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.

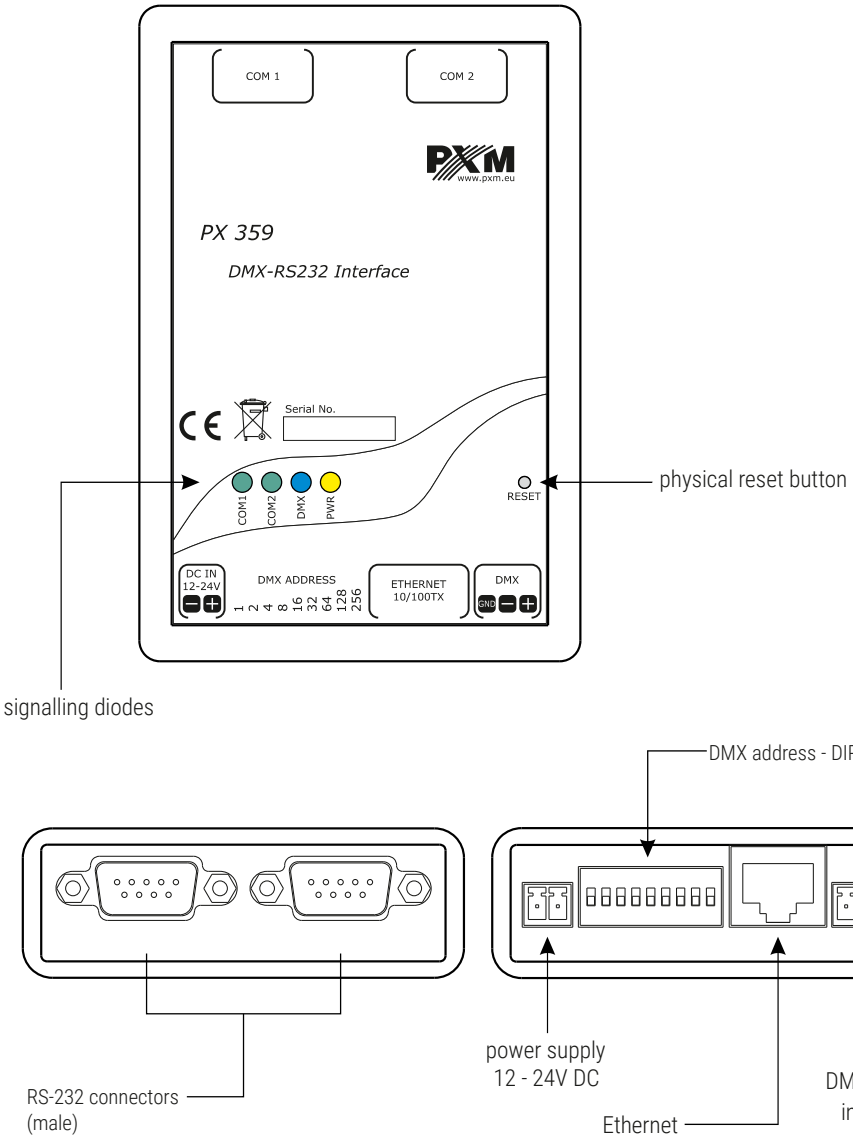
2 Safety conditions

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

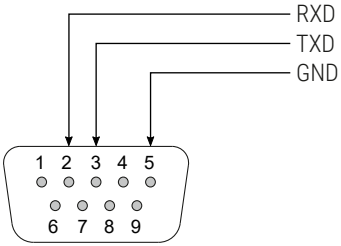
1. The device may only be connected to 12 – 24V DC with current-carrying capacity compatible with technical data.
2. All the conductors should be protected against mechanical and thermal damage.
3. In the event of damaging any conductor, it should be replaced with a conductor of the same technical data.
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

