PX724

Gate 4
DMX RDM

MANUAL

PXM®

CONTENTS

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

1. GENERAL DESCRIPTION

Gate 4 DMX RDM is a gate that converts Art-Net signals to four output DMX-RDM ports.

The gate offers two modes of merging signals from two sources: HTP and LTP. The protocol version used is Art-Net 4.

This gate has a solid, metal housing protecting against mechanical damage. The DMX512 ports are optically isolated XLR connectors, resistant to mechanical damage. The device comes equipped with an Ethernet interface working in 10/100BaseTX protocol. In addition, on the device there are six LED indicator lights: two network ones and four showing port's status.

The PX724 gate is designed to run from 230 V AC mains.

The gate has a display and four buttons that allows to change the configuration: Art-Net, Ethernet and DMX settings (such as: Brake, MAB, MBF, WAIT and the number of DMX channels transmitted).

The user can order additional components to be shipped with the device, allowing for:
- installation of a single gate in a RACK cabinet
- installation of two gates in a RACK cabinet
- suspending a gate (e.g. from a truss)

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2. SAFETY CONSIDERATIONS

Gate PX724 is powered directly from standard 230 V AC 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. Gate can be connected only to grid, which has protecting instalation 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 attestations.
5. Device with visible mechanical damage cannot be connected to the mains.
6. All repairs, should be made with cut off power supply.
7. The device should be strictly protected against water and other liquids.
8. All sudden shocks, particularly dropping, should be avoided.
9. The device cannot be used in places with temperature lower than 2°C or higher than 40°C.
10. The device cannot be turned on in places with humidity exceeding 90%.
11. Clean with damp cloth only - gate should be made with cut off power supply.

3. GATE CONSTRUCTION

The PX724 gate is equipped with one Ethernet port, four DMX512 outputs, a display, programming buttons, a ON/OFF power switch and LED indicators.

display

on/off power switch

LED indicators

programming buttons

DEVICE REAR PANEL

DMX512 outputs

Ethernet etherCON
Neutrik port

output for connecting
another device

PowerCON TRUE1
Neutric receptacle
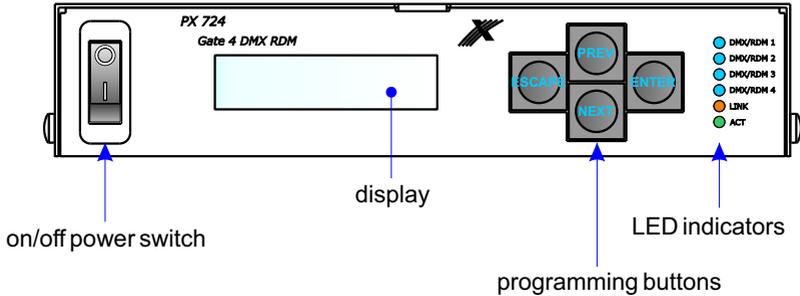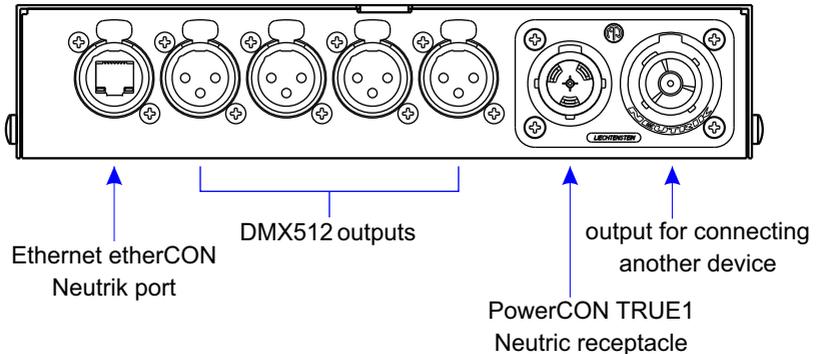
4. PROGRAMMING THE DEVICE

4.1. Button features

escape - allows you to exit the parameter being programmed without saving any changes or to move to a higher menu level
previous - moves you back through the menu or decreases values being set
next - moves you forward through the menu or increases values being set
enter - allows you to enter the programming mode and confirm the values set

Where a particular parameter is editable, in the bottom right-hand corner the edit symbol $\left\| \cdot \right\|$ is displayed, and pressing „enter" allows you to proceed to edit the first field.

