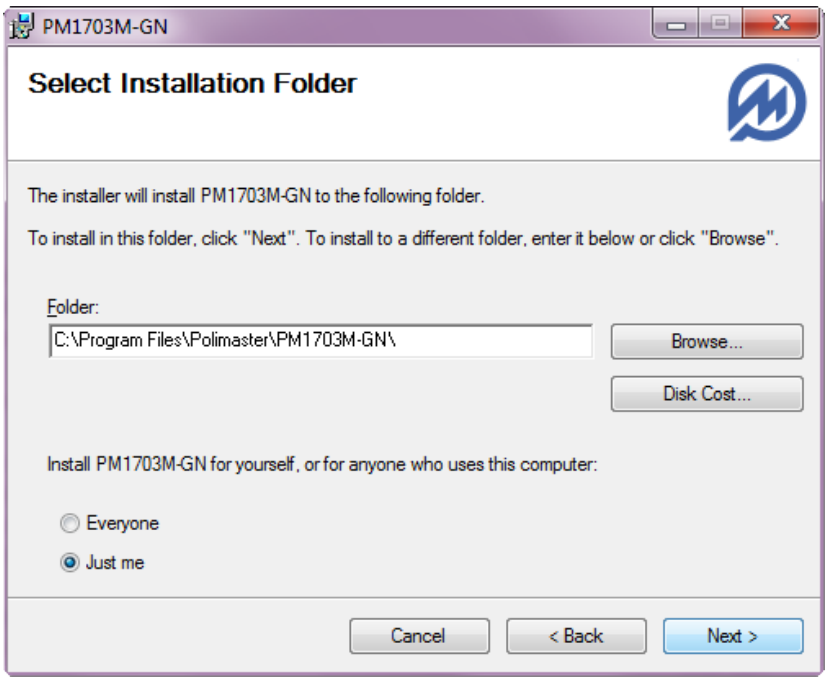
1. Insert the CD with the software installation package (included in the delivery set) in the CD drive of your computer. Then using any file manager open the CD and run the file setup.exe, located in the root directory.



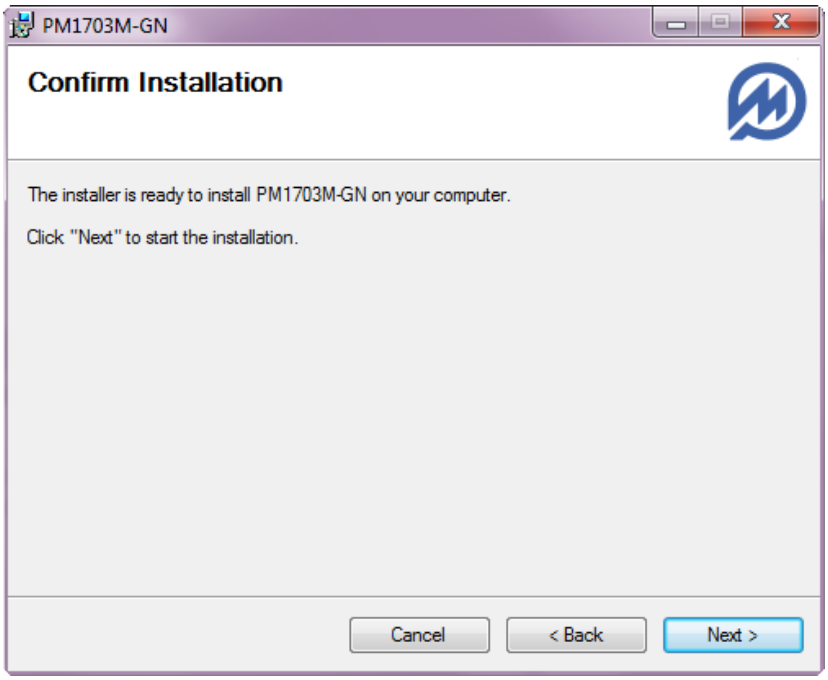
2. After the file is running the Setup Wizard window will open.



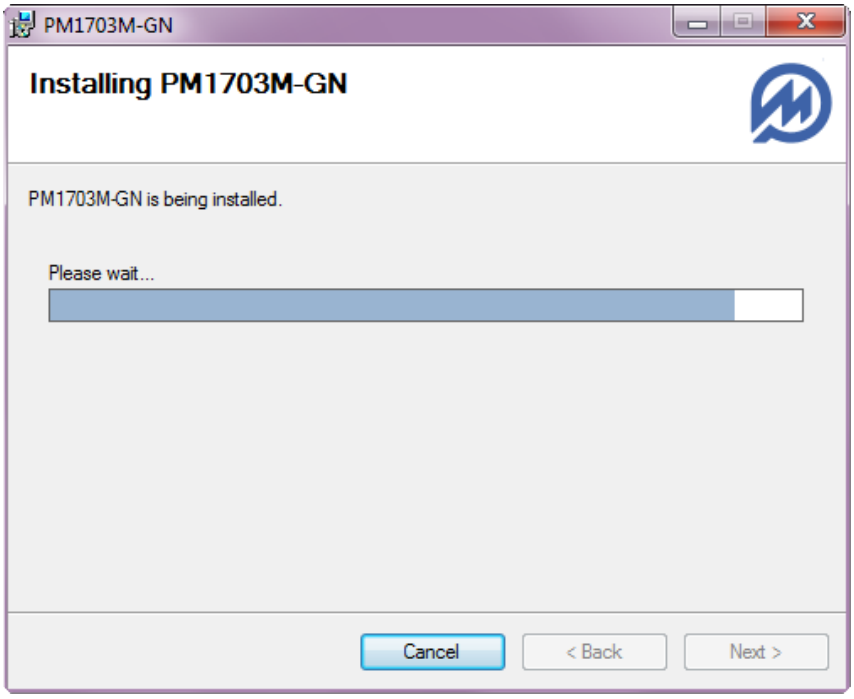
3. Click the **Next** button to run the setup of the PM1703M-GN Software.
In the new window Setup wizard will ask you to select a different folder to install the software, or agree with the proposed folder. The default folder is **Program Files\Polimaster\PM1703M-GN.**