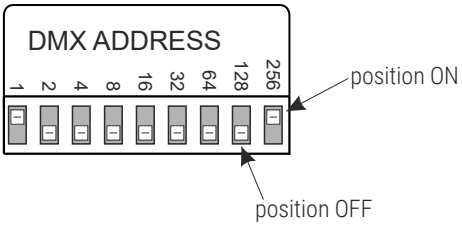
4.2 Reset button

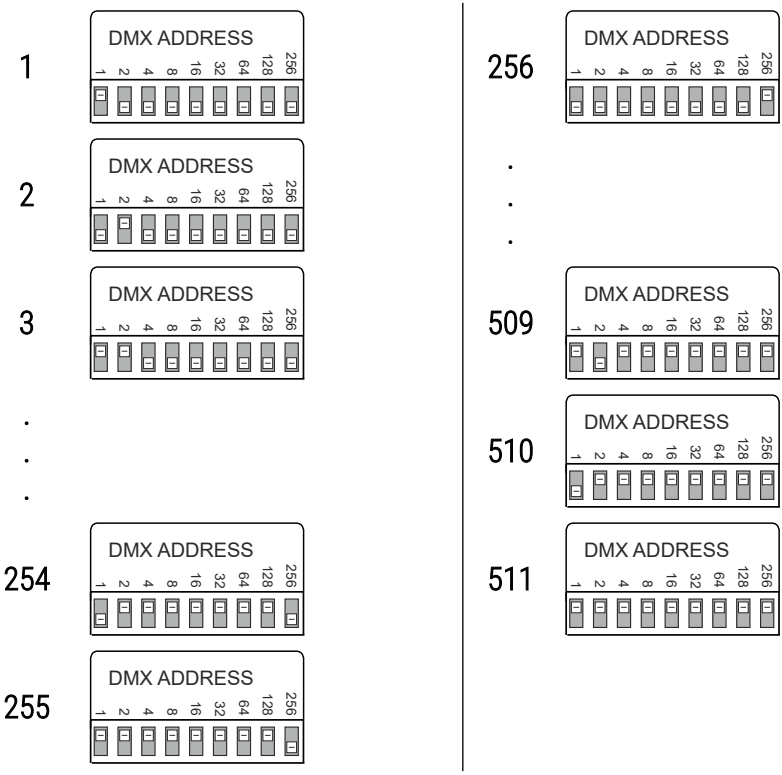
On the housing of the device there is a *reset* button, which works as follows:

- *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

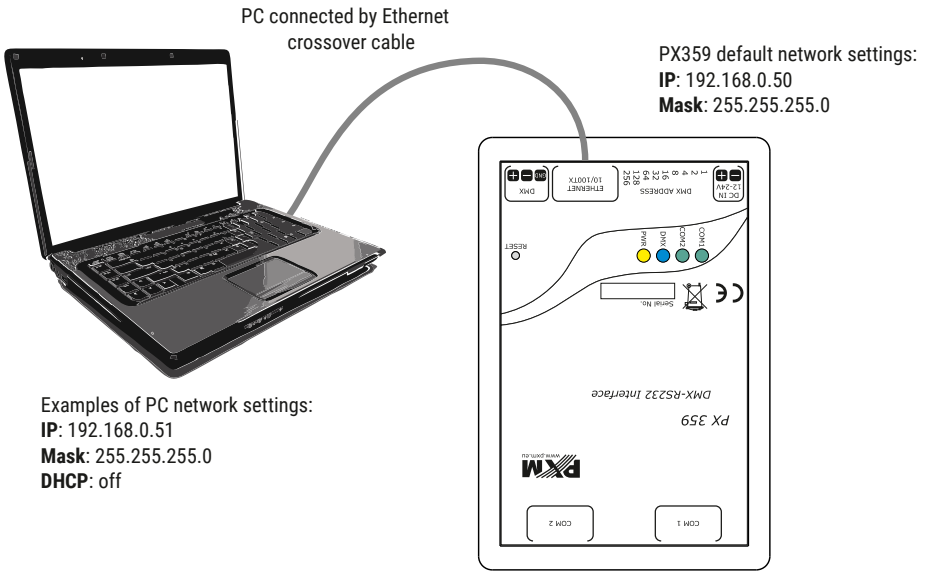
To configure the device with a browser, enter the current IP address of the device in it. The computer and the device must be on the same subnet.

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.

NOTE! PX359 does not support DHCP.

