

PX218

RDM Controller

MANUAL



TABLE OF CONTENTS

<u>1. General description.....</u>	<u>3</u>
<u>2. Safety conditions.....</u>	<u>3</u>
<u>3. Description.....</u>	<u>4</u>
<u>4. Software installation.....</u>	<u>5</u>
<u>5. Controller software.....</u>	<u>6</u>
<u>5.1. Connection between the controller and PC.....</u>	<u>6</u>
<u>5.1.1. Searching for connected devices.....</u>	<u>7</u>
<u>5.2. General overview.....</u>	<u>8</u>
<u>5.2.1. DMX patch grid.....</u>	<u>9</u>
<u>5.2.2. Sensors.....</u>	<u>11</u>
<u>5.2.3. RDM settings.....</u>	<u>12</u>
<u>5.3. Modification of device times.....</u>	<u>13</u>
<u>6. Wiring diagram.....</u>	<u>14</u>
<u>7. Technical specification.....</u>	<u>15</u>
<u>8. Technical drawing.....</u>	<u>15</u>
<u>Declaration of conformity.....</u>	<u>16</u>

The manufacturer reserves the right to change the operation and handling of the device in order to improve the product.

1. GENERAL DESCRIPTION

PX218 - RDM Controller is a multifunction device which allows for changing parameter settings of products connected to complex installations using the DMX-512 protocol.

PX218 communicates with other products through the RDM (Remote Device Management) protocol which is a kind of extended DMX512 protocol. The DMX protocol has been designed to enable one-direction flow of data, while its extension, the RDM protocol, can send information in two directions. For this reason, it is possible to simultaneously receive and send information, and hence to monitor the operation of the devices compliant with the RDM protocol, and reconfigure their operating parameters.

Input and output in DMX-512 standard are used to connect to DMX network.

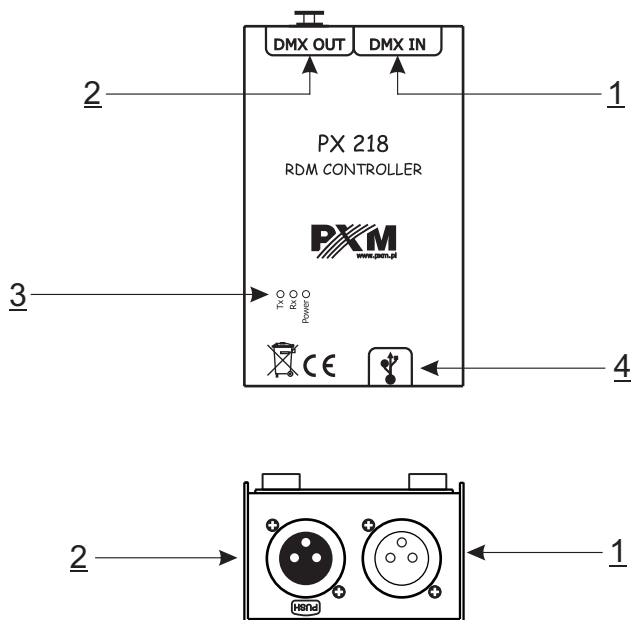
PX218 operation management is done using the applications on the Windows platform via USB 2.0 port. The device can be supplied only via a cable connected to the USB port of the computer.

2. SAFETY CONDITIONS

Controller PX218 RDM Controller is a device powered directly from the USB port with safe voltage 5V, however, during its installation and use the following rules must be strictly observed:

1. The user mustn't connect any external power supply unit to the device. The power delivered through the USB port while the device is connected to a PC is enough for its proper work.
2. All the conductors should be protected against mechanical and thermal damage.
3. In case of damage to a conductor, it should be replaced with a conductor of the same technical parameters.
4. Connection of DMX signal can be made with a shielded conductor only.
5. All repairs, connecting and disconnecting of cables can only be made with cut off power supply.
6. The device should be strictly protected against contact with water and other liquids.
7. All sudden shocks, particularly dropping, should be avoided.
8. The device cannot be turned on in places with humidity exceeding 90%.
9. The device cannot be used in places with temperature lower than +2°C or higher than +40°C.
10. Clean with damp cloth only.