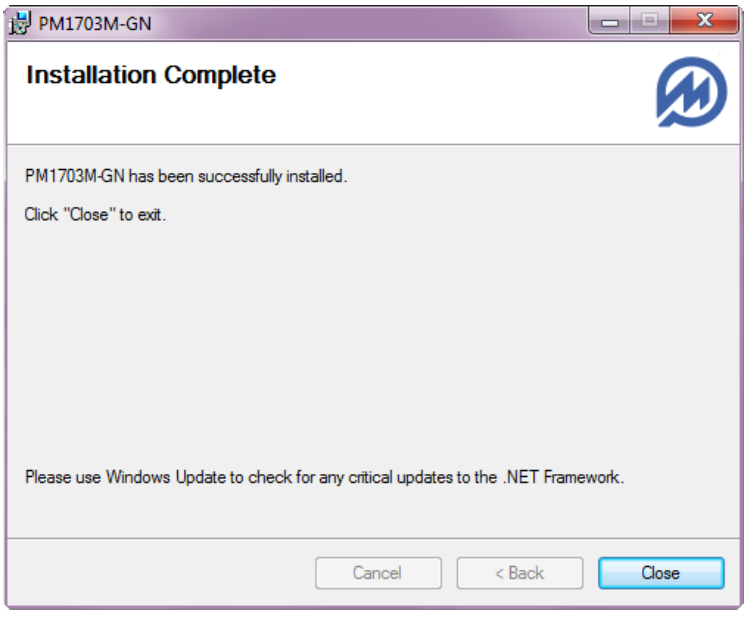
4. Click the Next button to continue installing the of the PM1703M-GN Software.



In the new window choose the Next button to confirm the Installation.
It will start the installation process of the PM1703M-GN software.



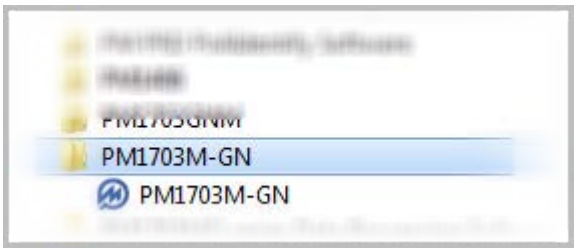
5. After finishing the installation the system will begin searching for the pre-installed drivers required for the program and instrument operation.
6. After successful driver installation will appear the following message “Installation completed successfully”.



Click the **Close** button to finish installation of the PM1703M-GN software.

7. The PM1703M-GN software is successfully installed.

After the installation of the software it will appear on the Start > All Programs > Polimaster> PM1703M-GN > PM1703M-GN:



The installation program will create a shortcut on the desktop for the quick start of the program. You can also click Start button, find the program's icon, right-click the icon, and then click "Pin to Taskbar" or "Add to the Start Menu".

START THE PROGRAM/EXIT THE PROGRAM

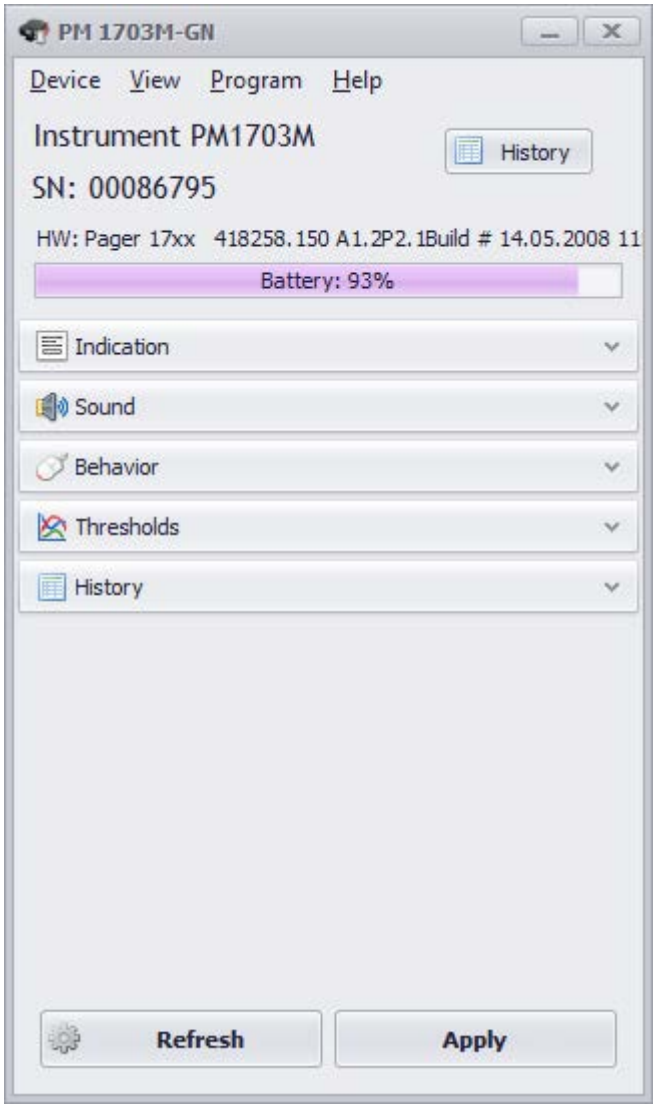
Carefully study this Software Guide before starting work with the PM1703M-GN software. It is recommended to avoid wrong actions and to enhance software operational reliability.
Upon reading retain this Software Guide for future references.

