# PX815-2

# PX815-3

# DMX/Relay Interface 2ch

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User manual

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

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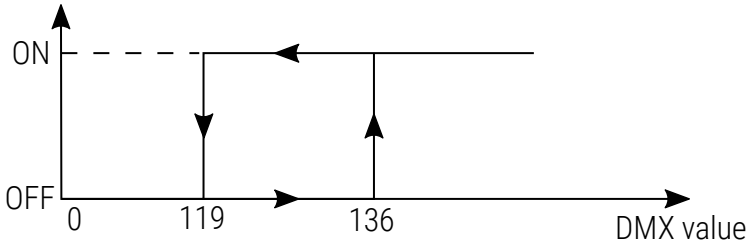
# 1 Description

DMX/Relay Interface is a relay controlled by DMX-512 signal available in two versions: 2 or 3 channels. In the version with two channels, the possible output load is 16A / channel, while in the version with three channels up to 13A / channel.

PX815 is a device used to switch architectural illuminators or stage effects via DMX-512 signal.

The module includes relays that control the on / off outputs. Device has a built-in hysteresis system that activates the output after exceeding the value 136 of the DMX signal. The relay is turned off below the value 119. The method of operation is shown in the figure below:




The device is equipped with a DMX signal input and output. It is produced in a housing adapted for mounting on a 35mm DIN rail. The PX815 is designed to operate when connecting different phases to the control connectors. What is more, the device has been equipped with RDM protocol support.

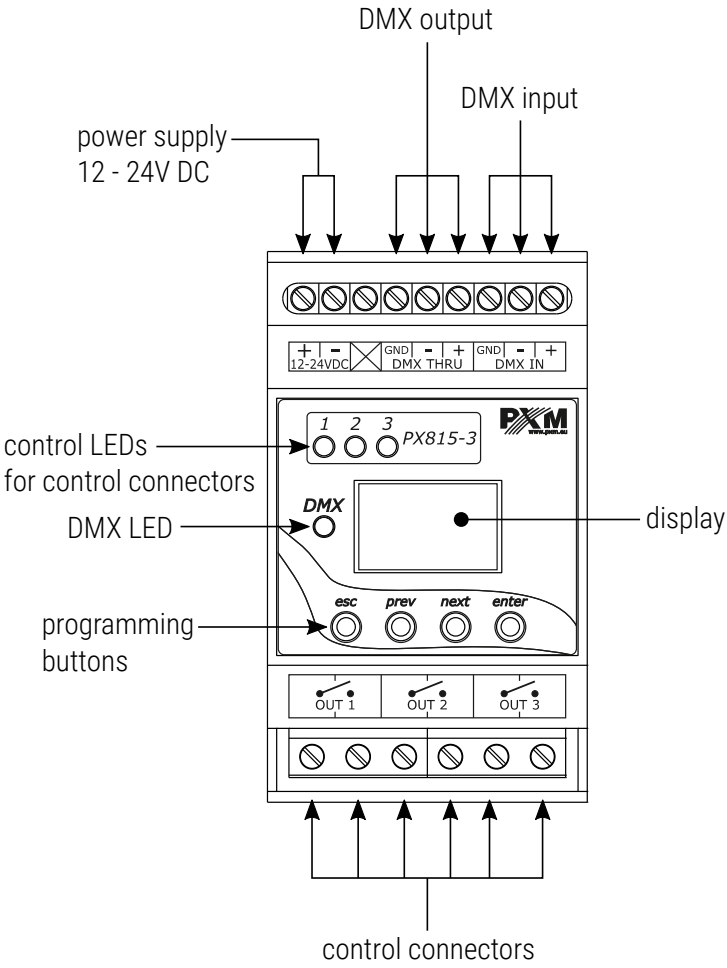
# 2 Safety conditions

PX815 is a device powered by 12 – 24V DC safety voltage, however, during its installation and use 230V AC voltage may be used, which may result in electric shock if the safety rules are not followed. The following rules must be strictly observed:

1. The device may only be connected to 12 – 24V DC with current-carrying capacity compatible with technical data.
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.
4. Connection of DMX signal can only be made with shielded conductor.
5. All repairs and connections of outputs or DMX signal can only be made with cut off power supply.
6. The PX815 should be strictly protected against contact with water and other liquids.
7. To connect the control outputs, use only cables with a cross-section of at least 2.5mm$^2$.
8. All sudden shocks, particularly dropping, should be avoided.
9. Do not connect the device with a damaged (broken) housing to the power supply
10. The device cannot be turned on in places with humidity exceeding 90%.