3. DESCRIPTION



Designations:

1. DMX input connector (3-pin XLR female slot)
2. DMX output connector (3-pin XLR female slot)
3. Information diodes:
Power: power connection - orange diode
Tx: transferring data through PX218 - blue diode
Rx: receiving data through PX218 - green diode
4. miniUSB interface (miniUSB type B)

4. SOFTWARE INSTALLATION

The software can be installed on Windows® XP, VISTA™, Windows® 7 or Windows® 8. The procedure for installing the software varies depending on the operating system on the computer. Windows® 7 system is an example here.

Installation is as follows:

1. From the drop-down menu, select the language for the installation and confirm by clicking **[OK]**.

The installation file is attached to the driver on a CD, or available for download from the <http://pxm.pl>

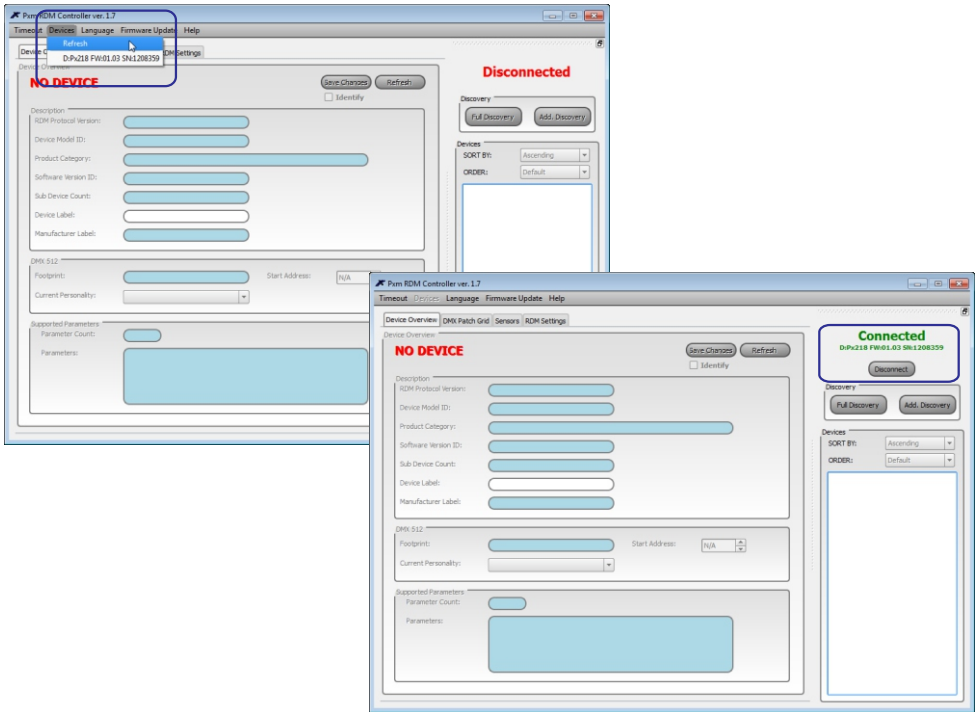
2. Carefully read the license agreement; if you agree to the terms of this agreement, click **[I Agree]** to continue the installation.
3. Select the components you want to install, then click **[Next]**.
4. Select the folder in which you want to install the software. Confirm your selection by clicking **[Next]**.
5. Select the start menu in which you want to create a shortcut to the program. You can also rename the folder, then click **[Install]**.
6. To enable the correct installation of all selected software components, you need to install the USB driver. The **[Device driver installation wizard]** will be displayed in another window, click **[Next]** to continue.
7. The wizard displays the message "The drivers are successfully installed on this computer", click **[Finish]**.
8. The PX218 installer has successfully installed the software, click **[Close]**.
9. Open the installed PX218 program.

5. CONTROLLER SOFTWARE

Program designed to manage the PX218 controller via a PC allows you to easily program devices supported by the RDM (Remote Device Management) protocol. It allows, among other things, for changing the address of DMX channels and values on the DMX channel. The program reads information from sensors installed in various devices without the need to connect to each of them separately. Connection between the controller and PC is done via USB. The application is available in three language versions – Polish, English, and German. Other language versions can be supplied on request. The software can be run on PCs.

