PX378

PxArt+ Frame

User manual

Table of Contents

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

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1 Description

PxArt+ Frame is a professional cropping LED illuminator for the lighting of museums exhibitions or trade fair displays.

The precision cropping system allows you to control the luminous flux and adjust the illumination range to the size and position of the displayed object.

Thanks to the application of the latest semiconductor COB type SSL LED light source and advanced control electronics, a high performance illuminator was made, which fulfills very high demands concerning museum exhibition and trade display lighting applications. Its most important advantages include the possibility of precise cropping of the displayed objects, total lack of ultraviolet radiation emission, traces of infrared radiation, very high color rendering index (CRI), and very large brightness at low energy consumption.

The device features a holder allowing for its quick assembly on GLOBAL Trac® Pulse Control tracks. An individual address assigned to each illuminator allows for adjustment of brightness regardless of the settings of other illuminators.

Thanks to the press buttons located on a lamp housing, it is also possible to control the illuminators manually (e.g. in case of connecting a lamp to a frame without the control lines).

A high output LED was used in the lamp with an effective control system. Thanks to this, the lamp features small heat emission.

By using an additional PX277 device (PxArt+ Settings Controller), you can set all parameters of the device and read the information on the time and temperature of the lamp. The PX378 illuminator supports the RDM protocol.

2 Safety conditions

Caution! Before installing, connecting and using the lamp you have to absolutely read this document.

The following symbols are used to underline important information on security conditions on the product and in this manual.

Danger!
Risk of loss of life and health.

Warning!
Fire hazard.

Warning!
LED light emission. The risk of eye damage.

Warning!
The risk of burns.

Warning!
Read the instruction manual.

Caution!

Do not look at the LEDs, LEDs can cause damage or eye irritation. Do not look at the light source with any optical devices that focus the light rays.

Light is harmful to unprotected eyes, can cause irritation, eye damage or even loss of eyesight.

While working outdoors in normal conditions, the housing unit can heat up to +90°C. Make sure that accidental contact with the device during use is impossible.

In case of improper usage of the product it may cause a risk of serious injury or death because of the threat of fire.

Device PX378 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 instruction manual.
2. Lamp can be connected only to grid, which has protecting installation in working order (3-wire 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 attestation.
5. All repairs, should be strictly protected against water and other liquids.
6. Do not connect the device to the power supply with visible damage.
7. All sudden shocks, particularly dropping, should be avoided.
8. The device cannot be used in places with temperature lower than +2°C or higher than +40°C.
9. Clean with damp cloth only- lamp should be made with cut off power supply.

The dimming of the lamp brightness occurs when the temperature is above +70°C, which prevents the device from overheating. If the device reaches a temperature of +90°C, the power of the lamp will be totally reduced. The light is then switched automatically in the event of temperature drop below the maximum temperature (+90°C). The higher the temperature of the device, the greater is the brightness dimming.

3 Information on version

There are several version of the PX378 lamp which are different from each other in a color rendering index, color temperature and color of the housing.

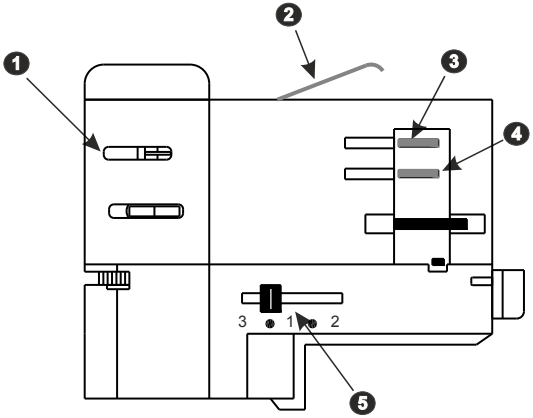
Below there is a description of designations of PX378 models with explanation:

PX378-XYY-Z

X – CRI index:	YY – color temperature:	Z – housing colors:
X – 95	30 – 3000K	1 – gray
9 – 90	50 – 5000K	2 – black
8 – 80		3 – white