11. The device cannot be used in places with temperature lower than +2°C or higher than +40°C.
12. Clean with damp duster only – the PX815 must be completely disconnected from the power supply and control connectors at this time.
13. The relays must be protected by a (depending on version) max. 13A or max. 16A type C overcurrent fuses.

# 3 Connectors and control elements




NOTE! The layout of the connectors and LED signaling in the PX815-2 may differ from the version presented in the description of the connectors and control elements above (PX815-3).

# 4 Designation of displayed messages


DMX address of a device – a basic item in the MENU


DMX address setting


no DMX signal response method selection


turning on the output


turning off the output


maintaining the last value before the disappearance of the DMX signal


channel selection


device temperature


the operating temperature has been exceeded


thermistor shorted


missing thermistor or thermistor open


restore default settings on the device


firmware version


serial number

# 5 Device programming

After you switch on the module, its display shows the program version for a brief moment. To access the main menu, press ***enter***, and the display will show ***Adr***. Press ***previous*** or ***next*** to select the appropriate menu and press ***enter*** to confirm your selection.

## 5.1 Button features

***esc*** – causes the exit from the currently programmed parameter without saving the changes or moving to the higher level in the menu

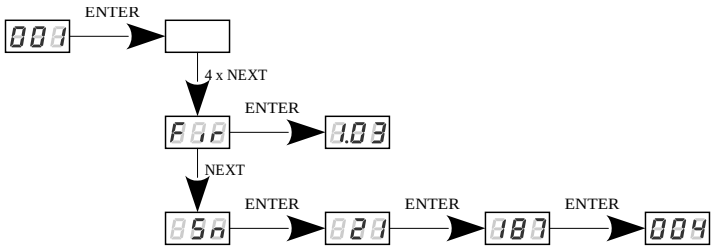
***prev*** – scrolls backwards in the menu or reduces the values to be set

***next*** – scrolls forwards in the menu or increases the values to be set

***enter*** – causes entering the device programming and confirms the set values

## 5.2 Information parameters

PX815 allows to display information on the device's software version and serial number on the device screen.



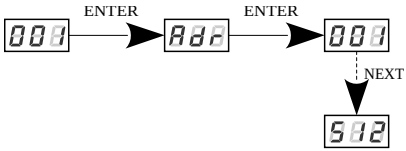

Example serial number: 21 187 004

## 5.3 DMX address

In the PX815 device menu, you can set the DMX address in groups for all output channels at once in the range 1 – 512.

NOTE! If, after setting the address, the channels go beyond the DMX addressing, they will be assigned to channel 512.

With the buttons ***next*** or ***prev*** you can set the DMX address by selecting a value from 1 to 512, and then confirm with the ***enter*** button. The set address will be assigned to the first channel, subsequent DMX addresses will be assigned to the next channels.

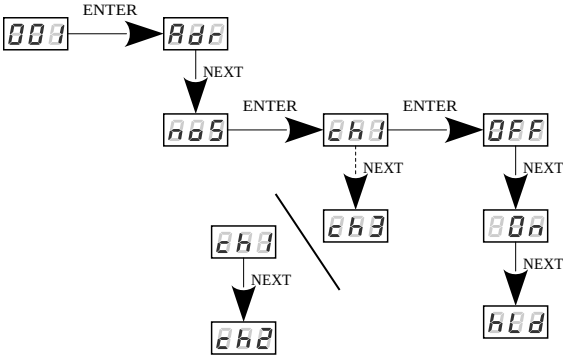



*For example, for the PX815-3 version, setting the DMX 511 address will result in assigning the DMX 511 address to channel 1 and the address 512 to channels 2 and 3.*

## 5.4 No DMX signal response

In the [nOS] menu you can set the reaction of the device to the disappearance of DMX signal for each channel individually. The possible options are:

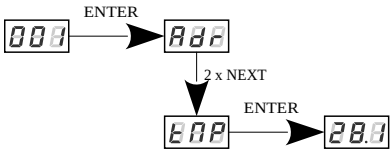
- *OFF* – switching off the channel,
- *On* – switching on the channel,
- *HLD* – maintenance of the last DMX values.