5.1. Connection between the controller and PC

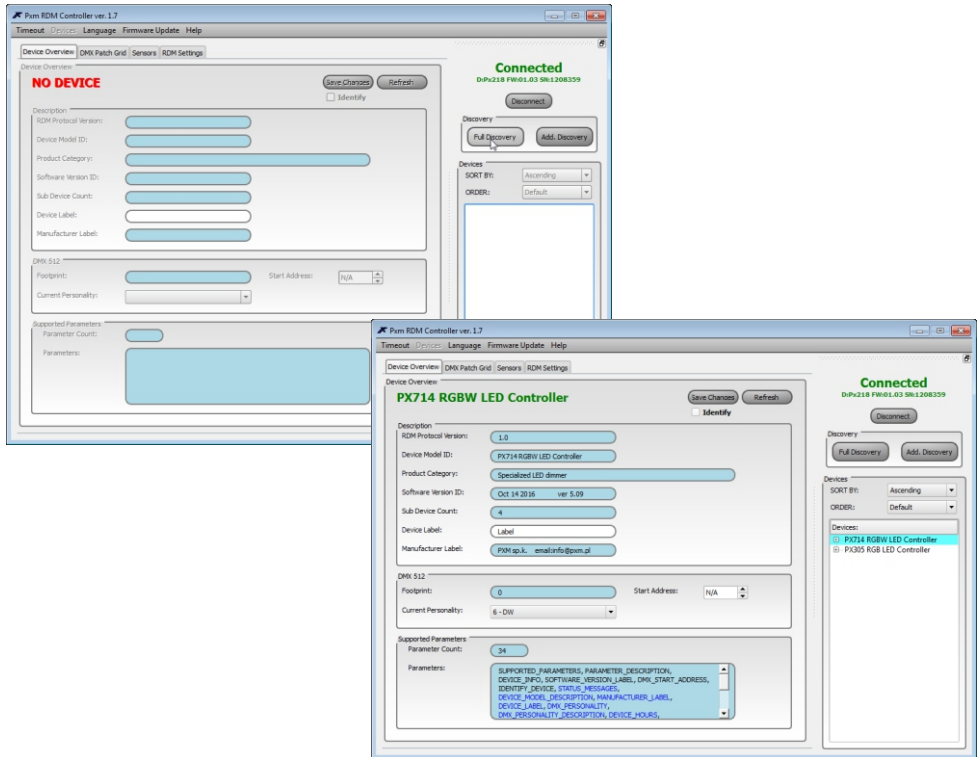
After installing the software, run the application, and then connect the controller to PC with the USB cable. During the first connection, a standard installation procedure is performed on the new device. In such case, indicate the location of the controller displayed at the end of the software installation Px218_PXM_RDM_Controller_P_1_6.exe. The connection is established after selecting the available PX218 from the drop down menu **[Devices]** in the top left corner of the window. Then, the program displays the “Connected” status, catalogue number of the device, serial number and firmware version.



5.1.1. Searching for connected devices

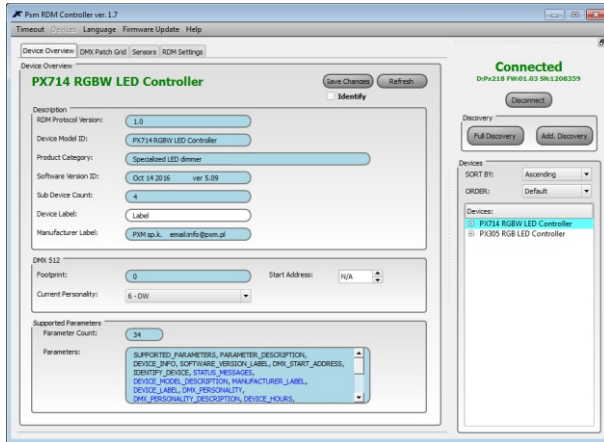
Once the program "PXM RDM Controller" is connected with PX218, it is possible to start searching for all devices connected to the DMX line. To do this, select **[Full Discovery]** located in the top left corner of the window. After searching and receiving the response from devices connected to the DMX line, the program displays the products found on the right in the **[Devices]** frame.

