

PX741

Trailing Edge  
Dimmer  
4 x 200W

MANUAL



# CONTENTS

<a href="#">1. General description.....</a>	<a href="#">3</a>
<a href="#">2. Safety conditions.....</a>	<a href="#">3</a>
<a href="#">3. Description of connectors and control elements.....</a>	<a href="#">5</a>
<a href="#">4. Symbols of shown messages.....</a>	<a href="#">5</a>
<a href="#">5. Device programming.....</a>	<a href="#">8</a>
<a href="#">5.1. Menu navigation.....</a>	<a href="#">8</a>
<a href="#">5.2. Setting control modes.....</a>	<a href="#">8</a>
<a href="#">5.2.1. DMX control.....</a>	<a href="#">8</a>
<a href="#">5.2.1.1. DMX addressing.....</a>	<a href="#">8</a>
<a href="#">5.2.1.2. Reaction to the lack of the DMX signal.....</a>	<a href="#">9</a>
<a href="#">5.2.2. Analogue control.....</a>	<a href="#">10</a>
<a href="#">5.2.3. Control with buttons.....</a>	<a href="#">11</a>
<a href="#">5.3. Choice of the control curve.....</a>	<a href="#">14</a>
<a href="#">5.4. Control range.....</a>	<a href="#">15</a>
<a href="#">5.5. Screen saving.....</a>	<a href="#">17</a>
<a href="#">5.6. Temperature.....</a>	<a href="#">17</a>
<a href="#">5.7. Working time.....</a>	<a href="#">17</a>
<a href="#">5.8. Version of company software.....</a>	<a href="#">18</a>
<a href="#">5.9. Default settings.....</a>	<a href="#">18</a>
<a href="#">6. RDM.....</a>	<a href="#">19</a>
<a href="#">7. Menu diagram.....</a>	<a href="#">21</a>
<a href="#">8. Wiring diagram.....</a>	<a href="#">22</a>
<a href="#">9. Dimensions.....</a>	<a href="#">26</a>
<a href="#">10. Technical data.....</a>	<a href="#">26</a>
<a href="#">Declarations of conformity.....</a>	<a href="#">27</a>

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

# **1. GENERAL DESCRIPTION**

**PX741 is an intelligent transistor dimmer with phase cutting where control is carried out on the falling edge (the so-called trailing edge dimming)**

The module controls four channels 200VA each and has an built-in system of interference suppression, fuses and signal controls.

The device has the DMX512 input, analogue inputs 0-10 V or a possibility to link outer buttons and control them in compliance with one of four functions. The dimmer offers a lot of possibilities to adjust the control characteristic.

Each of the four output channels can be configured individually.

The settings consist of the following parameters:

- the control mode (DMX, analogue, buttons)
- DMX address
- the reaction to the lack of the DMX signal
- the choice of key functions together with the full regulation of reaction time
- advanced functions and parameters allowing to adjust control to the type and characteristic of capacity (a minimum and maximum level of control, a characteristic curve, a function of pre-glow)

The dimmer is designated to work with capacity of R and RC types:

- dimmable LED bulbs
- LEDs connected with a dimmable adapter of the CC type
- traditional bulbs
- halogen bulbs 230 V
- halogen bulbs 12 V connected with the dimmable electronic transformer

The device is closed in the standard housing of the width of 105 mm, designated for bar assembling.

# **2. SAFETY CONDITIONS**

Dimmer PX741 is powered directly from standard 230V grid, what can cause electric shock when safety rules are not observed. Therefore it is necessary to observe

the following :

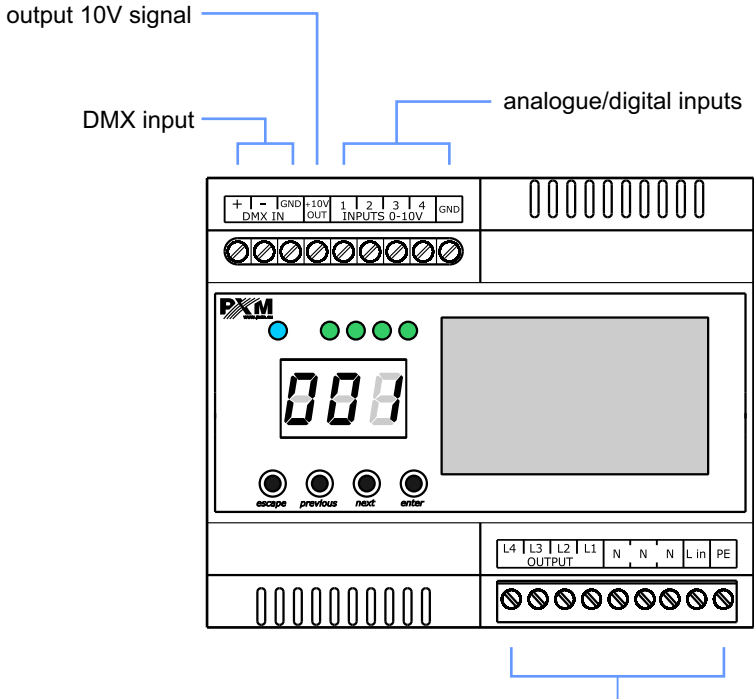
1. Installation, particularly power connection, should be performed by a person holding the appropriate qualifications, according to the description in the instruction manual.
2. Dimmers can be connected to socket which has protecting installation - separate PE strand - in working order only (3-strand grid).
3. All the conductors should be protected against mechanical and thermal damage.

4. In the event of damaging any conductor, it should be replaced with a conductor of the same technical data and attestations.
5. The external devices can be connected to the dimmer with 3-strand 0.75 mm<sup>2</sup> minimum crosssection area only.
6. Dimmer can be installed in closed electrical switching stations only, with restricted access for people who does not handle proper qualifications in 230V supplied devices maintenance.
7. Power input must to be protected with an external residual current breaker with overload of 6A rated current and B-type characteristic.
8. After the installation is completed, check the neutralization efficacy of all powered devices.
9. All repairs demanding casing opening should be made with cut off power supply.
10. The device should be strictly protected against water and other liquids.
11. All sudden shocks, particularly dropping, should be avoided.
12. Device with damaged (bent) casing should not be connected to the mains.
13. The device cannot be turned on in places with humidity exceeding 90%.
14. The device cannot be used in places with temperature lower than 2° C or higher than 40° C.

### **WARNING!!!**

1. The inappropriate connection of a protective wire creates the risk of electric shock.
2. The inappropriate connection of the neutral wire results in the faulty operation of a dimmer.
3. The dimmer can regulate exclusively the circuits (of capacity) of the resistive type or the capacitive one.

