PX144

# Mini Light Controller

MANUAL

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*The manufacturer reserves the right to make changes in the functioning and usage of the controller, in order to improve the product.*

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*Rev.1.1.*

# 1. GENERAL DESCRIPTION

PX144 Mini Light Controller is a controller of dynamic architectural and decorative lighting that allows you to control complex lighting systems. For communication with the other devices it has 8 inputs on / off, input the remote control code transmitting wireless RC-5 and a USB port built-in. The PX144 has a standard DMX-512 output and OC rated at 1.5 A per channel, allowing direct control of LEDs. RGB LED visible on the casing PX144 allows direct viewing of the selected color of light in three output channels.

The device is designed to control both fast and slow changes in lighting, and is also perfectly suited to control all of the intelligent devices.

PLC programming can be made on the PC thanks to the software running in a Windows environment. PX144 memory allows you to save 16 scenes with a certain brightness, time of entry, duration, and the eight programs. Moreover, Mini Light Controller has built a special stage, which can be freely adjusted on an by the user, for example via remote control without need for PC connection.

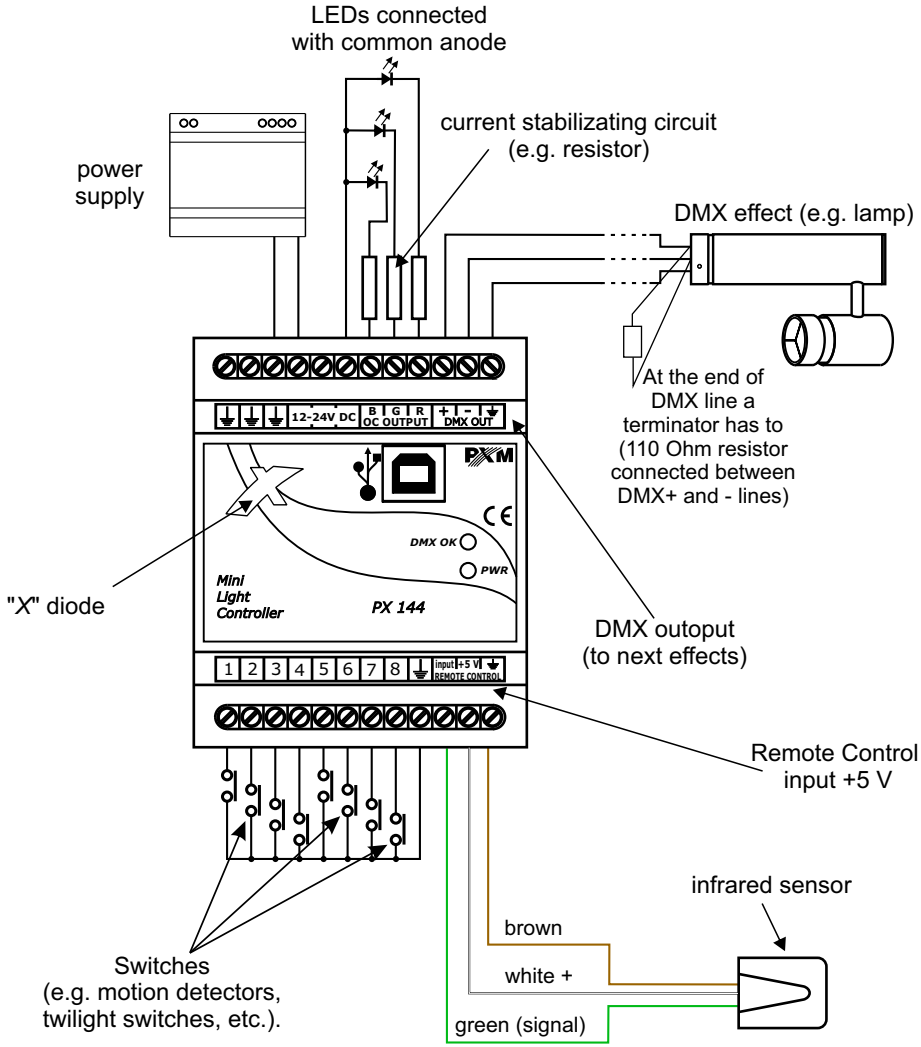
Control function can also be done from the other devices (which may be eg motion detectors, switches, dusk or conventional keyboards), or the remote control. PX144 allows you to define the 16 scenes and 8 programs, consisting of a maximum of 16 steps each.

# 2. SAFETY CONDITIONS

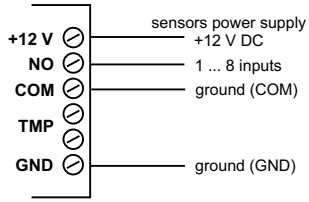
Driver PX144 Mini Light Controller is powered with safe voltage 12 - 24V, but during the installation and use you should observe the following safety rules:

1. The device can be connected to supply 12-24 V DC current-carrying capacity in accordance with technical data.
2. All wires must be protected against mechanical and thermal damage.
3. In case of failure of any of the cables must be replaced with a conductor with the same technical data and certificates.
4. For connecting DMX use only a shielded cable.
5. All repairs, or connection of the device to a DMX signal can be performed only with the power off.
6. It is essential to protect the PX144 from contact with water or other liquids.
7. Avoid violent shocks, especially falls.
8. Do not operate the equipment in areas with humidity above 90%.
9. Do not use in rooms with temperatures below 2 ° C or higher than 40 °C.
10. For cleaning use only a slightly damp cloth.