A field that is editable is shown within square brackets [...], and the up-and-down button allows you to change the value of such a field. If you press „enter" you will be taken to another field or the value will be saved and you will exit the edit mode for a give parameter.

The icon -> allows you to go deeper into the command tree.

4.2. Description of information parameters

The PX724 provides you with the following device information.

```
PX724 GATE 4 DMX
*192.168.1.14
```
◄──────── gate model, current IP address (DHCP or static).

If an address is provided by DHCP, an asterisk * is added

5x NEXT

```
S/N: 17090001
VER: 0.01
```
◄──────── gate serial number and version number of the software installed
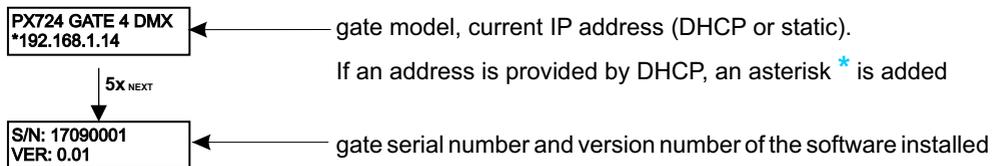
4.3. Network settings

In the [**NETWORK CONFIG.**] menu of the device you can change the gate static IP address [**IP**], static subnet mask [**SUBNET MASK**], default static gate [**GATEWAY**], UDP port [**UDP PORT**]. The default port for the Art-Net protocol is port 0x1936 (6454 decimal). You can also turn on [**On**] or turn off [**Off**] the DHCP protocol [**DHCP**]. If DHCP is turned on, network configuration is acquired automatically.

If DHCP is turned off, the gate operates in a static configuration (IP, SUBNET MASK, GATEWAY). If DHCP is turned on, the gate will start up using static settings, but will attempt to acquire new network configuration from the DHCP server.

```
PX724 GATE 4 DMX
*192.168.1.14
```
│ NEXT
▼
```
NETWORK CONFIG.
2.0.0.1          ->
```
──ENTER──►
```
NETWORK CONFIG.
2.0.0.1          |ı|
```
──ENTER──►
```
NETWORK CONFIG.
[2]0.0.1
```