### 3. DESCRIPTION OF CONNECTORS AND CONTROL ELEMENTS



Supply connector (starting from the left L4, L3, L2, L1, 3xN, Lin and PE) L1-L4 are the output (controlled) phases

### 4. SYMBOLS OF SHOWN MESSAGES

- 000** address of the DMX device – the elementary position in the MENU
- ALL** setting parameters for all the channels simultaneously
- 1nB** setting parameters for each channel separately
- bEE** blanc screen – screen saving ON/OFF
- eBP** current temperature value
- ePE** total working time
- eBB** version of software

<b>DEF</b>	reset to factory default settings
<b>SPE</b>	control source selection
<b>QPP</b>	control curve selection
<b>RRG</b>	control range selection
<b>QRR</b>	setting a linear control curve
<b>QSQ</b>	setting a switched control curve
<b>QOQ</b>	setting a logarithmic control curve
<b>EP1</b>	setting an exponential control curve with index 2
<b>EP2</b>	setting an exponential control curve with index 3
<b>QBP</b>	minimum level of an output connection while rising
<b>QBF</b>	minimum level of an output connection while falling
<b>QHR</b>	maximum control level
<b>PPE</b>	forcing a minimum output level
<b>SEP</b>	extension of an output curve to the full control range
<b>DNH</b>	channel control with the DMX signal
<b>ARD</b>	channel control with the analogue input
<b>BDQ</b>	channel control with buttons
<b>ADP</b>	setting the DMX address
<b>AD5</b>	selection of the reaction mode to no DMX signal
<b>QAL</b>	calibration of analogue inputs
<b>FOR</b>	selection of one of four control functions
<b>QPE</b>	rise time in the push-button mode (from min to max)
<b>RLD</b>	duration in the push-button mode (in function 4)
<b>dRE</b>	falling time in the push-button mode
<b>QLB</b>	minimum level which can be reached while dimming in function 2

<b>852</b>	scene: a control value for no DMX signal
<b>000</b>	first channel
<b>P00</b>	total working time of the device
<b>000</b>	total duration of channel control
<b>500</b>	setting seconds
<b>000</b>	setting minutes
<b>880</b>	setting an hour
<b>884</b>	setting a day number
<b>400</b>	setting a year
<b>100</b>	infinity
<b>000</b>	inversion of the selected control curve
<b>000</b>	setting a normal (non-inverted) selected control curve
<b>405</b>	confirmation
<b>000</b>	switching off
<b>800</b>	switching on for 100%
<b>000</b>	setting the first function

# 5. DEVICE PROGRAMMING

On switching on the device, the version of the programme appears for a moment on the display. Press “previous” or “next” in order to select the appropriate menu and press “enter” to confirm the choice.

## 5.1. Menu navigation

- escape** - goes back to the previous MENU level or discards changes made
- previous** - scrolls to the previous feature on the same MENU level or decreases the parameter's value
- next** - scrolls to the next feature on the same MENU level or increases the parameter's value
- enter** - enters the next MENU level and confirms changes made

## 5.2. Setting control modes

The menu of the PX741 device allows to set the control mode of the device.

Each of the device channels can be controlled with:

- the DMX **dmX** signal( **dmX**),
- the analogue input **AnL**,
- the buttons **diG**.

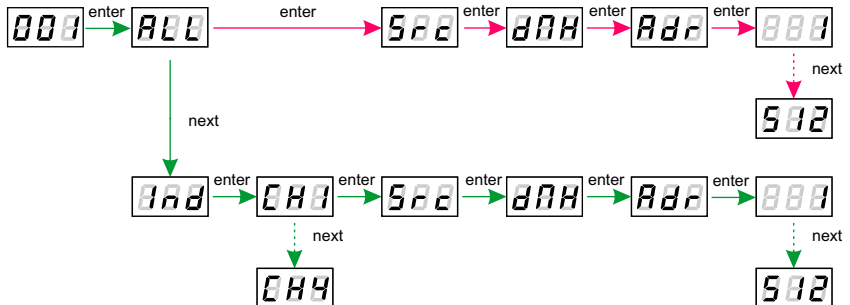
Setting the modes, the curve and the range of control is possible individually (**Ind**) for one of four channels (**CH1 – CH4**) or collectively (**ALL**) for four channels simultaneously.

### 5.2.1. DMX control

#### 5.2.1.1. DMX addressing

In this menu, the DMX address can be set for individual channels individually or collectively for all the channels simultaneously and then the set address will be designated to the first channel and the next DMX addresses will be designated to next channels.

The address programmed this way cancels all the previous individual settings of each channel.





### 5.2.1.2. Reaction to the lack of the DMX signal

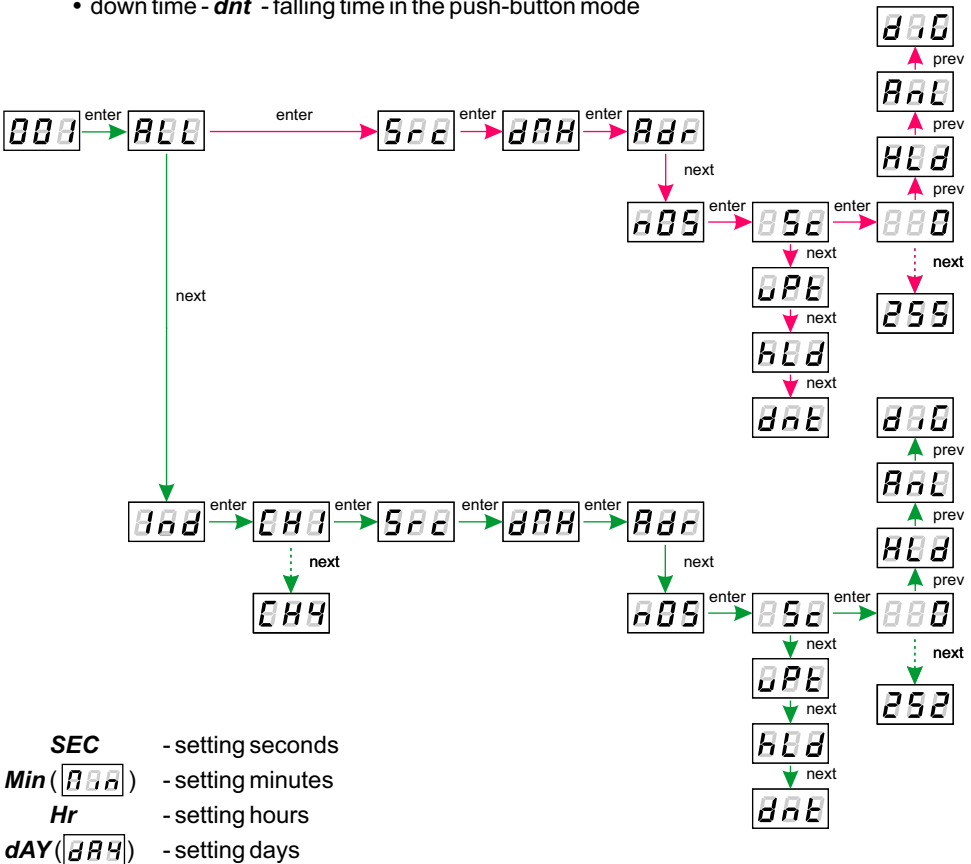
This function is used both to secure the installation against disappearance of the DMX signal and to achieve the desired value without the connection of an outer controller. On activating it, in case of no DMX signal, the module will realize the selected option individually. The realized option will be stopped automatically after re-connecting the DMX signal and the module will realize commands sent through the DMX line again.