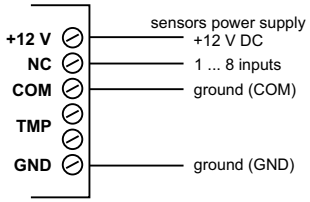
## 3. CONNECTION SCHEME




**NO type sensor connection scheme**



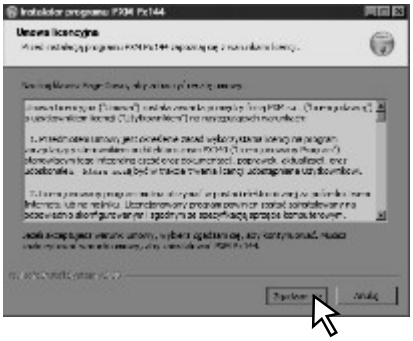

**podłączenie czujnika typu NC**



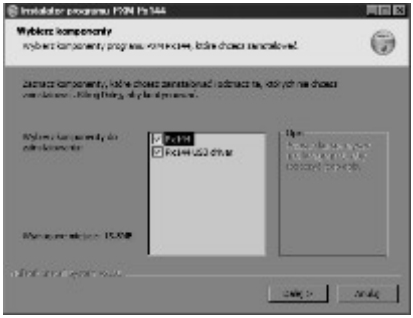
# 4. SOFTWARE INSTALLATION

The CD that comes with the driver includes a program *Px144 ver. 1.09B Install.exe*, which when launched, installs the application to programming and configuring the PX144.
In a first step, the installer asks for language selection (*Installer language*) which is used during installation. You can choose *English* and *Polish*.

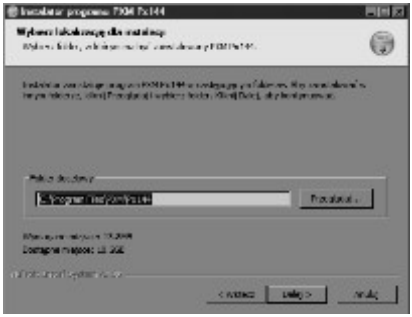

After defining the language as *English* and clicking *OK*, another window appears - *Terms and Conditions of Using* the program appears on the license agreement concluded in the case of installing the software between you and PXM sc. Please read it carefully, and if you agree, press *Agree*, which is equivalent to accepting the licence. Cancel button will abort the installation.



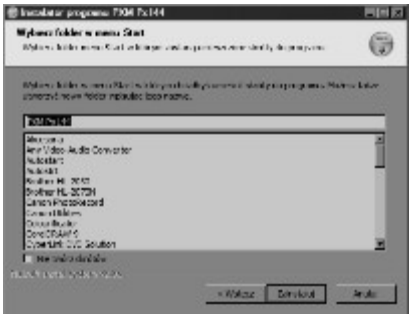
The next window is a window for selection of component installation. In default settings there are selected all necessary elements - the components of the program and the USB drivers. Select the *Next* button to continue the installation, press *Cancel* to stop the installation program. To go to the next stage, press *Next*.



The next window gives us the possibility to choose the future location of the program is installed. To continue, press *Next*. *Back* button will bring you back to the selection of component installation, press *Cancel* to break the installation.

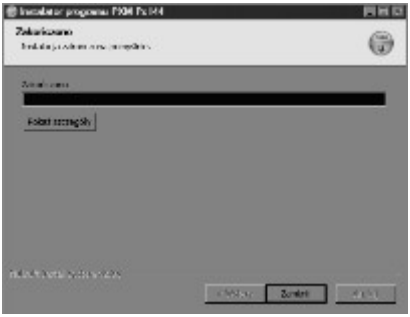


The following window allows to select the name of the target installation folder. Selecting the *Install* button will start installation of the application.



The last window shows the information about the successful completion of the installation. Selecting *Show details* button opens the inside the window with information about the location of individual components. Press *Close* to exit the installer.

**NOTE:** To remove Px144.exe run the *Uninstall* file located in the target folder of the program.



# 5. DRIVER PC SOFTWARE

A program to use the controller from your PC so you can easily program the device to define the scene, and programs and set parameters for the driver. The combination of the controller to the computer via a USB connection.

