PX713

Serial Driver

MANUAL

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The manufacturer reserves the right to change the operation and handling of the controller in order to improve the product.

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Rev 1.0

1. GENERAL DESCRIPTION

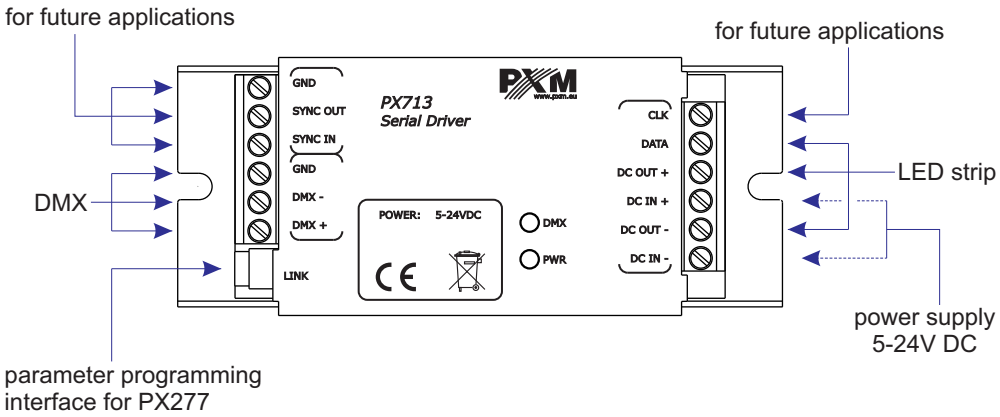
PX713 is a driver designed to control digital LED strips using the DMX512 protocol.
It supports two types of strips: TLC59731 and WS2812B. The driver allows you to directly control each pixel independently.
In addition, it is possible to program “no signal” and “smooth” options. PX713 is designed to be programmed with PX277. Moreover, the driver comes with the RDM protocol implemented.

2. SAFETY CONDITIONS

PX713 is a device powered with safe voltage 5-24 V; however, during its installation and use the following rules must be strictly observed:

1. The device can be connected to 5-24 V DC (stabilised voltage) with current-carrying capacity compatible with technical data.
2. All the conductors should be protected against mechanical and thermal damage.
3. In case of damage to a conductor, it should be replaced with a conductor of the same technica parameters.
4. Connection of DMX signal can be made with a shielded conductor only.
5. All repairs, connecting and disconnecting of cables can only be made with cut off power supply.
6. The device 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 cloth only.

3. DESCRIPTION OF CONNECTORS



4. INTERACTION WITH THE PX277 CONTROLLER

You can modify your driver settings by connecting the driver to a PX277 settings controller.
The moment we connect the PxArt Settings Controller, the PX713 will restart and, as a result, the diode displaying the DMX signal status will flash for 2 seconds.

When you start the device, its name appears on the display. The main menu allows you to preview many of the driver parameters and adjust the following options: DMX address, number of pixels controlled, smoothing, screen saver, type of LED strip supported as well as factory reset.

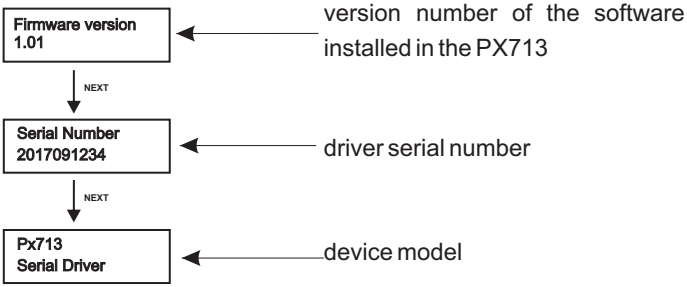
PxArt Settings Controller also features an option allowing you to check your driver software version number, driver serial number and model.

Navigating through the menu is possible with programmer buttons located below the display. The "escape" button allows an exit to the upper level in the device menu; "next" and "previous" buttons make it possible to go forward and backward (alternatively value decreasing or increasing). However, the "enter" button allows you to enter the edition of the selected menu.

5. PROGRAMMING THE DEVICE

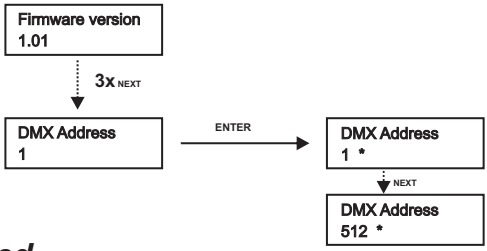
5.1. Description of information parameters

Using your PX277 controller, you can access important information about the driver to which the former is connected.