4 DMX signal and power connection

4.1 Adapter GLOBAL Trac GAC 600



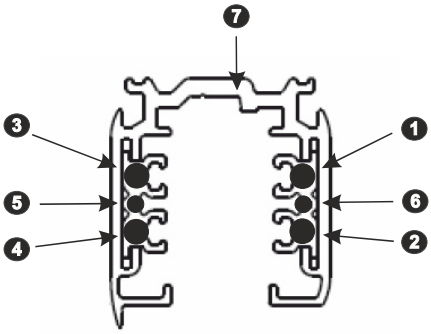
CONTACTS DMX

1. DMX - (on the opposite side DMX+)

POWER CONTACTS

2. earth ⏚
3. phase 1 (phase 2 on the opposite side)
4. neutral (phase 3 on the opposite side)
5. phase selector switch

4.2 Cross-section through DMX GLOBAL Trac® Pulse Control busbar



POWER

1. phase 2
2. phase 3
3. phase 1
4. neutral

DMX

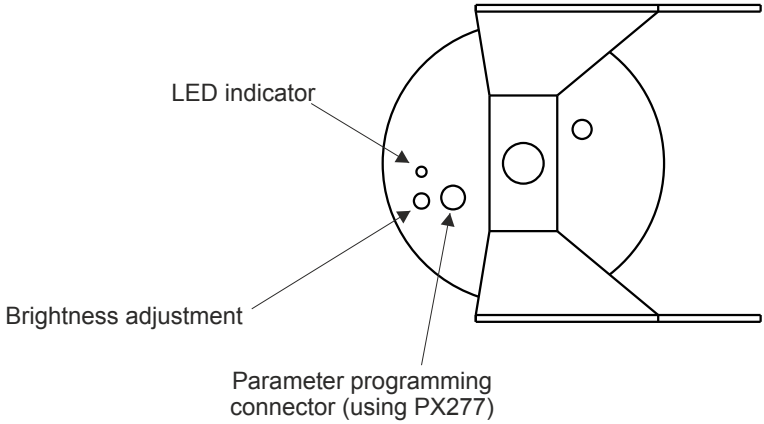
5. DMX -
6. DMX +
7. GND

5 Manual change of lamps settings

The lamp has been equipped with a button which allows for changing the brightness level. The button has been placed at the bottom part of the junction box, above the lamp reflector.

The layout of the button and connectors for connecting the PX277 programmer has been shown in the figure below:

Manual control button and socket for programming the lamp parameters.



Over the illuminator, there is a LED informing about the lamp condition.

Depending on the situation, the LED signals the following messages:

- lamp starting – rapid blinking of the LED for 2 seconds
- DMX signal receipt – slow blinking of the brightness adjustment press button (with frequency of 1Hz) for the first minute after the receipt of the DMX signal

- after starting up of the lamp with the lack of the DMX signal – the LED lights (continuously) for 1 minute
- damage of a temperature sensor module – the LED does not go off after one minute

In order to reduce brightness, a relevant adjustment key must be held pressed for a while. If the LED starts blinking during the adjustment, it means that the marginal level has been reached (minimal or maximal), then the adjustment direction is reversed.

It is possible to reverse the adjustment direction without reaching the marginal levels, e.g. while increasing the lamp lighting brightness release the key, the LED will signal reversing of the adjustment direction with a single blink, the pressing of the adjustment key again will result in dimming (diminishing of brightness) of the lamp.

During the operation of the lamp, the LED remains off (except the situations described above).

6 Cooperation with the PX277 configurator

Lamp settings can be changed by connecting it with the PX277 PxArt+ Settings Controller.

On setting the connection, the PX378 will start up again, as a result of which the LEDs go off for a moment and the LED informing about the DMX signal condition blinks for 2 seconds.

On starting up the device, the screen displays its name. The main menu allows for the viewing of many parameters of the PxArt+ series lamps and changing of the following options: brightness address, scene brightness, smoothing, altering of smoothing time and return to factory settings.

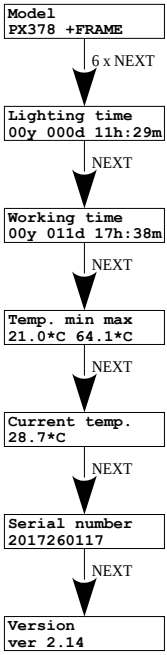
Moreover, it is possible to review the lighting time and lamp operation time (the lamp total operation time, also without lighting up the LEDs), information concerning the minimal, maximal and current temperature reached by the lamp.

The PxArt+ Settings Controller allows for checking the version number of the software installed in the lamp, its serial number and model.

