PX359

DMX – RS232 Interface

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

PX359 is a device to convert the DMX signal into the appropriate commands sent with the use of RS-232.

The device is equipped with two independent buses RD-232, which various commands can be sent to. DMX – RS232 Interface is programmed with the use of the web interface without the need to install additional software and controllers.

In addition, the device supports the RDM protocol, by means of which you can set parameters such as the IP address.

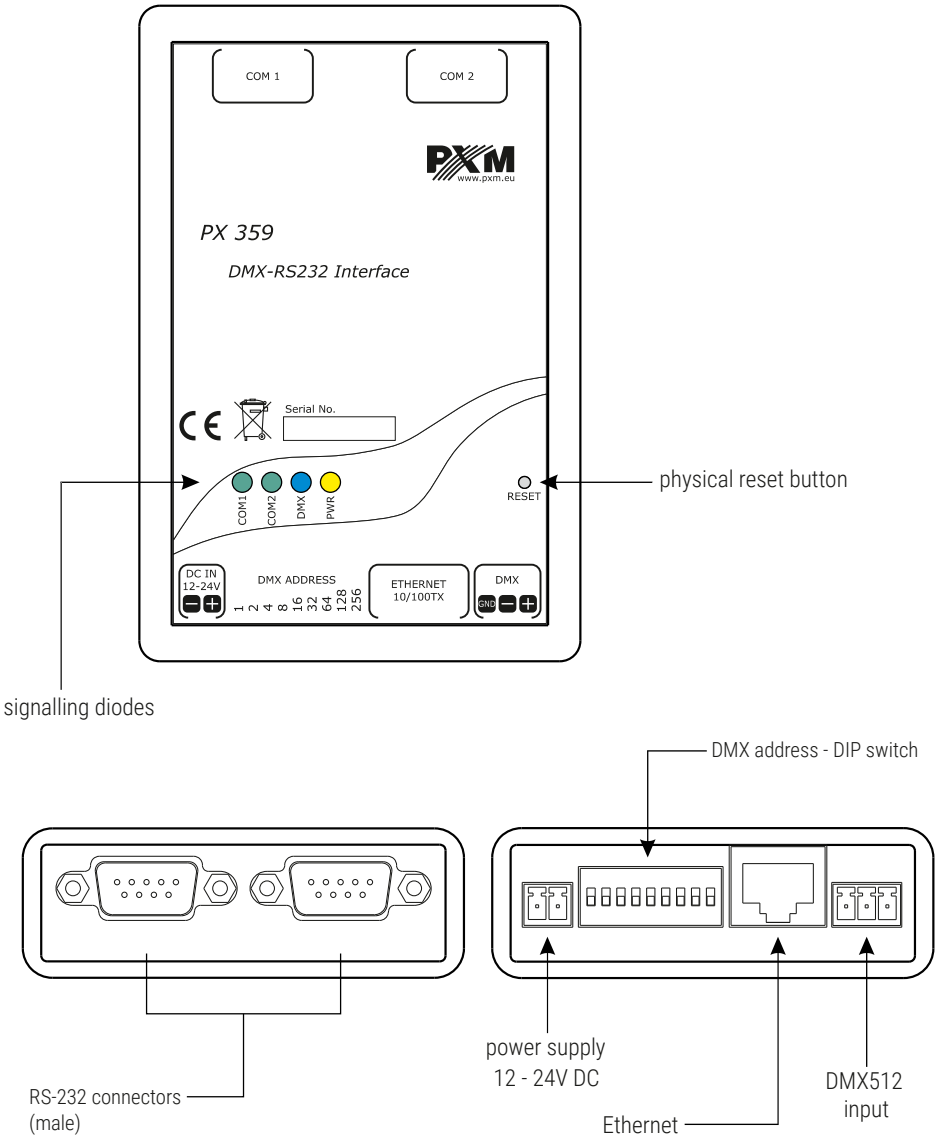
2 Safety conditions

PX359 is a device powered with safe voltage 12 – 24V DC; however, during its installation and use the following rules must be strictly observed:

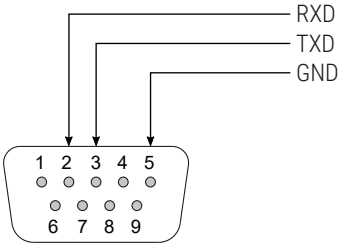
1. The device may only be connected to 12 – 24V DC with current-carrying capacity compatible with technical data.
2. All the conductors should be protected against mechanical and thermal damage.
3. In the event of damaging any conductor, it should be replaced with a conductor of the same technical data.
4. Connection of DMX signal can only be made with shielded conductor.
5. All repairs and connections of DMX signal can only be made with cut off power supply.

6. The PX359 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 Connectors and control elements



Description of the output pins:



4 Operation the device

4.1 Indication light

PX359 is equipped with 2 indicator signaling:

Indicator	Action	Function
yellow Power	permanently on	the device is switched on
blue DMX	flashing	device revives DMX signal
	is off	device not revives DMX signal
green COM 1	flashing	command is send on the first RS-232 line
green COM 2	flashing	command is send on the second RS-232 line