Further are described the procedures of connecting the instrument to the PC, connecting the instrument to the software, start the software, exit the program and disconnecting of the instrument.

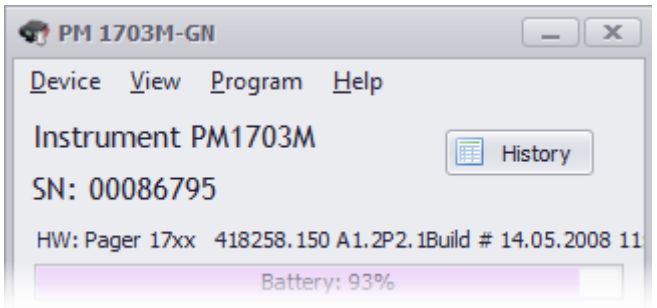
1. Connect the **PM1703M-GN** instrument to a PC by means of IrDA.
2. Click the program icon in the start menu to launch the program. You can also use the icons on the desktop or in the taskbar.

3. The dialog box “Find device” will appear. Choose Find to start the program and to establish connection with the instrument.

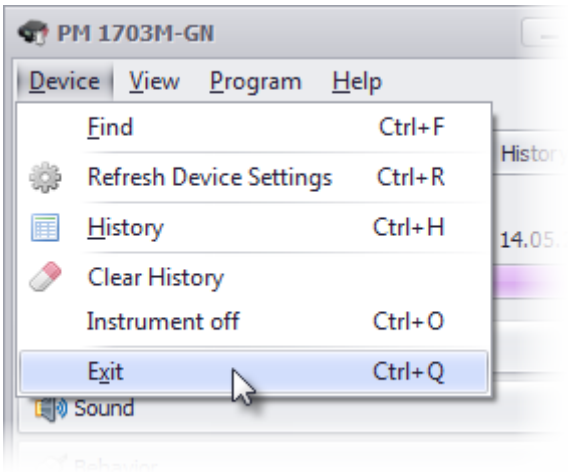
4. As a result main program window of **PM1703M-GN** will appear.



6. The program will establish connection with the instrument and display the serial number and software version of the found instrument in the main program window:

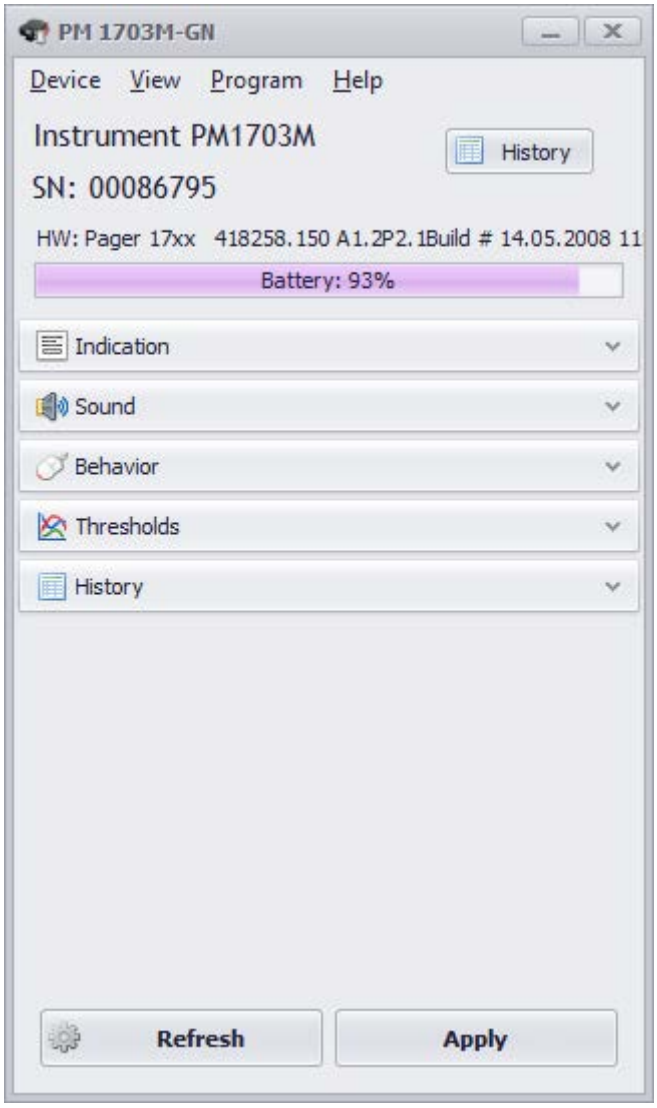


7. For proper program exit select one of the following ways: Select **Device** menu of the main program window and click **Exit** command or use the Close button .



MAIN PROGRAM WINDOW

Simple graphic interface of the main program window represents a set of commands and tools for PC user to interact with the connected instrument and work with measurement results.



