PX097-IP-RDM

DMX Repeater

IP65 RDM

User manual

Table of Contents

1 Description....3
2 Safety conditions....4
3 Connectors and control elements....7
4 Connecting the DMX signal....8
5 Indicator lights....10
6 Output operating mode....11
7 Factory settings....13
8 Device update....14
9 Connection scheme....15
10 Dimensions....16
11 Technical data....17

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

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1 Description

A repeater, a DMX signal distributor, allows for the creation of branches in extensive DMX installations. Connecting a large number of receivers in series can be troublesome, which is why the possibility of creating branches of the DMX track using a repeater was created.

With the PX097-IP-RDM you can multiply the input DMX signal into 2 independent branches. The individual output lines are galvanically separated from both the input and from each other. The repeater can operate in three modes:

- *filtering* – incoming RDM packets are discarded and the output DMX signal is completely regenerated with the following parameters:
  - *Break* – 320µs,
  - *MAB* – 30µs,
  - *MBF* – 10µs,
  - *WAIT* – 200µs,
  - the number of sent channels is 24 – 512 depending on the number of input channels – PX097-IP-RDM recognizes how many DMX channels are received,
- *bypass* – the output signal is exactly the same as the input signal – RDM is not supported,
- *normal* – the repeater allows for bidirectional transmission of RDM packets.

The DMX Repeater is manufactured in an IP65 housing.

2 Safety conditions

The PX097-IP-RDM device is powered directly from standard 230V AC grid, which can cause electric shock when safety rules are not observed. Therefore it is necessary to observe the following:

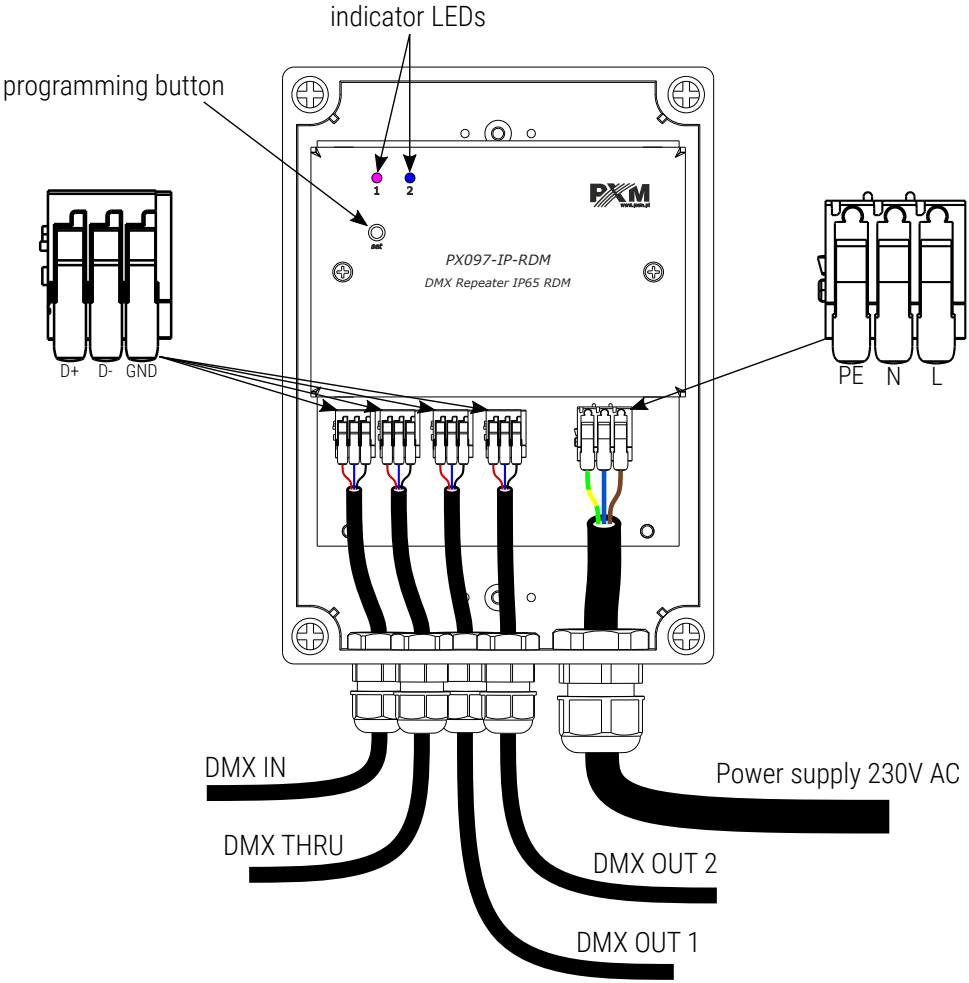
1. Installation and connection of the device, particularly the power and protective earth connections, should be performed by a person holding the appropriate qualifications, according to this instruction manual.
2. The device is class I equipment. The protective earth conductor of the device (PE terminal) must be connected to the protective earth conductor of the building installation. Do not power the device without the protective earth conductor connected.
3. The device has no power switch of its own. A switch disconnecting all supply poles must be provided in the electrical installation of the building.
4. The device has a built-in T 2A 250V fuse. The fuse may only be replaced by a service technician, with the power supply disconnected, using a fuse of the same ratings.
5. The device must be securely fastened to a stable surface.
6. The IP65 rating is maintained only with the cover closed and the cable glands properly tightened. After completing the connections, close the enclosure cover and tighten the cable glands. Outdoors, do not open the cover during precipitation or whenever water or dust could enter the enclosure.