│ NEXT
▼
```
SUBNET MASK
 255.0.0.0       |ı|
```
──ENTER──►
```
SUBNET MASK
[255]0.0.0
```

│ NEXT
▼
```
GATEWAY
 10.0.0.1        |ı|
```
──ENTER──►
```
GATEWAY
[10]0.0.1
```

│ NEXT
▼
```
UDP PORT
 6454    0x1936  |ı|
```
──ENTER──►
```
UDP PORT
[6454     0x1936]
```

│ NEXT
▼
```
DHCP
 Off             |ı|
```
──ENTER──►
```
DHCP
[Off]
```

│ NEXT
▼
```
DHCP
[On]
```
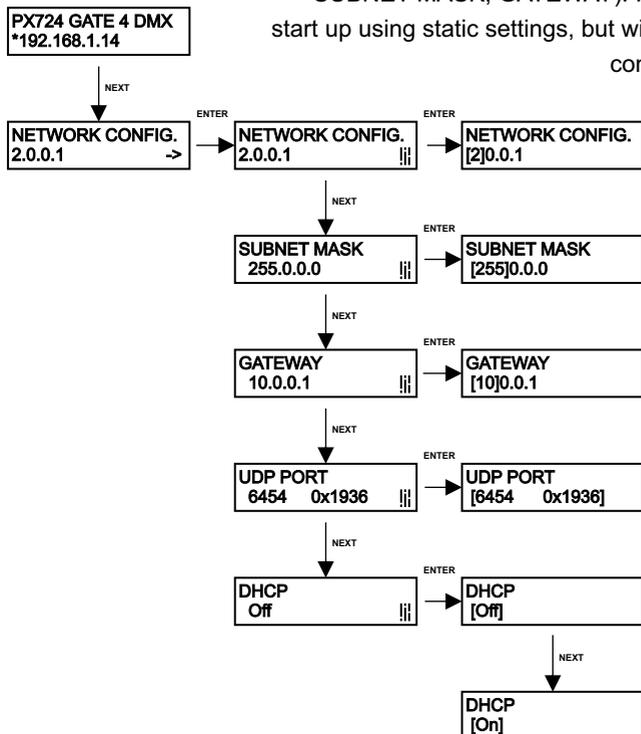
4.4. Art-Net configuration

```
PX724 GATE 4 DMX
*192.168.1.14
```
2x NEXT

ENTER
```
ART-NET CONFIG.
              ->
```
ENTER
```
PORT 1
 0   0x0000    ->
```
ENTER
```
UNIVERSE
 0   0x0000
```
ENTER
```
UNIVERSE
[0    0x0000]
```

NEXT
```
PORT 3
 0   0x0000    ->
```

page 8

NEXT
```
UNIVERSE SWITCH
 0   0x0
```
ENTER
```
UNIVERSE SWITCH
[0    0x0]
```

NEXT
```
MERGE MODE
 LTP
```
ENTER
```
MERGE MODE
[LTP]
```

NEXT
```
MERGE MODE
[HTP]
```

NEXT
```
RDM
              ->
```
ENTER
```
RDM SUPPORT
 ENABLED
```
ENTER

```
RDM SUPPORT
[ENABLED]
```

NEXT   NEXT
```
RDM SUPPORT
[DISABLED]
```

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```
ADD SEARCH
 ON
```
ENTER

```
ADD SEARCH
[ON]
```

NEXT
```
ADD SEARCH
[OFF]
```

Parameters:

[**PORT 1-4**] - individual settings of Art-Net ports.

[**UNIVERSE**] - the universe number on which a given port runs. The selectable range is 0-32767. The number is displayed in two formats: decimal and hexadecimal.

Hexadecimal notation allows you to easily differentiate universe components, for example: 0xNNSU, where:

- **NN**: (Net switch), network number in the Art-Net protocol (range 0-127 dec, (0x0-0x7F hex))
- **S**: (Sub-Net switch) sub-net number in the Art-Net protocol (range 0-15 dec, 0x0-0xF hex)
- **U**: Universe switch

```
                              DMX PARAMETERS      ENTER    BREAK TIME
                              ->                           176µs          ⊩

                                                          NEXT            ENTER

                                                                  BREAK TIME
                                                                  [176µs]