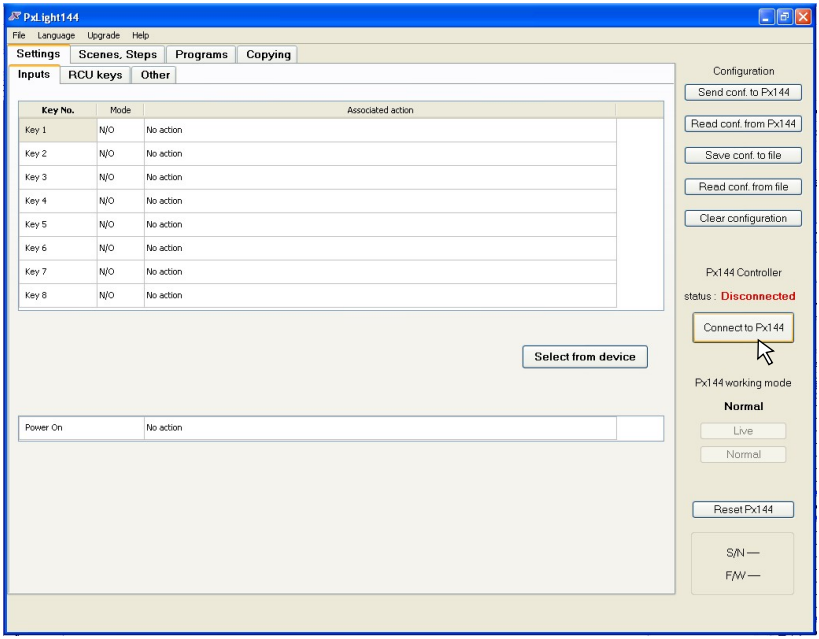
The application is available in two languages - Polish and English. Other language versions can be supplied on request.

The software can be run on PC computers running Microsoft Windows 98 SE, 2000, XP or later. Application and its updates can be downloaded for free from the http://www.pxm.pl website.

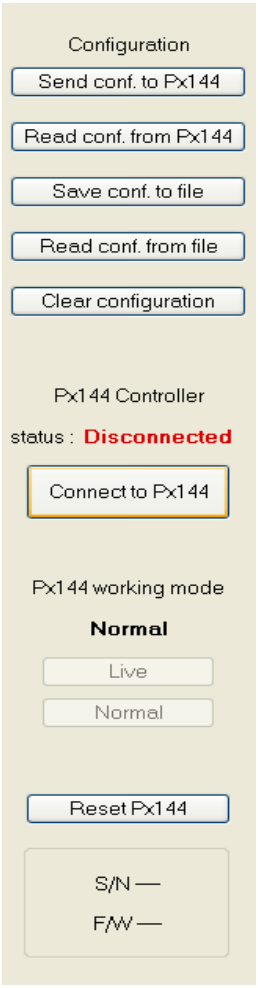
## *5.1. CONNECTION OF THE DRIVER WITH A PC*

After installing the software you should run the application, and then connect the controller with a PC via a USB cable. During the initial connection your computer should execute a standard procedure for installing a new device in the system. You need to indicate the location of the driver, that has appeared at the end of the installation PxLight144 software. Connection will be established after selecting the *Connect* button on the right side Px144 program window. You will see the status of *"Connected"* and the serial number and firmware version read from the controller.

**NOTE:** To program most of the parameters is not necessary connection the driver - you can save settings to a file.cfg (see section 5.4 of this manual), and after connecting the module to a computer to send the configuration to the device.



On the right side of the window in the block configuration are available in the following keys: *Send configuration to Px144* (allows you to send pre-programmed settings for the driver), *Read configuration from Px144* (driver settings for downloading applications), *Save configuration to file* (retain the settings in the file. cfg) *Load File* (opens previously saved configuration file) and *Clear configuration* (present loads, "empty" configuration).
Below are some keys to choose a mode: *Live* (every change in settings scenes during programming can be seen Live) and the *Normal* mode (when the driver does not interrupt the programming work so far.) Additionally there is available *Reset Px144* button, which restarts the driver, useful for example after changing the relevant settings.