**Sc** - programming the values of the scene, for which the following options are available:

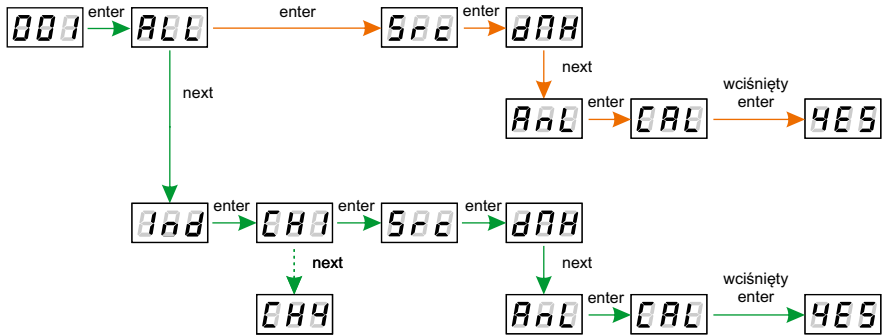
- the value 0 - 255
- maintaining the last value of **HLd**
- a signal from the analogue inputs **AnL**
- a signal from the buttons **diG**

Apart from that, the transition parameters can be defined:

- up time - **uPt** - the rise time in the push-button mode (from min to max)
- hold - **hLd** - duration in the push-button mode (in function 4)
- down time - **dnt** - falling time in the push-button mode



## 5.2.2. Analogue control



The control source from the analogue inputs can be set for each channel individually (**Ind** for the channels **CH1 – CH4**) or collectively for all of them **ALL**. Calibration should be carried out to ensure that the inputs work correctly. In order to do it, the maximum value should be set in the input and the **CAL** option should be selected, and then the message **YES** should be confirmed with the key “*enter*”.

### 5.2.3. Control with buttons

The control source form the digital inputs (with the buttons) can be set for each channel individually (Ind for the channels **CH1 – CH4**) or collectively for all of them **ALL**.

The first step is to select one of four functions Fn1 – Fn4 (described on next pages), and then to set its parameters.

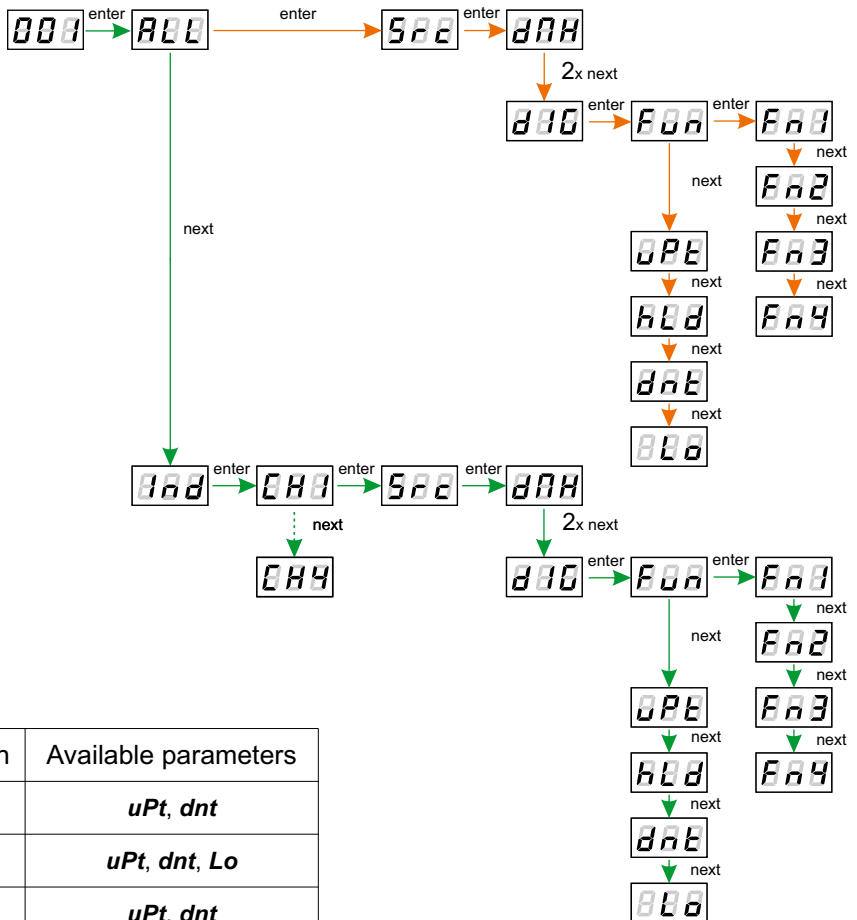
**uPt** - rise time

**hLd** - duration

**dnt** - falling time

**Lo** - a minimum level which which can be reached while dimming in function 2

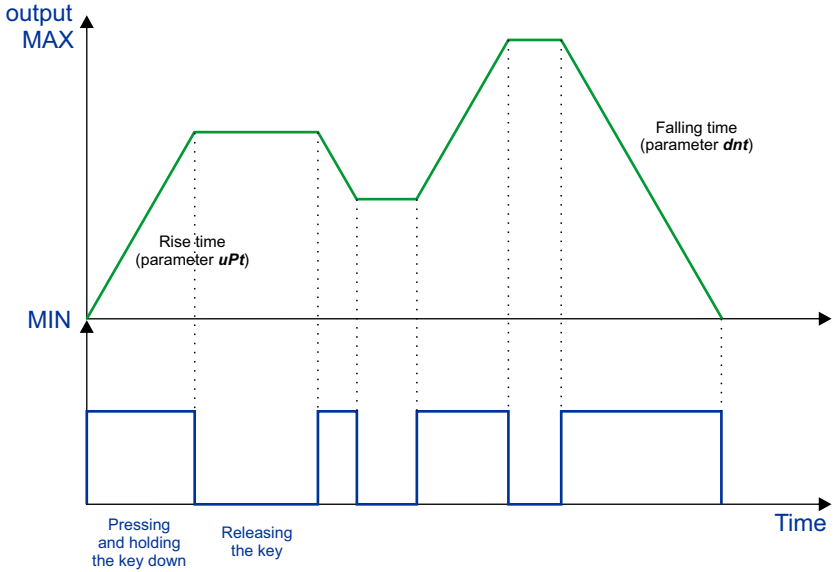
The list of operated parameters in each function is presented in the chart below.



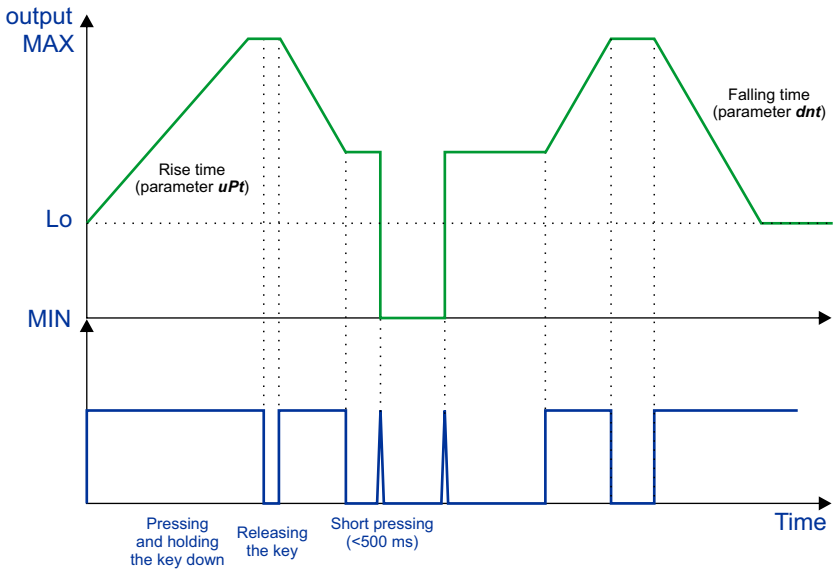
Function	Available parameters
1	<b>uPt, dnt</b>
2	<b>uPt, dnt, Lo</b>
3	<b>uPt, dnt</b>
4	<b>uPt, hld, dnt</b>