                                                  MAB TIME
                                                  12µs            ⊩
```
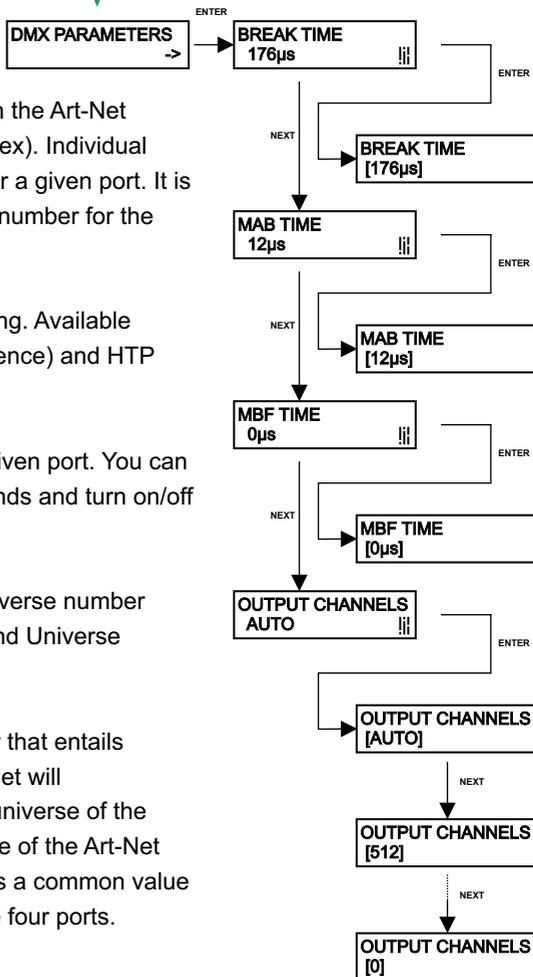
[**UNIVERSE SWITCH**] - universe number in the Art-Net protocol (range 0-15 dec, 0x0-0xF hex). Individual setting of a Universe switch value for a given port. It is a component of the entire Universe number for the port.

[**MERGE MODE**] - port merging mode setting. Available values of LTP (Latest Takes Precedence) and HTP (Highest Takes Precedence).

[**RDM**] - RDM protocol configuration for a given port. You can turn on/off support for RDM commands and turn on/off cyclic additive search.

Using UNIVERSE you can change all 3 universe number components (Net switch, Sub-Net switch and Universe switch).

NOTE: a change of a port universe number that entails changing the components Net or Sub-Net will automatically result in a change of the universe of the other ports. This is due to specific nature of the Art-Net protocol addressing, where the gate has a common value for the fields Net and Sub-Net for all the four ports.

```
                    NEXT         ENTER

              MAB TIME
              [12µs]

      MBF TIME
      0µs            ⊩
                     ENTER

                    NEXT

              MBF TIME
              [0µs]

      OUTPUT CHANNELS
      AUTO           ⊩
                     ENTER

              OUTPUT CHANNELS
              [AUTO]
                    NEXT

              OUTPUT CHANNELS
              [512]
                    NEXT

              OUTPUT CHANNELS
              [0]
```

[**DMX PARAMETERS**] - Configuration of DMX parameters for a given port.
times:
[**BREAK TIME**], [**MAB TIME**], [**MBF TIME**]


```
| BREAK | MAB | START | M | DIMMER | M | DIMMER | M | DIMMER |   | DIMMER | M | DIMMER | M | BREAK |
|       |     | CODE  | B | 1      | B | 2      | B | 3      |   | 511    | B | 512    | B |       |
|       |     |       | F |        | F |        | F |        |   |        | F |        | F |       |
```

pełna "paczka" DMX

ENTER

| NET SWITCH | | NET SWITCH |
| 0   0x00 | → | [0   0x00] |

NEXT

ENTER

| SUBNET SWITCH | | SUBNET SWITCH |
| 0   0x0 | → | [0   0x0] |

NEXT

ENTER   ENTER

| ART-NET TIMEOUT | → | STOP DMX SIGNAL | → | STOP DMX SIGNAL |
| | | Off | | [Off] |

NEXT

NEXT

| STOP DMX SIGNAL |
| [On] |

ENTER

| TIMEOUT VALUE | → | TIMEOUT VALUE |
| 255s | | [255s] |

NEXT

| TIMEOUT VALUE |
| [0s] |

[**BREAK TIME**] - duration of a low state along the line at the beginning of DMX packet transmission.

[**MAB TIME**] - (Mark After Break) - MAB length – interval after the break that is present in each packet according to standard DMX512.

[**MBF TIME**] - (Mark Between Frames) - interval between DMX512 frames (channels). MBFs separate stop bits of one channel from the start bits of another channel.

[**OUTPUT CHANNELS**] - defines the number of channels sent out through a given port. The [**AUTO**] setting: the number of channels in a port is equal to the number of channels received by the Art-Net protocol. You can force transmission of the selected number of channels within the range 0-512.

[**NET SWITCH**] - setting a network value in the Art-Net protocol. It is a common setting for all the ports. The range is 0-127 (0x00-0x7A)

[**SUBNET SWITCH**] - setting a sub-network value in the Art-Net protocol. It is a common setting for all the ports. The range is 0-15 (0x0-0xF).

[**STOP DMX SIGNAL**] - On: turns off DMX transmission if Art-Net signal is lost, OFF: the ports continue to transmit the last values.

[**TIMEOUT VALUE**] - a value in seconds after which transmission through a DMX port is stopped following Art-Net signal loss.

4.5. Presets menu

The gate comes with 2 predefined standard sets of factory settings. In addition the user can save four own sets of parameters. After you enter the preset selected, all the parameters saved in it can be displayed.

There is also an option allowing users to save their presets [**SAVE THIS PRESET**]. If you select the option [**LOAD THIS PRESET**] the current device settings will be overwritten.