PX815-2 version

## 5.5 Temperature limitation

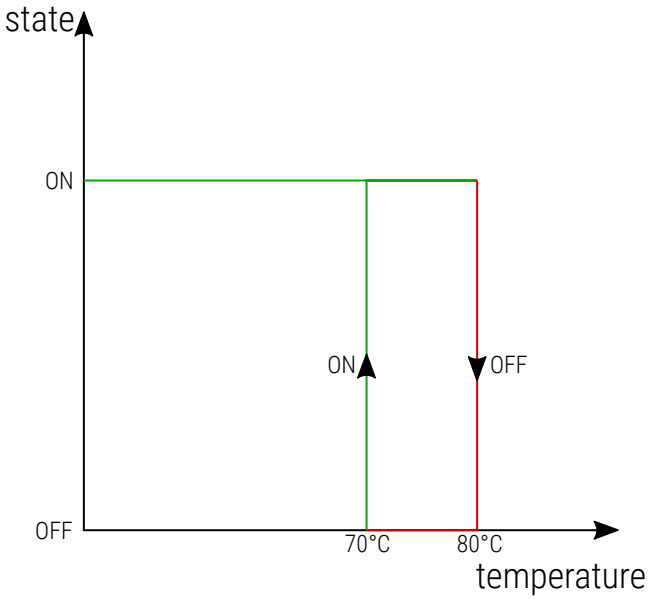
You can read the device temperature in the tEMP menu. The value is expressed in [°C].




The device has implemented switching off the device after exceeding the temperature of +80°C. Reactivation will take place after the device cools down to the temperature of +70°C.

If the temperature is exceeded, the screen alternately displays the DMX address and the HOt message, and the LEDs of the control connectors blink.

The operation of this function is shown in the diagram below:



## 5.6 Default settings and device errors

If you have any difficulty accessing the device menu, e.g. it is not possible to enter a particular menu level or it is necessary to restore the device to its default settings, follow the instructions below.

In the first case, when a particular menu level cannot be accessed or menu items are displayed incorrectly, this may indicate that a saving-in-memory error has occurred. In such a case, try to restore the device to its default settings before sending the PX815 to the service center. If, after restoring to its default settings, the device still does not operate correctly, please send it to our service center.

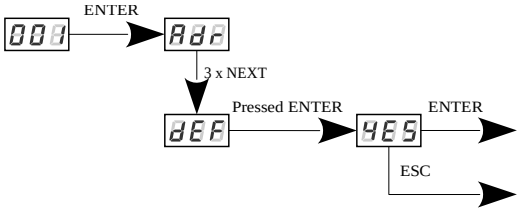
Temperature measurement error messages:

- SHE – thermistor shorted
- nIS – missing thermistor or thermistor open

NOTE! The SHE and nIS messages appear in the tAP temperature readout menu. If the above messages are displayed, send the device to the service center.

### 5.6.1 Restore default settings

In order to restore the settings to default, go to the menu dEF and hold the ***enter*** button for about 2 seconds. Then a message will appear YES – pressing the ***enter*** button will restore the default settings, and pressing the esc button will cancel the factory reset.




After restoring to default settings, the settings will be changed to:

- DMX address: 1
- no signal mode: off (all channels)

# 6 Button control

The combination of the ***esc*** (pressed) + ***next*** / ***prev*** / ***enter*** (1 x click) buttons allows to activate buttons or deactivate control channels.

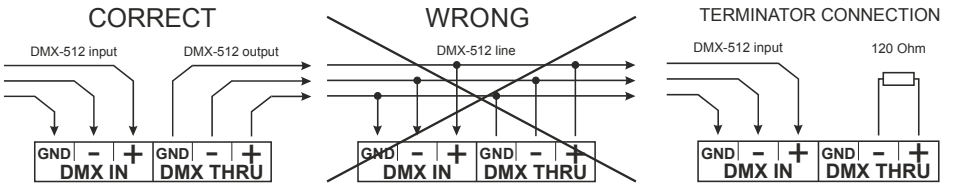
***esc*** + ***prev*** – enable or disable channel 1
***esc*** + ***next*** – enable or disable channel 2
***esc*** + ***enter*** – enable or disable channel 3

NOTE! In PX815-2, the ***esc*** + ***enter*** key combination is not used.