# FUNCTION DIAGRAMS FOR EXTERNAL BUTTON CONTROL

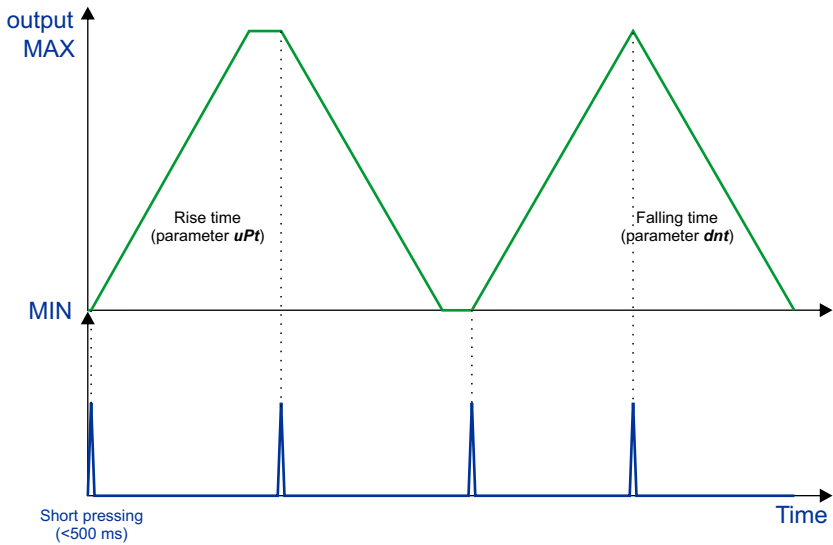
## Function one



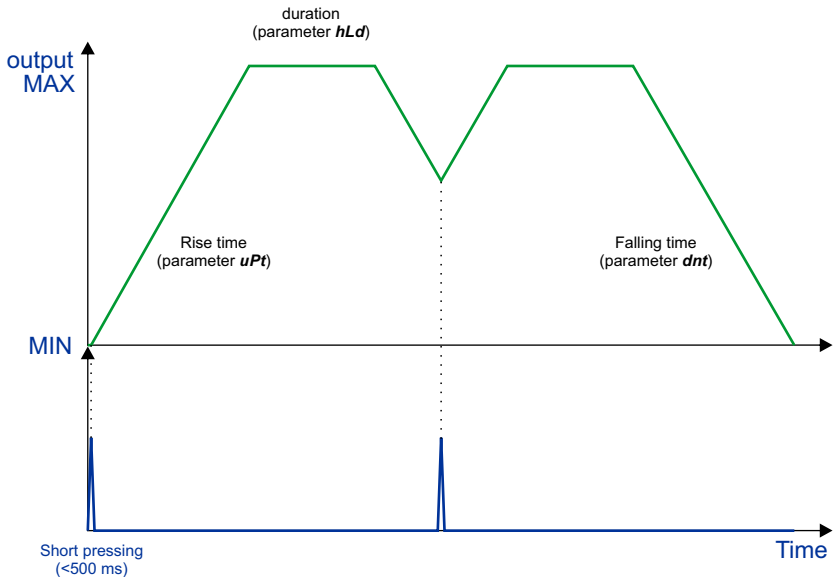
## Function two



### Function three



### Function four



Each next short pressing of a key when the function realizes the parameter  $hLd$  causes that the time of the parameter is counted from 0 (it resets the time elapsed), prolonging the operation of the function at the same time. The value of this parameter is only taken into consideration in the fourth function. It is ignored in other three functions.

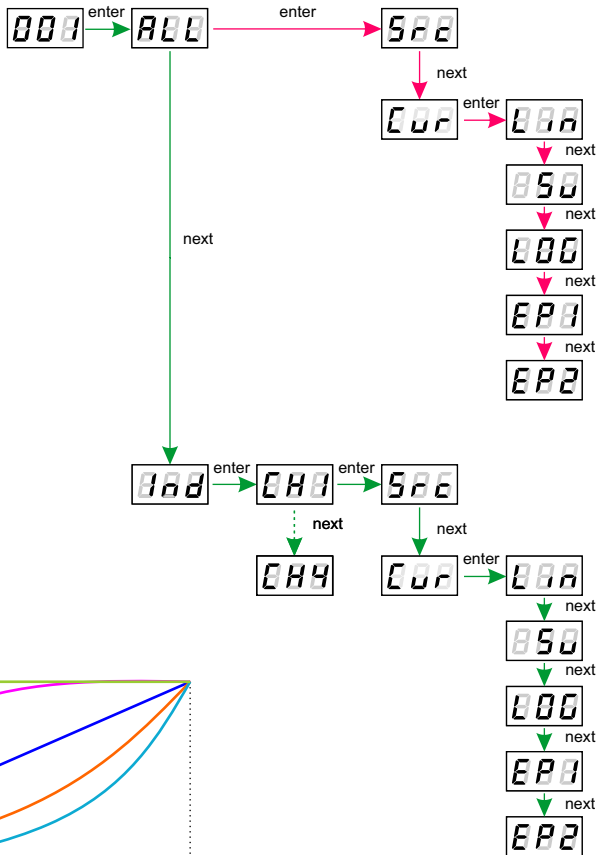
### 5.3. Choice of the control curve

One of five control curves of the output can be selected for each channel:

- linear ( **ERR** ) - the value on the output is linearly proportionate to the control value,
- switched ( **B50** ) - the two-stage characteristic,
- logarithmic,
- exponential with index 2,
- exponential with index 3.

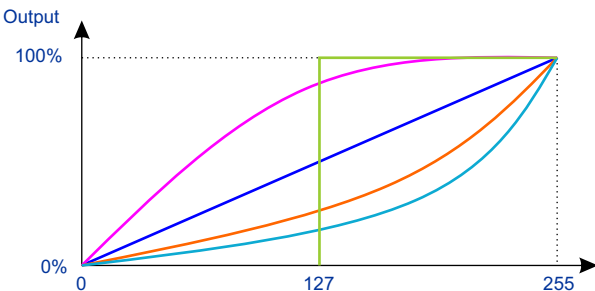
The following options can be set for each control curve:

- normal ( **RRR** ) - the value on the output is directly proportional to the value on the input and in accordance with the chosen characteristic,
- inverted ( **RRU** ) - the value on the output is inversely proportional to the value on the input and in accordance with the selected characteristic.



The curves:

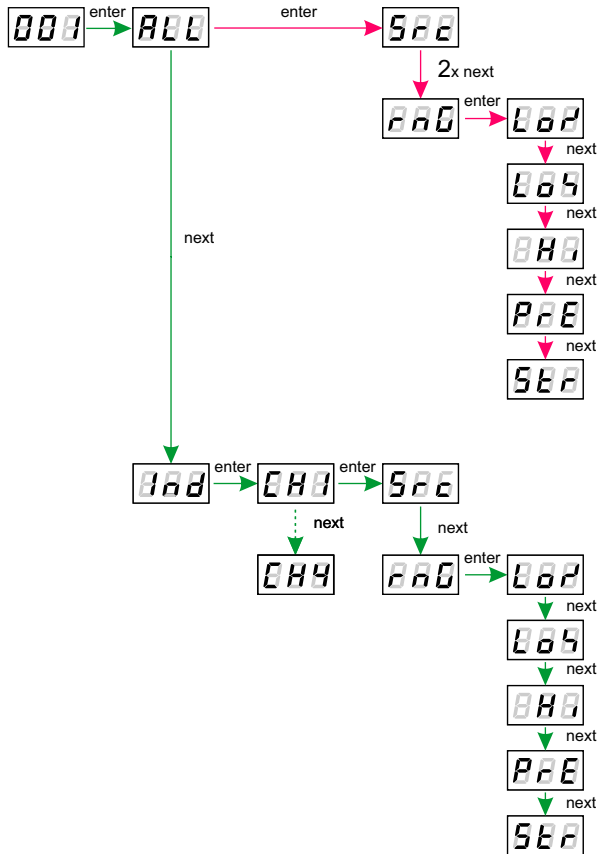
- linear
- switched
- logarithmic
- exponential with index 2
- exponential with index 3