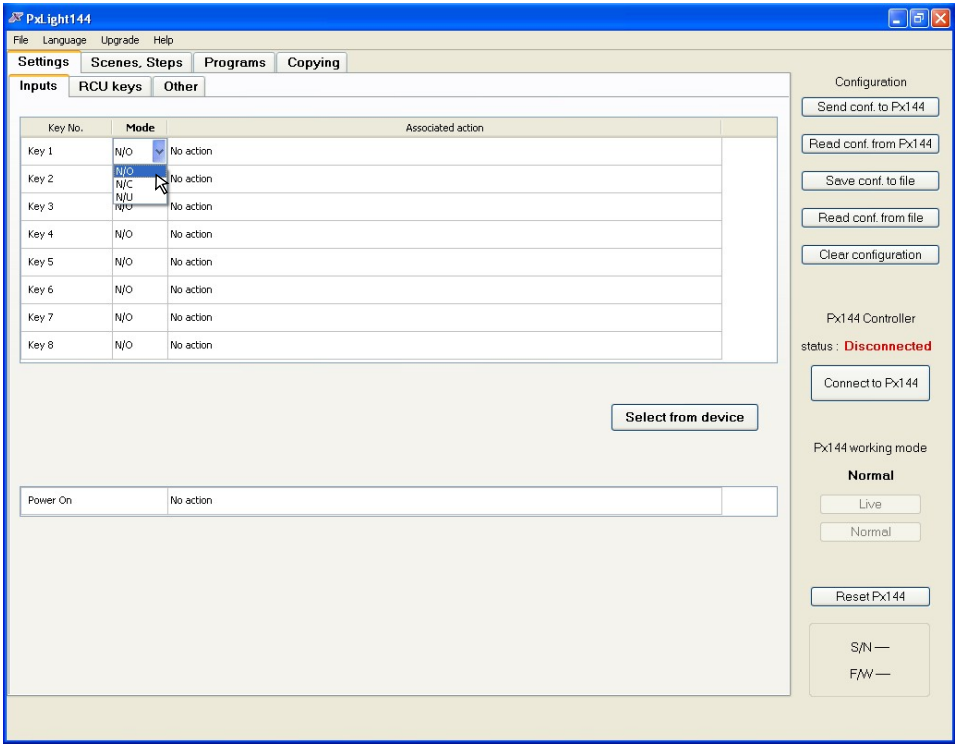



## *5.2. CONTROLLER SETTINGS*

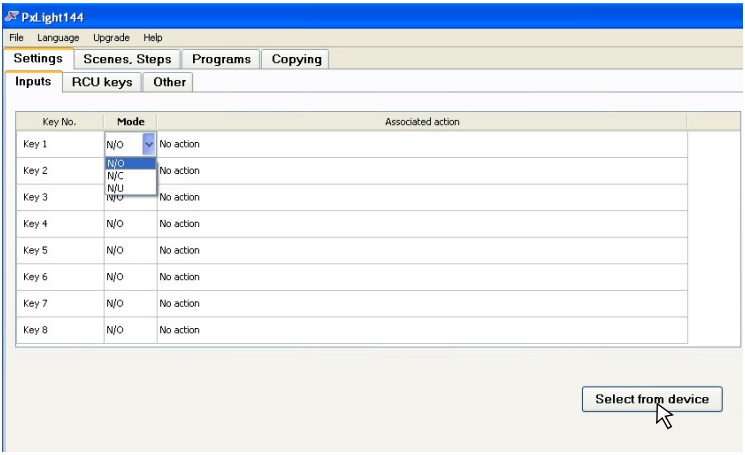
In the first tab of the main settings, we can assign specific actions to each of the 8 inputs and 64 control buttons on the remote. In addition, we can define the basic parameters of the controller PX144.

### *5.2.1. Inputs Settings*

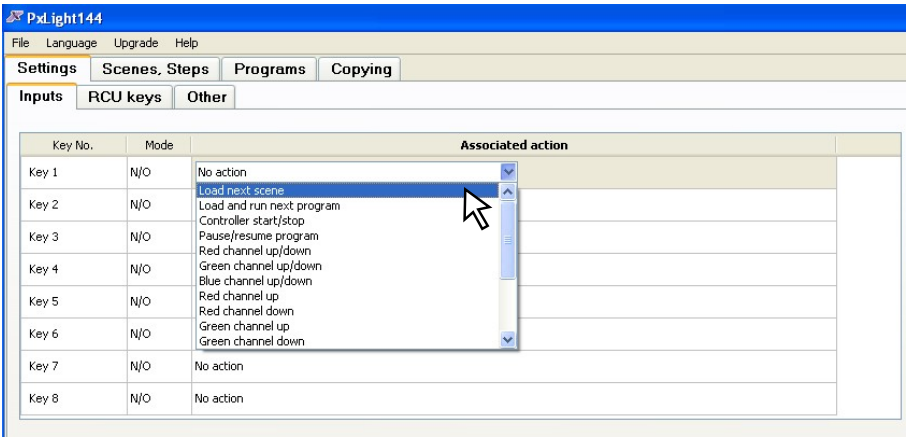
In the *Settings / Inputs* tab each of the eight control inputs, we can declare as Normally open - *N/O* (impulse sent to the input will cause the closure of the circuit), Normally Closed - *N/C* (impulse will open circuit) or unused - *N/U* (input will be cut off).
To define the control input, double-click on the selected entry in the *Mode* column and set the menu to the desired state.




In addition, the *Select from device* button allows you to check which of the external keyboard keys is corresponding to individual numbers in the program. After selecting this button, simply press the desired external driver key and the corresponding number in program will be highlighted.