7. The device may also be operated outdoors, at an ambient temperature from 2 to 40°C. The temperature at the installation site must not go outside this range.
8. Changing the operating mode and restoring factory settings are performed with the cover open and the power on. These operations may only be performed by a person holding the appropriate qualifications. The power terminals are then live at 230V AC – do not touch them.
9. All the conductors should be protected against mechanical and thermal damage.
10. In the event of damaging any conductor, it should be replaced with a conductor of the same technical data.
11. Only a shielded cable should be used to connect the DMX signal.
12. All repairs and connections of outputs or the DMX signal can only be made with the 230V AC power supply disconnected.
13. All sudden shocks, particularly dropping, should be avoided.
14. Do not connect a device with a damaged (cracked) enclosure to the power supply.
15. Use only a slightly damp cloth to clean the enclosure – the cover must be closed and the power disconnected with the switch in the building installation.

Explanation of symbols on the device

Symbol	Meaning
	Warning – dangerous voltage. 230V AC is present on the power terminals and inside the enclosure. Contact with live parts may cause electric shock resulting in death or serious injury. Disconnect the power supply before installation and servicing.
	Protective earth (PE) terminal.
CE	CE mark – the product meets the requirements of the EU directives listed in the declaration of conformity.
IP65	Degree of protection of the enclosure according to EN 60529: dust-tight, protected against water jets.
	Do not dispose of the used device with municipal waste. Hand it over to a collection point for waste electrical and electronic equipment.