Using the pop-up keys next to **[SORT BY]** and **[ORDER]**, it is possible to sort and change the display of the list of the devices found.



The whole column on the right-hand side of the window, under the "Connected" or "Disconnected" message, is responsible for searching for and selecting the currently programmed device equipped with the RDM receiver and thus communicating with the PX218. On the left, there is displayed information on the currently selected device (highlighted in blue in the right-hand column). Additionally, through other tabs (**[DMX Patch Grid]**, **[Sensors]**, **[RDM Settings]**), the user can receive information on the device or change some parameters.

5.2. General overview



The first tab **[Device Overview]**, available for each device found, contains information on the detected product. The displayed messages are divided into sections: **[Description]**, **[DMX 512]**, and **[Supported Parameters]**.

[Description] contains the following information:

- **RDM Protocol Version**
- **Device Model ID**
- **Product Category**
- **Software Version ID**: version of the connected device firmware
- **Sub Device Count**
- **Device Label**: editable parameter which allows for describing the device
- **Manufacturer Label**

Section **[DMX 512]** contains the following:

- **Footprint**: number of channels assigned to a device operating in the selected mode
- **Current Personality**: selected operating mode of the device

[Supported parameters] contains:

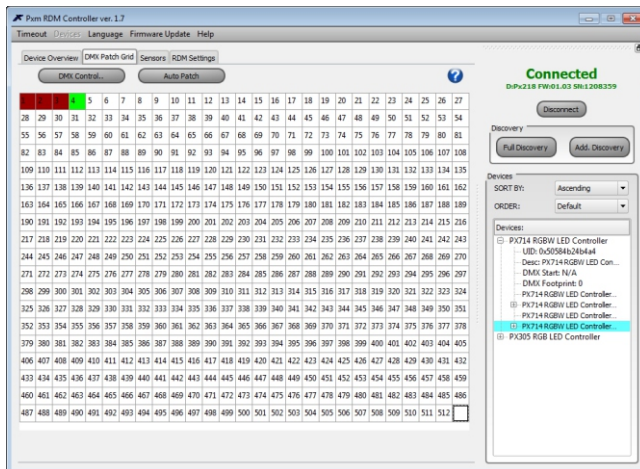
- **Parameter count**
- **Parameters**

Settings which can be edited in this tab are **[Device Label]** and **[Start Address]**. Check boxes are highlighted in white. **[Device Label]** is a parameter which allows you to describe the product as needed. On the other hand, **[Start Address]** enables the determination of the first DMX address (and automatically the next addresses) for the device.

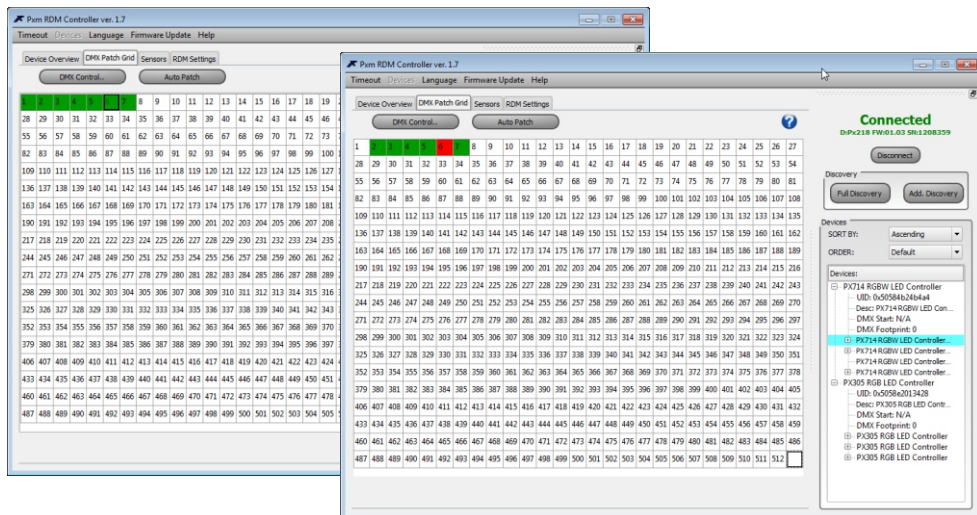
After setting or changing the parameter before leaving the **[Device Overview]** tab, save changes to let the end device remember them.

