PX103

OPERA

INSTRUCTION MANUAL

PXM®

CONTENTS

Manufacturer reserves the right to make modifications in order to improve device operation.

PXM s.c.
ul. Przemysłowa 12
30-701 Kraków
POLAND

tel.: (+48 12) 626 46 92
fax: (+48 12) 626 46 94
E-mail: info@pxm.pl
Internet: www.pxm.pl

1. GENERAL DESCRIPTION

Opera PX103 is a programmable DMX console (18 / 36 channels + 1), intended for theatre and stage lighting control. The device has a built-in DMX signal transmitter, 18 basic control routes (36 in the programmable mode) and the additional independent 37th route for, for instance, auditorium lighting control. The console memory allows to define and save 18 lighting configurations (scenes or chasers). The saved configurations can be modified freely, including making changes during rendering. The operation comfort is consolidated by a set of output signal LED indicators, comfortably placed sliders and keys and a precise MASTER slider. Built-in microphone and audio input allow to synchronize the predefined chasers to the music. As opposed to complicated consoles, Opera does not need any preliminary configuration, what makes the device very useful both in the theatre and stage installations.

Opera can operate in two basic control modes:

1. Manual operation mode with use of two presets.

   "Classical" control mode, where the operator has two sets of 18 configuration sliders (PRESET A and PRESET B) at disposal, with these he creates and mixes scenes without saving them in the console memory.

2. Programmable operation mode.

   In this control mode the operator has the possibility to save the previously defined light scenes and chasers, which can be rendered later using 18 sliders. The console allows to mix the defined lighting configurations and to modify them - chasers can be rendered with adjustable speed or synchronized to the music.

Opera console is manufactured in the standard 19" mechanics, adapted for free-standing operation or rack mounting. Legibly labelled front panel and big, comfortably placed keys and control sliders facilitate notably the console maintenance. The device is powered with safe voltage, through the medium of the included adaptor.

2. SAFETY CONDITIONS

PX103 Opera console is a device powered with safe voltage 9 - 12 V; however, during its installation and use the following rules must be strictly observed:

1. The device may be connected to 9 - 12 V AC / DC with current-carrying capacity compatible with technical data only.
2. All the conductors should be protected against mechanical and thermal damage.
3. In the event of damaging any conductor, it should be replaced with a conductor of the same technical data and attestations.
4. Connection of DMX signal can be made with shielded conductor only.
5. All repairs and connections of outputs or DMX signal can only be made with cut off power supply.
6. PX103 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 duster only.

3. CONSOLE AND DIMMERS CONNECTION

Opera theatre console sends out the DMX-512 standard control signal. With this signal the dimmers, that operate the reflectors, are controlled. The proper operation of the whole set of devices requires the correct DMX address settings in the controlled devices and a correct devices' connection with a signal cable.

Below are some essential informations needed to connect the dimmers and the Opera console correctly:

1. To connect the devices use of a 2-strand shielded microphone cable is recommended.

2. All the XLR couplings should be connected according to the following pattern:

pin 1 - shield
pin 2 - DMX-
pin 3 - DMX+

3. The controller and the dimmers must be connected in series, that is:

- the output of the controller to the input of the first dimmer,
- the output of the first dimmer to the input of the second dimmer,
- the output of the second dimmer to the input of the third dimmer, etc.

4. In the DMX OUT socket of the last effect the terminator must be installed (XLR plug with the 110 Ohm resistor between 2 and 3 pins).

5. In the controlled dimmers the proper DMX addresses must be set, taking into consideration, that Opera maintains 36 channels and one additional 37th AUX channel.