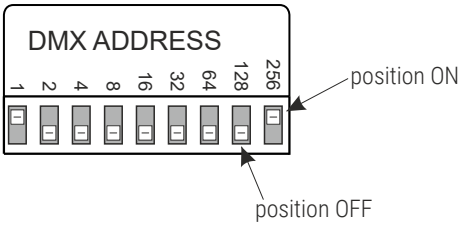
4.2 Reset button

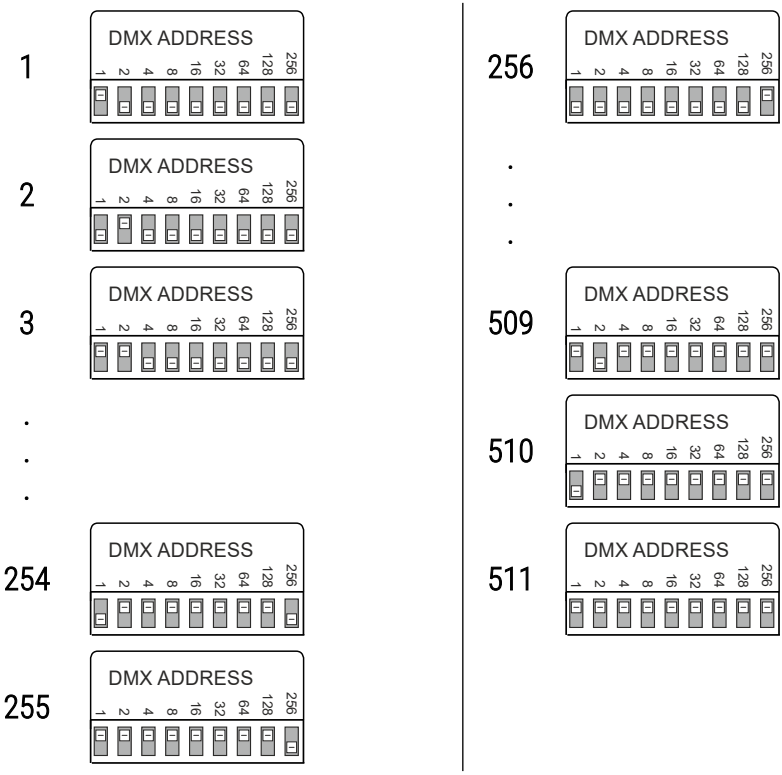
On the housing of the device there is a *reset* button, which works as follows:

- *short press* – restart the device,
- *press for longer time* (over 10 seconds) – restoration of default settings, it will be signaled by lighting up all the LEDs one after another.

4.3 DMX address switch – DIP Switch

PX359 allows to set the DMX address using the DIP Switch in binary code. It can be edited via the website or RDM protocol. The following page shows an example of DMX address settings.





NOTE! If the value 0 is set on the DIP Switch, the device takes the DMX address stored in the memory.

5 Configuration of the device

The PX359 device allows to configure network settings, DMX address, settings of the RS-232 signal and make list of commands sent from the device.

All the parameters can be configured by the web interface. Some parameters can also be set with the use of the RDM protocol.

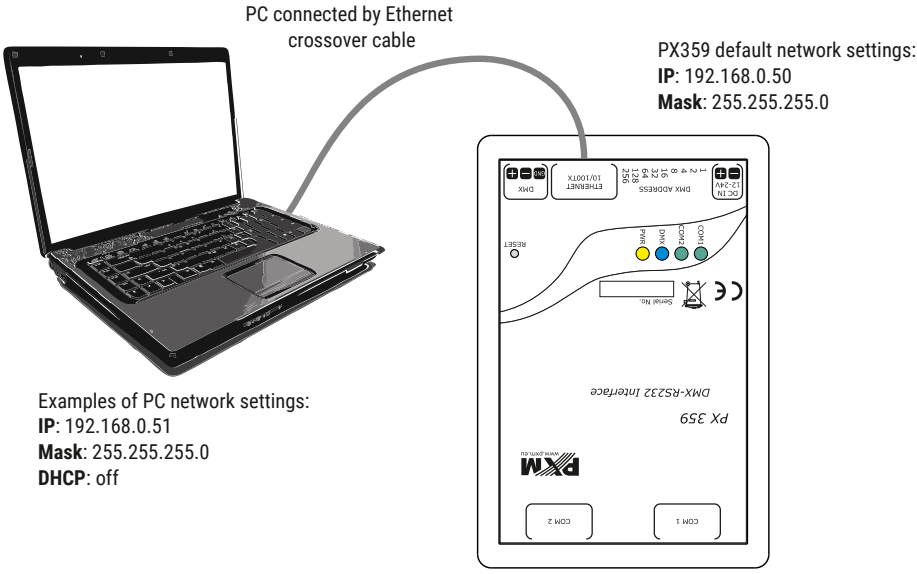
5.1 Web interface

To configure the device with a browser, enter the current IP address of the device in it. The computer and the device must be on the same subnet.

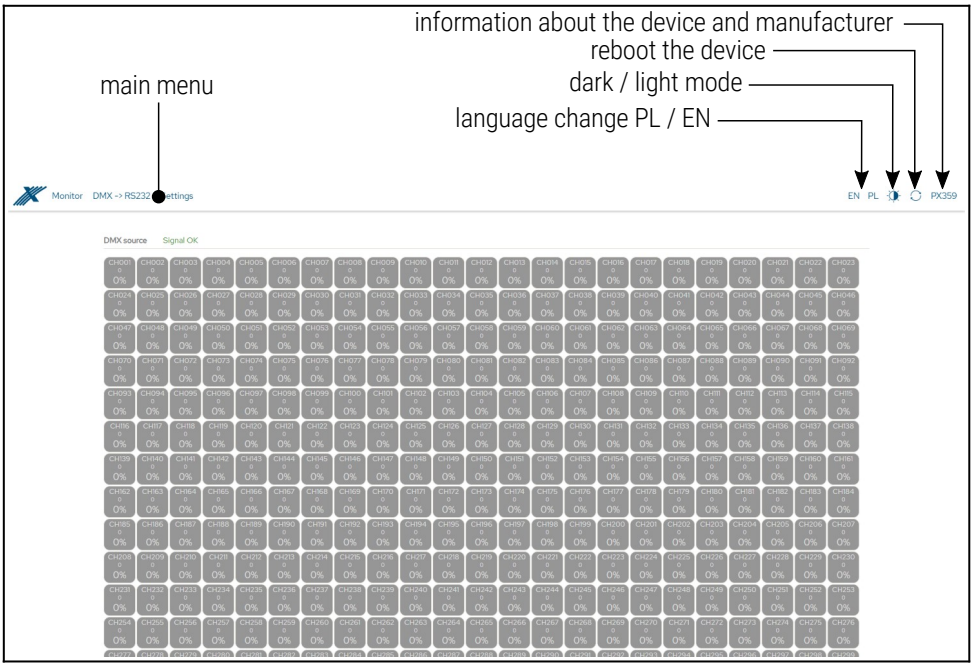
Default IP address in PX359:

192.168.0.50

If several PX359 devices are connected to one network, their IP addresses should be changed individually to avoid network conflict.



5.2 WWW window structure

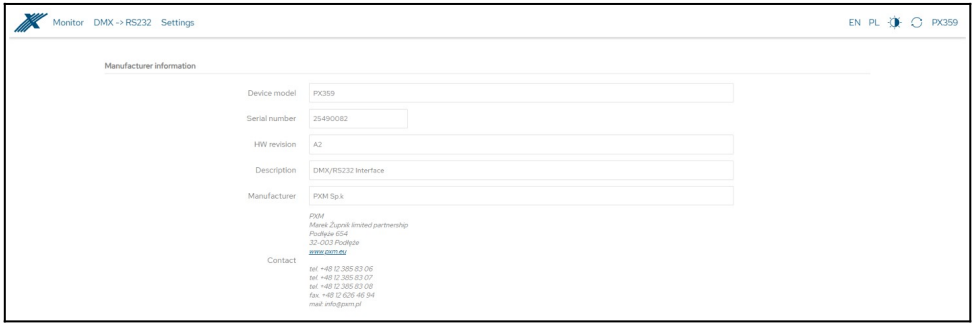


The following tabs are available in the *main menu*:

- ***Monitor*** – graphical representation of all DMX input channels and logs of commands sent to COM port 1 and 2,
- ***DMX -> RS232*** – a table containing user-defined commands and their parameters,
- ***Settings*** – used to locally change the device name, network settings, output port settings, DMX address, configuration management, software updates and device PIN protection.

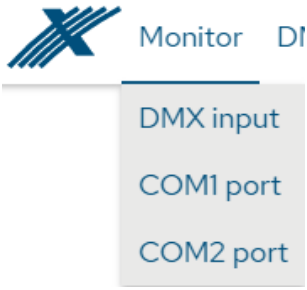
In the upper right corner you will find the following options:

- change of language (EN / PL),
- dark / light mode switch,
- restarting the device,
- information about the device and manufacturer:



5.3 Monitor

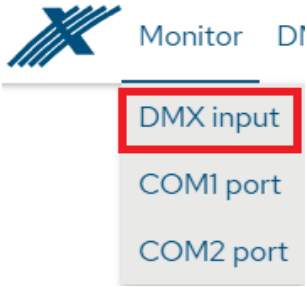
After entering the device's website, the first tab is the *Monitor* tab. This tab displays the DMX input channel values and logs of commands sent to output ports 1 and 2.



5.3.1 DMX input

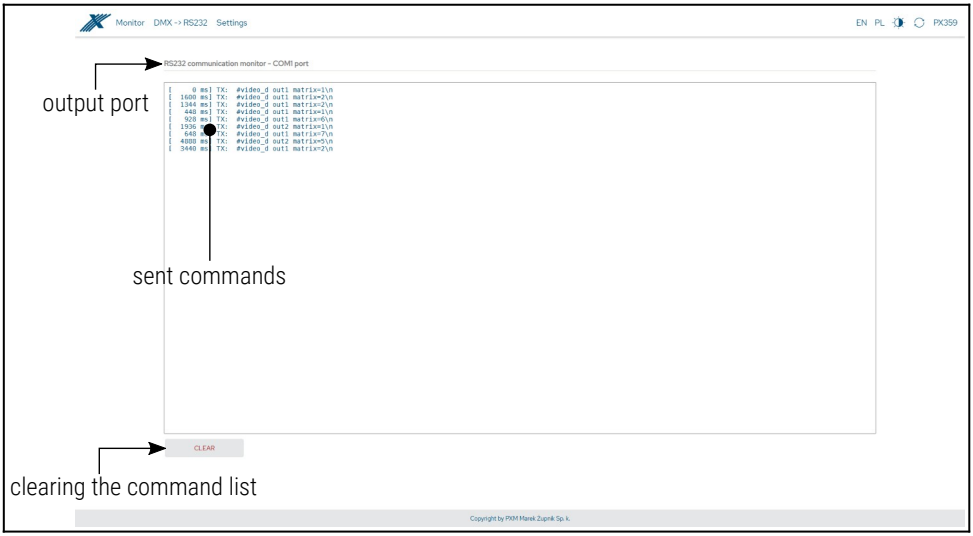
Readable parameters:

- DMX line status (*Signal OK* / *No signal*).



5.3.2 COM1 port / COM2 port

The user can check the logs of commands sent to individual output ports.



NOTE! Logs are saved only during the web session and disappear after refreshing the page.