3 Connectors and control elements



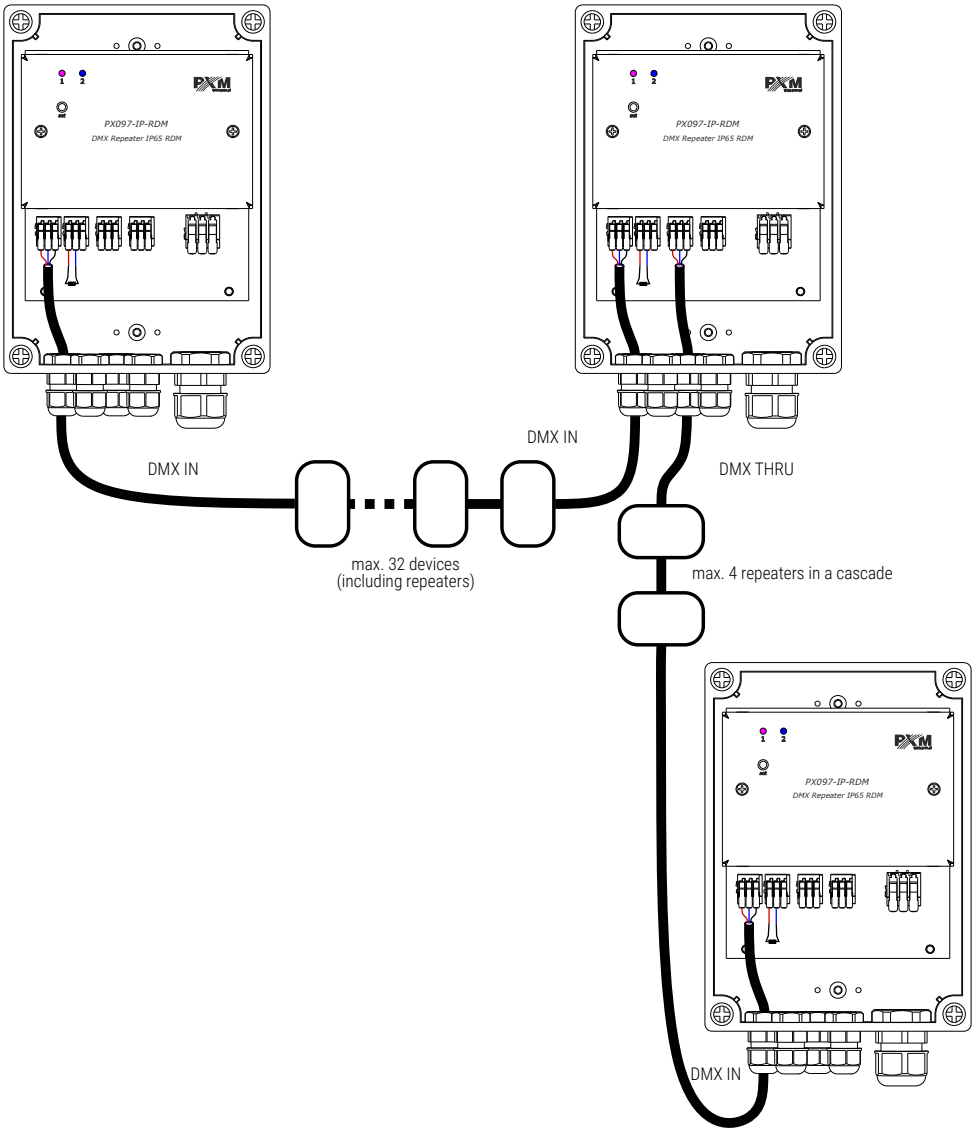
4 Connecting the DMX signal

The PX097-IP-RDM must be connected to the DMX line in series, without branches on the control cable. This means that a control cable must be run to the ***DMX IN*** connector on the PX097-IP-RDM and then from the ***DMX THRU*** connector to the next DMX receivers.

If the PX097-IP-RDM is the last device in the DMX line (there is no receiver connected to the ***DMX THRU*** output), a terminator – a 120 Ohm resistor – should be connected in the ***DMX THRU***.

Each of the four repeaters outputs is treated as the start of a new DMX line. A maximum of 32 devices can be connected with a DMX line length of up to 300 meters. In the last device, a terminator must be connected on each DMX output line.

NOTE! A maximum of 4 repeaters can be connected in a cascade (the diagram is on the next page).


PX097-IP-RDM
DMX Repeater IP65 RDM
DMX IN
DMX IN
DMX THRU
max. 32 devices
(including repeaters)
max. 4 repeaters in a cascade
DMX IN

5 Indicator lights

There are diodes on the device housing that indicate the operating status of the device.

Action	Function
all diodes flash every ~3s	the device does not receive the DMX signal
all diodes flash every ~1s	the device receives a DMX signal
Meaning of diode colors	
green	bypass
blue	mode with RDM support (normal repeater operation mode)
magenta	filtering

NOTE! The description of operating modes can be found in section 6. Output operating mode.

6 Output operating mode

Each output can be individually assigned one of the three modes indicated by the appropriate color of the diodes (5. Indicator lights):

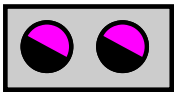
- *bypass* – the DMX signal is refreshed but the output signal is exactly the same as the input signal – RDM is not supported,
- *normal* – the DMX signal is refreshed – only in this mode RDM packets are transmitted bidirectionally,
- *filtering* – incoming RDM packets are discarded and the output DMX signal is completely renewed with the following parameters:
  - *Break* – 320µs,
  - *MAB* – 30µs,
  - *MBF* – 10µs,
  - WAIT – 200µs,
  - number of channels: 24 – 512*,

NOTE! The operating modes can be changed using the button located under the enclosure cover, with the power on – see section 2. Safety conditions. An example of changing the operating mode is on the next page.

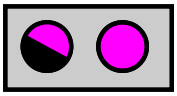
** – depending on the number of input channels – PX097-IP-RDM recognizes how many DMX channels are received*

Example of changing the operating mode of output number 2 from *filtering* mode to *bypass* mode:

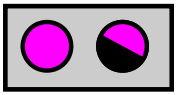
1. The diodes flash every ~1s or every ~3s (depending on whether there is a DMX input signal).