Below are the exemplary settings for four 6-channel DMX dimmers:

1st device - 001 DMX address
2nd device - 007 DMX address
3rd device - 013 DMX address
4th device - 019 DMX address

1 

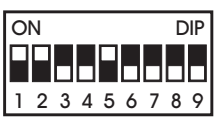
Starting address = 1

2 

Starting address = 7

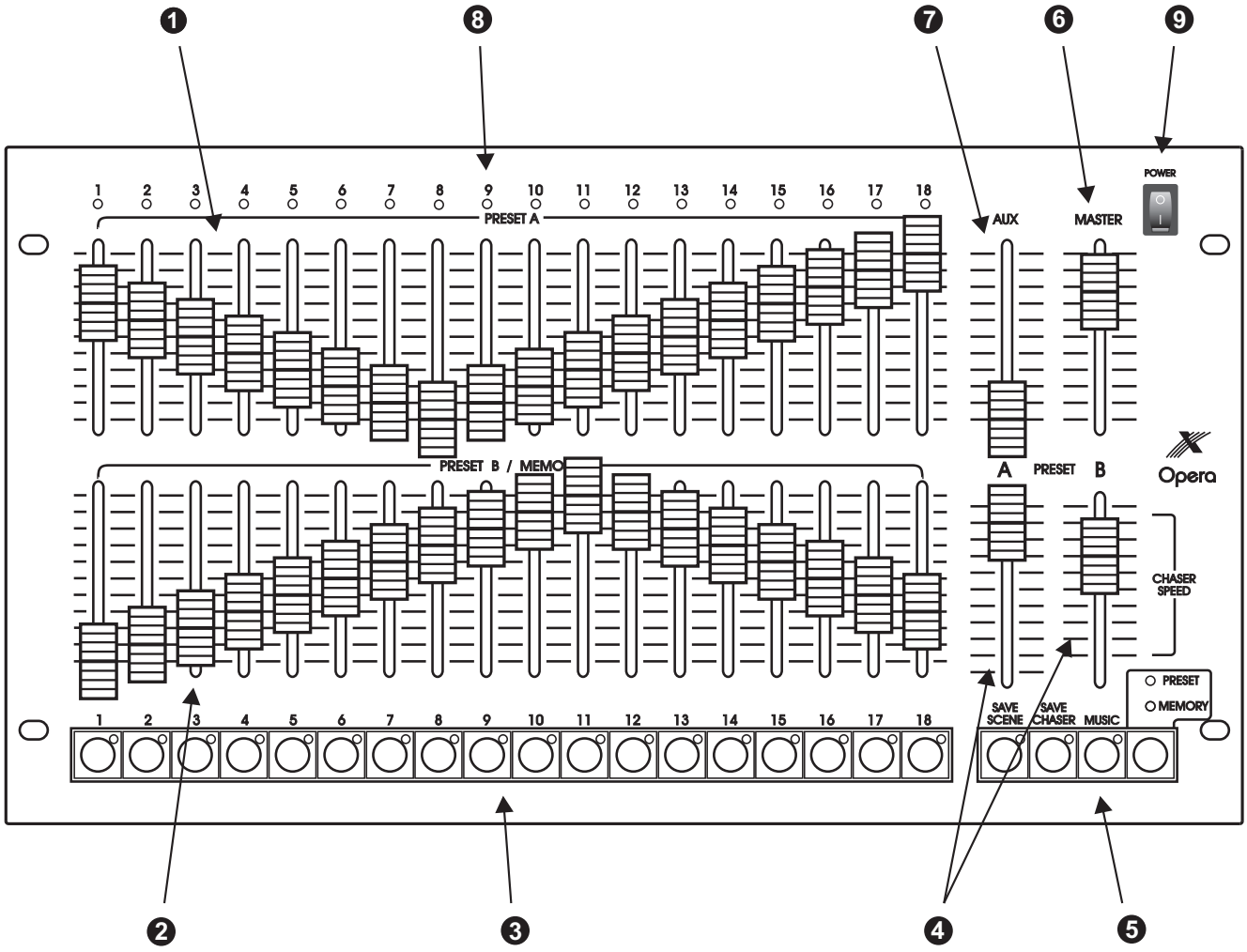
3 

Starting address = 13

4 

Starting address = 19

4. FRONT PANEL DESCRIPTION



❶ A SLIDERS FIELD	Set of 18 sliders for, depending on the operation mode, setting the A preset or launching the predefined lighting configurations.
❷ B SLIDERS FIELD	Set of 18 sliders for, depending on the operation mode, setting the B preset or launching the predefined lighting configurations.
❸ CONTROL KEYS	Multifunctional keys for programmable operation mode maintenance. In the manual operation mode they light up the channels with maximal brightness.
❹ PRESETS SLIDERS	Sliders for mixing the A and B presets. In the programmable operation mode the PRESET B slider controls the chasers rendering speed and the PRESET A slider selects thelighting configurations rendering mode.
❺ FUNCTIONAL KEYS	Set of keys for console operation mode selection, programming control and lighting configurations rendering.
❻ MASTER	"Sum" slider, controls the console outputs with the highest priority (with the exeption of the AUX auxiliary lighting route on 37th DMX channel).
❼ AUXILIARY LIGHTING	Slider for the independent auxiliary lighting route control (37th DMX channel).
❽ OUTPUTS LED INDICATORS	Set of LED indicators that monitor the outputs status of the particular control routes.
❾ POWER SWITCH	Console power switch - after turning the device on the console is automatically set in the manual operation mode with two presets.

5. CONSOLE OPERATION DESCRIPTION

The Opera console sends out the data according to the DMX-512 standard. In the 1 to 36 DMX channels the configured route data are sent, in the 37th DMX channels the independent additional auxiliary route control is sent.
The console can operate in two basic modes selected with the PRESET/MEMORY key:
- manual operation mode with two presets
- programmable operation mode, where lighting configurations can be created and saved.

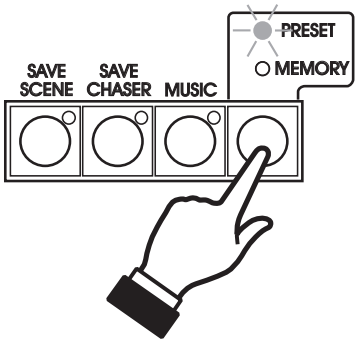