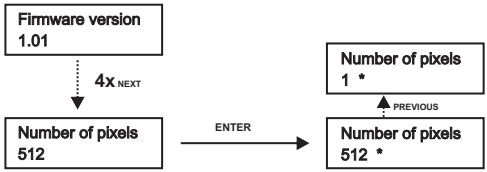
5.2. Setting a DMX address

By using the PX277, you can change the DMX address of your driver.
A DMX channel can be set in the range from 1 to 512. You need to provide the address of the first pixel on the strip. Subsequent pixels are addressed automatically - with subsequent DMX addresses.



5.3. Number of pixels controlled

This serial driver allows you to directly control each pixel independently. The PxArt settings controller has the capability to set the number of pixels controlled (within the 1 - 512 range).



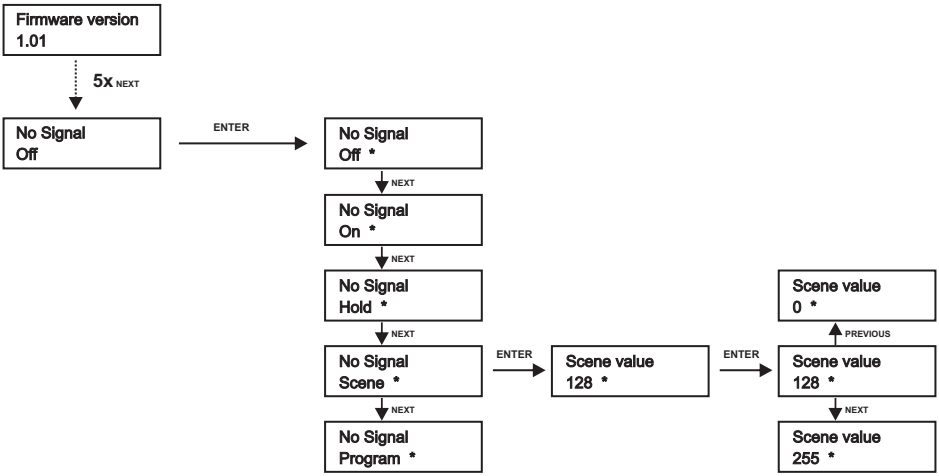
5.4. Response to DMX signal loss

In the [**No Signal**] menu you can configure the response of the device if the DMX signal is interrupted.

Available options include:

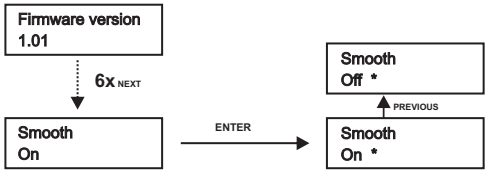
- **On** - adjusting the intensity level for all the pixels up to 100%
- **Off** - switching off all the pixels
- **Hold** - maintaining the last value in the case of signal interruption
- **Scene** - assigning the selected brightness level to all the pixels; before setting a value within the range of 0 - 255, you need to select the [**Scene value**] option
- **Program** - executing the program selected

If you connect a DMX signal, the option being executed will automatically stop and the driver will start operation in accordance with the control signal parameters.



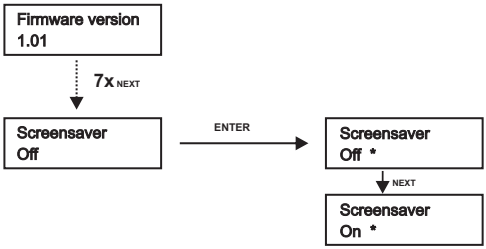
5.5. Smooth

The device also has a smoothing capability. This option allows for smooth operation of your digital LED strip. By default this option is activated (**On**); in order to deactivate it, select "**Smooth→Off**" in the programmer.



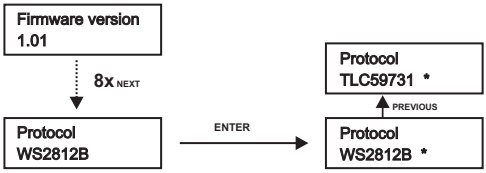
5.6. Screensaver

This device has a feature allowing you to turn off the backlight for the DMX and PWR indicators. If the "**Screensaver→On**" option is enabled, the diode backlight will be switched off after 1 minute of inactivity. The device will continue running, with the other parameters being unchanged. In order to enable the backlight feature, use the PX277 keypad.