MAIN PROGRAM WINDOW STRUCTURE:

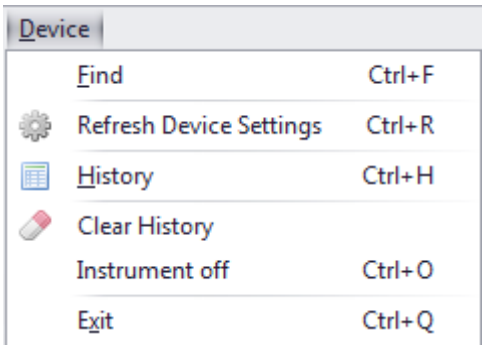
- **Menu** of the main program window (**Device, View, Program, Help**).
- Field for displaying of the instrument serial number;
- **History** button on the right of the serial number;
- Battery charge indication bar under the **History** button;

- Main program window **Tool Bar**. The toolbar is located under the battery charge indication bar. Toolbar buttons correspond to the five parameters of the instrument settings: Indication, Sound, Behavior, Thresholds and History.
- Refresh and Apply buttons are located under the Tool bar.

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

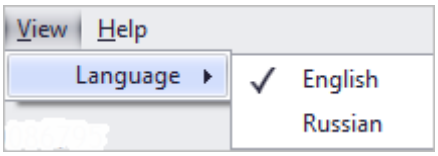
MAIN PROGRAM WINDOW MENU

Menu Device commands:



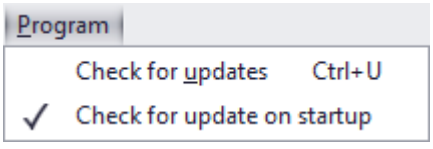
- **Find** command allows to establish the connection to the instrument;
- **Refresh device settings** command allows to view, update and change instrument settings;
- **History** command allows to view instrument history;
- **Clear History** command allows to clear the history of the instrument;
- **Instrument off** command allows to turn off the instrument by means of the program;
- **Exit** command allows closing and quitting the program.

Menu View commands:



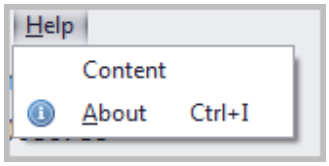
- **Language –** command allows to change the interface language;

Menu Program commands:



- **Check for updates –** command allows to check the updates availability manually;
- **Check for update on startup** - command enables the automatic updates checking.

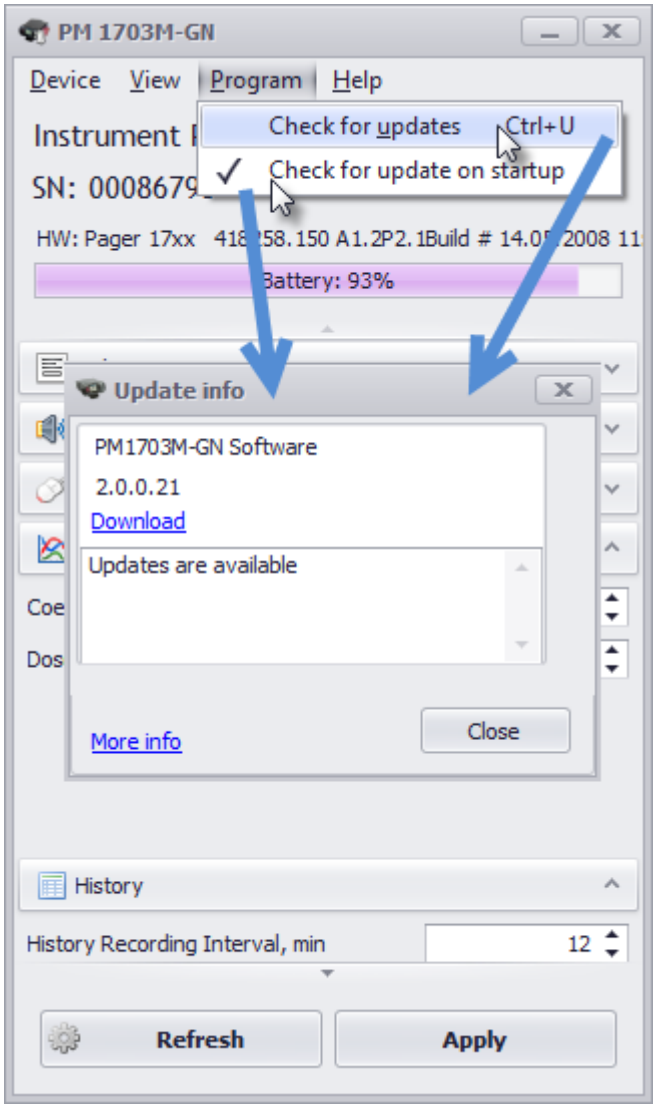
Menu Help commands:



- **Content** - User Manual in .pdf format;
- **About** - Information on Software version and the EULA.

SOFTWARE UPDATES

“PM1703M-GN Software” has the function of checking the availability of information about new releases for the product. If there is a software update available, the user can download it from the company's website.
If the item "Check for update on startup" of the **Program** menu is selected, the notification window appears automatically each time you start the software.



If the updates are available, notification window displays the changes related to the instrument or software, as well as the links for getting more information and downloading the updated software.
There is the possibility to check manually the availability of the updates, selecting the “Check for updates” item of the **Program** menu.