Depending on the operation mode, the keys and sliders functions change (you can find the precise description in the further part of the present manual). The MASTER and AUX sliders functions do not change.
The MASTER "sum" slider is a superior slider for all the 36 control routes. With this slider you can adjust smoothly and precisely the brightness level of the rendered lighting configuration. In the minimal slider position all the outputs are inactive, in the maximal position the outputs are generated with the predefined brightness.
The AUX additional auxiliary route slider controls the brightness in a special, separated route (37th DMX channel), regardless of the console operation and the MASTER slider as well. The additional channel is intended for special lighting control - the most common use is for controlling the auditorium lighting, emergency lighting, etc.

6. MANUAL OPERATION MODE WITH TWO PRESETS

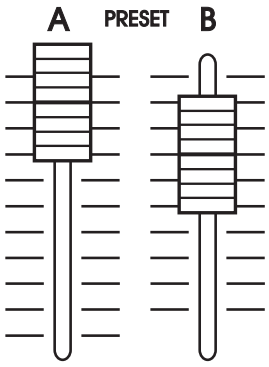
The manual operation mode allows to modify the ligting configuration in a standard way, using two presets. The preset A and preset B settings are introduced using the appropriate sliders from A and B fields - mixing of the formed scenes is performed with the PRESET A and PRESET B sliders. By pressing the control keys you can force the selected route to light with full brightness, regardless of control sliders position (including the MASTER slider).

6.1. PRESETS OPERATION MODE EXAMPLE

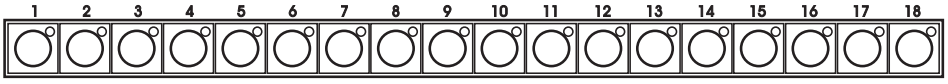
1. With the PRESET/MEMORY functional key select the PRESET mode, the corresponding LED will light up.
2. With the A field sliders set the required lighting configuration in the particular routes - this is a preset A creation. The effect of the changes introduced will be visible on the stage when the MASTER and PRESET A sliders are open. When the MASTER slider is close and the PRESET A slider is open the effect will be visible on the outputs' LED indicators. The smooth preset lighting up is achieved by moving the PRESET A slider.
3. The preset B configuration can be performed similarly as described above preset A creation - you can control the B preset with the PRESET B slider.
4. When both presets are configured you can mix them freely using the PRESET A and PRESET B control sliders.