5.7. Type of strip connected

The driver supports two types of digital strips. You can choose either WS2812B (RGB) or TLC59731 (RGB or monochromatic).



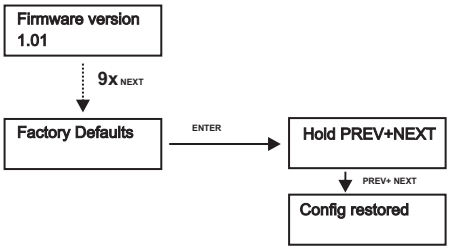
5.8. Restoring factory settings

There is also the option allowing you to restore default settings.
In order to use this option, select the [**Factory Defaults**] menu and press ENTER.

A window will be displayed prompting you to press the PREVIOUS and NEXT keys at the same time and keep them depressed for two seconds. Next, the device will display a [**Config restored**] message, which means that the default settings have been restored.

PX713 default settings:

- ⌘ **DMX address** 001
- ⌘ **Number of pixels controlled** 512
- ⌘ **No signal** Off
- ⌘ **Smoothing** On
- ⌘ **Screensaver** Off
- ⌘ **Type of strip connected** WS2812B



5.9. RDM description of available parameters

PX713 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.

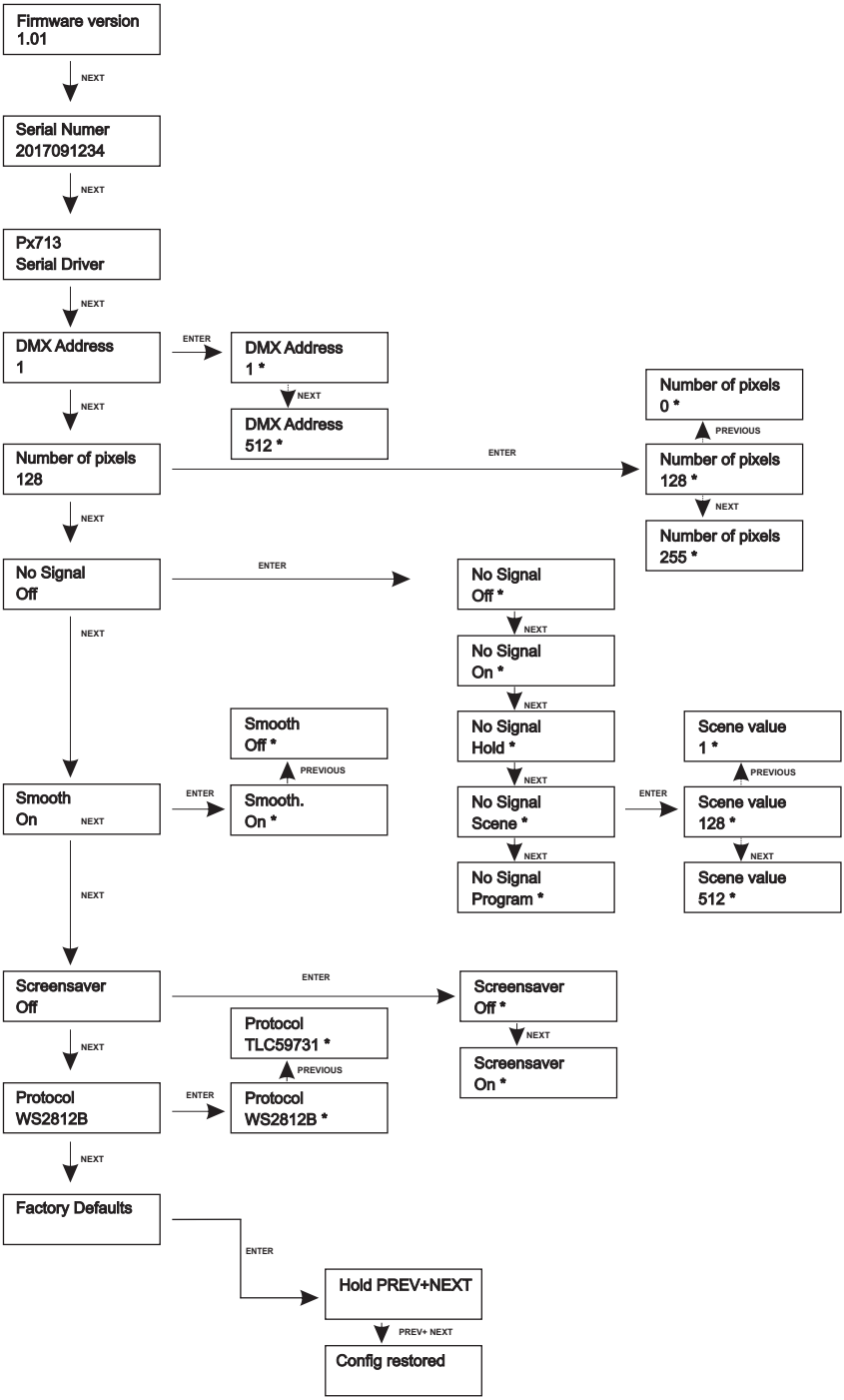
Below is a list of RDM parameters supported by the PX713:

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, minimum value: 1, maximum value: 512. According to the RDM standard, for device whose footprint is 0, the value of this parameter may be 65535 and then it is not possible to change the initial address settings for the entire device, but only for sub-devices.
IDENTIFY_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
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
DMX_PERSONALITY	**0x00E0**	DMX operational mode
DMX_PERSONALITY_ DESCRIPTION	**0x00E1**	description of individual operational modes
SMOOTH *	**0x801A**	selection of the options concerning Smooth function; By default, this option is enabled (value 1).

Parameter name	PiD	Description
NO_SIGNAL_OFF/ON/ HLD/S/P *	**0x801C**	selection of operating mode if no DMX signal is available; Minimum value of 0, maximum of 4. At the 0 value, light emission by the pixels is turned off, at the value of 1 brightness intensity is at 100%. If you set the value to 2, the last value will be maintained, setting to 3 will execute a scene, while setting to the value of 4 will execute a program.
NOS_SCENE *	**0x8022**	setting the value of a scene; The minimum value is 0, the maximum is 255. By default, the value is set to 128.
SCREENSAVER *	**0x8024**	screensaver settings; The value of 0 represents inactive screen saving, while 1 - active screen saving. By default, the value is set to 0.
SERIAL_NUMBER	**0x8030**	device serial number
NUMBER_OF_PIXELS *	**0x8046**	number of pixels controlled; The minimum value is 0, the maximum is 512. By default, the value is set to 512.