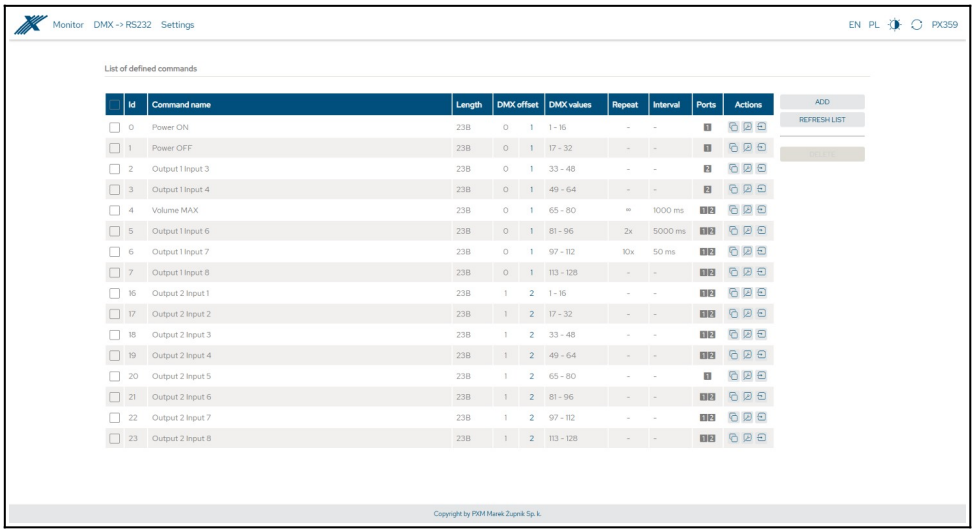
Example command: [1168 ms] TX: #video_d out1 matrix=5\n

- time elapsed since the last command was sent,
- *Transmit*, information that the command has been sent,
- command that was sent on a given COM port.

5.4 DMX -> RS232

The *DMX -> RS232* tab contains a table of all user-defined commands. The user can assign more than one command to a single DMX address. Commands on a single DMX address can have overlapping values (e.g., 10 – 50 / 20 – 50). If commands on the same address have the same trigger level (e.g., 1 – 128 / 1 – 50), the command higher on the list will be sent first, and subsequent commands will be sent every 20ms.

NOTE! Added commands cannot be moved on the list, the order in which they are added is decisive.



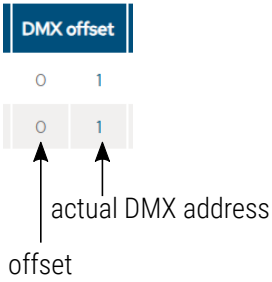
Buttons on the right:

- ***Add*** – adds a new command to the end of the list,
- ***Refresh list*** – refreshing the list of commands – it will sort them by ***Id*** number,
- ***Delete*** – deletes selected commands.

Command table:

- ***Id*** – individual command number,
- ***Command name*** – a string of characters allowing the user to easily identify the command. It can consist of up to 64 characters. It can be edited from the table or command configuration level.
- ***Length*** – automatically calculated command size given in bytes [B],

- ***DMX offset*** – the DMX channel number relative to the current device address, at which a specific level will trigger a command. On the left is the offset value, and on the right is the actual DMX address calculated based on the base address and offset.



Example of offset application:

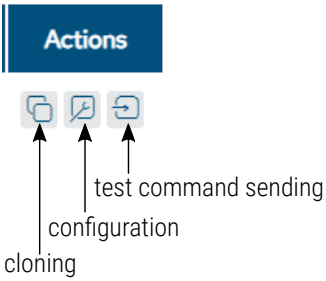
Base address: 5

Offset: 3

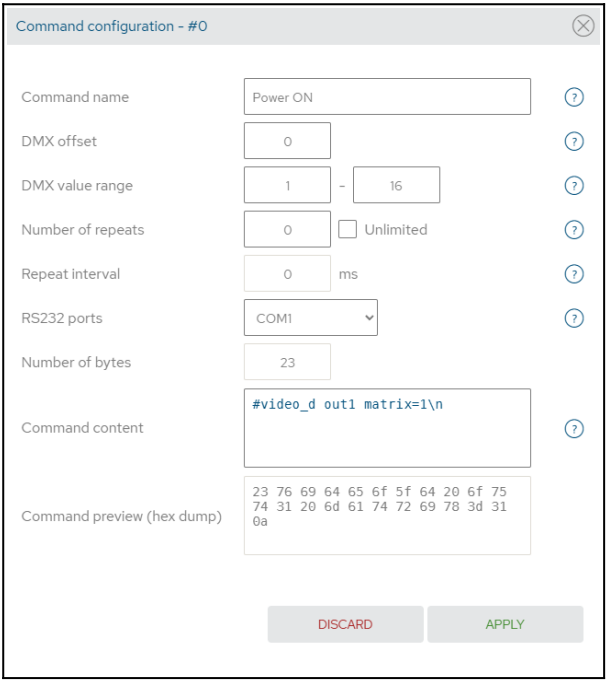
The command will be sent in response to the value on DMX channel 8.

- ***DMX values*** – the range within which the value on the DMX channel must be in order for the command to be sent,
- ***Repeat*** – the command can be sent only once or x times (or indefinitely) at the time specified in ***Interval***,
- ***Interval*** – the time at which the command is to be repeated – as many times as defined in ***Repeat***,
- ***Ports*** – this option allows you to select which RS-232 bus a given command should be sent to (1 / 2 / 1 and 2),

- *Actions* – the user can clone the command (it will be added at the end), go to configuration or send a test command.



5.4.1 Command configuration



- *Command name* – a string of characters allowing the user to easily identify the command, can consist of a maximum of 64 characters.