During the classical stage lighting realizations one preset is active and the sedcond is being modified that time and waits for its turn. You can introduce sequential light stages this way. Obviously, with the configuration sliders you can also change the particular routes lighting intensity when the selected preset is active.



5. 18 control keys placed below the sliders' field allow to light the selected route with full brightness when pressed, regardless of presets functional sliders position. The output level depends on MASTER slider position only. With this feature you can, for instance, play with lighting effects or perform an impressive flash.



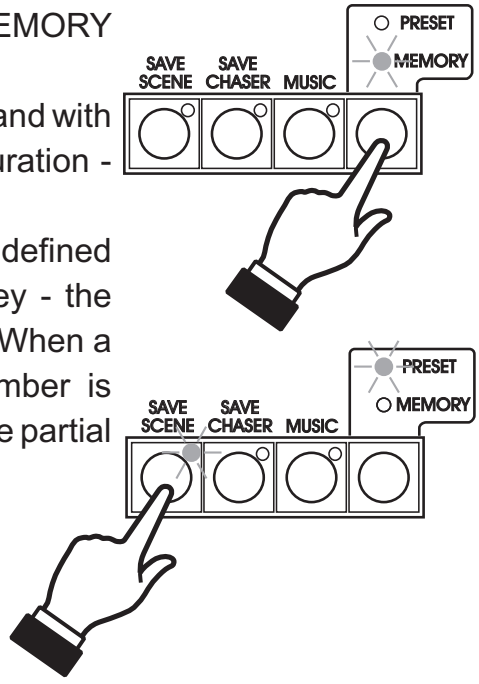
7. PROGRAMMABLE OPERATION MODE

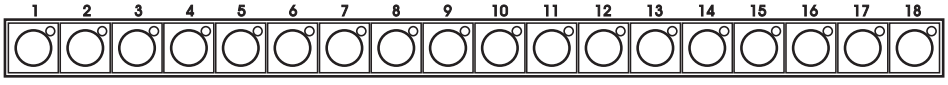
The programmable operation mode allows you to create, save and render lighting configurations (scenes and chasers). By using the predefined configurations you can make the repetitive light shows much easier to perform. The defined configurations can be rendered and modified at will.

7.1. SCENE CREATION

Scene creation can be compared to saving in memory all 36 configuration sliders settings.

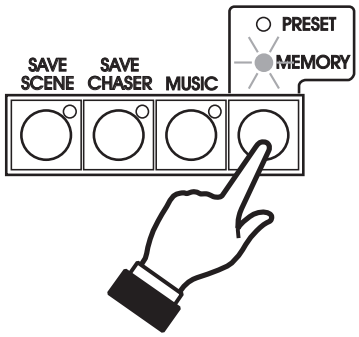
1. With the PRESET/MEMORY functional key select the MEMORY mode, the appropriate LED will light up.
2. Press the SAVE SCENE functional key (the LED will light up) and with the A and B fields sliders adjust the required scene configuration - you have access to 36 DMX channels.
3. To save your lighting configuration choose a number for your defined scene (from 1 to 18) and press the appropriate control key - the scene will be saved and the SAVE SCENE LED will go out. When a new scene is saved, the previous record under this number is automatically deleted. For the description of an existing scene partial modification refer to p. 7.3 of the present manual.



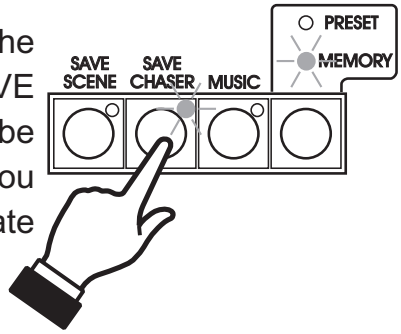


4. The saved scene rendering is made by moving the appropriate slider in the B field. As the saved scenes and chasers can be rendered concurrently, to test a single scene set all the others B field sliders to minimum.

7.2. CHASER CREATION



1. With the PRESET/MEMORY functional key select the MEMORY mode, the corresponding LED will light up.
2. Press the SAVE CHASER functional key (the LED indicator will light up) and with the configuration sliders select the channels, where you want the chaser to run through.
   ATTENTION: to save the selected route in the chaser configuration, the slider must be moved of 10% minimum.