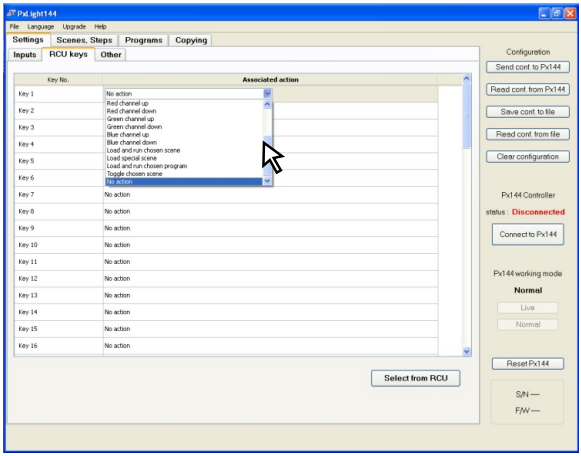
In the Settings / Input tab to each of the control inputs, we can assign a action. Therefore, the impulse given to the selected input will call the action assigned to it.
*I*n the column associated action you can choose what actions will cause the run control input. Double-clicking in a table cell opens a menu where we have to choose: *Load next scene* (changes are currently running a scene to the next), *Load and run next program* (the program is currently running blanks and loads the next), *Controller Start / Stop* (the driver switches to standby suppressive thereby running the scene and start programs or device with the latest parameters), *Pause / Resume program* (resumes or pauses a currently running sequence), *Red channel up/down* (it switches R output channel - if it has been growing - it will extinguish it and vice versa), *Green channel up/down* (similarly as above for output channel G), *Blue channel up/down* (the same as above to the output channel B), *Red channel up* (R brightens the output channel, holding the key causes monotonous increase brightness), *Red channel down* (dims output channel, holding the key will decrease a brightness with steady step), *Green channel up / Green channel down* (analogous as above to the output channel G), *Blue channel up / Blue channel down* (analogous as above to the output channel B), *Load and run selected scene* (accompanied by one of the sixteen scenes) *Load special scene* (special stage starts, see Section 5.2.4.1 of this manual), *Load and run selected program* (it will start one of eight programs), *Toggle chosen scene* (changes state chosen scene, when the scene has been growing up - will decrease and vice versa, if it has lasted - will also decrease). Of course, given entry, we can not assign any action (without a predefined parameter of action).




## *5.2.2. RCU keys settings*

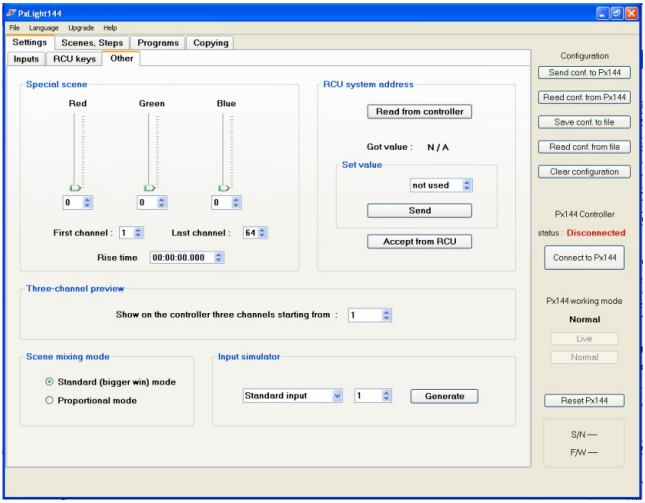
In the next section - the remote control keys - you can define actions for wireless control.
Click the *Select from RCU* button to check inputs, this allows you to check which of the remote control keys are assign to the different numbers in the program. To do that simply press the desired button on the remote control, then the corresponding number key will be highlighted.

In the column *Associated action* can be assigned some actions to each of the 64 buttons on the remote control. You can assign the same action of definable for external keys (see section 5.2.1 of this manual). Programming the remote control will decide how the PX144 respond to pressing any keys and is analogous to the programming inputs.




## *5.2.3. Other settings*

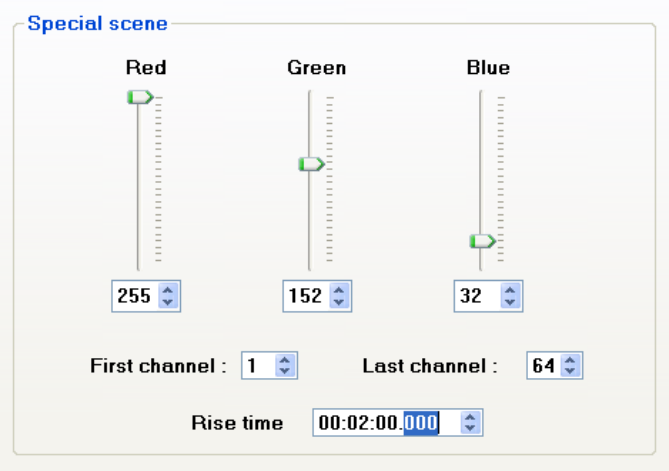
In the Settings / Other tab you can define the parameters of the special stage, the address of the remote wireless control to select three other channels whose settings are mapped directly to the LED on the front of the driver (the LED in the shape of a company logo PXM: "X") and run the simulator events you can view the action assigned to that entry or remote control key, the LED directly to the "X" mounted in the PX144.