- *DMX offset* – DMX channel number relative to the current device address, at which the appropriate level will trigger the transmission of a command.
- *DMX value range* – the range within which the value on the DMX channel must be in order for the command to be sent,
- *Number of repeats* – how many times the command should be repeated as long as the DMX channel value remains within the defined range:
  - *0* – only once,
  - e.g.: *2* – repeated 3 times, because in addition to the basic sending of the command, it will be sent 2 more times,
  - *Unlimited* – the command will be sent continuously at specified time intervals as long as the DMX channel value remains within the defined range.
- *Repeat interval* – time at which the command should be repeated,
- *RS232 ports* – this option allows you to select which RS-232 bus a given command should be sent to:
  - *N/A* – on none,
  - *COM1* – port no. 1,
  - *COM2* – port no. 2,
  - *COM1 + COM2* – ports 1 and 2,
- *Number of bytes* – automatically calculated command size given in bytes [B],

- *Command content* – a string of characters that will be sent as a command on the RS-232 bus. This value can be entered using ASCII characters (max. 64 ASCII characters).
    - Allowed ASCII printable characters and escape sequences:
        - \r – carriage return,
        - \n – new line,
        - \t – tab,
        - \\ – backslash,
        - \0 – NUL character,
        - \xHH – any byte with the hexadecimal value HH,

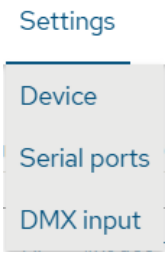
NOTE! Newline characters do not need to be written as \n.

- *Command preview (hex dump)* – command preview in HEX.

5.5 Settings

In this tab the user can:

- change device settings such as network settings, PIN code, export/import configuration,
- change serial port settings (RS-232),
- change DMX address.



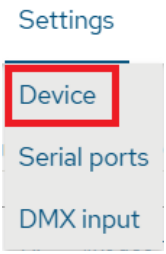
5.5.1 Device

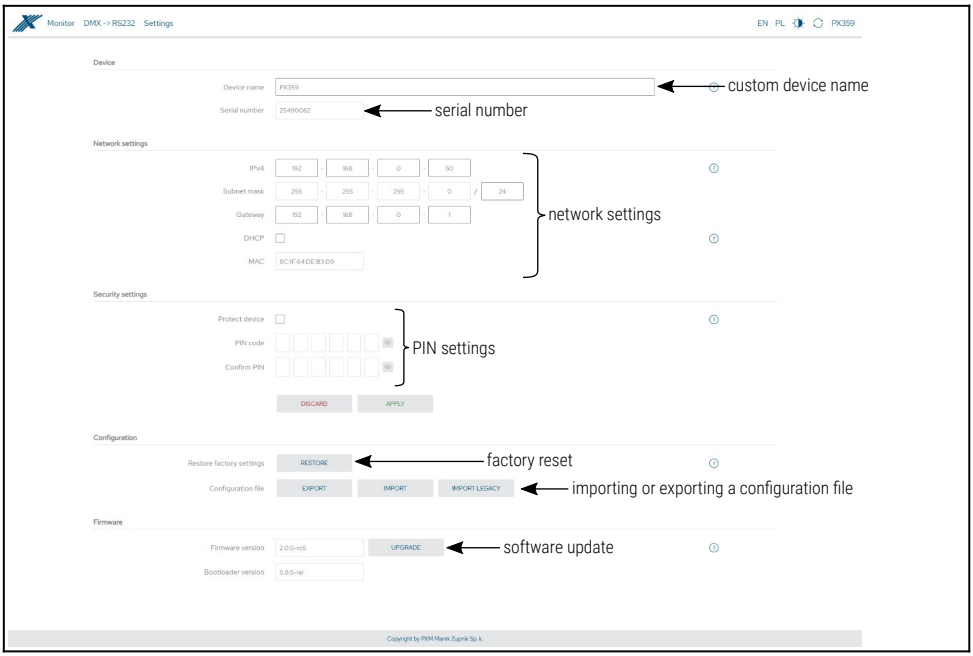
In this tab the user can:

- change the device name (locally saved),
- change network settings,
- set device security (PIN code),
- restore factory settings,
- export and import settings to and from a file,

NOTE! Import legacy means importing a configuration file created in a version lower than 2.x.x.

- update software.





Available options:

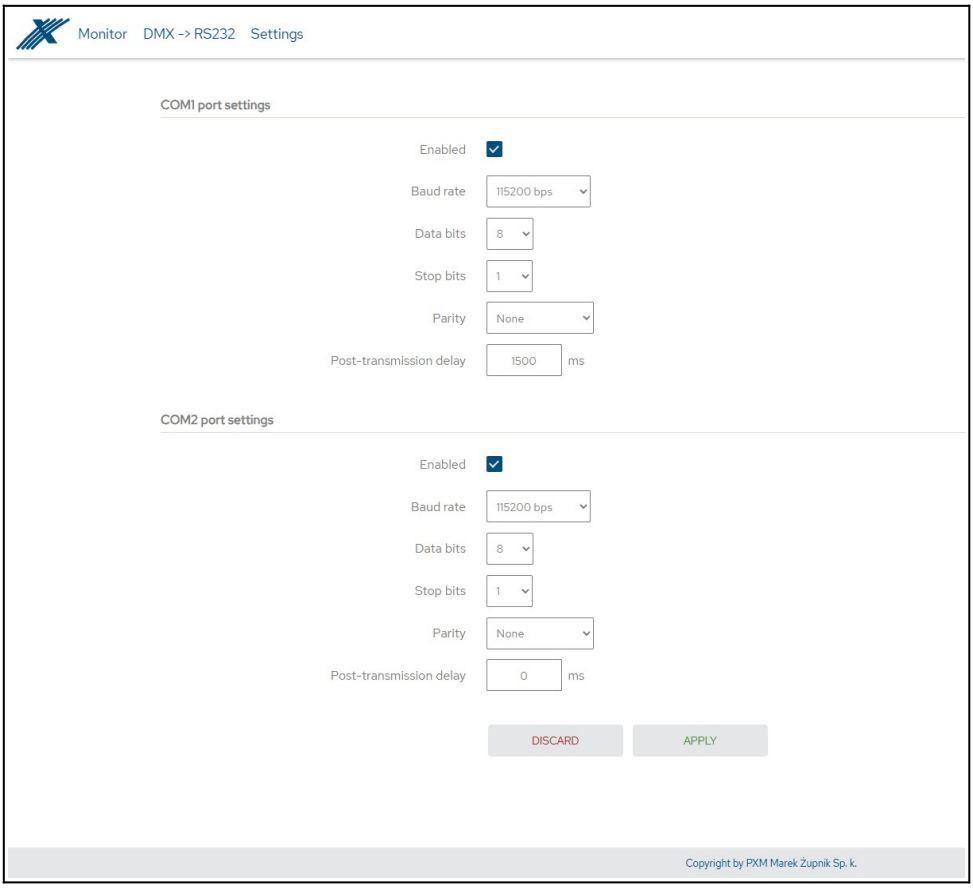
- *Device name* – custom device name set by the user,
- *Serial number*,
- *IPv4* – setting the IP address,
- *Subnet mask* – setting the subnet mask,
- *Gateway* – setting the default gateway,
- *DHCP* – enabling or disabling DHCP support,