Navigation in the menu is effected by using the controller keys located under the screen. The *escape* key enables entering a higher level in the device controls, while the *next* and *previous* keys are used for moving on or back (or for increasing or decreasing of a value). The *enter* key, instead, allows for entering the edition of the selected menu or acceptance of the edited value.

6.1 Description of the information parameters

PX277 controller allows you to read important information concerning the lamp to which it has been connected.



Model – lamp model

Lighting time / *Working time* – lamp operation time (total operation time of the lamp, also without diodes turned on) and lighting time are presented as follows (designations from the left):

- years (numbers next to letter *y*)
- number of days (letter *d*)
- hours (letter *h*)
- minutes (letter *m*)

Temp. min max / *Current temp.* – information concerning the minimum, maximum and current temperature reached by the lamp. Unit expressed in [°C].

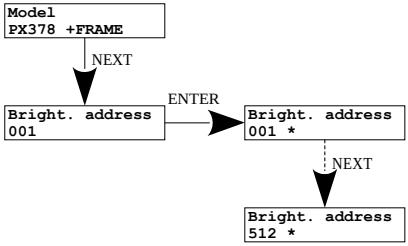
Serial Number – lamp serial number

Version – version number of the software installed in the PX378 lamp

6.2 Lamp brightness address

PX277 allows for changing the DMX address which controls the brightness of the lamp. The lamp has the DMX channel assigned whose value can be changed depending on the needs. DMX channel can be set between 1 to 512.

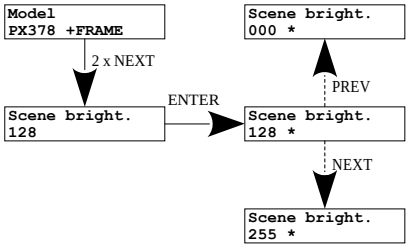
To change the DMX channel, select in the PX277 menu a **[Bright. address]** option, confirm by pressing *enter* and then using *next* and *previous* buttons set an appropriate value. After the change of the DMX channel, the operation has to be confirmed by pressing *enter* or *escape*.



6.3 Scene brightness

Lamps from PxArt+ series can work without using DMX control. In such case, PxArt+ Settings Controller enables changing the scene brightness value. This value can be set between 0 to 255.

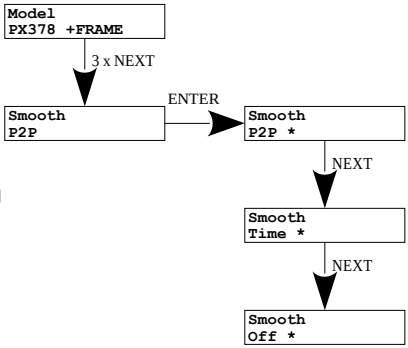
[Scene bright.] set to value 0 turns off the stage and turns the value 255 to 100%. Value 128 means the stage brightness is 50%. After changing the value of the stage brightness, the operation has to be confirmed by pressing *enter*.



6.4 Smooth

The device also has the smoothing option which enables smooth brightness modifications. When the function is turned off, the transitions between successive DMX values sent to the lamp (responsible for brightness changes) occur smoothly, without visible jolts, which prevents light “vibration” effects in the lighting systems.

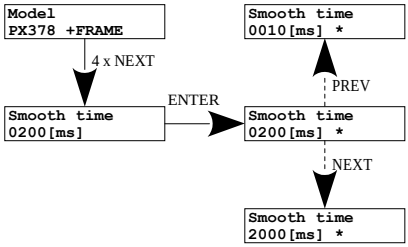
The next two DMX values sent to the lamp are linearly smoothed between DMX signal packets for the selected option [P2P] or the [Time] interval set in the menu [Smooth time].



6.5 Smooth time

When the PxArt+ Settings Controller time smoothing is active, it allows for changing the smoothing time value. As a result it enables an acceleration or deceleration of the brightness parameter change. Maximum available value is 2000ms and minimum is 10ms.

[Smooth time] – makes it possible to change the time parameter at which subsequent different DMX signal values sent to the lamp are smoothed among themselves. The user may set the smoothing time using *previous* and *next* buttons.