### *5.2.3.1. Special Scene*

In the Special Scene, we can define the parameters of additional scenes, which is not "rigid" programmed, it can keep free to regulate the light intensity at each of the three output channels, for example via remote control, without requiring PC connection. You can edite it using the keys or the remote control buttons to access the action scene is a special scene Load. Direct preview of the special stage and its modification is also possible on LED "X".

Using sliders, you can easily set the initial brightness of each channel: R (red), G (green) and B (blue). Special Scene, after booting, the light brightness, as defined here. In addition, we can set the extent to which the special scene of output channels to appear (note that it occupies three consecutive channels, respectively R, G and B) and set the time after which it reaches defined by us (using sliders), brightness - maximum value of 1 hour, 49 minutes and 13, 4 seconds.

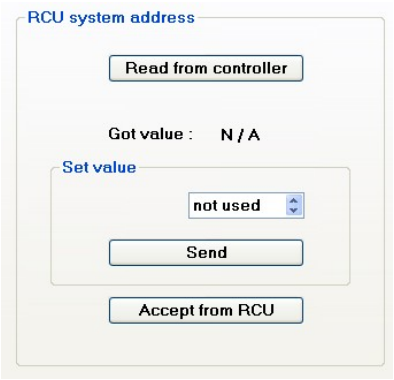



In the above example values □□for each color are sequentially: R - 255 G - 152 B - 32, which gives the resultant color orange. Thus, the effects of components of each color will light up the DMX channels from 27 to 32 (channels 27 and 30 are responsible for the color red, 28 and 31 - green, 29 and 32 - blue) and brightening with time of 2 minutes.

### *5.2.3.2. Remote control Address*

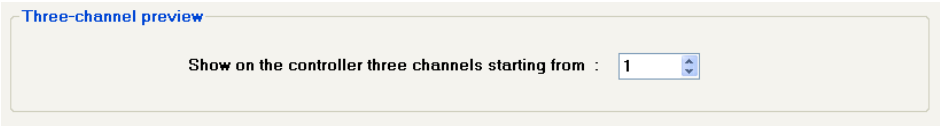
Remote Address field is responsible for setting the device address RCU. *Read form controller* button allows to find out the address of the remote control which is stored in the memory of PX144. The address can be obtained directly from the remote control by pressing the remote control download and then pressing any button on the remote control. Obtained in this way can be sent to the address PX144 (*Send* button).

**NOTE:** Keep in mind that the driver is able to communicate with remote controllers operating exclusively in the code RC-5.



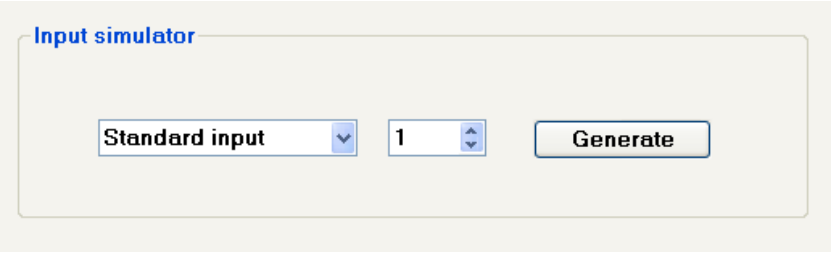

### *5.2.3.3. Three-channel preview*

This field allows you to preview selected channels to determine which of three channels (R, G, B) will be mapped directly onto the LED "X" on the controller and the output channels OC. The first of the selected channels may be numbered from 1 to 30 (when value of 30 will be the third channel number is 32).



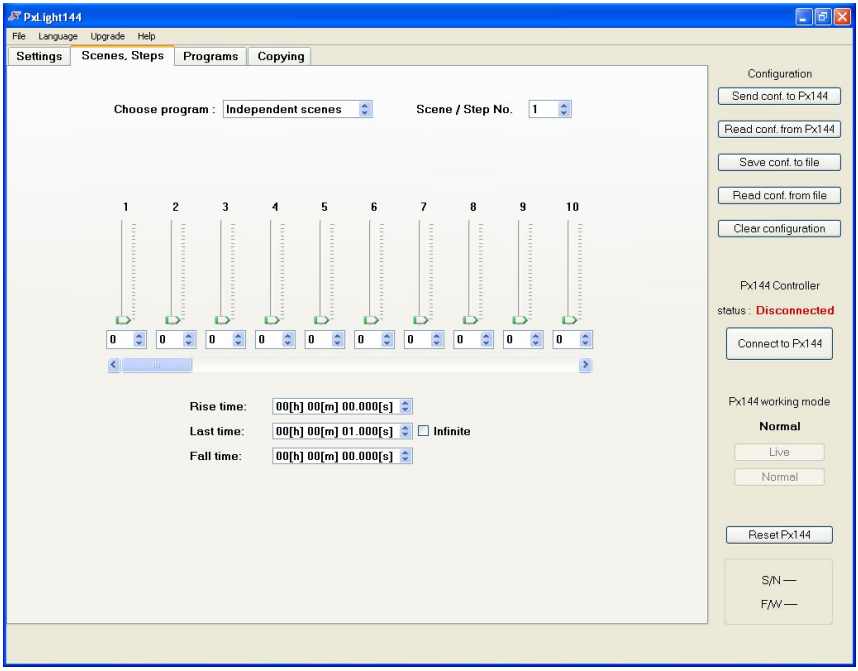

### *5.2.3.4. Input simulator*

*Input simulator* allows you to preview the selected input shares associated with the external keys or the remote control buttons directly on the controller or the connected effects. To see the effect of the action, select the type of input (*Standard input* - for analog input or *RCU key* - the remote control key), then the number of selected key and press the *Generate* button. Outputs and the LED "X" appears on the share for a given key.