```
PX724 GATE 4 DMX
*192.168.1.14
        |
      3x NEXT
        |
PRESETS          ->  →  DEF 1 (2.x.x.x)    ⁞ⁱ  ENTER→  DEF 1 (2.x.x.x)
                                                       LOAD THIS PRESET
                            |
                          NEXT
                            |
                        DEF 2 (10.x.x.x)   ⁞ⁱ  ENTER→  DEF 2 (10.x.x.x)
                                                       LOAD THIS PRESET
                            |
                          NEXT
                            |
                        USER 1             ⁞ⁱ  ENTER→  USER 1
                                                       LOAD THIS PRESET
                            ⋮                              |
                          NEXT                           NEXT
                            |                              |
                        USER 4             ⁞ⁱ          USER 1
                                                       SAVE THIS PRESET
```
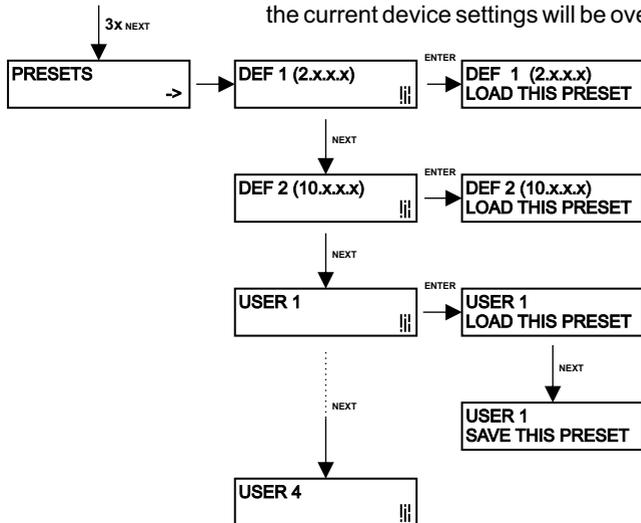
4.6. Settings for the other parameters

The miscellaneous sub-menu [**MISCELLANEOUS**] allows you to turn on [**On**] or off [**Off**] the screen saver. After 15 seconds the display and the all the indicator LEDs will be turned off. The device will continue to operate, without any interruption of the other parameters.