## 5.4. Control range

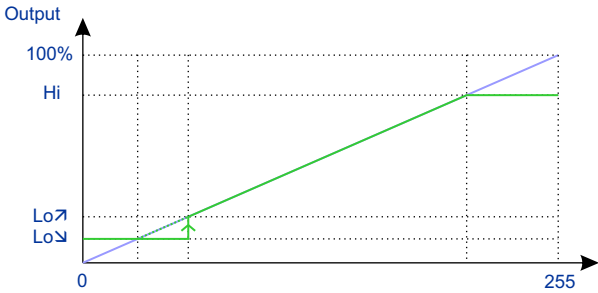
The minimum and maximum control values and the manner of behaviour while reaching the limit values can be defined for each channel:

- The minimum level of connecting the output while rising ( `LOBP` )
- The minimum level of connecting the output while falling ( `LOBF` )
- The maximum level of control ( `BHPB` )
- Forcing the minimum status on the output (when the channel is not controlled) ( `PPEE` )
- Extending the output curve to the full control range ( `SEEP` )



Below there are exemplary diagrams of control for the linear curve:

a) Str = OFF, PrE = On

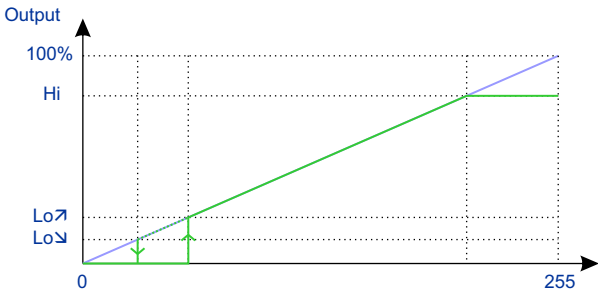


The curves:

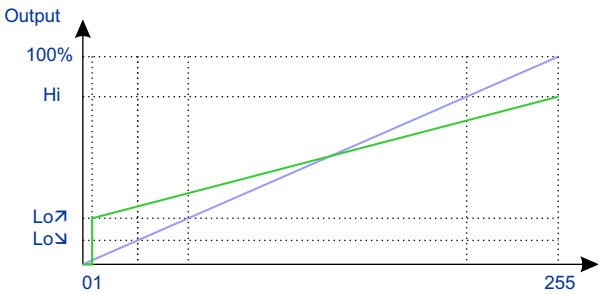
— control level

— value on the output

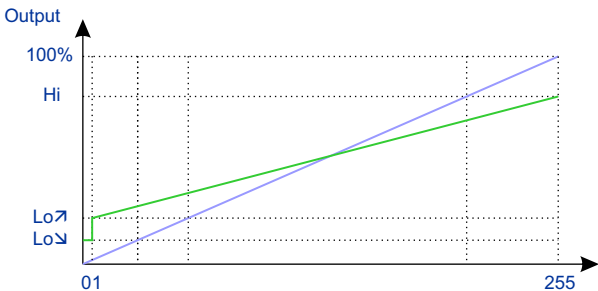
b) Str = OFF, PrE = OFF



c) Str = On, PrE = OFF



d) Str = On, PrE = On

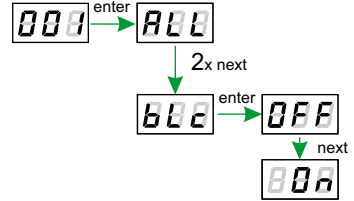




## 5.5. Screen saving

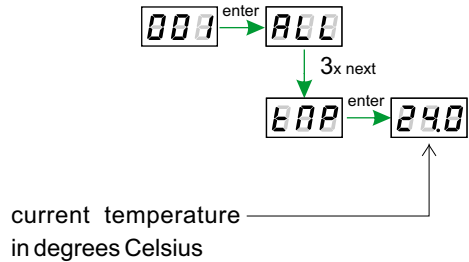
The device was equipped with the possibility to switch off backlights for LED displays and signalling diodes. The activated option **bLc** switches off the display after a period of one minute of inactivity (when the buttons are not used). The device is still working without interference with other parameters. To activate backlights, any key should be used.

- On** - switching on the option of screen saving
- OFF** - switching off the option of screen saving



## 5.6. Temperature

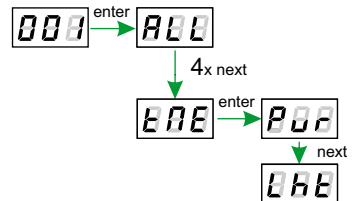
The device was equipped with the possibility to read the current temperature inside the device.



## 5.7. Working time

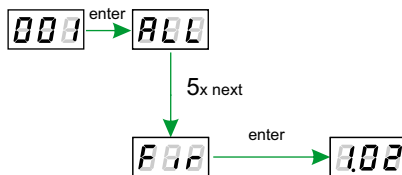
The dimmer was equipped with the possibility to read the total working time of the device.

- Pwr** (**P00**) - total working time of the device
- Lht** - total time of channel control



## 5.8. Version of company software

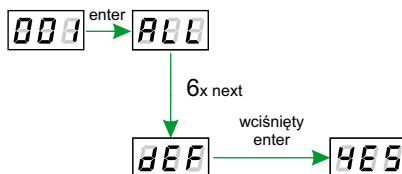
To verify the latest version of film software, the option **Fir** should be selected and then the key "enter" should be pressed to confirm.



## 5.9. Default settings

To restore the factory default values, the **def** option should be selected and the key "enter" should be kept longer. Then, when the message **YES** appears, confirm with the key "enter".

It is also possible to exit from the level of this menu without the return to the factory default settings. In this case the key "escape" should be selected.