# 7 DMX signal connecting

PX815 have to be connected to DMX line in serial mode, with no branches on DMX control cable. That means the DMX line, from the signal source, must be connected to ***DMX IN*** pins of PX815 and later, directly from ***DMX THRU*** pins to the next device in DMX chain.

If the PX815 is the last DMX chain receiver there should be terminator (resistor 120 Ohm) mounted between "***+***" and "***-***" pins of ***DMX THRU*** section.




# 8 RDM – available parameters

The PX815 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.

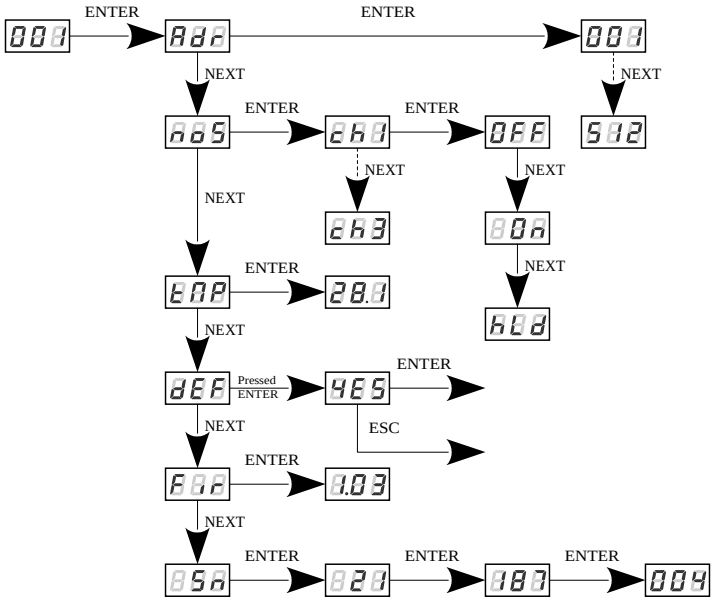
List of RDM parameters supported by the PX815:

| 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_ADDRESS * | 0x00F0 | DMX starting address of the device; Range 1 – 512 |
| IDENTIFY * | 0x1000 | device identification; Two states are possible: identification is off (0x00 value) and identification is on (0x01 value). |
| DEV_MODEL_DESC | 0x0080 | device description, e.g. name |
| MANUFACTURER_LABEL | 0x0081 | manufacturer description, e.g. name |
| DEVICE_LABEL * | 0x0082 | additional device description; It is possible to enter an additional device description using up to 32 ASCII characters. |
| FACTORY_DEFAULTS | 0x0090 | device default settings |
| PERSONALITY | 0x00E0 | DMX operational mode |
| PERSONALITY_ DESCRIPTION | 0x00E1 | description of individual operational modes |
| SENSOR_DEFINITION | 0x0200 | information on the selected temperature sensor |
| SENSOR_VALUE | 0x0201 | information on sensors |

| Parameter name | PiD | Description |
|---|---|---|
| NOS1_OFF/ON/HLD * | 0x801D | setting the reaction to the disappearance of DMX signal |
| NOS2_OFF/ON/HLD * | 0x801E | setting the reaction to the disappearance of DMX signal (only in 2 and 3-channel version) |
| NOS3_OFF/ON/HLD * | 0x801F | setting the reaction to the disappearance of DMX signal (only in 3-channel version) |
| SERIAL_NUMBER * | 0x8030 | device serial number |