```
PX724 GATE 4 DMX
*192.168.1.14
        |
      4x NEXT
        |
MISCELLANEOUS   ->  ENTER→  SCREENSAVER        ENTER→  SCREENSAVER
                            On           ⁞ⁱ            [On]
                                                         |
                                                       NEXT
                                                         |
                                                       SCREENSAVER
                                                       [Off]
```
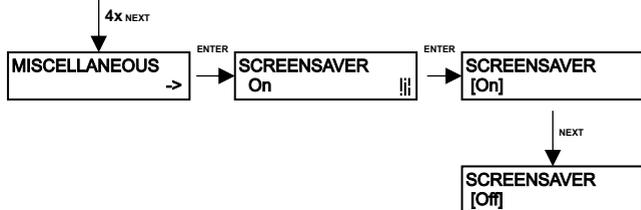
5. INFORMATION COMMUNICATED BY LED INDICATORS

In order to enable the backlight feature again, you need to press any of the buttons.

The indicator diodes on the front panel of the gate provide information on the status of the unit: The four upper LEDs are bi-colour ones (blue-orange) and communicate the status of DMX-RDM. Each diode is assigned to one of the four DMX ports.

Action	Function
Blinking blue every half a second	DMX transmission through the port concerned
Blinking blue at a faster rate	transmission using merging (i.e. output data are a result of combining data from two Art-Net sources)
Blinking in orange	RDM packets transmission through a given port

The above information refers to the so-called normal operating mode.

Additional information communicated by the LED indicators:
- if the screen saver mode is enabled or a "Art-Net Mute Indicators" command has been received, all the diodes **go out**;
- if the gate receives an "Art-Net Indicate" command, all the diodes start **blinking**;
- if Art-Net packets stop being received by a given port, then, depending on the "Art-Net Timeout STOP DMX SIGNAL" option:
  - if STOP DMX SIGNAL is Off, the port will continue to send the last values and the diode will continue to **blink in blue**;
  - if STOP DMX SIGNAL is On, after the time period TIMEOUT VALUE elapses, transmission through the port will stop and the diode **will go out**.

Two single-colour diodes at the bottom:
- the yellow one communicates receiving or sending a network packet;
- the green one communicates the status of the Ethernet network, if the diodes **emits continuous light**, the network is connected, if the diode is **not emitting light**, there is no access to the network.

6. ART-NET COMMANDS

List of Art-Net commands supported in PX724:

Name	Value
OpPoll	0x2000
OpPollReply	0x2100
OpOutput / OpDmx	0x5000
OpSync	0x5200
OpAddress	0x6000
OpTodRequest	0x8000
OpTodData	0x8100
OpTodControl	0x8200
OpRdm	0x8300
OpFirmwareMaster	0xf200
OpFirmwareReply	0xf300
OpIpProg	0xf800
OpIpProgReply	0xf900

7. UPGRADE

In order to update the gate firmware, use the program DMX-Workshop, which is available on the **Artistic Licence** website http://www.artisticlicence.com.
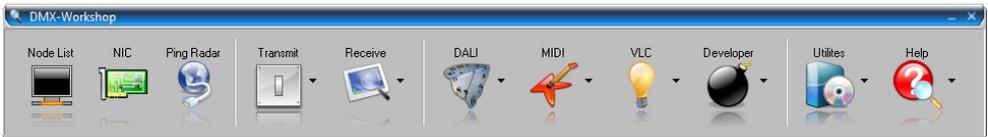