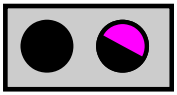
2. Press the button for ~2s.
3. The first LED flashes (or is responsible for the last edited output – in the example let's assume that the first one flashes), the rest light up.



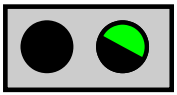
4. Click the button to go to the next output.
5. The second diode flashes, the others light up.



6. Output number 2 is selected.
7. Press and hold the button for ~2s.
8. The third LED flashes, the others go out.

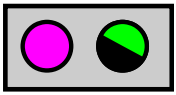


9. Clicking the button changes the mode.



10. After changing the mode, press and hold the button for ~2s.

11. The 2nd LED flashes, the others light up.

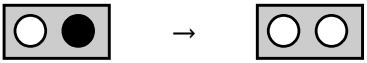


12. At this point you can repeat the steps for the other output by returning to point 6 or leave the device for ~10s – the LEDs will start flashing every ~1s or ~3s (depending on whether there is a DMX input signal).

7 Factory settings

To restore factory settings – *normal* mode on all outputs – press and hold the programming button while powering up until all the diodes light up white. When all the diodes light up white, you can release the button. This is done with the cover open and the power on – see section 2. Safety conditions.

1. Press the button (keep pressed).
2. Turn on the power.
3. Wait until all the LEDs light up white.



4. Release the button.

8 Device update

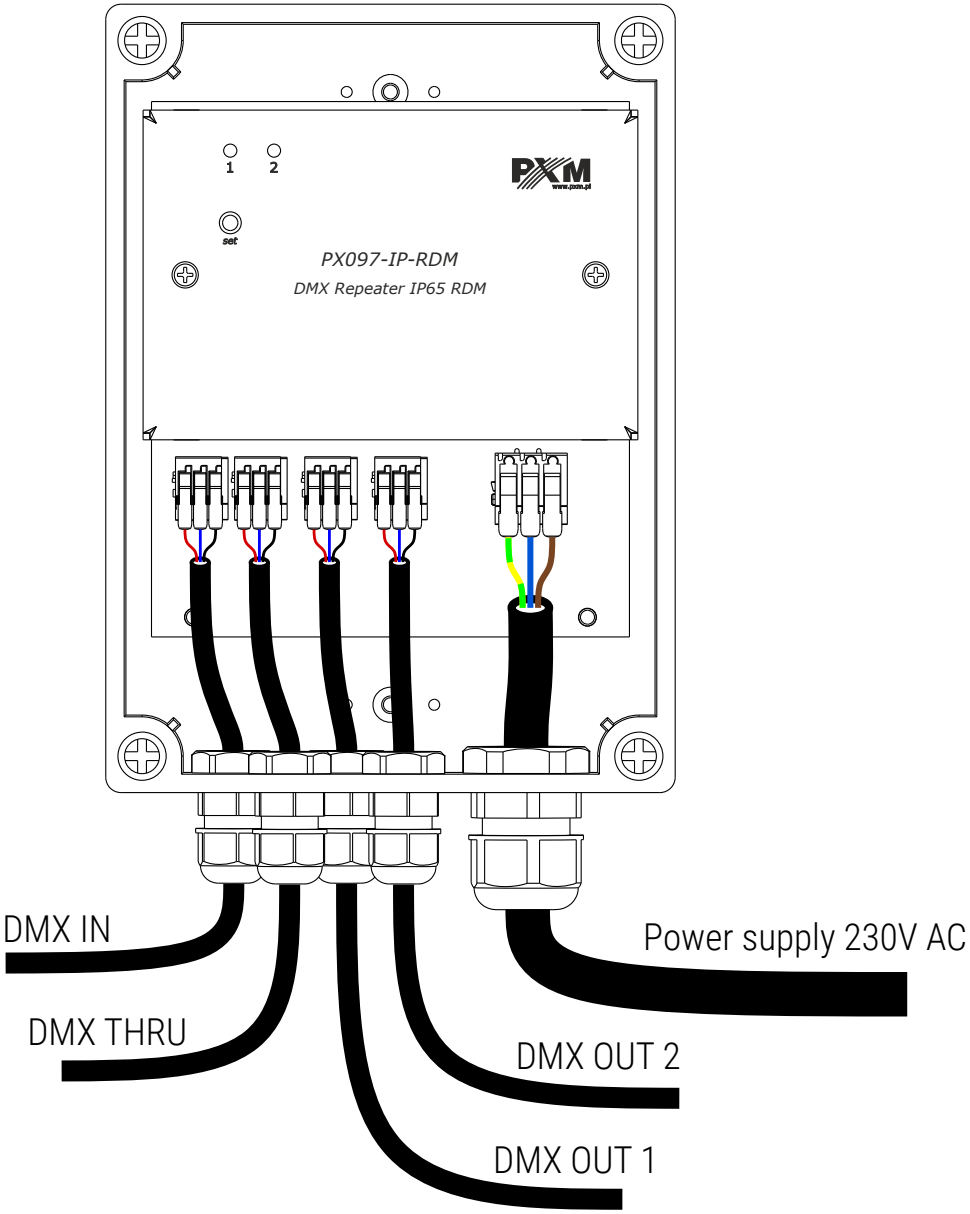
The update is possible using the PX313 USB/RS485 In device – details can be found in the manual for this module.