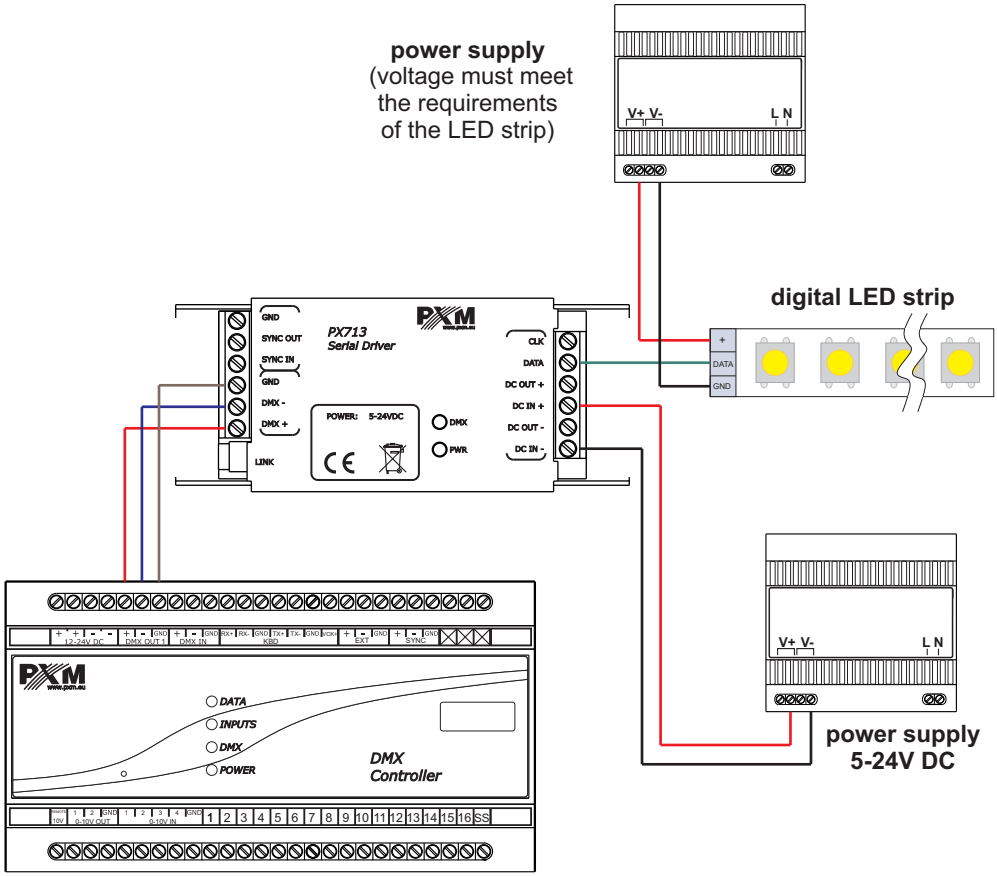
***** - parameter editable

5.10. Programming procedure

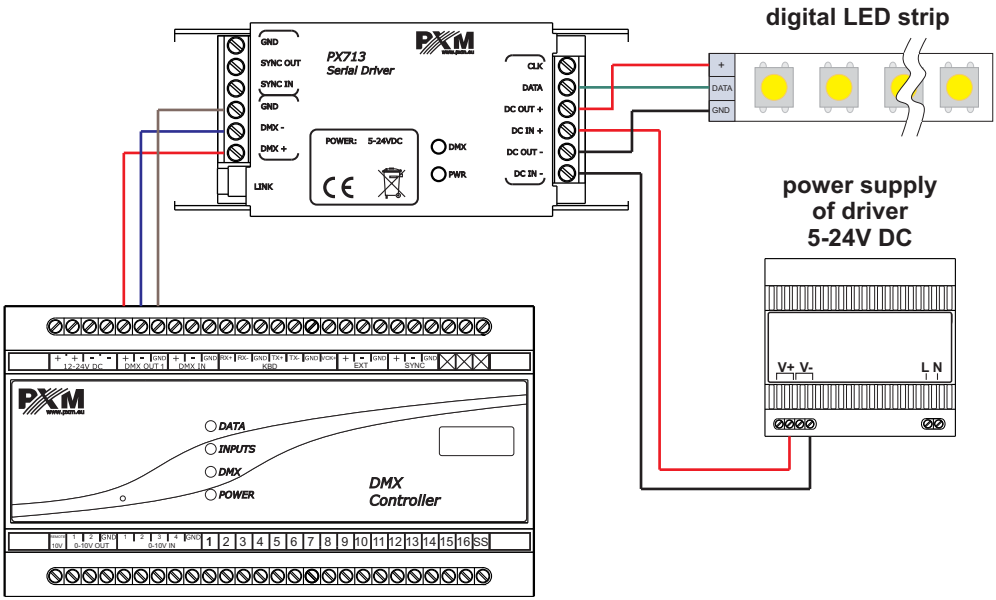


6. HOW TO CONNECT

a) connecting power from two sources, separately to the digital LED strip and to the driver

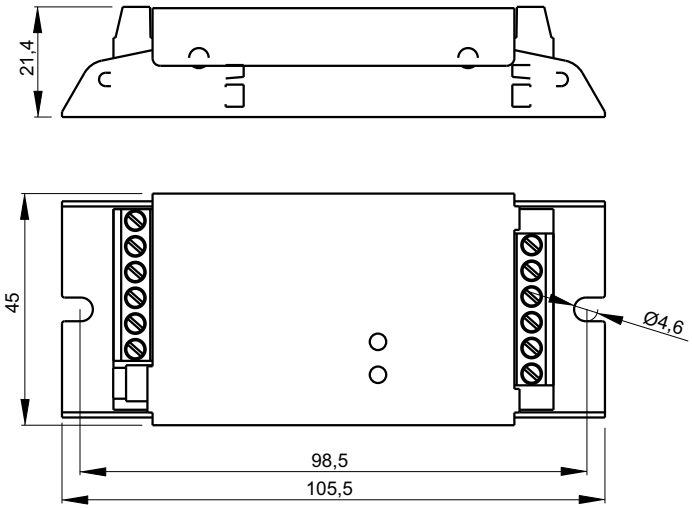


b) connecting power from one shared source to the digital LED strip and to the driver



a source of DMX signal,
for example a PX340 controller

7. DIMENSIONS



8. TECHNICAL DATA

- DMX channels	512
- power supply	5 - 24 V DC
- current consumption without load	90 mA for 5 V DC
	30 mA for 24 V DC
- programmable scenes	1
- embedded programs	1
- RDM support	yes
- programming	using PX277
- types of strips supported	WS2812B, TLC59731
- output connectors	terminal block
- weight	0,06 kg
- dimensions:	
- length	105,5 mm
- width	45 mm
- height	21,4 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: **Serial Driver**
Product code: **PX713**

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

PN-EN 50581:2013,	**EN 50581:2012**
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.

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Podłęże, 02.08.2016 mgr inż. Marek Żupnik.