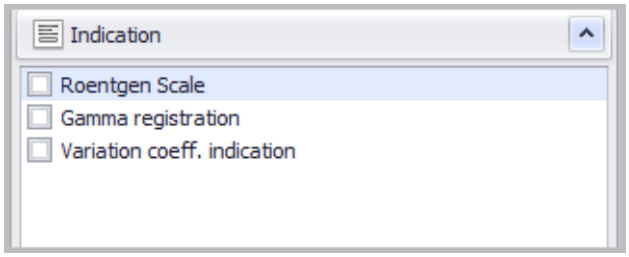
TOOL BAR

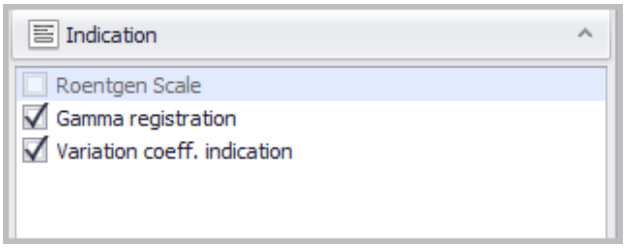
By selecting options from the toolbar you can change various settings of the program and of the instrument. To save the changes made to the instrument settings you need to click the **Apply** button at the bottom right of the main window. To save the changes made to the software, you need to click the **Refresh** button in the bottom left of the main window.

Some of the toolbar buttons can duplicate basic commands of the main program window.

1. Indication tab

The Indication tab of the toolbar can contain following items:





- **Roentgen Scale** – measuring unit change – selection of the display measurement units (Sv/h or R/h, Sv or R), if it is necessary. Filled checkbox means Roentgen Scale measuring (can be inactive).
- **Gamma registration** – switches on/off the Gamma registration mode;

If this box is checked, Gamma registration mode is on, and instrument displays following readings - the number of pulses accumulated during a certain time period (on the bottom of the screen) in hours, with the accuracy - 0.1 of an hour.

- **Variation coeff. indication -** switches on/off the Variation coefficient indication.

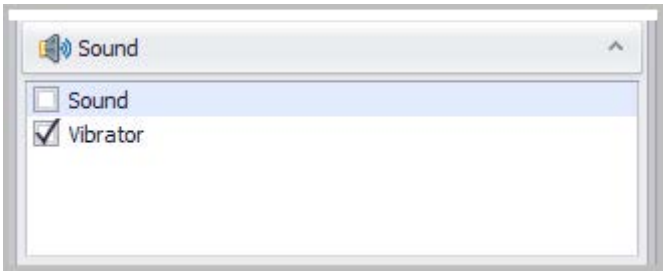
If this box is checked, instrument displays Variation coefficient indication on the bottom of the screen.

The variation coefficient is used to compare the spread of two or more attributes with different measurement units. The variation coefficient is a relative measure of dispersion in percentage.

The variation coefficient is used not only for comparative evaluation of units in the totality, but also to characterize the homogeneity of the totality. The totality is homogeneous, if the variation coefficient does not exceed 33%.

2. Sound tab

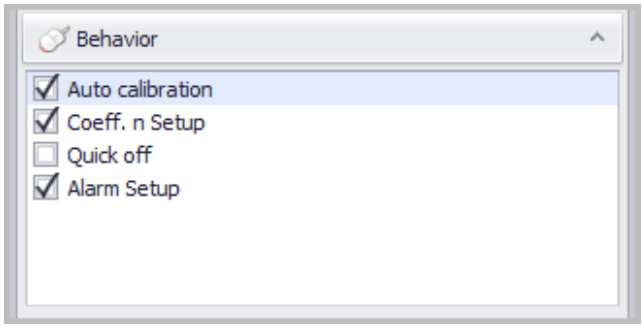
The Sound tab of the toolbar contains following items:

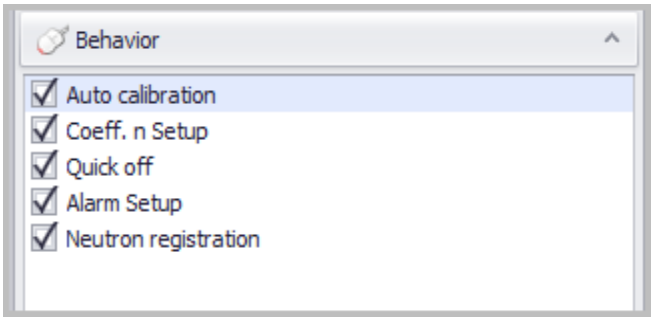


- **Sound** - switches on/off the instrument audio alarm;
- **Vibrator** - switches on/off the instrument vibration alarm;

3. Behavior tab

The Behavior tab of the toolbar contains following items:



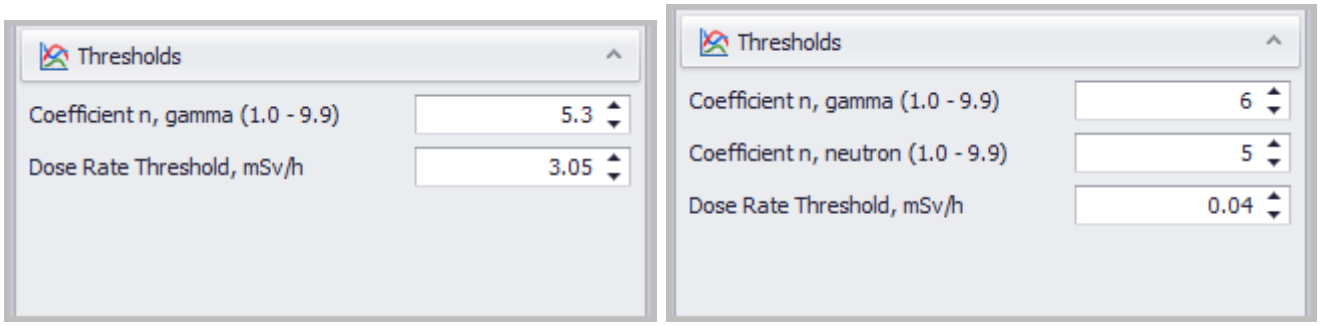


- **Auto calibration** – allows the autocalibration of the instrument;
- **Enable Coeff. n Setup** – allows/forbids the user to change the value of coefficients for gamma and neutron radiation using the instrument buttons;
- **Quick off** – allows turning the instrument off by means of the program;
- **Alarm setup** - allows/forbids the user to switch on or off the audio and vibration alarms using the instrument buttons;
- **Neutron registration** - enables/disables the neutron registration (if there is the neutron channel).

4. Thresholds tab

The Thresholds tab allows the user to read and change thresholds. Numbers in brackets indicate allowable settings ranges that correspond to measurement ranges.

The Thresholds tab of the toolbar contains following items:

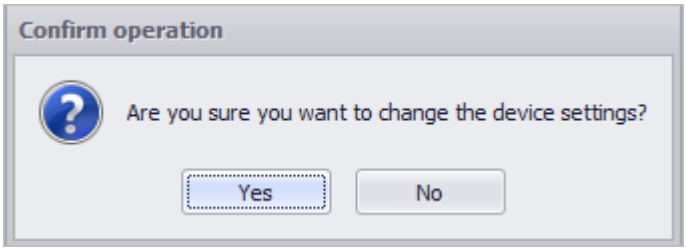


- **Coefficient n, gamma** – the value of the number of measured deviations (coefficient n) for gamma radiation;
- **Coefficient n, neutron** – the value of the number of measured deviations (coefficient n) for neutron radiation (if there is the neutron channel);
- **Dose Rate Threshold**, mSv/h – DER threshold value (mSv/h).

The value of n coefficient may be set in the range of 1.0 to 9.9 through every 0.1. The smaller the n coefficient value is, the more sensitive the instrument is to background radiation changes. Besides, this behavior also increases the false alarms rate. Increasing the value of n coefficient decreases the sensitivity of the unit to minor changes in radiation background. The manufacturer's recommended value is 5.3.

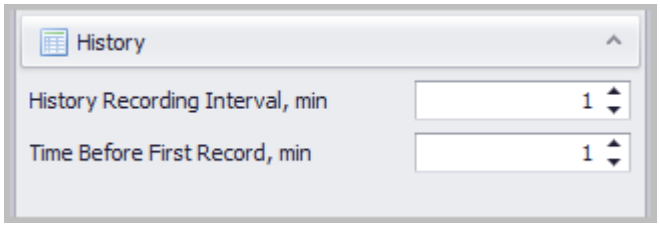
Threshold setting

The software gives the possibility to set the value of the Safety Alarm threshold for DER measurement.
By threshold exceeding the instrument gives visual and audible alarm.
The threshold can be set with the help of the "Thresholds" tab of the toolbar. Using the adjustment buttons one can choose the needed value of the threshold and press the Apply button in the main program window to save the settings changes and then confirm the action by clicking "Yes" in the dialog box.



5. History tab

The History tab of the toolbar contains following items:



- **History Recording Interval**, min - value of time intervals in which the current count rate values are recorded in the instrument memory;
- **Time Before First Record**, min - the time interval, after which the first current count rate value is recorded in the instrument memory.

HISTORY MODE

When working offline (not connected to the PC) all events of the instrument history are written in its non-volatile memory. When connected to PC all the history events are read and displayed in the History mode. The program will continue displaying all events in the real time during the period when the instrument is connected to the PC.

The PM1703M-GN software enables following operations with the history:

- View measurement history data;
- Save history onto user PC or removable flash-drive;
- Print out history.

To enter History mode you have to click 

button in the main program window, select the necessary tab from the Device menu, or use the key combination Ctrl+H. Following window will appear:

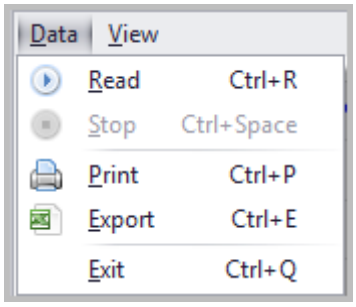
At the top of the window there is the area for graphical displaying of the measurement. Below there are measurement data represented in tabular style. The first column shows the date and time of measurement in chronological order; 2 - the type of event; 3 - CPS, Neutron; 4 - Dose Rate; 5 - CPS, Gamma.

The history events will not be written by the instrument with the low battery!