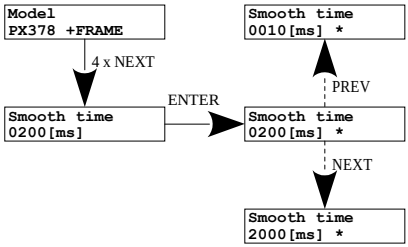
6.6 Restoring default settings

The device comes with the option to restore default settings. To use this option, select the [Default sett.] menu and press *enter*.

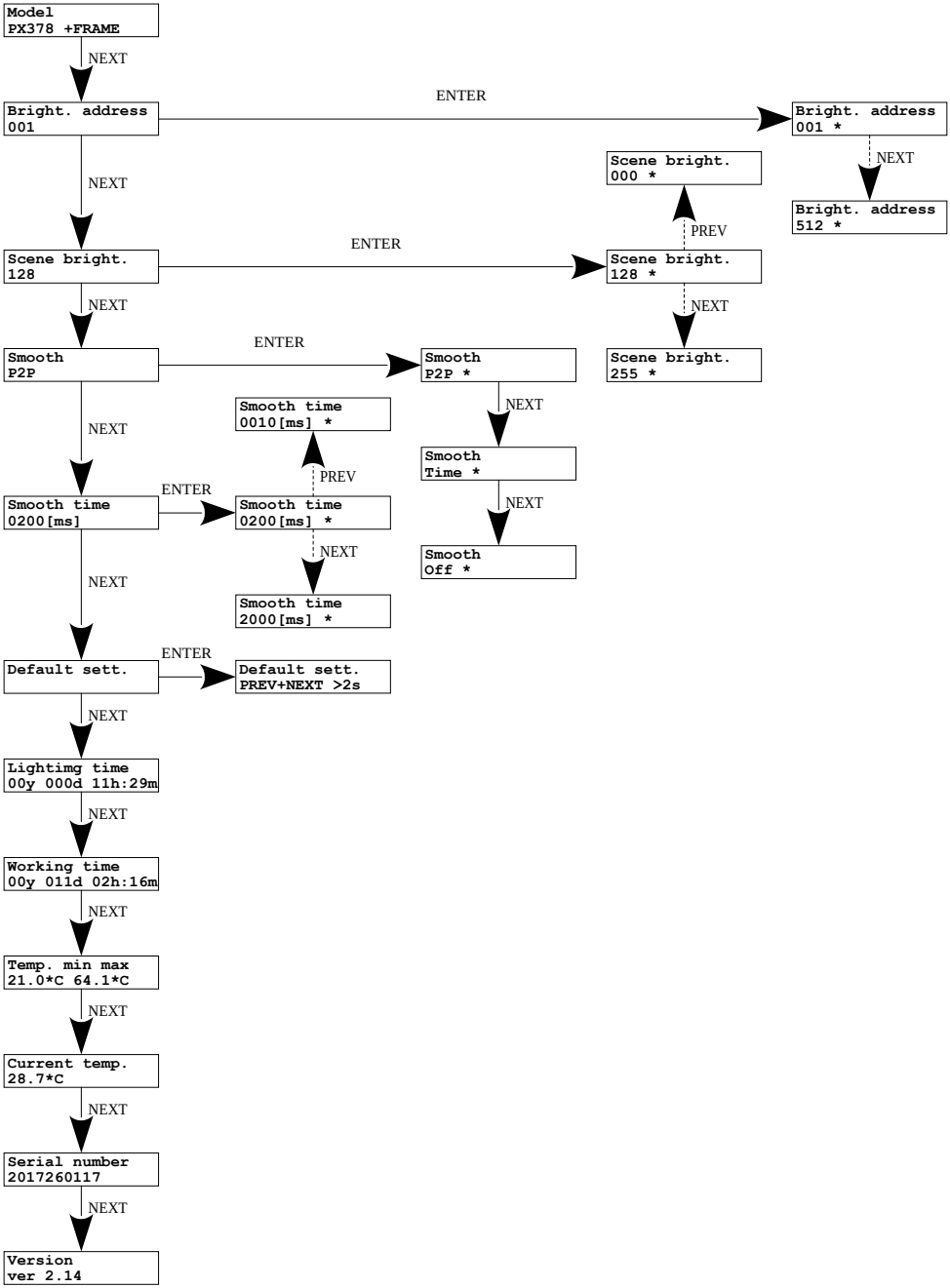
There is also possibility to exit the level of this menu without returning to default settings. In such case, the *escape* button will be selected.