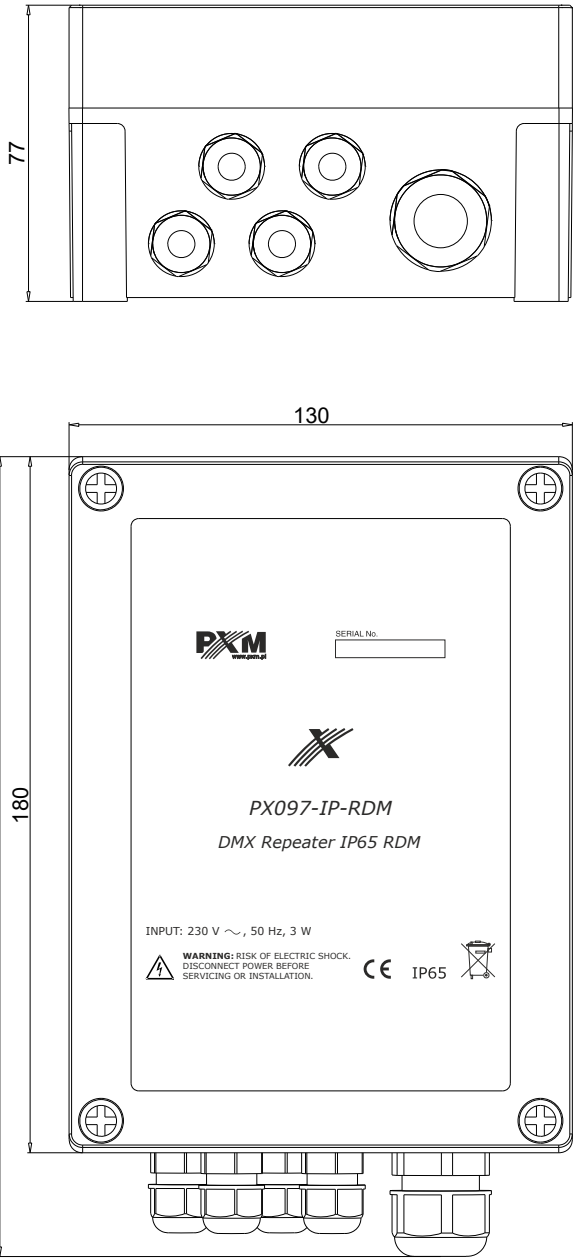
The device update was also presented in detail on our YouTube channel.

https://www.youtube.com/watch?v=TKBV03szddU

9 Connection scheme



10 Dimensions



11 Technical data

type	PX097-IP-RDM
power supply	230V AC
DMX channels (IN = OUT)	24 – 512
number of DMX inputs	1
DMX thru output	1
number of DMX outputs	2
number of modes	3 (filtering / bypass / normal)
RDM protocol support	yes (in "normal" mode)
optical isolation of DMX lines	yes
insulation breakdown voltage IN/OUT	>1000V
power consumption	max. 3W
tightness class	IP65
weight	0.6kg
dimensions	width: 130mm height: 180mm (207mm with cable entries) depth: 77mm

Podłęże, 04.11.2026

DECLARATION OF CONFORMITY

PXM sp. z o.o.
Podłęże 654, 32-003 Podłęże

we declare that our product:

Product name:	DMX Repeater IP65 RDM
Product code:	PX097-IP-RDM

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

PN-EN IEC 63000:2019-01	EN IEC 63000:2018
PN-EN 60529:2003	EN 60529:1991
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 harmonization of the laws of the Member States relating to electromagnetic compatibility (recast)
Text with EEA relevance.

2014/35/UE DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonization 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

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mgr inż. Marek Żupnik.