## 6. RDM

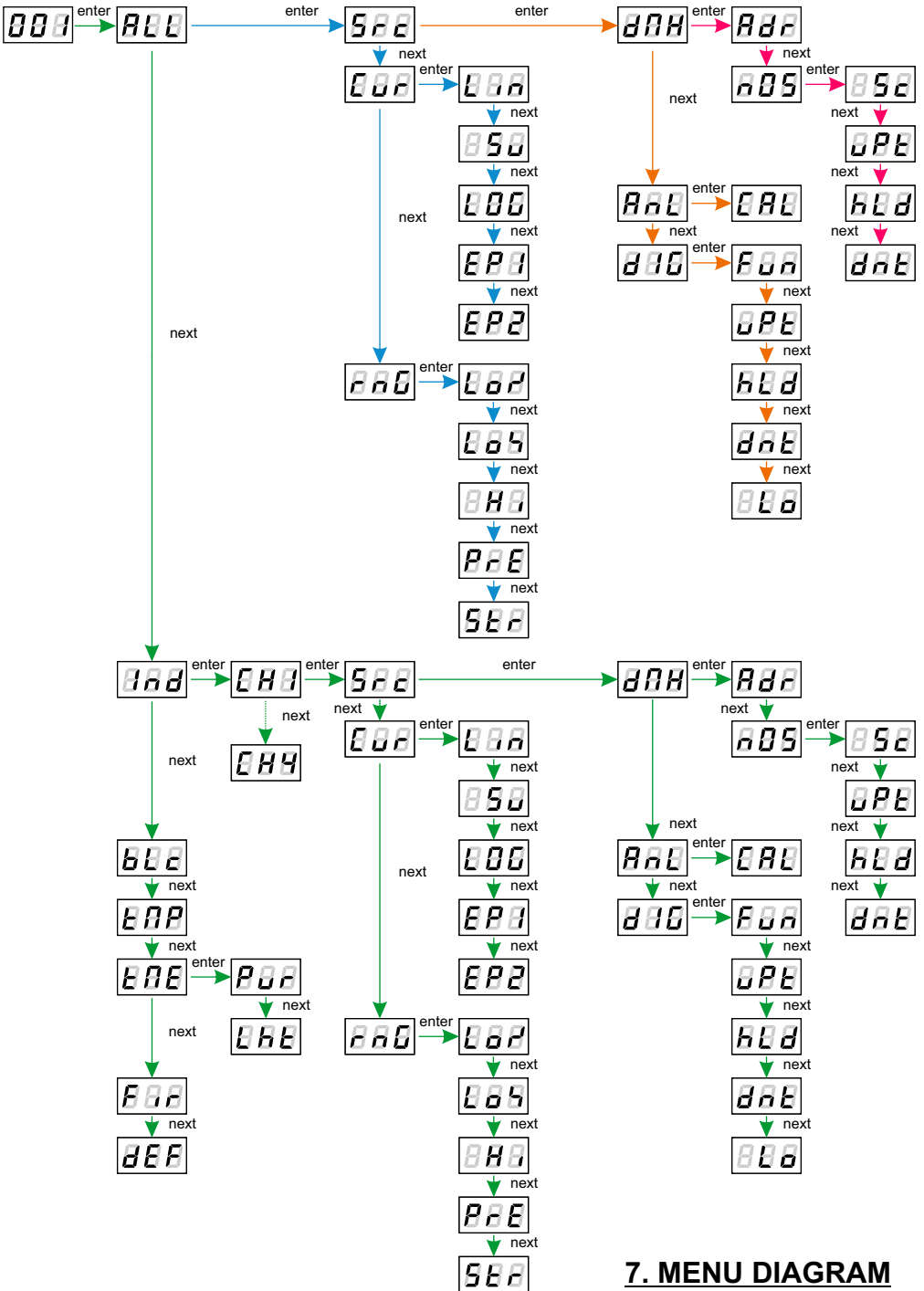
The PX741 supports the DMX-RDM protocol. DMX protocol allows only of a one-way data transmission, while its extension the RDM protocol can transmit information in two directions. This makes possible to simultaneously send and receive information, and hence the possibility of monitoring activities of the compatible devices. Thanks to RDM some available settings of compatible devices may be programmed using this protocol.

Below is a list of RDM parameters supported by the PX741:

Parameter name	PiD	Description
SUPPORTED_PARAMETERS	0x0050	all supported parameters
PARAMETER_DESCRIPTION	0x0051	description of additional parameters
DEVICE_INFO	0x0060	information concerning the device
SOFTWARE_VERSION	0x00C0	firmware version of the device
DMX_START_ADDRESS *	0x00F0	DMX starting address of the device; minimum value: 1, maximum value: 512. According to the RDM standard, for device whose footprint is 0, the value of this parameter may be 65535 and then it is not possible to change the initial address settings for the entire device, but only for sub-devices.
IDENTIFY_DEVICE *	0x1000	device identification; Two states are possible: identification is off (0x00 value) and identification is on (0x01 value).
DEVICE_MODEL_DESCRIPTION	0x0080	device description, e.g. name
MANUFACTURER_LABEL	0x0081	manufacturer description, e.g. name
DEVICE_LABEL * SUBDEVICE_LABEL *	0x0082	additional device description; It is possible to enter an additional device description using up to 32 ASCII characters.
DMX_PERSONALITY	0x00E0	DMX operational mode
DEVICE_HOURS	0x0400	information concerning the working time of the device counted in hours
SENSOR_DEFINITION	0x0200	information on the selected sensor of temperature
SENSOR_VALUE	0x0201	information on sensors
CONTROL_HOURS	0x0401	
FACTORY_DEFAULTS	0x0090	factory default settings of the device
DIGITAL_MODE	0x8039	setting the control mode of the channel with the buttons

<b>Parameter name</b>	<b>PiD</b>	<b>Description</b>
DIGITAL_RISE_TIME	<b>0x8056</b>	setting the rise time for control with the buttons; setting from 0 to 24h, in units 100ms
DIGITAL_LAST_TIME	<b>0x8057</b>	setting the duration for control with the buttons; setting from 0 to 24h, in units 100ms
DIGITAL_FALL_TIME	<b>0x8058</b>	setting the falling time for control with the buttons; setting from 0 to 24h, in units 100ms
DIGITAL_MIN_LEVEL	<b>0x8059</b>	setting the minimum level which can be reached while dimming for the control mode with the buttons; setting from 0-50%
OUTPUT_CURVE	<b>0x8049</b>	selection of the control curve; setting from 0 to 24h, in units 100ms
OUTPUT_CURVE_INVERT	<b>0x804F</b>	selection of the invert function for the previously set curve; functions to be selected: 0 normal, 1 invert
MINIMUM_LEVEL_INC.	<b>0x804A</b>	minimum level of connecting the output while rising; the value selection from 0 to 100
MINIMUM_LEVEL_DEC.	<b>0x805A</b>	minimum level of connecting the output while falling; the value selection from 0 to 100
MAXIMUM_LEVEL	<b>0x8048</b>	maximum level of control; the value selection from 0 to 100
PREHEAT	<b>0x805B</b>	forcing the minimum level on the output (when the channel is not controlled); to be selected: 0 (switching off), 1 (switching on)
STRECH_OUTPUT	<b>0x805C</b>	extending the output curve to the full control range; to be selected: 0 (switching off), 1 (switching on)
NOS_VALUE	<b>0x801C</b>	setting the reaction to the disappearance of DMX signal; to be selected: -1 for the option of maintaining the las value, -2 for the analogue control, -3 for control with the buttons. The choice from 0 to 255 for control with the DMX values.
NOS_RISE_TIME	<b>0x805D</b>	falling time; setting from 0-24h, in units 100ms or infinity (0xFFFFFFFF)
NOS_LAST_TIME	<b>0x805E</b>	lasting time; setting from 0-24h, in units 100ms or infinity (0xFFFFFFFF)
NOS_FALL_TIME	<b>0x805F</b>	falling time; setting from 0-24h, in units 100ms