History menu

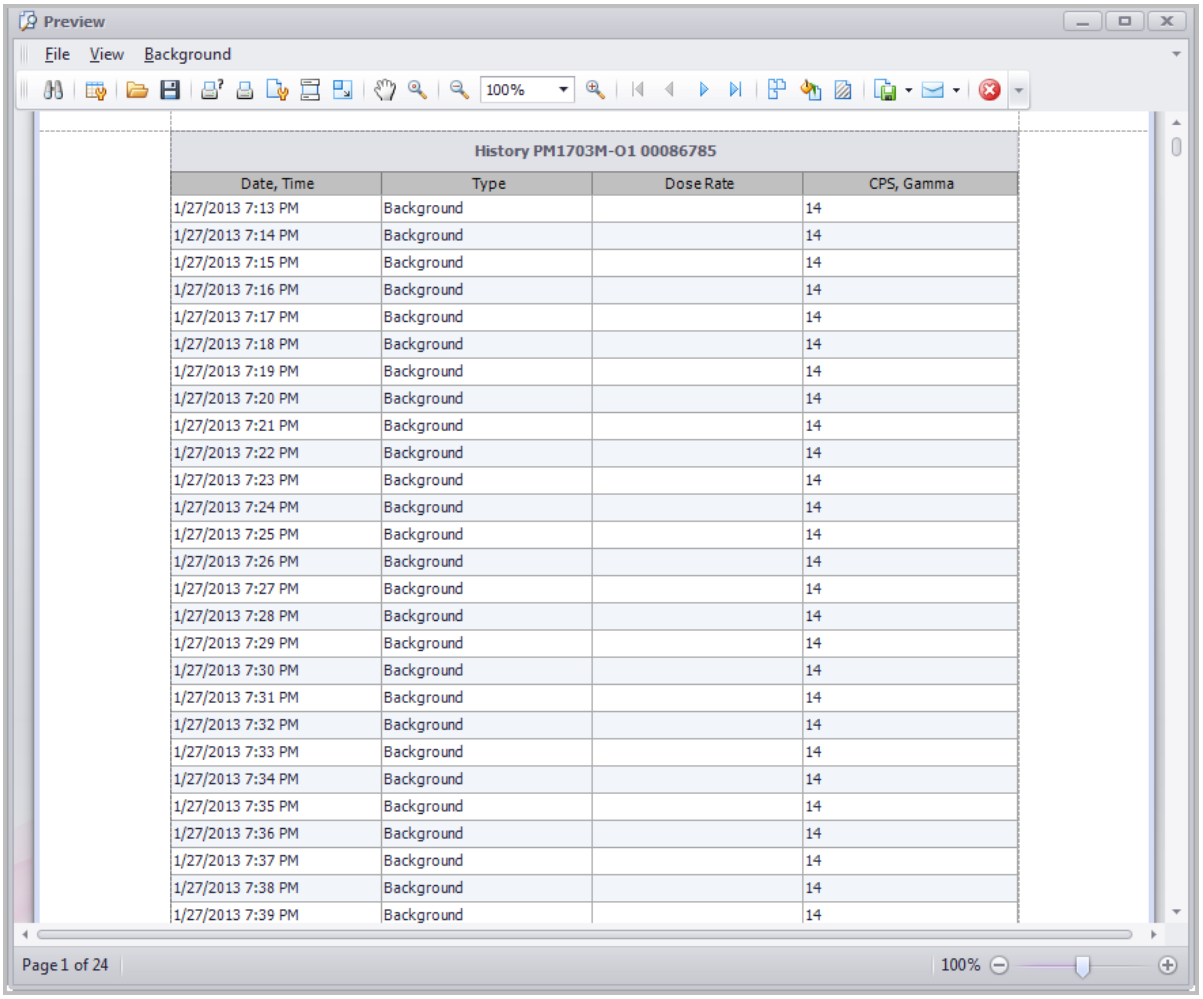
History window menu contains two tabs - Data and View.
Some of the toolbar buttons duplicate basic commands of the main program window.

Menu “Data”



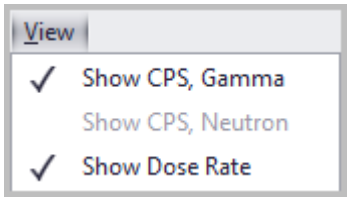
- Item “Read” of the Data menu (or the key combination Ctrl+R) duplicates the 

button on the bottom right of the History window and allows reading history from the instrument’s memory;
- Item “Stop” of the Data menu allows stopping the history reading;
- Item “Print” of the Data menu (or the key combination Ctrl+P) allows printing the history after opening the preview window;
- Item “Export” of the Data menu (or the key combination Ctrl+E) opens the dialogue box “Safe as” and allows the history saving as a file with the ***.xls filename extension. It is necessary to name the file and to save it in the specified folder, after that it can be opened using any program for the spreadsheets viewing.
- Item “Exit” (or the key combination Ctrl+Q) allows closing the history window and quit history mode.



Date, Time	Type	Dose Rate	CPS, Gamma
1/27/2013 7:13 PM	Background		14
1/27/2013 7:14 PM	Background		14
1/27/2013 7:15 PM	Background		14
1/27/2013 7:16 PM	Background		14
1/27/2013 7:17 PM	Background		14
1/27/2013 7:18 PM	Background		14
1/27/2013 7:19 PM	Background		14
1/27/2013 7:20 PM	Background		14
1/27/2013 7:21 PM	Background		14
1/27/2013 7:22 PM	Background		14
1/27/2013 7:23 PM	Background		14
1/27/2013 7:24 PM	Background		14
1/27/2013 7:25 PM	Background		14
1/27/2013 7:26 PM	Background		14
1/27/2013 7:27 PM	Background		14
1/27/2013 7:28 PM	Background		14
1/27/2013 7:29 PM	Background		14
1/27/2013 7:30 PM	Background		14
1/27/2013 7:31 PM	Background		14
1/27/2013 7:32 PM	Background		14
1/27/2013 7:33 PM	Background		14
1/27/2013 7:34 PM	Background		14
1/27/2013 7:35 PM	Background		14
1/27/2013 7:36 PM	Background		14
1/27/2013 7:37 PM	Background		14
1/27/2013 7:38 PM	Background		14
1/27/2013 7:39 PM	Background		14