  NOTE! After making changes to the network settings, you must restart the device (↻ button).
- *MAC* – individual MAC address of the network card,
- *Protect device* – the user can protect the device with a PIN code (6 digits), after activating the security, the PIN code will be required to be entered on the website,

- *Factory settings*:
  - **Device name**: PX359
  - **IPv4**: 192.168.0.50
  - **Gateway**: 192.168.0.1
  - **Subnet mask**: 255.255.255.0
  - **DHCP:** disabled
  - **DMX base address**: 1 (unless the DIP Switch is set)
  - **Minimum value duration**: 0 ms
  - **COM$_n$ Baud rate**: 115200 bps
  - **COM$_n$ Data bits**: 8
  - **COM$_n$ Stop bits**: 1
  - **COM$_n$ Parity**: None
  - **COM$_n$ Post-transmission delay:** 1500 ms

5.5.2 Serial ports

This tab allows you to set parameters independently for both RS-232 buses.



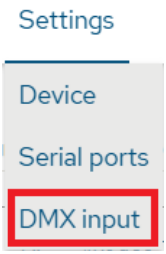
The user can:

- enable/disable COM port,
- set **Baud rate** [bps]:
  - 1200 bps,
  - 2400 bps,
  - 4800 bps,
  - 9600 bps,
  - 14400 bps,

    - 19200 bps,
    - 28800 bps,
    - 38400 bps,
    - 57600 bps,
    - 115200 bps,
    - 230400 bps,
- set **Data bits**:
    - 8,
- set **Stop bits**:
    - 1,
    - 2,
- set **Parity**:
    - None,
    - Even (EVEN),
    - Odd (ODD),
- set the **Post-transmission delay** after sending the command.

NOTE! The parameters must match the settings on the receiving device.

5.5.3 DMX input



The DMX Input tab displays the device's ***Current DMX address***. Above you can see a preview of the ***Hardware address switch*** (DIP Switch) and editable parameters:

- ***Base DMX address*** – DMX address of the device, when the DIP Switch is set to 0, the DMX address can be set in the range of 1 – 512,
- ***Minimum value duration*** – minimum level duration on the DMX channel (assigned to the selected command) necessary to trigger the RS-232 command.

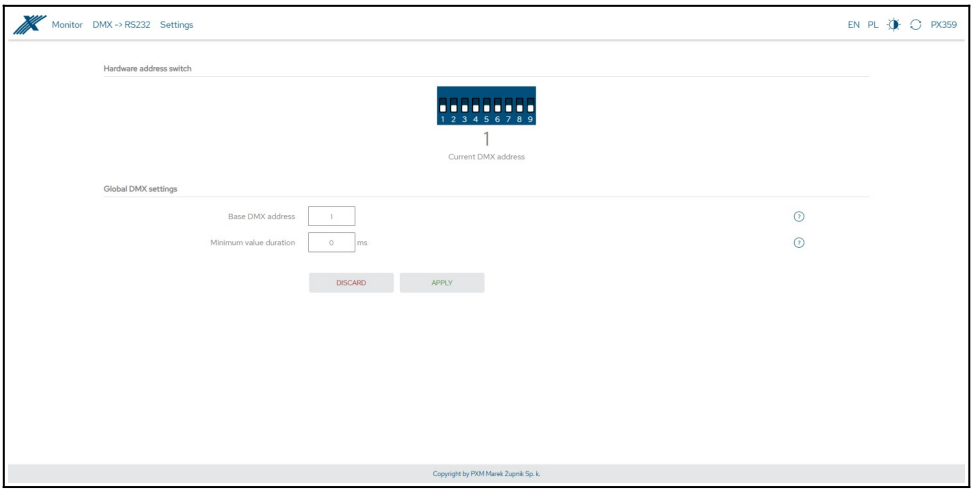
Example 1:

- *DIP Switch: 0*
- *Base DMX address: 25*
- *Current DMX address: 25*

Example 2:

- *DIP Switch: 7*
- *Base DMX address: 25*
- *Current DMX address: 7*

NOTE! The ***Base DMX Address*** parameter has a lower priority than the value on the DIP Switch, so in order for the device to accept this parameter as the current DMX address, you must make sure that the address on the DIP Switch is set to 0.