\* - editable parameter

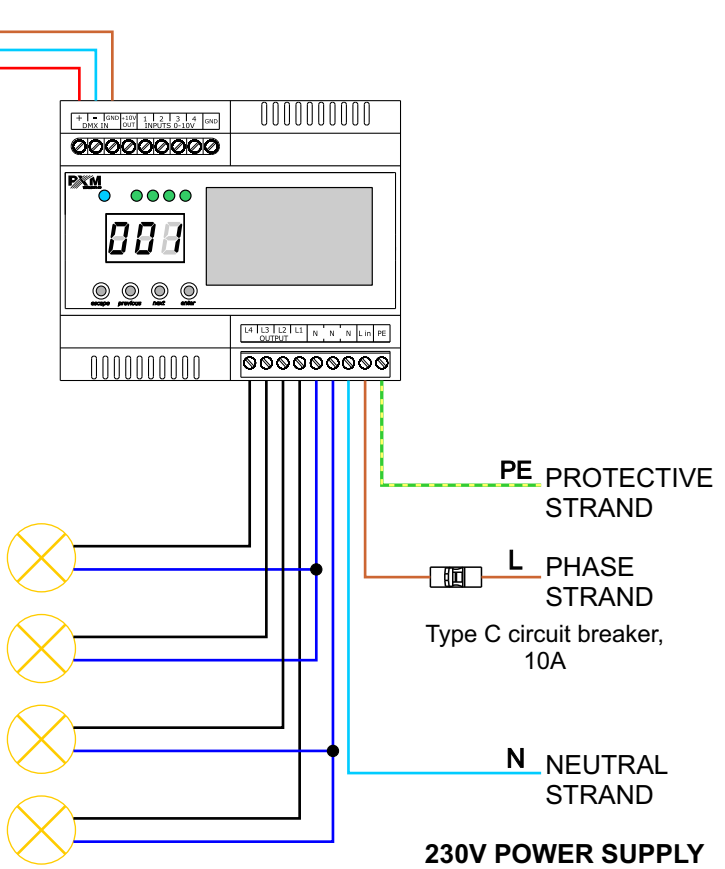
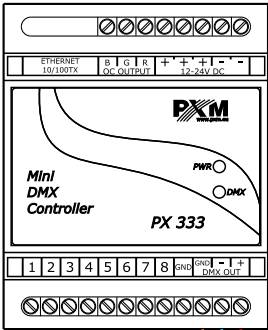