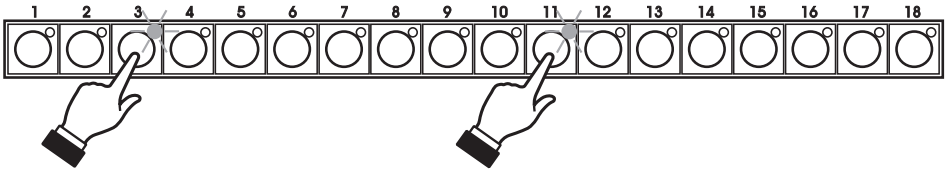


3. To save your chaser select a number from 1 to 18 and press the appropriate control key - the chaser will be saved and the SAVE CHASER LED will go out. When saving, the previous record will be automatically deleted. As opposed to scenes programming, you cannot modify your chaser - to introduce changes you have to create a new one.

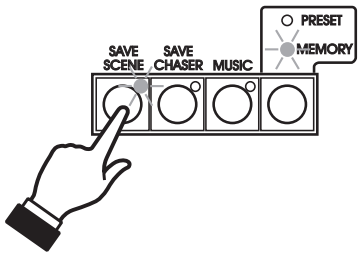
7.3. SCENE MODIFICATION

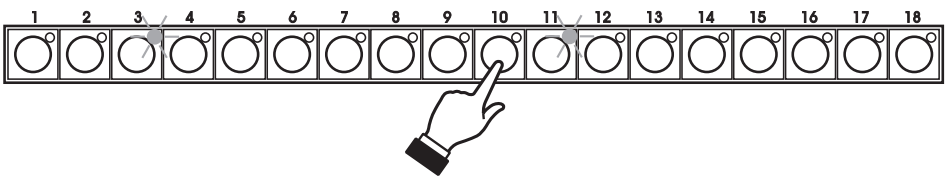
To make a small corrections of the defined scenes easier, the console has the ability to modify the existing scenes. Such a modification is possible for first 18 DMX channels only, the contents of channels from 19 to 36 cannot be modified. Lets presume, we want to activate the effects controlled on 3rd and 11th routes in scene no. 10:

1. In the programmable MEMORY operation mode press the control keys for routes 3 and 11, their LED indicators will light up - what means, that the control over these routes has been passed on to the A field configuration sliders.



2. With the A field configuration sliders adjust the required brightness in routes 3 and 11.
3. Press the SAVE SCENE key - the LEDs in the control keys of the modified routes will start to twinkle, what shows they are ready to save the changes. To save, press the control key corresponding with the modified scene number (in our example key no. 10) - <u>the changes introduced in channels 3 and 11 will be saved in scene no. 10</u>, without affecting its configuration in the other channels. The scene modification process is finished.





8. SCENES AND CHASERS RENDERING

The defined scenes and chasers rendering is realized in a simple and intuitive way. In the MEMORY operation mode you just need to activate the appropriate slider in the B field - with its movement the predefined configuration is rendered smoothly. It is possible to render a number of scenes and chasers concurrently. In such case the console output works according to the "law of the stronger" rule - when in the concurrently rendered configurations the contents of the particular channels are different, on the output the higher value is always received. For instance, if one of the rendered scenes lights the channel up at 50% and the second at 80%, when both scenes are rendered the particular channel will be lit at 80%.

During configurations rendering you can take manual control over the channels 1 to 18 (channels from 19 to 36 are not subjected to this feature). The PRESET A slider must be set in a highest position - when you press a control key then (the corresponding LED lights up) the control over the channels is passed on to the appropriate configuration slider in the A field. When the PRESET A slider is set to minimum, by pressing any control key you will render a configuration ascribed to this key with maximal brightness.

The remarks above are related to both scenes and chasers rendering. As the scenes and chasers rendering differ in details, below are the precise descriptions of these two operations.

8.1. SCENES RENDERING

Scene rendering is performed by moving the appropriate slider in the B field - with its movement a scene is brightened smoothly on the output. But you must remember, that the definite scene activation depends on the MASTER slider position.
During scene rendering you have the possibility to take a manual control over channels 1 to 18 (description above). In a separate chapter (p. 7.3) a partial scene modification is also described.
The rendered scenes can be mixed and summed at your discretion.