PX378 default settings:

- Bright. address: 001
- Scene bright.: 128
- Smooth: Off
- Smooth time: 0200[ms]

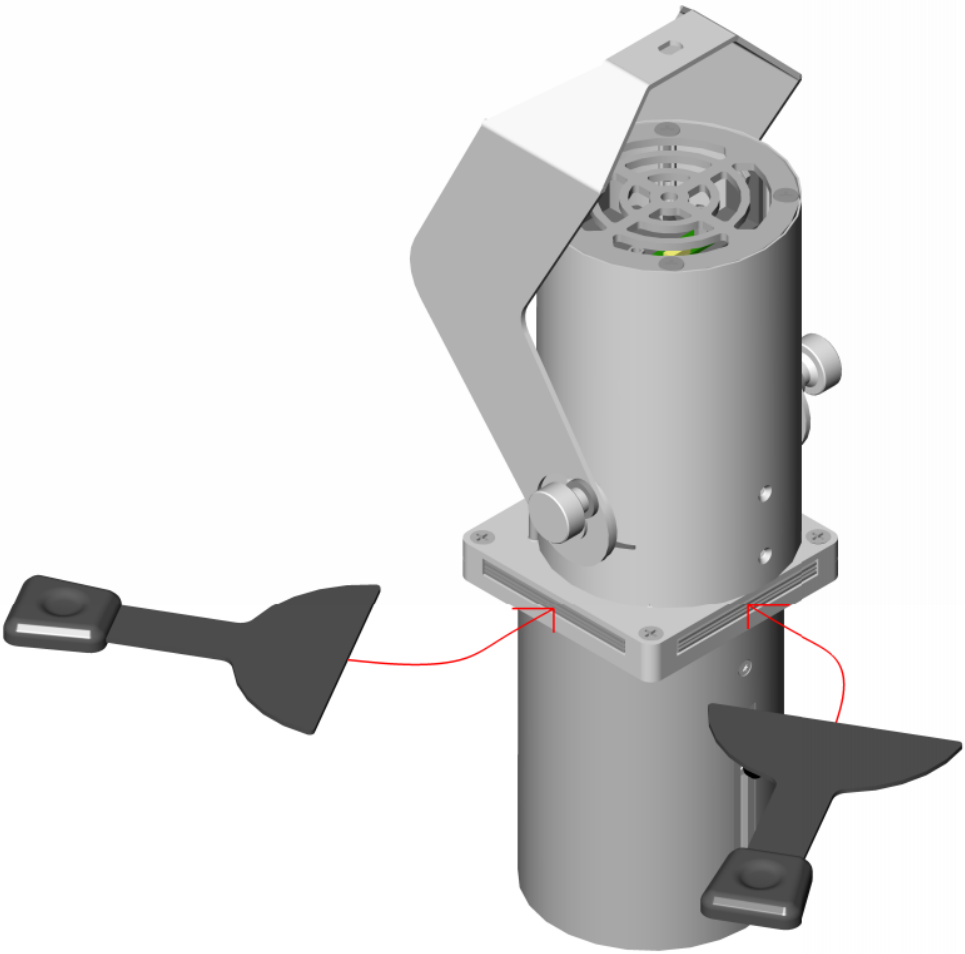


6.7 The PxArt+ Frame menu diagram in PX277