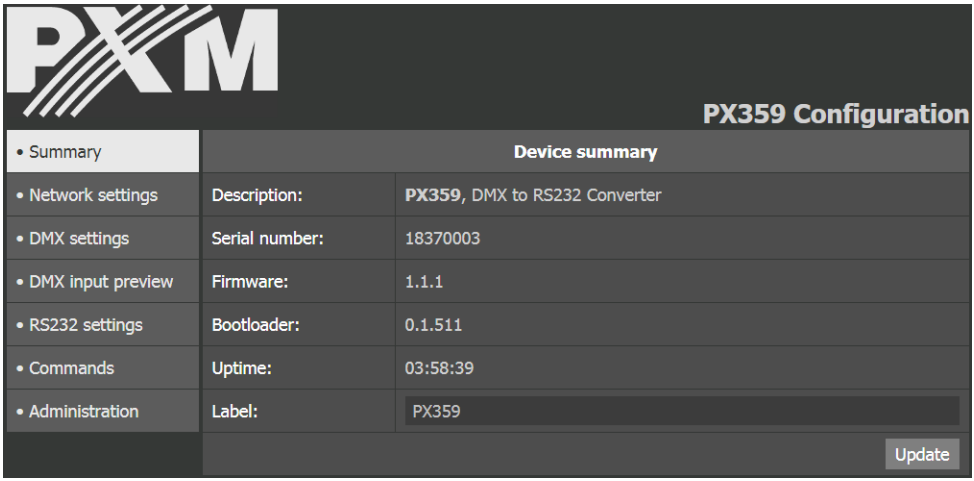


5.1.1 Summary

In the *Summary* tab there are the most essential information concerning the device:

- description,
- serial number,
- version of firmware,
- bootloader version,
- working time since the last restart,

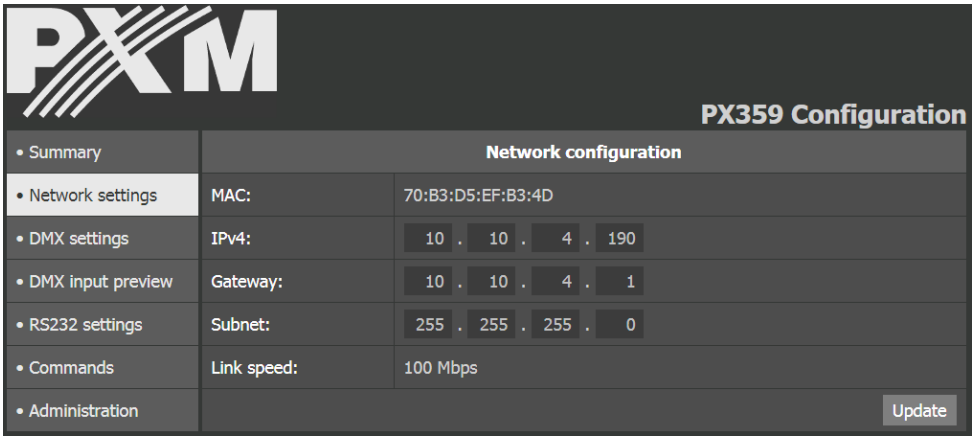
- *Label* – name of the device presented while reading parameters through the RDM protocol. Maximum length is 32 characters (a – z, A – Z, 0 – 9 and space).



5.1.2 Network settings

In this tab user can change:

- IP address,
- mask,
- gate.



The introduced changes require a device restart. When saving the settings, a window with a message warning that the changes have been made will be displayed.

Here you can also read the MAC address of the device and the link bandwidth.

NOTE! Setting the wrong addressing will make the device unavailable at this address in the network. You may need to perform a factory reset or change the network settings using the RDM protocol.

5.1.3 DMX settings

The ***Current DMX Address*** of the device is displayed in the *DMX Settings* tab. Below you can see a preview of the DMX Hardware Switch (DIP Switch) and the editable parameters:

- ***Base address*** – device's DMX address, when the DIP Switch is set to 0, the DMX address can be set in the range 1 – 512,

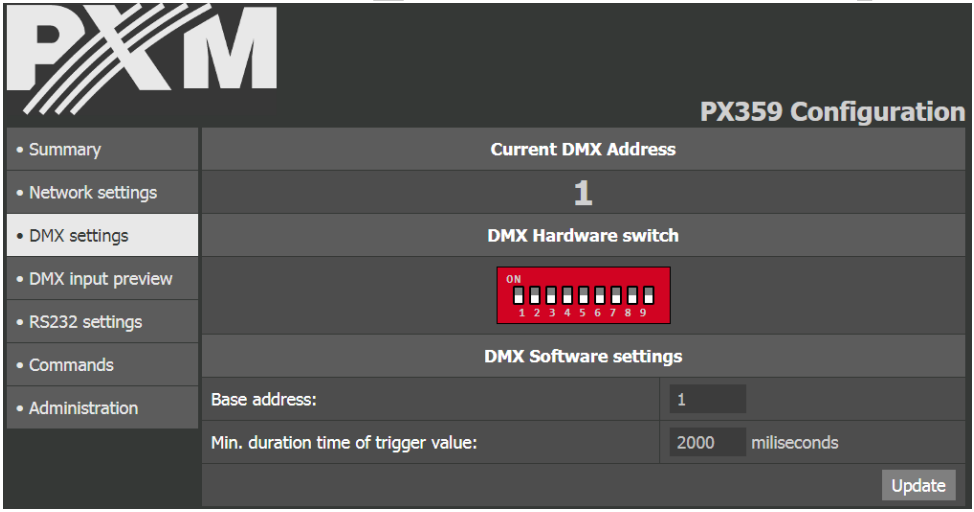
- *Min. Duration time of trigger value* – the minimum duration of the level on the DMX channel (assigned to the selected command) is necessary to trigger the RS-232 command. Valid range: 20 – 2000 milliseconds.