1. In the main menu field select the option [**Node List**]
2. In the field [**Active Art-Net Nodes**] select the device to which you want to upload the update
3. Right-click the device chosen, selecting in this sequence: [**Advanced**]→[**Programme Upload**]→[**Firmware**]
4. Using the "magnifying glass" button located to the right of the update access path, download the file with *.alf extension
5. In the [**Compatible Devices**] field select again the device to update
6. In order to upload the update, press the button [**Upload new Firmware**]

8. CONNECTING YOUR GATE
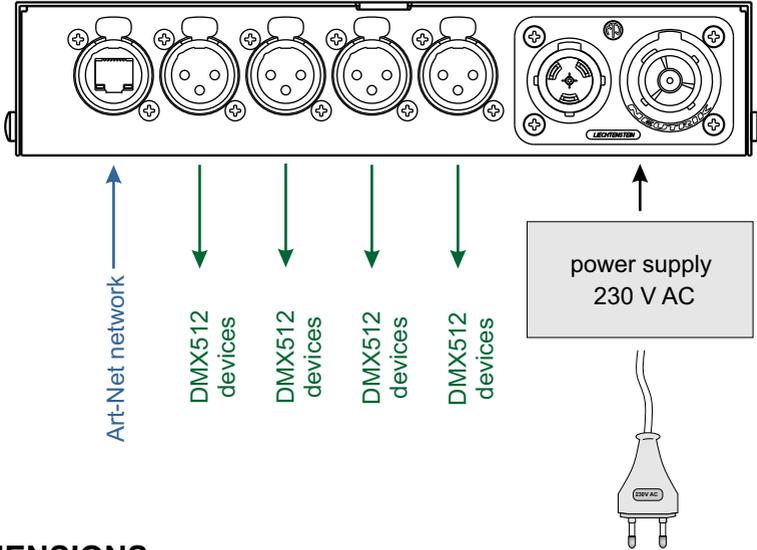
9. DIMENSIONS
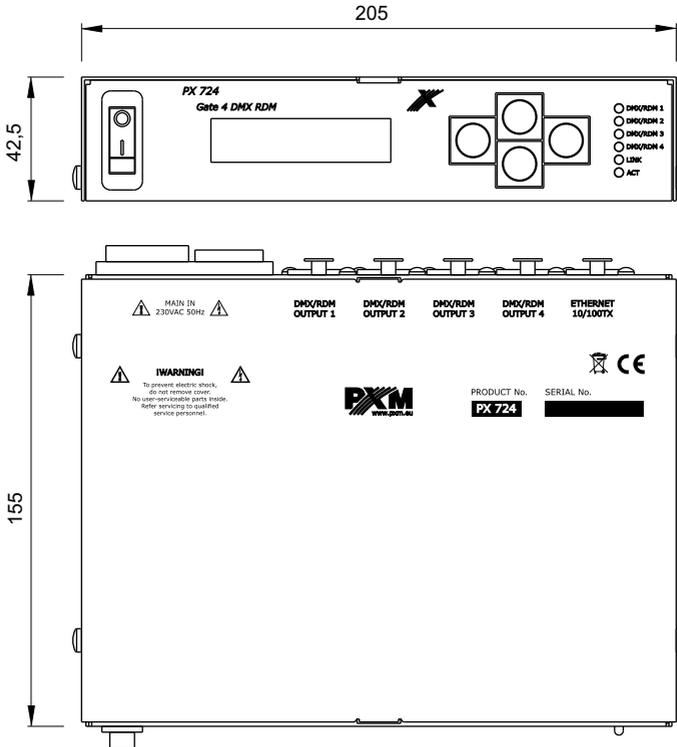
10. TECHNICAL DATA

- DMX-RDM lines: 4
- DMX line optical isolation: yes
- overvoltage protection: yes
- Art-Net version: Art-Net 4
- communication method: Art-Net protocol, display and buttons
- RDM protocol support: yes
- option to turn on filter packets other than DMX512: yes
- verification of Art-Net packets sequence: yes
- "No signal Art-Net" mode: yes (holding the last value)
- synchronous mode support: yes (ArtSync)
- dark mode (screensaver): yes
- number of user configurations: 4
- default user presets: 2 (2.x.x.x oraz 10.x.x.x)
- DHCP protocol support: yes
- user Interface: a 2x16 LCD display, 4 x buttons, 4 bi-colour diodes, 2 single-colour diodes
- indication modes: Normal, Mute, Identify
- Ethernet connector type: Neutrik etherCON NE8FAH
- DMX output: a 3-pin or a 5-pin XLR receptacle
- power supply connector: PowerCON TRUE1 Neutric
- power supply: 230 V AC
- power consumption: 8 W
- firmware update: through Art-Net 4 protocol
- additional options: mounting in a RACK system: a single unit: (D357-H1), a pair: (D357-H2); attaching to a truss: suspension bracket (D357-H3)
- weight: 1,2 kg
- dimensions:
    - width: 205 mm
    - height: 42,5 mm
    - depth: 155 mm

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DECLARATION OF CONFORMITY

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

We declare that our product:

Product name: **Gate 4 DMX RDM**
Product code: **PX724**

smeets the requirements of the following standards as well as harmonised standards:

PN-EN 50581:2013,	**EN 50581:2012**
PN-EN 60065:2015-08,	**EN 60065:2014**
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 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 on the use of certain hazardous substances in electrical and electronic equipment.

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 and repealing Directive 2004/108/EC.

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 Text with EEA relevance and repealing Directive 2006/95/WE.

PXM

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NIP 677-002-54-53

Podłęże, 28.08.2017

mgr inż. Marek Żupnik.