Menu “View”

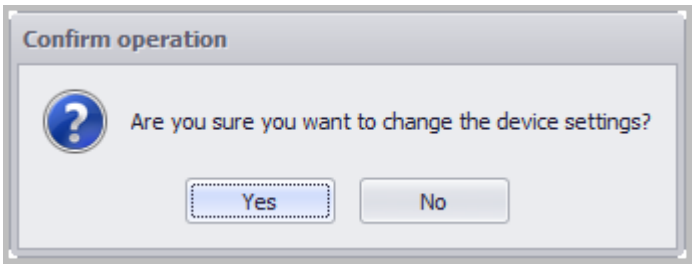


View menu gives the possibility to select and to readout the necessary measurement data in tabular form.

HISTORY RECORDS SETTING

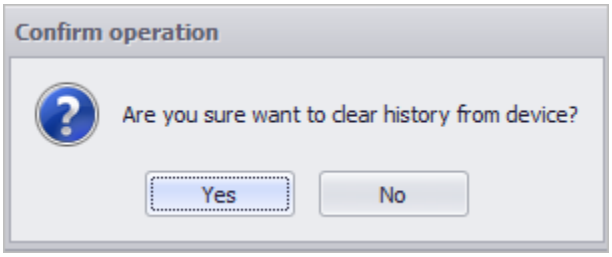
In the History tab of the toolbar (item History Recording Interval, min), using the adjustment buttons  one can choose the value of time intervals in which the current count rate values are recorded in the instrument memory. Recommended value – 60 min.

Also one can set the time interval, after which the first current count rate value is recorded in the instrument memory (item Time Before First Record, min).
After selecting the necessary functions you need to press the Apply button in the main program window to save the settings changes to the instrument and then confirm your action by clicking “Yes” in the dialog box.

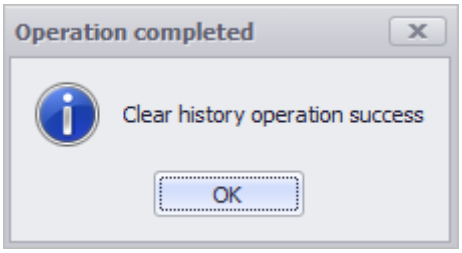


History reset

To reset the instrument history you can choose the item “Clear History” of the Device menu and then confirm the action by clicking “Yes” in the dialog box.

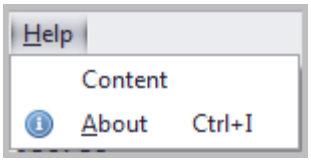


Upon successful operation completion the following message appears:

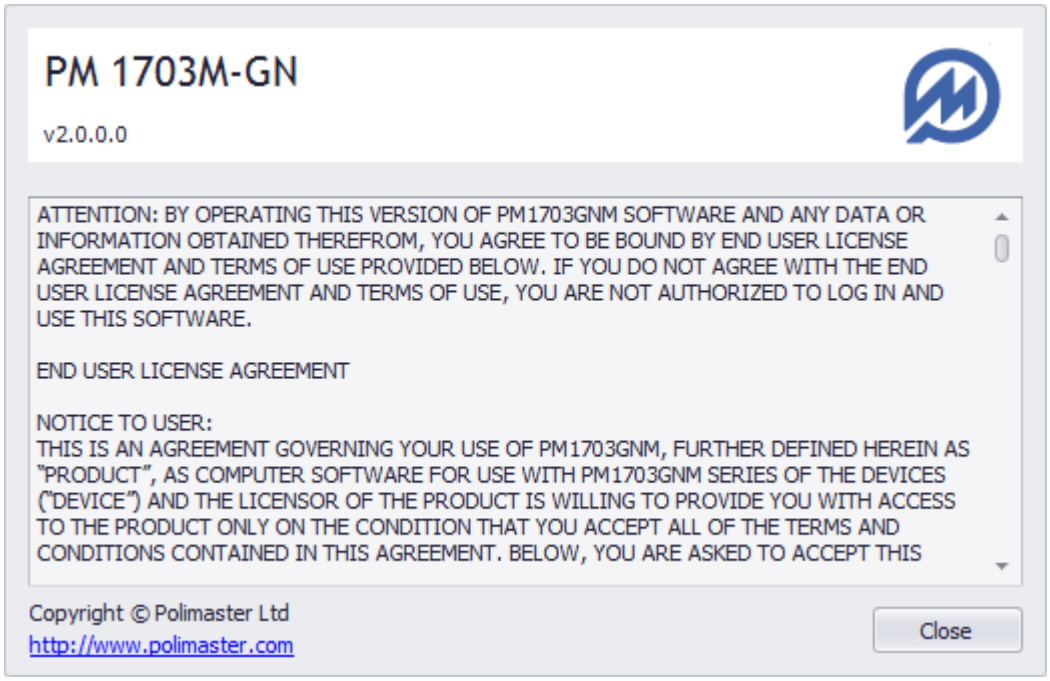


MENU HELP

Menu Help has only two items:



In this mode user can get the information about the software applications version installed on the PC and read the Operating Manual.



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