Example 1:

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

Example 2:

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



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

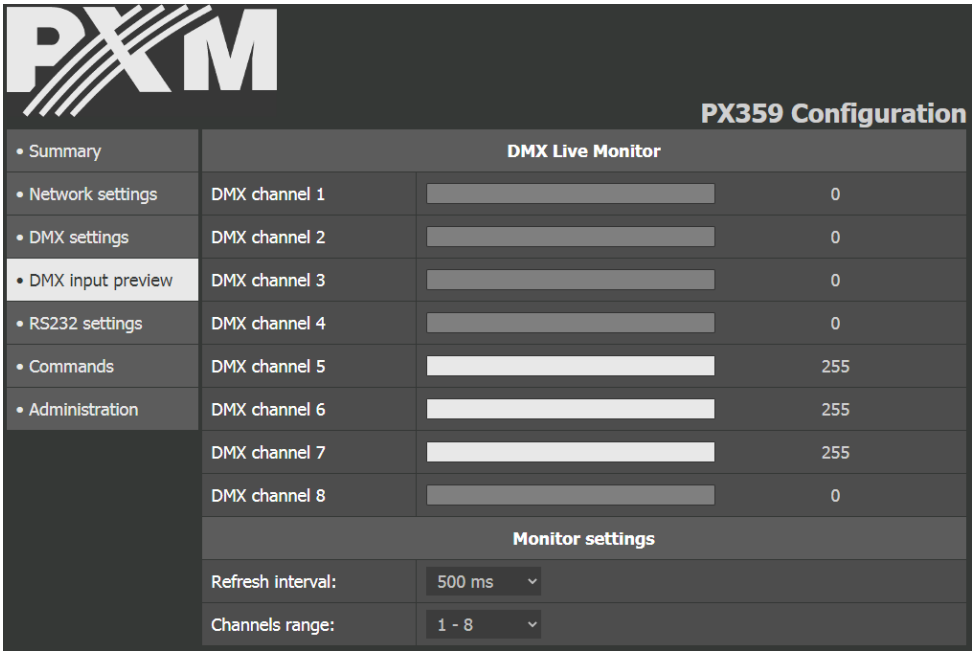
5.1.4 DMX input preview

This tab shows the values of the received DMX signal on selected channels.

The user can:

- select the *Refresh interval* (250ms / 500ms / 1s / 2s),

- select *Channels range* (multiples of 8).



5.1.5 RS-232 settings

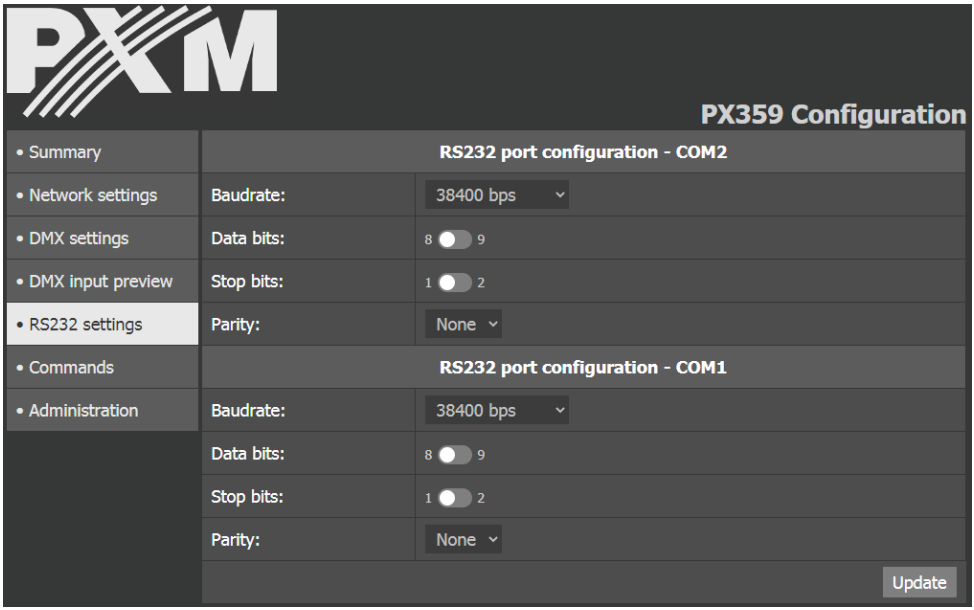
This tab allows to set parameters independently for both RS-232 buses:

Baudrate [bps]:
- 1200
- 2400
- 4800
- 9600
- 14400
- 19200
- 28800
- 38400
- 57600
- 115200
- 230400

Data bits:
- 8
- 9

Stop bits:
- 1
- 2

Parity:
- none
- even
- odd



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

5.1.6 Commands

The *Commands* tab lists all user-defined commands. The device can define up to 128 commands.

From software version 1.3.0, the user can assign more than one command to one DMX address. Commands on one DMX address can coincide with values (e.g. 10 – 50 / 20 – 50). If the commands on the same address have the same activation level (e.g. 1 – 128 / 1 – 50), the command which is higher on the list will be sent first.

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

The editor of commands:

- *Name* – a string of characters that allows the user to easily identify the command. It consists of up to 64 characters (a – z / A – Z / 0 – 9).
- *Content* – a string of characters that will be sent as a command on the RS-232 bus. This value can be set using two editors: HEX or ASCII (max. 64 ASCII characters).
- *Before* – extra characters at the beginning of the command,
- *After* – extra characters at the end of the command.

Activation by DMX signal:

- *Offset* – the number of the DMX channel in relation to the current address of the device, on which the appropriate level will trigger the command.

Example of using Offset:

Base address: 5

Offset: 3

The command will be sent as a reaction to the value on the 8 DMX channel.

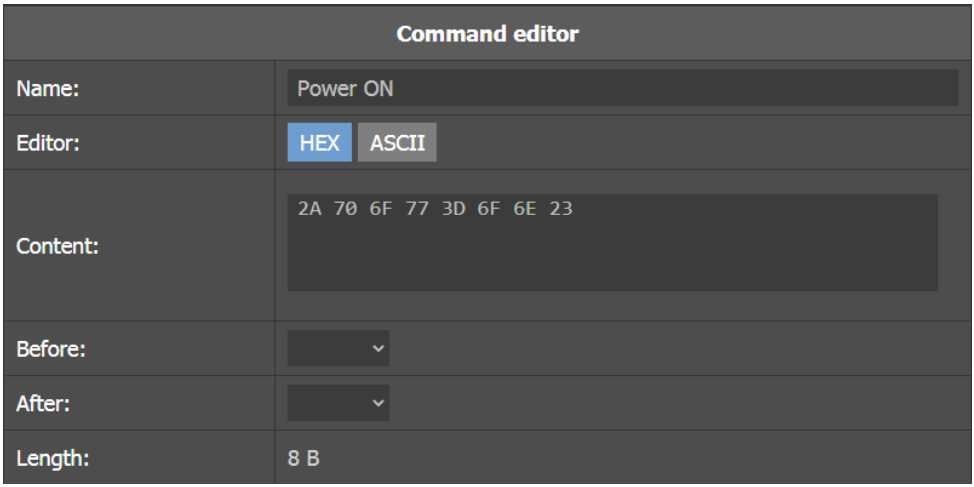
- *Minimum* / *Maximum* – the range in which the value on the channel must be situated so that the command could be sent,
- *Repeat* – if the option is marked, the command will be sent periodically every given number of milliseconds as long as the value on the chosen channel is within the range. If the option is not marked, the command will be sent only once when entering the range. In such a case, in order to send the command again, the value on the control channel should be changed so that it could go beyond the range, and then it should be set again in the range.
- *Send to* – the option allows to select to which RS-232 bus a given command should be sent.

HEX EDITOR

The HEX editor allows to save / edit the command in the hexadecimal format. Each bite of the command is saved with two hexadecimal characters – owing to which it is possible to define the binary command, consisting of any bites.

The editor accepts only hexadecimal characters (0 – 9 / A – F). The size of letters for characters is not important.

The characters of a space are ignored – the editor implicitly groups 2 characters together.