## 7. MENU DIAGRAM

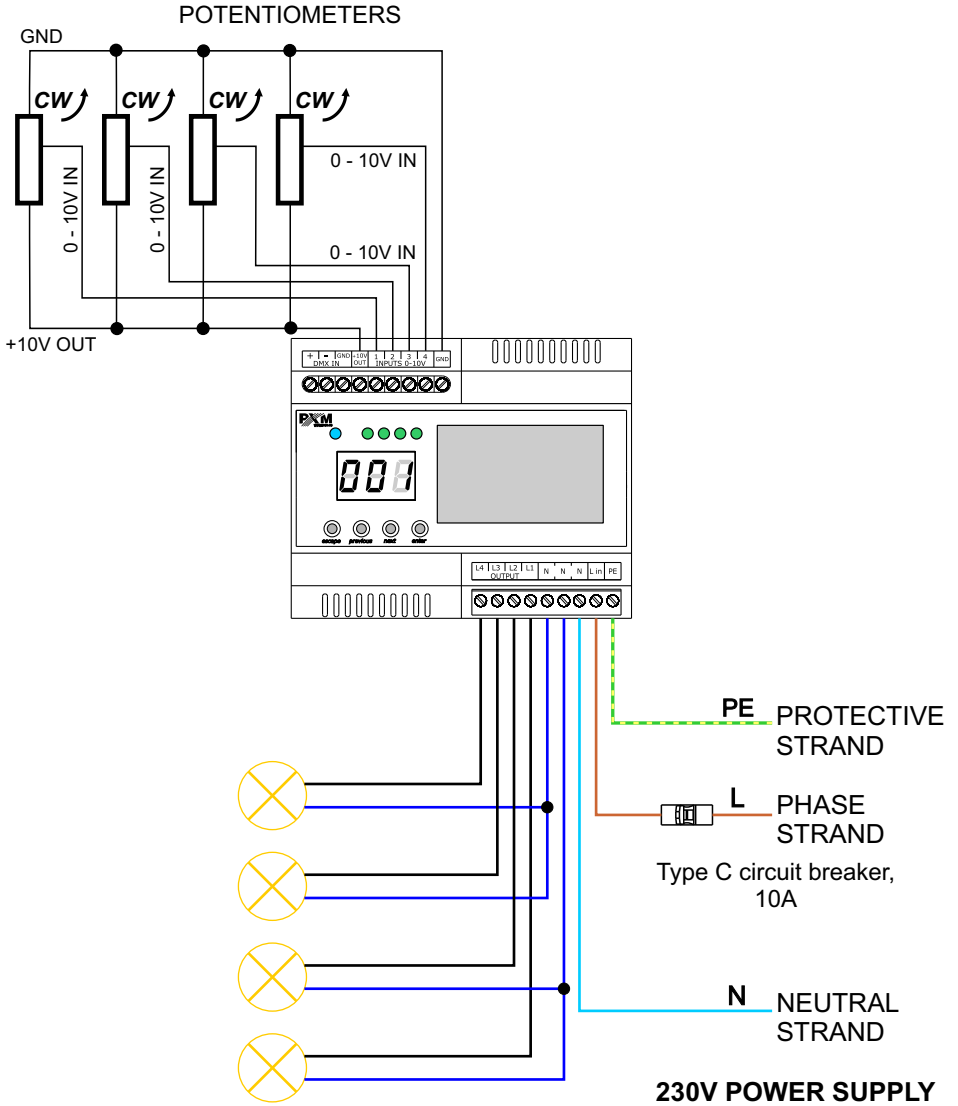
# 8. WIRING DIAGRAM

## a) DMX Controller

controller, e.g PX333

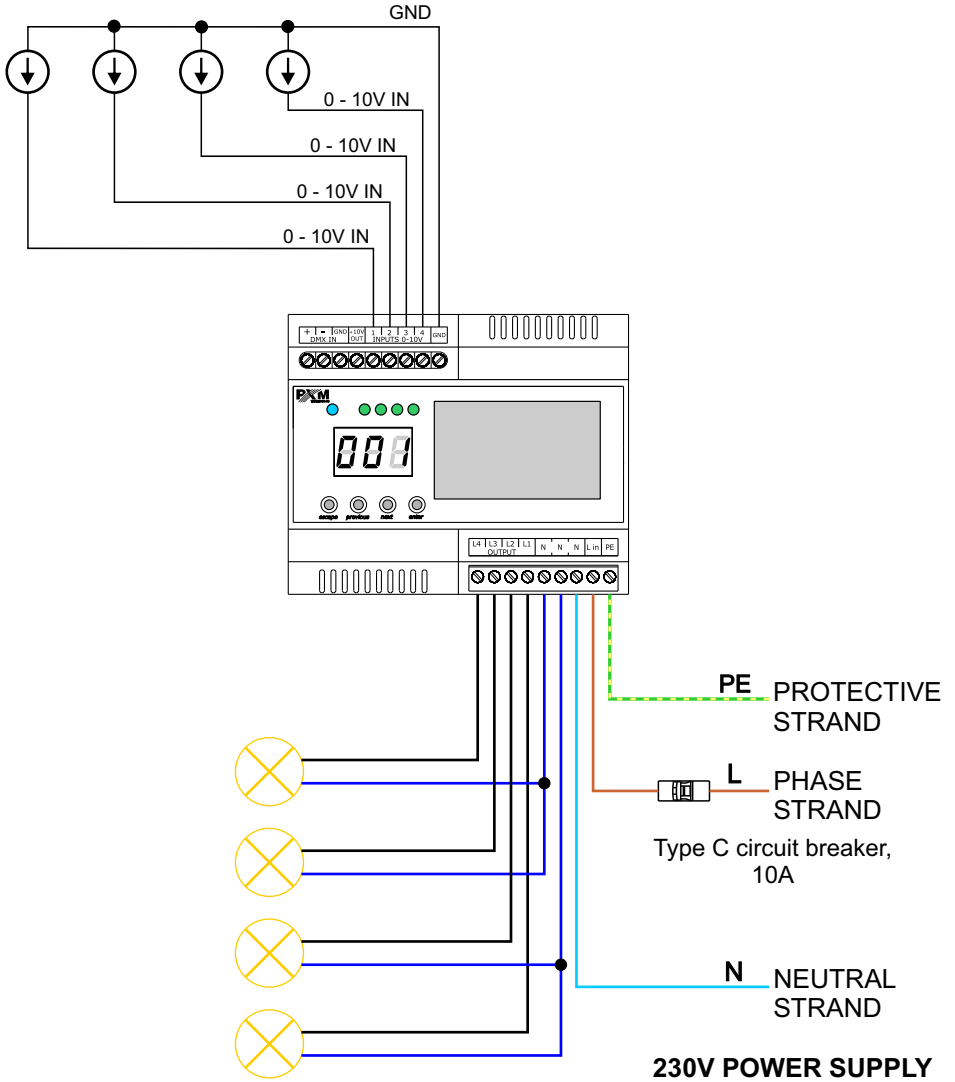


b) Potentiometers control



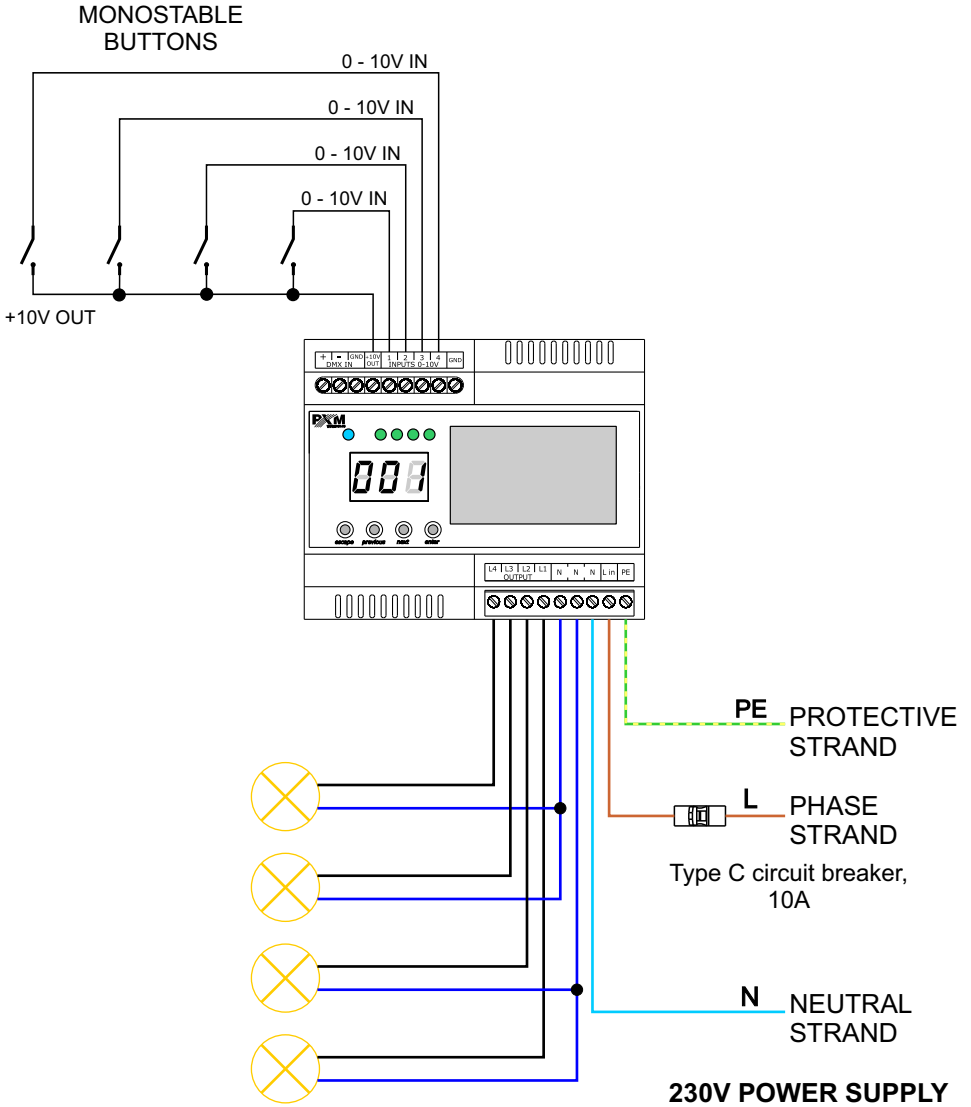
c) 0 - 10V control

0 - 10V CONTROL SIGNAL SOURCES

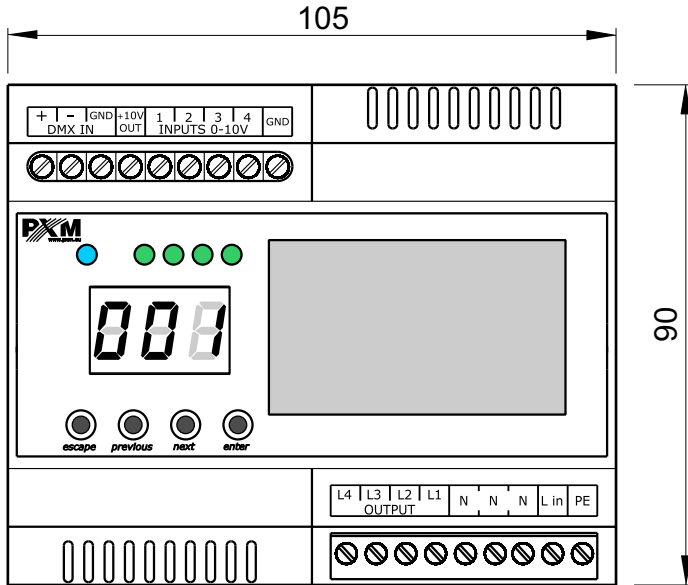




d) Monostable buttons control



## 9. DIMENSIONS



## 10. TECHNICAL DATA

Type:	PX741
Power supply:	230V / 50Hz
Max. power consumption:	4A
Control inputs:	0 - 10 V or DMX512 or monostable buttons
Power consumption inputs 0 - 10V:	0,1mA
Dimensions:	Width: 105 mm
	Height: 58 mm
	Depth: 90 mm





Podłęże 654  
32-003 Podłęże

tel: 012 385 83 06  
fax: 012 626 46 94

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

## DECLARATION OF CONFORMITY

**PXM Marek Żupnik spółka komandytowa**  
**Podłęże 654, 32-003 Podłęże**

*declares under our sole responsibility that the product:*

Name of product: **Trailing Edge Dimmer 4 x 200W**  
Type: **PX 741**

*compiles with the following standards and harmonized standards:*

PN-EN 50581:2013-03,	EN 50581:2012
PN-EN 62368-1:2015-03,	EN 62368-1:2014
PN-EN 61000-4-2:2011,	EN 61000-4-2:2009
PN-EN 61000-6-1:2008,	EN 61000-6-1:2007
PN-EN 61000-6-3:2008,	EN 61000-6-3:2007

*and is in conformity with the provisions of the following EC Directives:*

<b>2011/65/UE</b>	<b>DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL</b> of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment Text with EEA relevance.
<b>2014/30/UE</b>	<b>DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL</b> of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (recast) Text with EEA relevance.
<b>2014/35/UE</b>	<b>DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL</b> of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits.



**Marek Żupnik spółka komandytowa**  
**32-003 Podłęże, Podłęże 654**  
**NIP 677-002-54-53**

Podłęże, 15.01.2018

mgr inż. Marek Żupnik.