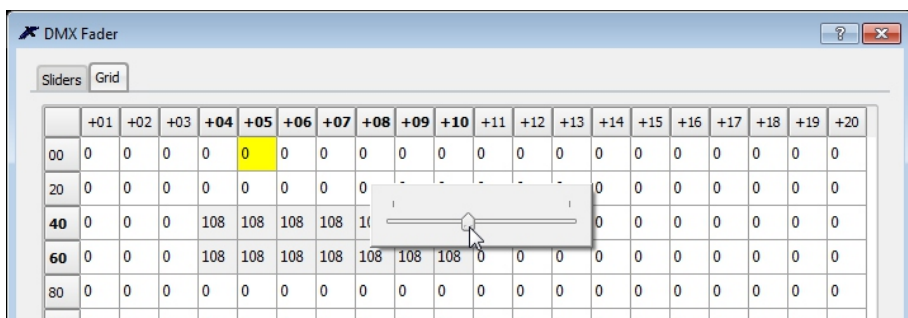
Additionally, the **[Identify]** box located under the **[Save changes]** button allows for activating the option of physical indication of the device among other devices connected to the system (in the case of PXM lamps, this will include blinking of diodes indicating the identified product).

5.2.1. DMX patch grid



The **[DMX Patch Grid]** tab allows for viewing the DMX channels currently assigned to devices connected to the DMX-512 line and with built-in option to support the RDM protocol. Channels which are assigned to the devices or slave devices are highlighted in green (one single cell is one channel). Grids (channels) assigned to the selected device in the **[Devices]** column in the bottom right-hand corner of the window are highlighted in light green. Red colour informs that two devices are assigned to the same DMX address or, optionally, channels sent by the device are out of range (above 512) of the DMX-512 protocol.



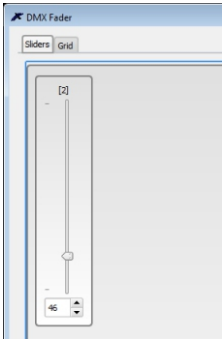


The **[DMX Control]** button is located above the field displaying the cells with subsequent channels and allows for changing the DMX value for each channel in real time. Unfortunately, it is not possible to save the set DMX values. This function is used only to configure scenes from PC. Once this button is selected, PXM RDM Controller opens another window and displays the **[Grid]** tab by default. This allows you to set the DMX value.

Values of the DMX channels can be changed in several different ways:

- by selecting the desired cell and entering the DMX value using the keyboard
- by selecting the desired cell and double-clicking the left mouse button
- and then, using the cursors (on the screen or keyboard), entering the desired DMX value;
- by selecting the desired cell or the group of cells and clicking the right mouse button; the slider appears and it can be used to set the desired DMX value (this option enables the change of the values of selected channels at the same time)
- by selecting one cell, and copying its value, e.g. using the Ctrl+C or Ctrl+V keyboard shortcuts

The **[Sliders]** tab allows you to change the values of the pre-selected devices or slave devices visible in the menu in the bottom right-hand corner of the main program window.



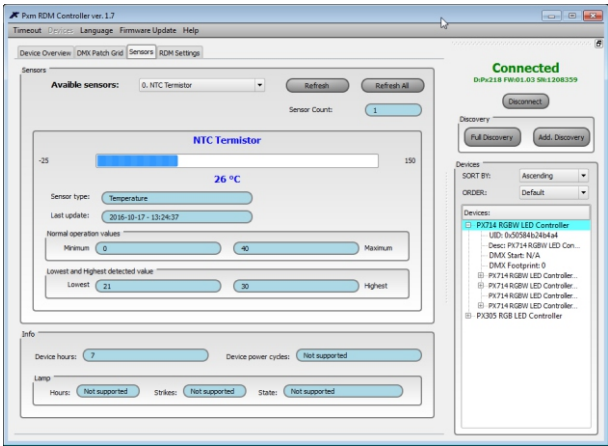
5.2.2. Sensors

The next tab – **[Sensors]** – is used to check parameters of sensors installed in the device. These may be, for example, temperature sensors. In addition to the current temperature, the program displays information on the lowest and the highest recorded temperature. What is more, it displays messages relating to the operation time of the product, such as: number of hours, number of power cycles, and – for lamps – e.g. number of flashes.