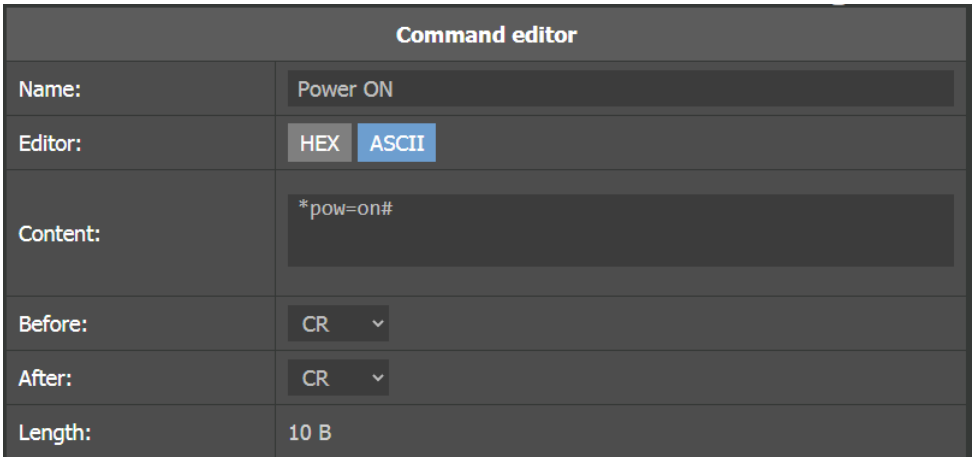
*An example of the command ***pow=on#** consisting of 8 bytes*

ASCII EDITOR

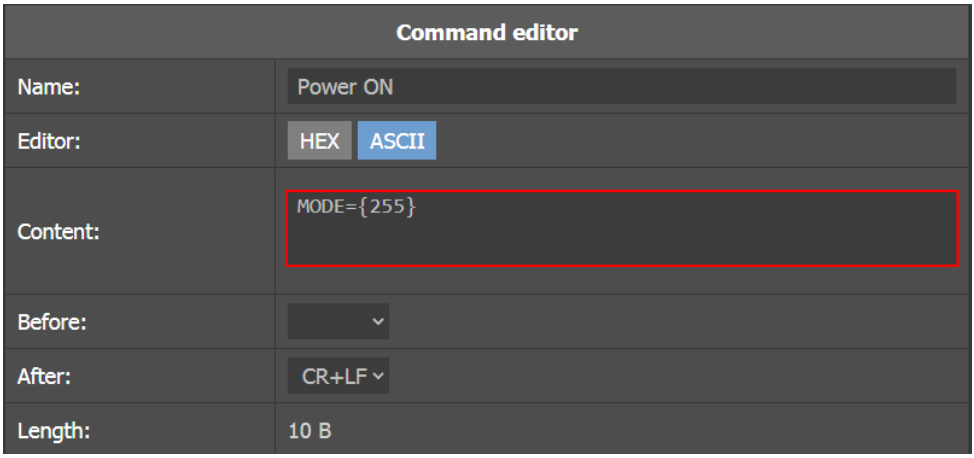
The ASCII allows to save / edit the commands in the form of printable characters ASCII. Due to this fact it is more clear in case of defining commands consisting of only printable bites.

Moreover, it is possible to write any byte by giving it in hexadecimal format in curly braces {}.

The possible incorrectness of the defined command is signaled while trying to save / update the form.



*The example of the same command ***pow=on#** written in the ASCII format, bearing additional CR characters at the beginning and the end*



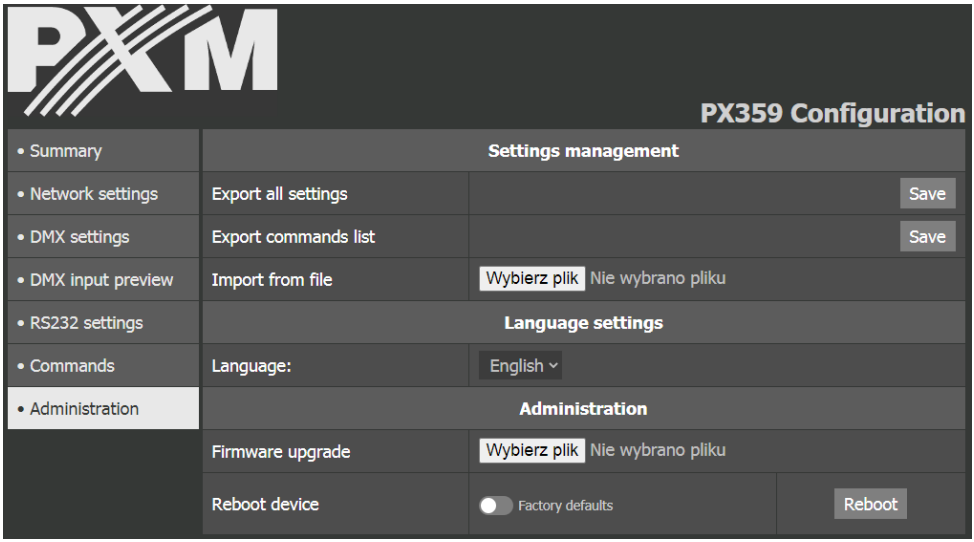
The editor signals an error because the value given in the brackets is interpreted as a bite written hexadecimal and not decimal