* - editable parameter

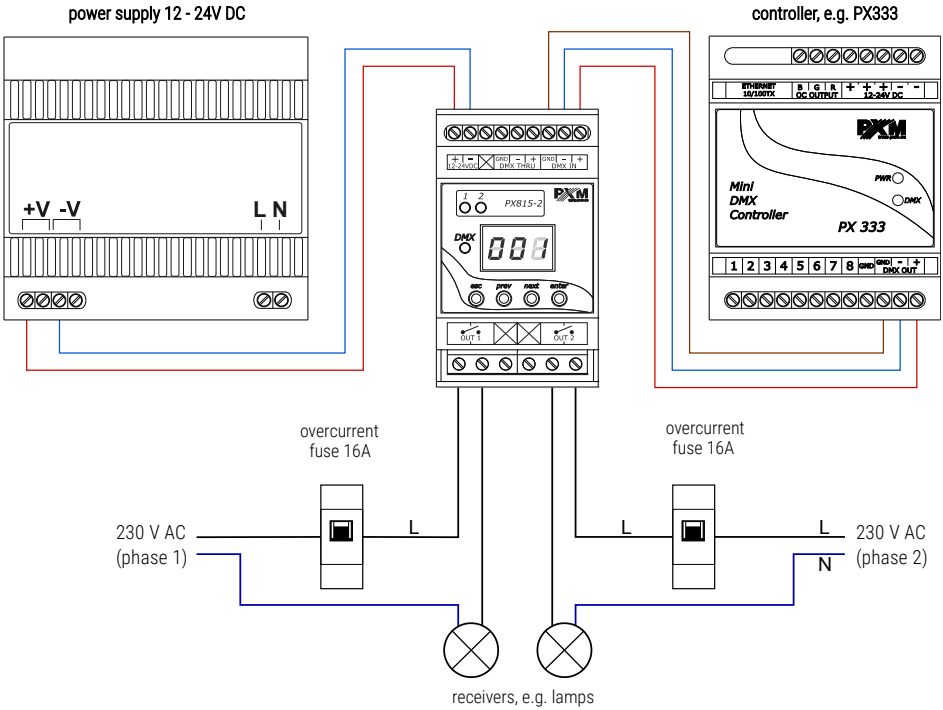
# 9 Programming




Example serial number: 21 187 004

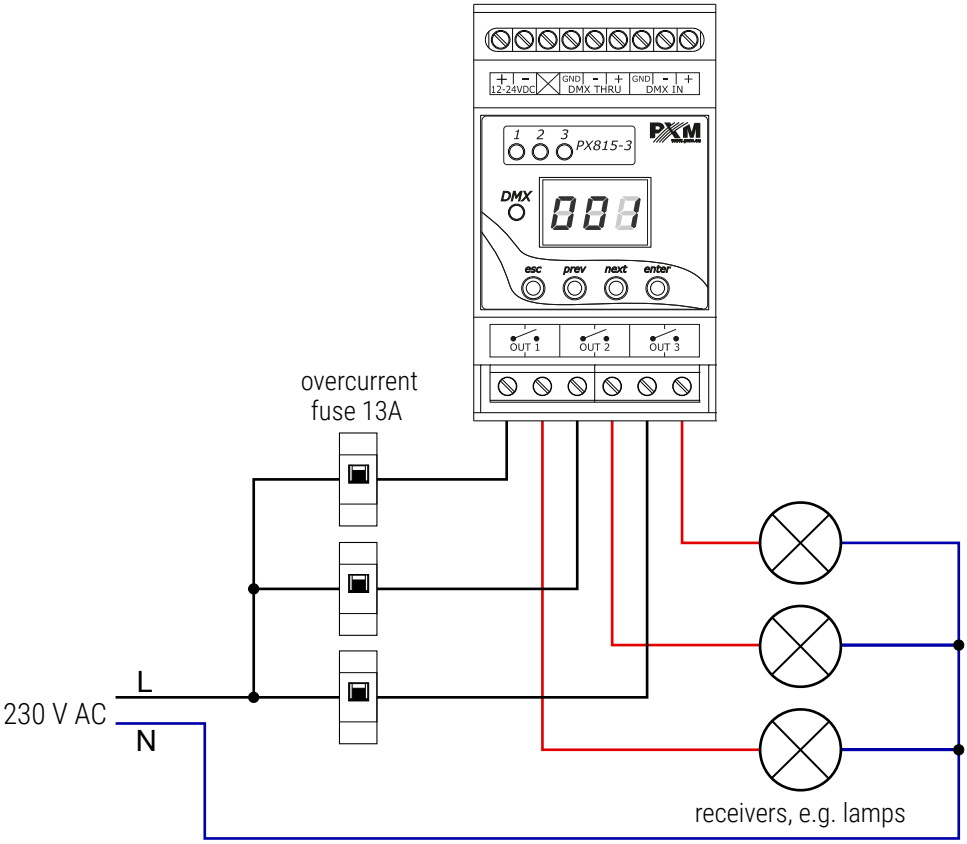
# 10 Connection scheme

a) connecting device with power supply, DMX controller and outputs with different phases