Parameters relating to the lamps (at the very bottom of the window), i.e. **[Hours]** refer to the total number of hours of lamp operation (time when it was on). Another parameter **[Strikes]** informs about the number of lamp activations.

The last value **[State]** signals the following situations:

- LAMP_OFF - lamp is off
- LAMP_ON - lamp is on
- LAMP_STRIKE - activation of discharge lamps (applies to discharge lamps)
- LAMP_STAND BY - reduced lamp power, standby mode
- LAMP_NOT_PRESENT - lamp is not connected
- LAMP_ERROR - lamp communication error

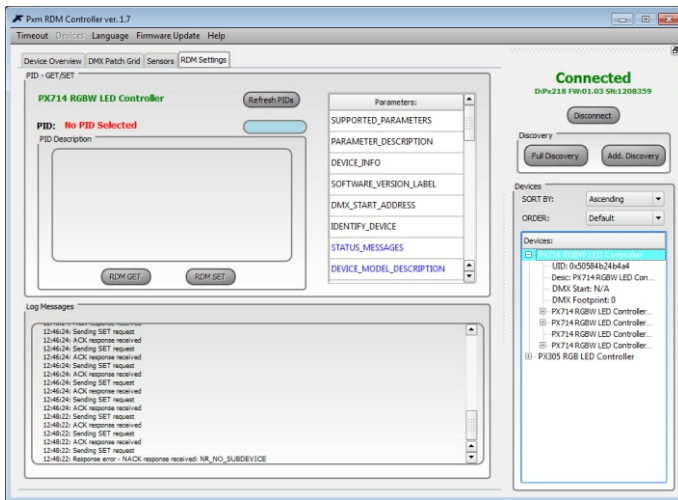


5.2.3. RDM settings

The last tab **[RDM settings]** contains information on all of the RDM parameters provided by the RDM protocol to the device. In addition to viewing the messages, it is also possible to set new values for the options which allow for such a change.

Available parameters are displayed on the right-hand side of the window **[PID - GET/SET]**. The **[RDM GET]** key allows you to read their current values, and the **[RDM SET]** is used to enter the new settings. Once the **[RDM SET]** key is selected, a new window pops up which is used to select and save settings depending on the option.

Description of colours: black – standard options (RDM); blue – additional optional parameters supported by the product.



The following typical options (highlighted in black) can be checked:

- **Supported parameters** - a list of parameter identifiers supported by the device
- **Parameter description** - description of individual parameters
- **Device info** - information on the device
- **Software version label** - information on the device firmware
- **Identify device** - status of device identification option (on-off)

Additional options (highlighted in blue) are selected by the manufacturer of the device connected to the DMX line, e.g. lamp.

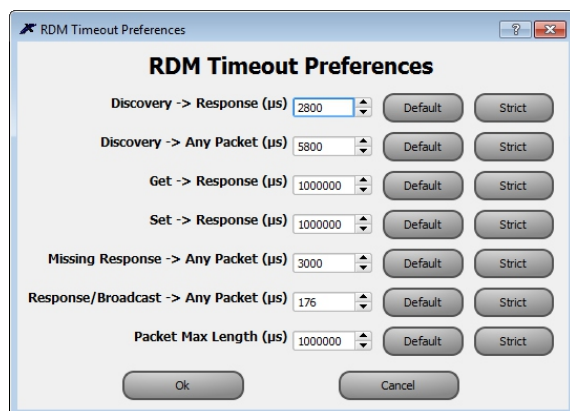
These are parameters adjusted to the capabilities of the device, and a description of their functions should be available in the instruction manual of this product.

5.3. Modification of device times

The [Timeout] menu in the top left corner of the main program window makes it possible to change the communication settings through various interfaces supported by PX218, i.e. [RDM timeout], [USB timeout], [DMX timeout].