5.1.7 Administration

The following options are available in the *Administration* tab:

- ***Export all settings*** – export all settings of the device to a file,
- ***Export commands list***– export only a list of commands together with the assigned buses RS-232,
- ***Import from file*** – import all settings from a file or only a list commands (depending on chosen file), this option will overwrite current settings,
- ***Language*** – change of interface language (PL / EN),
- ***Firmware upgrade*** – updates the device software, the latest software can be found on the manufacturer's website,

- *Reboot device*
    - *Factory device* – restores the default settings (select the option and select the *Restart* button)
        - Label: PX359
        - IPv4: 192.168.0.50
        - Gateway: 192.168.0.1
        - Mask: 255.255.255.0
        - Base address: 1 (unless the DIP Switch is set)
        - Min. duration time of trigger value: 2000 millisecond
        - COM_n Baudrate: 115200 bps
        - COM_n Data bits: 8
        - COM_n Stop bits: 1
        - COM_n Parity: None
        - Language: Polski



NOTE! By restoring the default settings on the device, all current configuration, including commands, will be overwritten.

6 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.

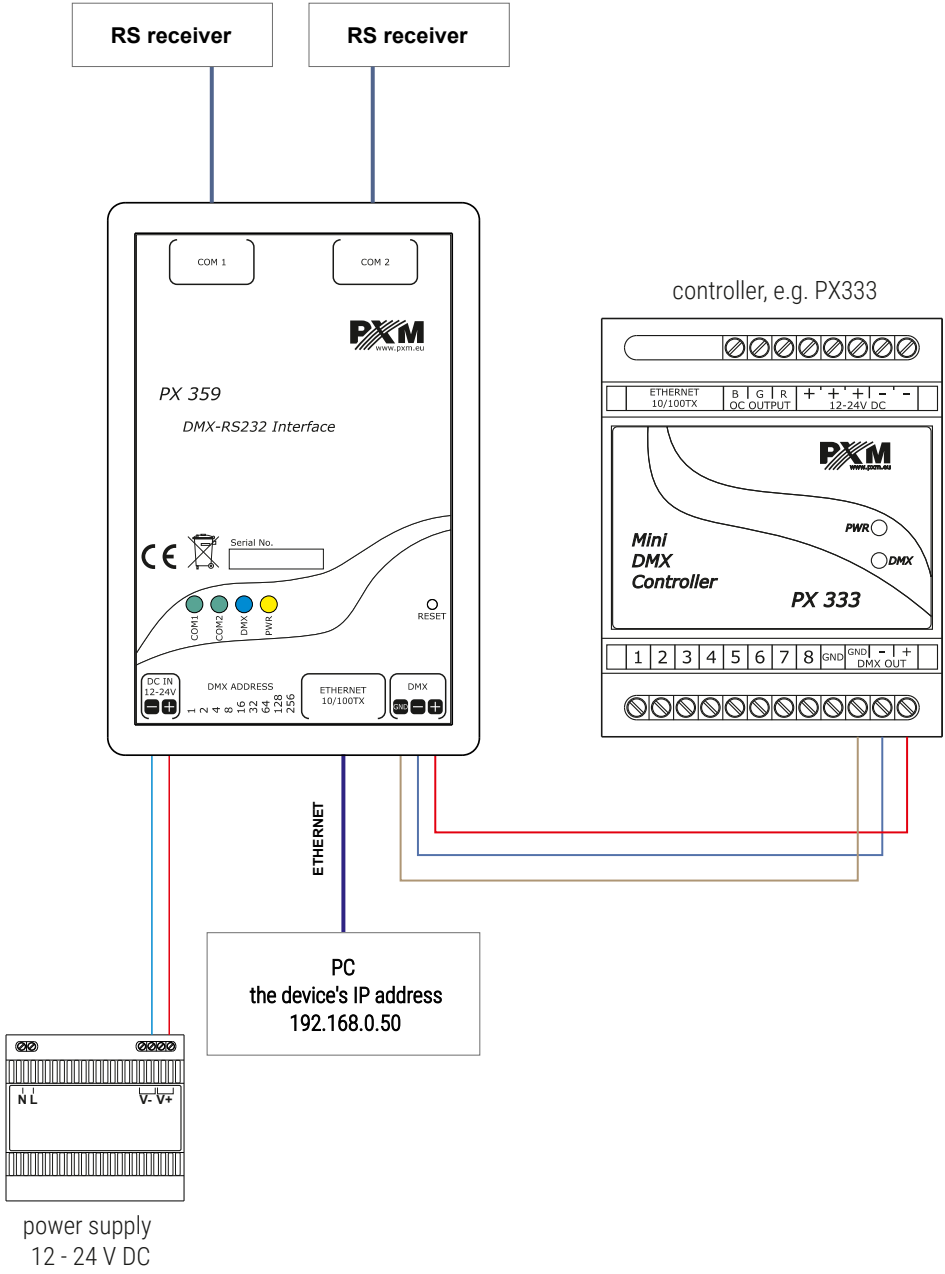
List of supported RDM parameters by PX359:

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

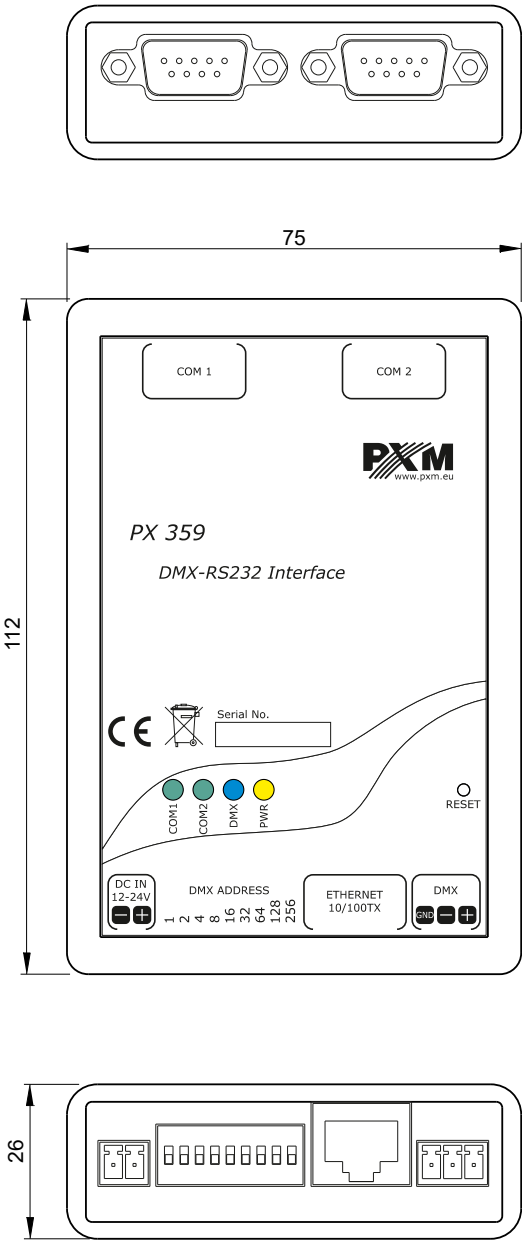
Parameter name	PiD	Description
DEVICE_HOURS	0x0400	information concerning the working time counted in hours
DEVICE_POWER_CYCLES	0x0405	number of power cycles
RESET_DEVICE	0x1001	restart the device
RDM_EXT_DEVICE_UPTIME	0x8000	time in seconds since last run
RDM_EXT_DEVICE_SERIAL	0x8010	device serial number
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

7 Connection scheme



8 Dimensions



9 Technical data

type	PX359
power supply	12 – 24V DC
DMX input	1
RS-232 output	2 x D-Sub (male)
Ethernet connector	1
DHCP	no
RDM protocol support	yes
connectors	screw terminals
power consumption	max. 1W
weight	0.1kg
dimensions	width: 75mm height: 112mm depth: 26mm

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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