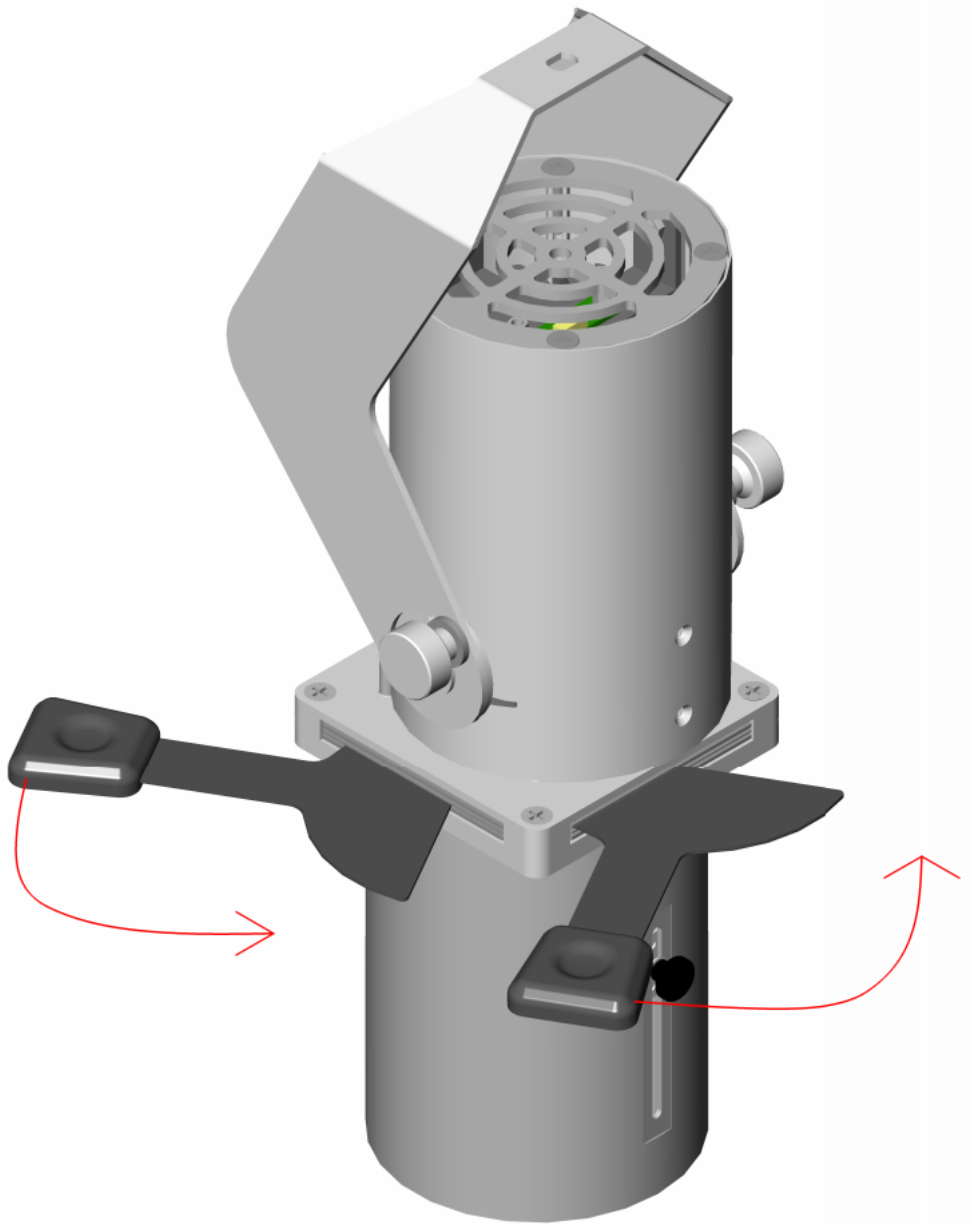


7 Installation of shutters

First, insert the movable shutters at an angle into the appropriate pockets – visualization below.