Apart from manual modification of settings, it is also possible to change them automatically.

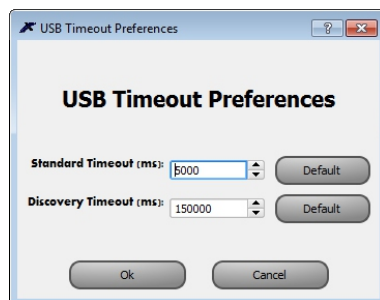
The [Default] key restores the default settings stored in the device, while the [Strict] key changes settings to the minimum standard settings. We generally recommend using the default settings; in the event of communication problems, try the strict settings, and then, if the problem persists, manually modify individual parameters.



The RDM Timeout Preferences dialog box contains the following settings:

Setting	Value	Default	Strict
Discovery -> Response (µs)	2800	Default	Strict
Discovery -> Any Packet (µs)	5800	Default	Strict
Get -> Response (µs)	1000000	Default	Strict
Set -> Response (µs)	1000000	Default	Strict
Missing Response -> Any Packet (µs)	3000	Default	Strict
Response/Broadcast -> Any Packet (µs)	176	Default	Strict
Packet Max Length (µs)	1000000	Default	Strict

Buttons: Ok, Cancel



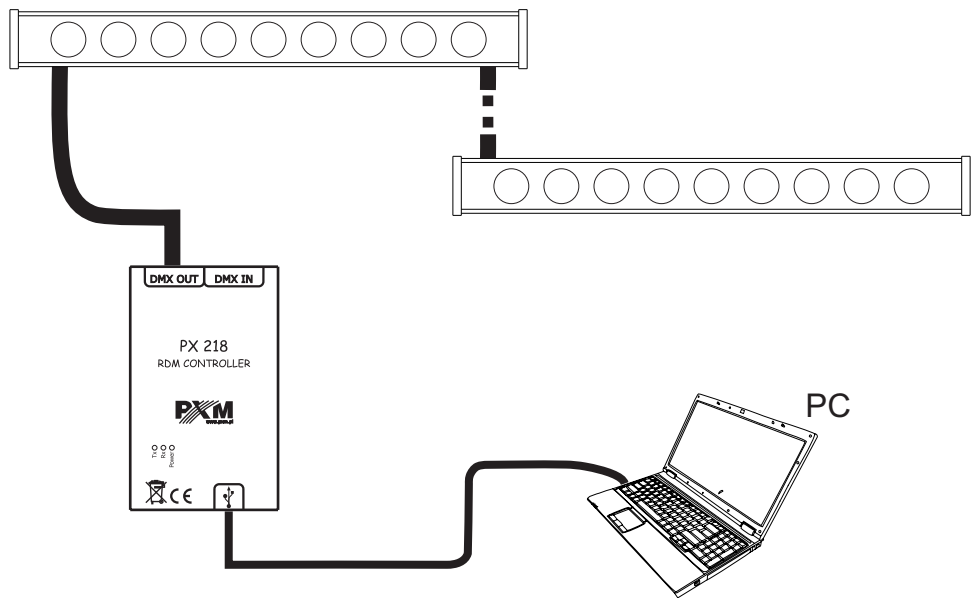
The USB Timeout Preferences dialog box contains the following settings:

Setting	Value	Default
Standard Timeout (ms)	6000	Default
Discovery Timeout (ms)	150000	Default