NOTE! The layout of the connectors and LED signaling in PX815-3 may differ from the version shown in the example connection diagram above (PX815-2).

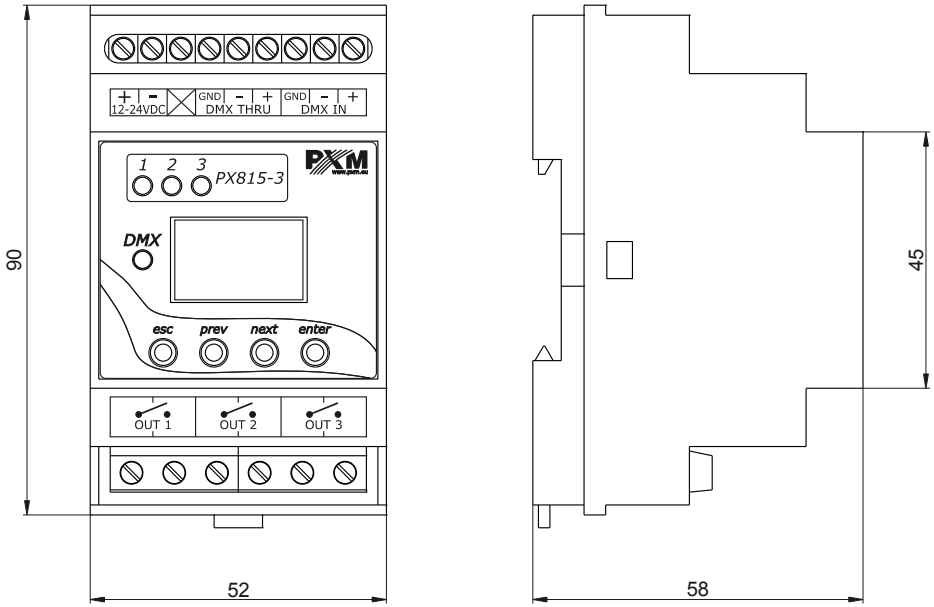
## b) connecting device with outputs with one phase




NOTE! The layout of the connectors and LED signaling in PX815-2 may differ from the version shown in the example connection diagram above (PX815-3).

NOTE! A time interval of ~100ms has been implemented between the switching on of successive outputs.

# 11 Dimensions




NOTE! The layout of the connectors and LED signaling in PX815-2 may differ from the version shown in the technical drawing above (PX815-3).

# 12 Technical data

| | |
|---|---|
| type | PX815-2<br>PX815-3 |
| DMX channels | 512 |
| RDM protocol support | yes |
| power supply | 12 – 24V DC |
| power consumption without load | max. 2W |
| number of output channels | PX815-2: 2<br>PX815-3: 3 |
| output load | PX815-2: 16A / channel<br>PX815-3: 13A / channel |
| relay voltage | max. 240V AC |
| loss of power | PX815-2: 0.5W / channel<br>PX815-3: 0.8W / channel |
| maximum inrush current | 500A / 2ms |
| output connections | screw terminal |
| weight | 0.2kg |
| dimensions | width: 52mm<br>height: 90mm<br>depth: 58mm |

Podłęże, 20.05.2021

# DECLARATION OF CONFORMITY

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

we declare that our product:

| | |
|---|---|
| *Product name:* | DMX/Relay Interface 2ch<br>DMX/Relay Interface 3ch |
| *Product code:* | PX815-2<br>PX815-3 |

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

| | |
|---|---|
| PN-EN IEC 63000:2019-01 | EN IEC 63000:2018 |
| 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.

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mgr inż. Marek Żupnik.