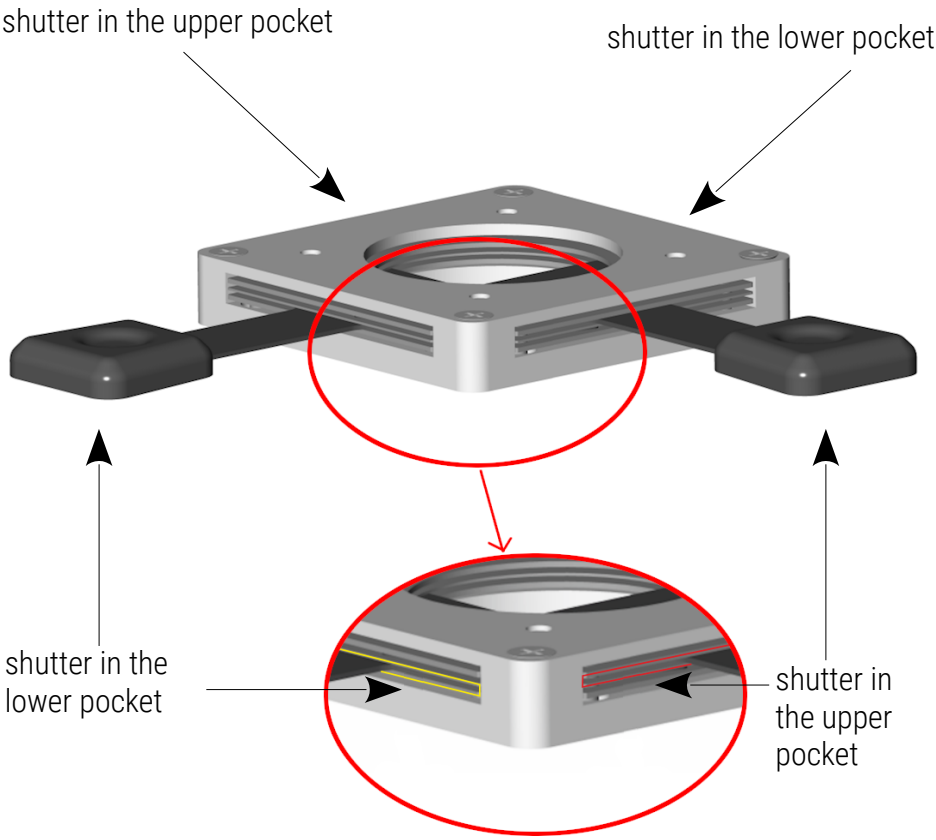


After inserting the diaphragms at an angle, it should be straightened according to the diagram below.



Particular attention should be paid to which pockets are inserted.

<u>Opposite diaphragms must be put in pocket on the same level (upper or lower pocket).</u>



8 RDM – available parameters

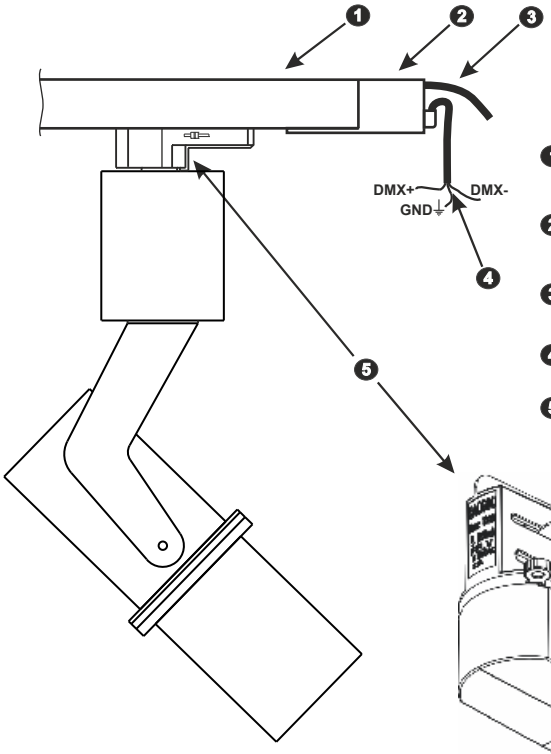
PX378 supports the DMX-RDM protocol. DMX protocol in its assumption enables one-way data flow while its extension, the RDM protocol, can transmit information in two ways. This makes the simultaneous receiving and sending of information possible and allows for monitoring the operation of devices compatible with the RDM protocol as well as gives the possibility of changing the configuration of their parameters.

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_LABEL	0x00C0	firmware version of the device
DMX_START_ADDRESS *	0X00F0	DMX starting address of the device; Range 1 – 512
IDENTYFY_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
SERIAL_NUMBER	0x8030	device serial number
FACTORY_DEFAULTS *	0x0090	device default settings

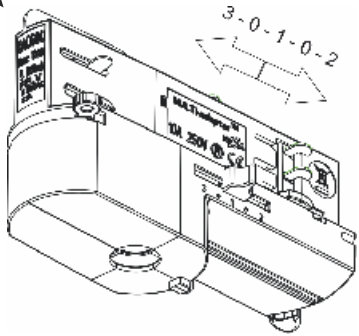
Parameter name	PiD	Description
DEVICE_LABEL *	0x0082	additional device description; It is possible to enter an additional device description using up to 32 ASCII characters.
DMX_PERSONALITY *	0x00E0	DMX operational mode
DMX_PERSONALITY_ DESCRIPTION	0x00E1	description of individual operational modes
SENSOR_DEFINITION	0x0200	information concerning the selected temperature sensor
SENSOR_VALUE	0x0201	information concerning sensors
DEVICE_HOURS	0x0400	information concerning the working time of the device counted in hours
LAMP_HOURS	0x0401	information concerning lamp lighting time
TEMPERATURE_LIMIT_ON/ OFF *	0x800E	temperature limitation activation for the temperature sensor connected to the driver
TEMPERATURE_ THRESHOLD_LOW	0x800F	lower temperature value for which the temperature limitation is being activated
TEMPERATURE_ THRESHOLD_HIGH	0x8010	upper temperature value for which the temperature limitation is active, i.e. the cut-off temperature for exits from the driver
SMOOTH_DIS_0/P2P_1/ TIM_2 *	0x801A	selection of the options concerning Smooth function
SMOOTH_TIME *	0x801B	smoothing time for the Smooth function in the range 10 to 2000ms
SCENE_BRIGHTNESS *	0x8022	brightness setting from 0 – 255