Buttons: Ok, Cancel

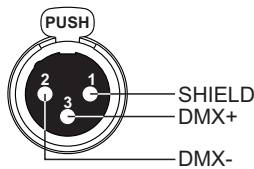
6. WIRING DIAGRAM

Lamp supporting the RDM protocol, e.g. PX256



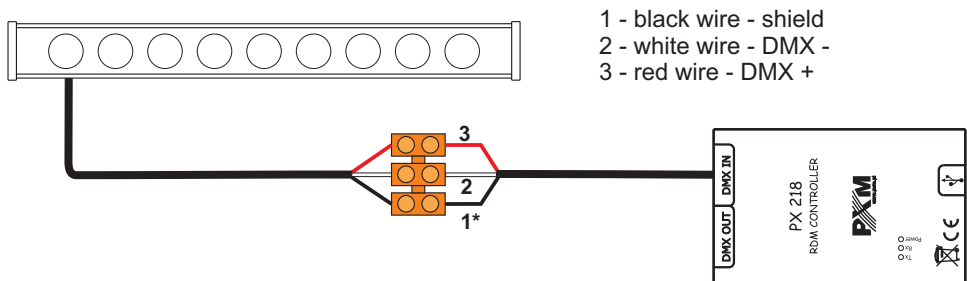
Connection of the DMX cable from the lamp with the XLR connector

The drawing below presents the description of XLR pins:



NOTE: Under no circumstances can the cable shield be connected to the device grounding.

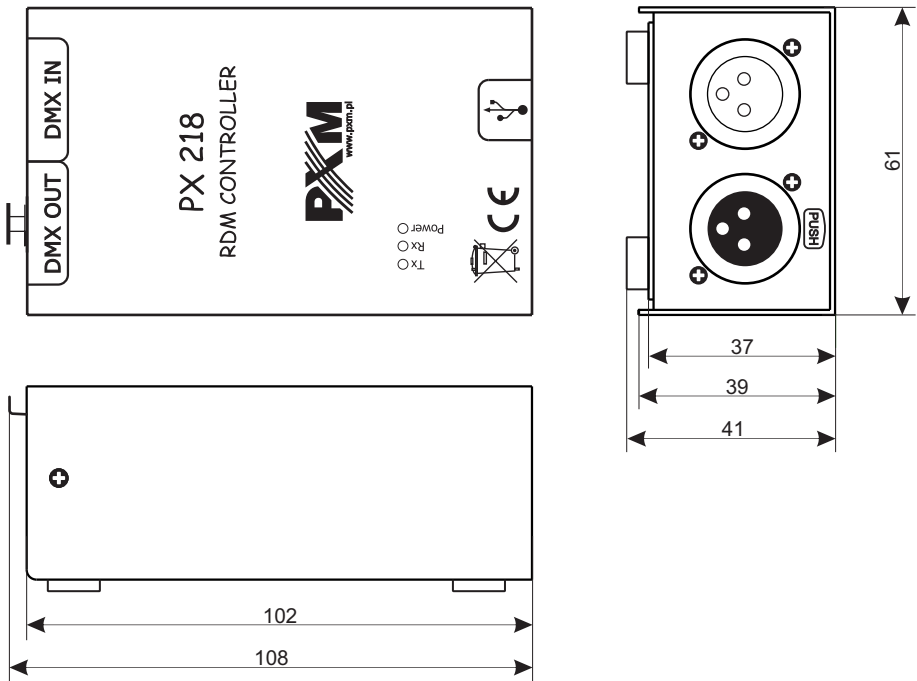
Example of connecting the DMX cable from the lamp to the cable with XLR connector



7. TECHNICAL SPECIFICATION

- available connectors:	USB, 3-pin XLR slot/plug
- communication with PC:	YES (USB Mini-B interface)
- power supply:	5V DC (directly from the USB port)
- weight:	0,25 kg
- dimensions:	
- length	108 mm
- width	61 mm
- height	41 mm

8. TECHNICAL DRAWING





ul. Przemysłowa 12
30-701 Kraków

tel: 12 626 46 92
fax: 12 626 46 94

e-mail: info@pxm.pl
<http://www.pxm.pl>

DECLARATION OF CONFORMITY

according to guide line 2004/108/WE

Name of producer: PXM Marek Żupnik sp. k.

Manufacturer's address: ul. Przemysłowa 12
30-701 Kraków

We declare that our product:

Product name: **RDM Controller**

Product code: **PX218**

complies with the following standards:

EMC: **PN-EN 55103-1:2012**
PN-EN 55103-2:2012

Additional information:

DMX signal has to be connected by using a shielded cable, connected to the GND pin.



Marek Żupnik spółka komandytowa
30-701 Kraków, ul. Przemysłowa 12
NIP 677-002-54-53

mgr inż. Marek Żupnik.

Kraków, 26.06.2012