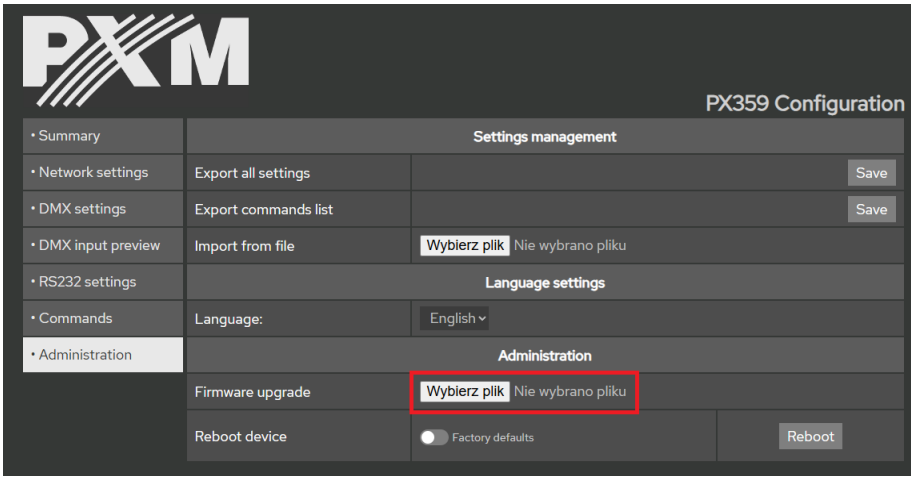
6 Update to version 2.0.0

If version 1.x.x is installed on the device, the user can perform the software update procedure to version 2.x.x.

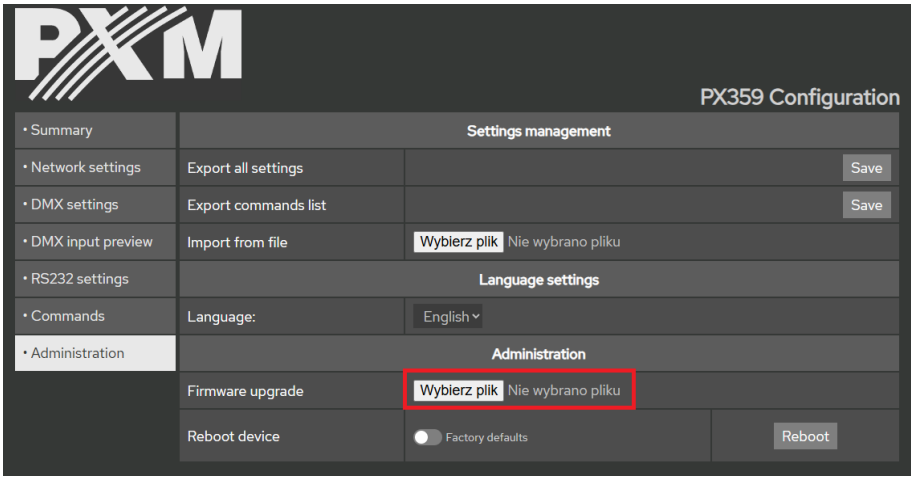
NOTE! After upgrading to version 2.x.x, all data on the device will be deleted. It is recommended to back up all settings – version 2.x.x supports configuration files from older versions.

To update the software from version 1.x.x to version 2.x.x:

1. Download the file with software version 1.6.1 from the manufacturer's website.
2. Upgrade to version 1.6.1.



3. Download the file with software version 2.x.x FULL from the manufacturer's website.
4. Upgrade to version 2.x.x FULL.



7 RDM – available parameters

The PX359 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.

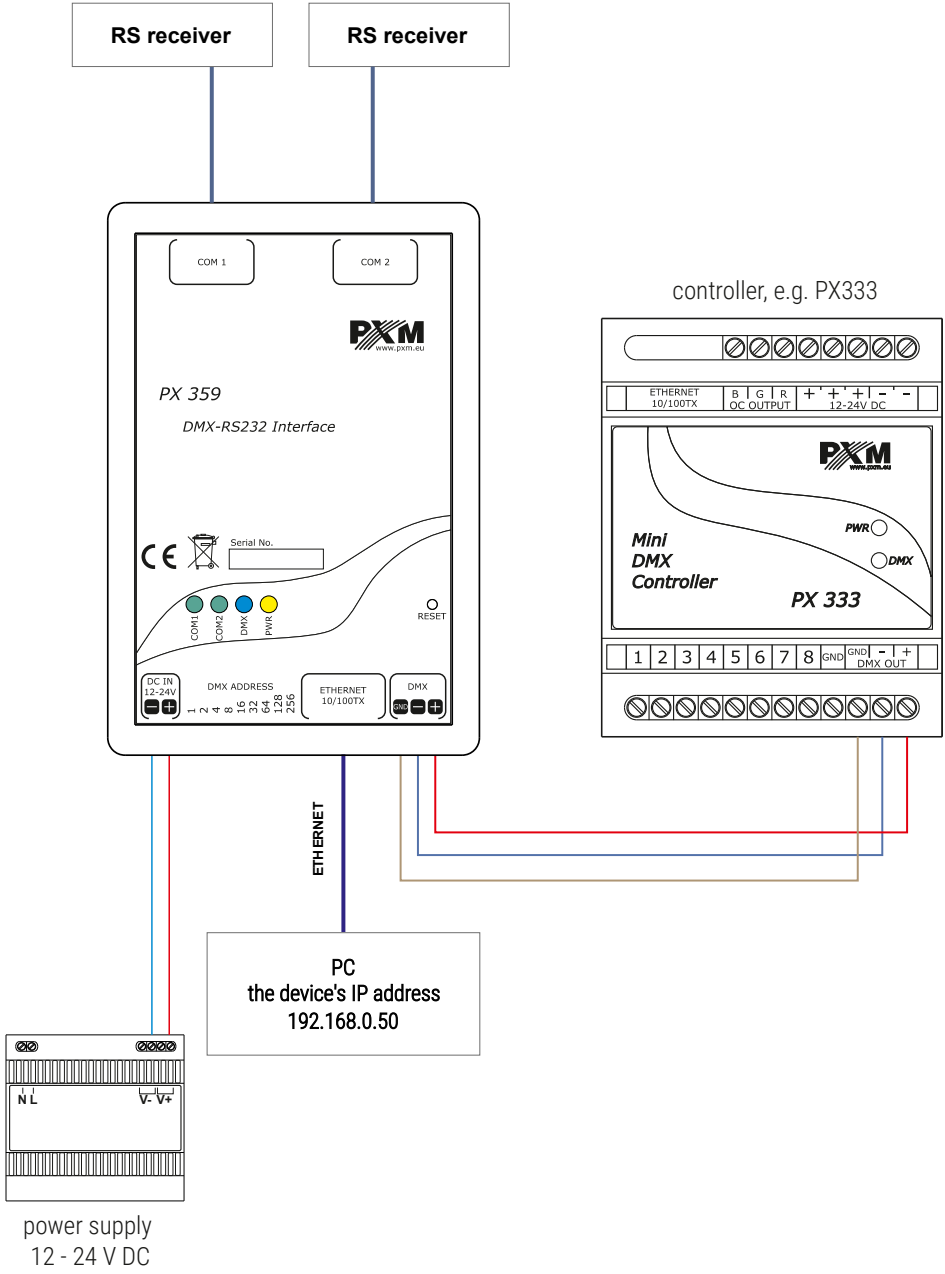
List of supported RDM parameters by PX359:

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; Range 1 – 512
IDENTIFY_DEVICE *	0x1000	device identification; Two states are possible: identification disabled (value 0x00) and identification enabled (value 0x01)
DEVICE_MODEL_ DESCRIPTION	0x0080	device description, e.g. name
MANUFACTURER_LABEL	0x0081	manufacturer description, e.g. name
DEVICE_LABEL *	0x0082	additional device description; Up to 32 ASCII characters
FACTORY_DEFAULTS	0x0090	device default settings
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

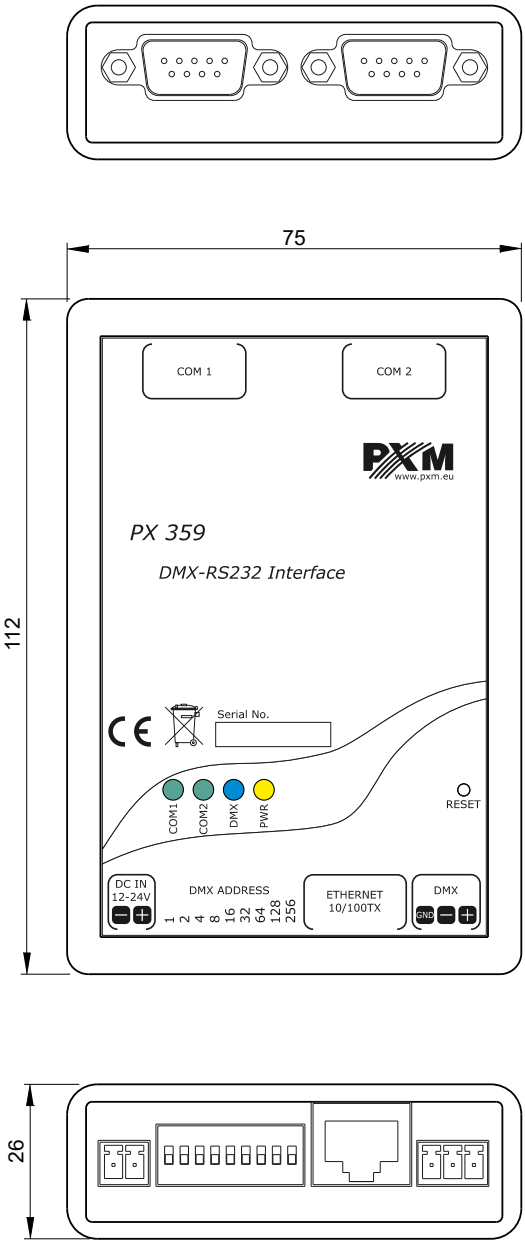
Parameter name	PiD	Description
DEVICE_HOURS	0x0400	information concerning the working time counted in hours
DEVICE_POWER_CYCLES	0x0405	number of power cycles
RESET_DEVICE	0x1001	restart the device
RDM_EXT_DEVICE_UPTIME	0x8000	time in seconds since last run
RDM_EXT_DEVICE_SERIAL	0x8010	device serial number
RDM_EXT_DEVICE_NET_IPV4 *	0x8080	IP address
RDM_EXT_DEVICE_NET_ GATEWAY *	0x8081	gateway
RDM_EXT_DEVICE_NET_ MASK *	0x8082	mask
RDM_EXT_DEVICE_NET_MAC *	0x8083	device MAC address
RDM_EXT_DEVICE_ HARDSWITCH *	0x8084	DMX address set on the DIP Switch

* - editable parameter

8 Connection scheme



9 Dimensions



10 Technical data

type	PX359
power supply	12 – 24V DC
DMX input	1
RS-232 output	2 x D-Sub (male)
Ethernet connector	1
DHCP	yes*
RDM protocol support	yes
connectors	screw terminals
power consumption	max. 1W
weight	0.1kg
dimensions	width: 75mm height: 112mm depth: 26mm

* – DHCP is supported from software version 2.x.x.

Podłęże, 03.02.2021

DECLARATION OF CONFORMITY

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

we declare that our product:

Product name:	DMX – RS232 Interface
Product code:	PX359

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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32-003 Podłęże, Podłęże 654
NIP 677-002-54-53

mgr inż. Marek Żupnik.