* - editable parameter

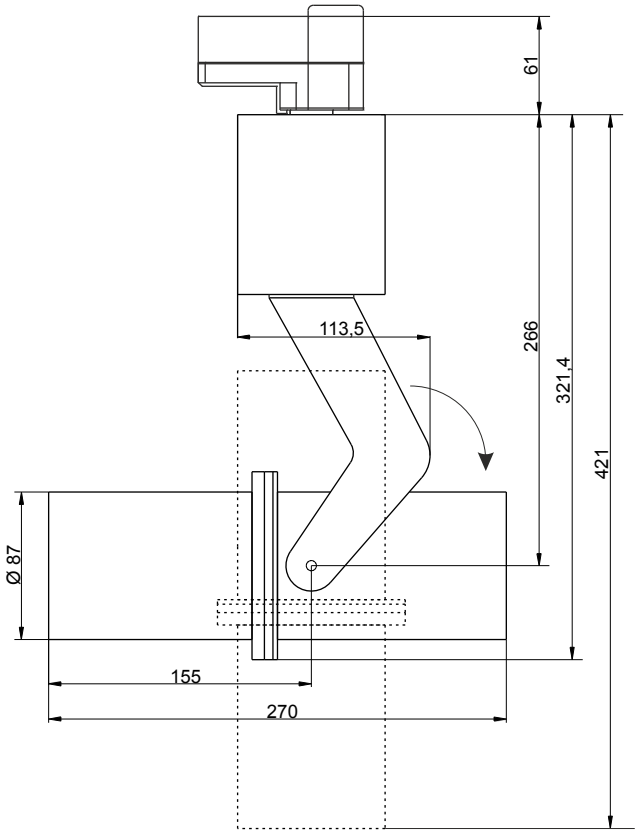
9 Connection scheme



1. a three-phase track for control systems GLOBAL Trac Pulse Control
2. end feed
3. power cable
4. DMX cable (shielded cable, two-core cable)
5. adapter GLOBAL Trac GAC 600



10 Dimensions



11 Technical data

type	PX378
power supply	230V AC
number of LEDs	1 (COB)
power	27W
PF (power factor)	0,94
max. increase of the housing temperature	+50°C
CRI index	min. 80
lifetime of diode	50 000h
cropping area	max. 1,35 x 1,35m (at distance 3m)
brightness regulation extension	0 – 100%
control protocol	DMX-512 / RDM
available housing colors	gray, black, white
smoothing function (smooth)	yes
number of control channels	1 (brightness)
fixing	GLOBAL Trac® Pulse Control bus bar
manual control	yes
DMX-512 signal indicator	yes
weight	2.3kg
dimensions	width: 113,5mm (270mm for the horizontal headlight) height: 421mm diameter of the reflector: 87mm

Podłęże, 06.09.2019

DECLARATION OF CONFORMITY

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

we declare that our product:

Product name: PxArt+ Frame

Product code: PX378

meets the requirements of the following standards, as well as harmonised standards:

PN-EN 60598-1:2015-04	EN 60598-1:2015
PN-EN 62471:2010	EN 62471:2008
PN-EN 61000-4-2:2011	EN 61000-4-2:2009
PN-EN IEC 61000-6-1:2019-03	EN IEC 61000-6-1:2019
PN-EN 61000-6-3:2008	EN 61000-6-3:2007

and meets the essential requirements of the following directives:

2011/65/UE DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment
Text with EEA relevance.

2014/30/UE DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (recast)
Text with EEA relevance.

2014/35/UE DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL 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

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