8.2. CHASERS RENDERING

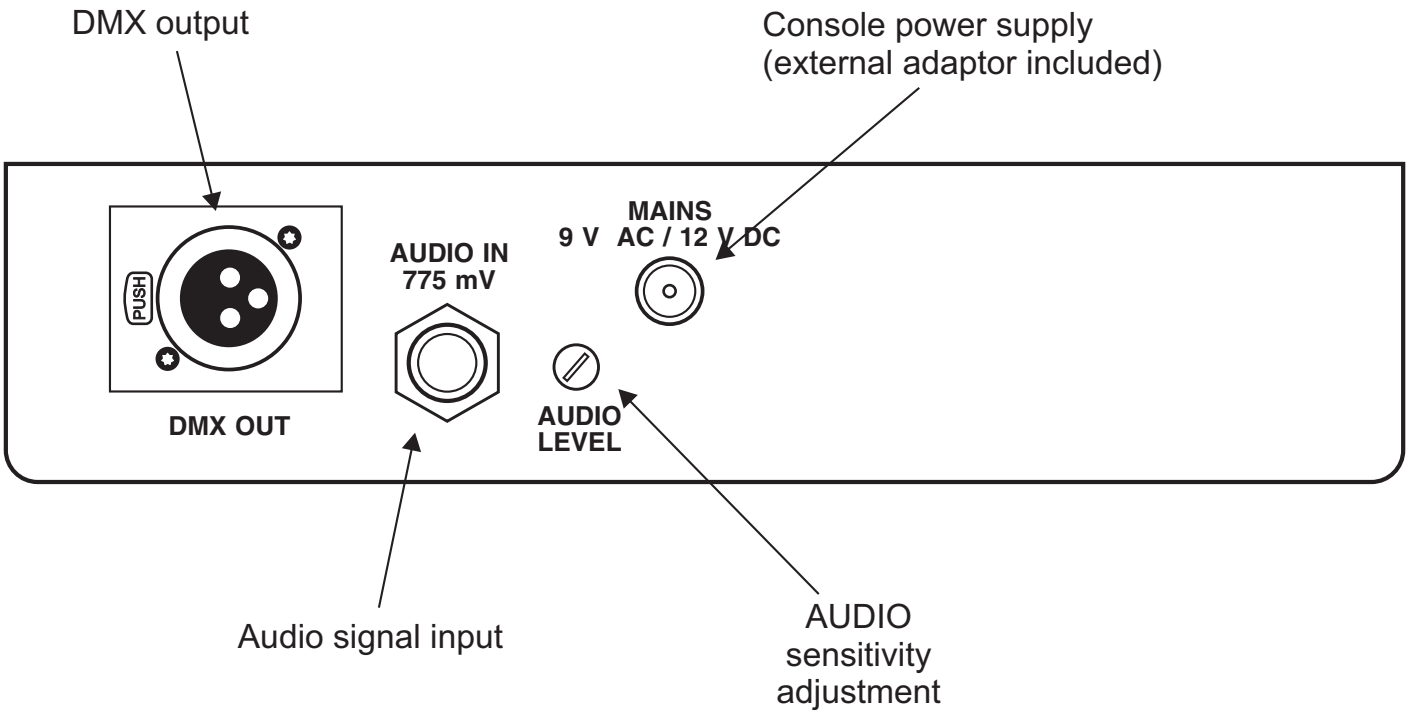
Chaser (a dynamic light configuration) rendering differs slightly from the static scene rendering. The chaser activation, similarly to the scenes, is made with the B field sliders movement. Also, as in scenes rendering, the manual control may be taken over channels 1 to 18.
The main difference between scene and chaser rendering lies in the possibility of adjusting the chaser rendering speed. You have two modes of chaser synchronization to choose from:

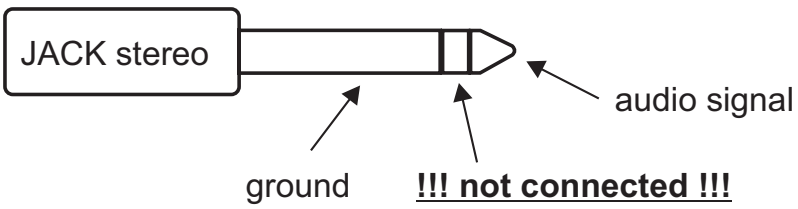
1. Rendering with speed adjusted manually:
   chasers' successive steps are synchronized with the console internal generator, which speed is adjusted with the CHASER SPEED slider (in the manual operation mode the B preset slider),
2. Synchronization to the music:
   when the MUSIC control key is pressed (the LED indicator will light up) the chaser rendering is synchronized with the music rhythm. The audio signal source can be chosen from the built-in microphone or the external audio signal connected to the console. When the external audio signal source is connected, the internal microphone is turned off automatically.

9. AUX ADDITIONAL ROUTE MAINTENANCE

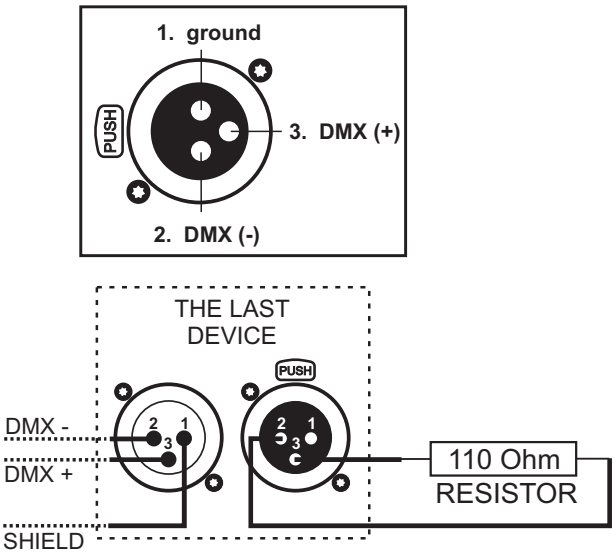
The Opera console is equipped with the additional, special auxiliary lighting AUX control route. The contents of this route is sent as the 37th DMX channel. The special weight of the AUX route results from the fact, that it is a separate control route, independent from other channels operation. The AUX route control is realized with the AUX slider only - the value adjusted is sent directly to the output, regardless of other sliders' positions, including the MASTER slider.
The auxiliary control route is intended mostly to control the auditorium central lighting, emergency lights or such kinds of lighting, where the instant access is essential.

10. INSTALLATION





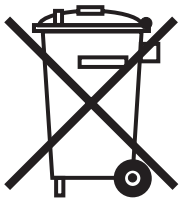
11. DMX SIGNAL CONNECTION



1. To connect the devices, use of the microphone cable is recommended (two strands in the shield).
2. The devices should be connected in series.
3. To split the DMX line it is necessary to use the DMX SPLITTER (PX094).
4. In case of the great number of devices or long distances use the DMX REPEATER (PX097). It is an amplifier of the DMX signal.
5. In the last device a terminator should be installed. It is a 110 Ohm resistor.

12. TECHNICAL SPECIFICATION

- DMX channels	37 (37th channel as AUX channel)
- number of programmable configurations (scenes or chasers)	18 scenes or chasers
- input:	
- audio 0 dB	JACK STEREO socket
- output:	
- DMX 512	3-pin XLR socket
- power supply	9 V AC or 12 V DC
- power consumption	6 VA
- weight	3 kg
- dimensions:	
- width	483 mm (19")
- heigth	266 mm (6U standard)
- depth	80 mm



PXM

ul. Przemysłowa 12
30-701 Kraków, Poland
tel: +48 12 626 46 92
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

declares that the product:

Name of product: **Opera**

Type: **PX103**

answers the following product specifications:

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

Additional informations: The DMX-512 output must be shielded and the shielding must be connected to the ground responding to the DMX connectors.

Kraków, 01.06.2006

PXM S.C.
Danuta i Marek Żupnik
30-701 Kraków, ul. Przemysłowa 12
NIP 677-002-54-53

Marek Żupnik M.Sc.