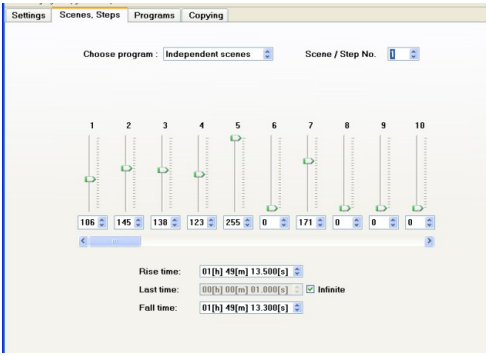
## *5.3. DEFINING SCENES AND PROGRAMS' STEPS*

When you select the *Scenes, Steps* tab of the main menu, we are able to complete these steps to program each of the 16 scenes, and the different steps (maximum 16) for each of the eight programs. Decide whether you want to define separate scenes, or the steps of programs. You can select that in the choose program window. In the box (scene / step No.) , you can determine the scene number or the next step, form the previously selected program.




For each scene, and the step we have 32 slides corresponding to the output channels. Every three sliders (1, 2, 3, 4, 5, 6, 7, 8, 9, etc..) Controls three more output channels, for example R, G and B values for each channel can be set using the sliders (range 0 - Channel wyciemniony to 255 - full brightness), or by entering a numeric value.

Moreover, we can define the time at which the selected scene or step of the program will be brighter, and the last to expire (if this applies only to walk the last step in the program). Maximum Time for Input stage / step of 1 hour, 49 minutes and 13.5 seconds (6553.5 seconds), the maximum duration of the stage / step is 0.1 seconds or less marked as the Infinite, and the departure time is 1 hour 49 minutes and 13.3 seconds (6553.3 seconds). If the duration is selected as an infinite, blank the scene, or step can only be achieved by another action, such as the next scene Load / Run program or a scene / program. Time of entry or departure set the stage or step "00 [h] 00 [m] 00000 [s]" means that the scene / step immediately will shine brightly, or rapidly extinguished.

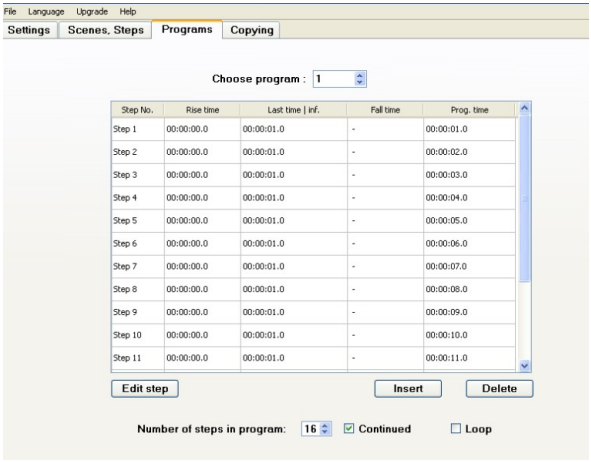



For step programs, we can also define additional parameters - *Infinite* tag allows determine Loop for selected program or scene.

## *5.4. DEFINING PROGRAMS*

On the main programs we can define the programs based on eight steps according to the settings tab of scenes, steps. We can reduce the number of steps in the selected program, set the times of entry (up to 1 hour, 49 minutes and 13.5 seconds, ie, 6553.5 seconds) and duration (up to 1 hour, 49 minutes and 13.4 seconds or 6553.4 seconds or infinite, you must select the square box in the Prog. Time column) for each step separately and departure time for the last step, there is a maximum of 1 hour, 49 minutes and 13.3 seconds (not applicable to programs running in the loop - check box *Loop*).

At any time we can easily move to the tab settings for brightness and the time step selected by *Edit step* button. You can also use the *Insert* button (it inserts an extra step over the selection, only if the number of steps is less than 16) and Delete (deletes the selected step).

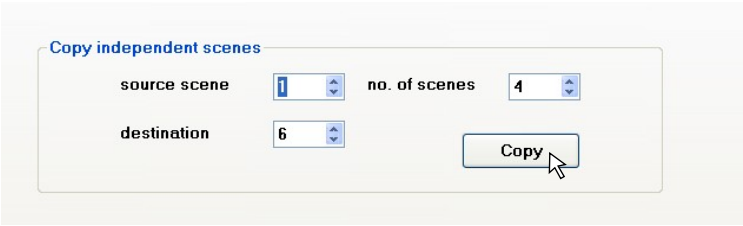


The *Rise time* column will show the duration of the program by the end of the scene. If the time any of them will be established as infinite in the last column of the duration of the entire program from the scene will be indefinite.

## *5.5. COPY THE SETTINGS AND SCENES OF PROGRAMS*

In the Copy tab we can move from the defined settings and scenes or programs and copy them to a series of successive chosen scenes or programs.

To copy a scene, choose Copy for the source scene (the first number of the scene) you want to copy form. Then select the number of consecutive scenes to be duplicated, and finally the destination of scenes for which the parameters will be rewritten by typing the first number of the Target Scene window. To make a copy just click on the Copy button.
In this example, setting scenes 1, 2, 3 and 4 will be copied to the scenes 6, 7, 8 and 9.

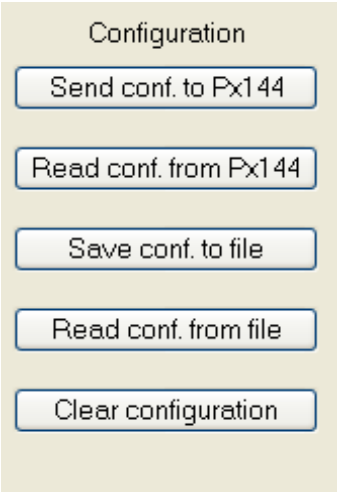



In the same way copy the entire set of programs. To copy the programs, choose Copy in the number of the first programs of programs from which you wish to copy the source parameters in the window: the program, then select the number of consecutive programs to replicate, and eventually the target range of programs for which the parameters will be rewritten by typing the number one program from the target in the window: the program. To make a copy just click on the *Copy* button.
In the following example settings for 1, 2 and 3 will be copied to the programs 6, 7 and 8

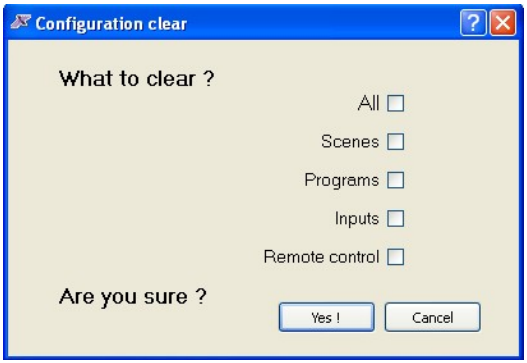
Same goes with Coping Steps. The only change is that first you have to choose form which program do you need to copy those steps.


## *5.6. CONFIGURATION SAVING AND READING*

Changes made in configuration can be to saved only in the file wiht .cfg extantion. To save it select the *Save Conf. to file* button on the right side of the application window. The configuration can also be sent to the controller by pressing the *Read conf. from file*. Each of the settings can then be freely modified, either by reading them from the controller (*Read configuration*) and when you open a previously saved file. cfg.

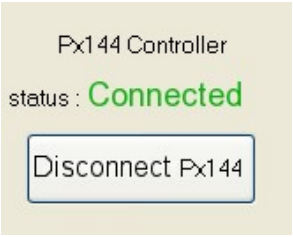


Using the *Configuration clear* button you can remove any configuration changes made in the program and set predefined configuration to zero state. We can remove all the settings, or only some of the changes by selecting the boxes of the window..




### *5.7. CLOSING THE PROGRAM*

After completing work with the program and to save your changes the driver, click the *Disconnect Px144* button, only then we can close the application and disconnect the unit from a computer.




## 6. TECHNICAL SPECIFICATION

| | |
|---|---|
| - DMX output channels | 64 |
| - control inputs on / off | 8 |
| - number of remote contol buttons | 64 |
| - code for remote control | RC-5 |
| | |
| - outputs | OC, DMX-512 |
| - load OC outputs | 1500 mA / channel |
| | |
| - Power supply | 12 - 24V DC |
| | |
| - Programmable: | |
| - Scenes | 16 |
| - Programs | 8 |
| | |
| - Dimensions: | |
| - width | 70 mm ( 4 standard DIN rail modules) |
| - height | 86 mm |
| - depth | 60 mm |

PXM

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*fax: +48 12 626 46 94*
*e-mail: info@pxm.pl*
*http://www.pxm.pl*

# DECLARATION OF CONFORMITY
**according to guide lines 89/336/EWG**

Name of producer: PXM s.c.

Address of producer: ul. Przemysłowa 12
30-701 Kraków, Poland

*declares, that the product:*

Name of product: **Mini Light Controller**

Type: **PX144**

*answers the following product specifications:*

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

*Additional Information:* DMX signal connection must be made with a shielded cable, connected to GND pin.

PXM S.C.
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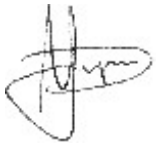
NIP 677-002-54-53



Kraków, 01.08.2008 MSc. Marek Żupnik.