

PX949

Splitter

DMX-RDM

User manual



Table of Contents

1 Description.....	3
2 Safety conditions.....	4
3 Connectors and control elements.....	5
4 Connecting the DMX signal.....	6
5 Indicator lights.....	8
6 Output operating mode.....	9
7 Factory settings.....	11
8 Device update.....	12
9 Connection scheme.....	13
10 Dimensions.....	14
11 Technical data.....	15

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

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1 Description

A splitter, 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 splitter was created.

With the PX949 you can split the input DMX signal into 4 independent branches. The individual output lines are galvanically separated from both the input and from each other. The splitter 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 – PX949 recognizes how many DMX channels are received,
- **bypass** – the input signal is exactly the same as the output signal – RDM is not supported,
- **normal** – the splitter allows for bidirectional transmission of RDM packets.

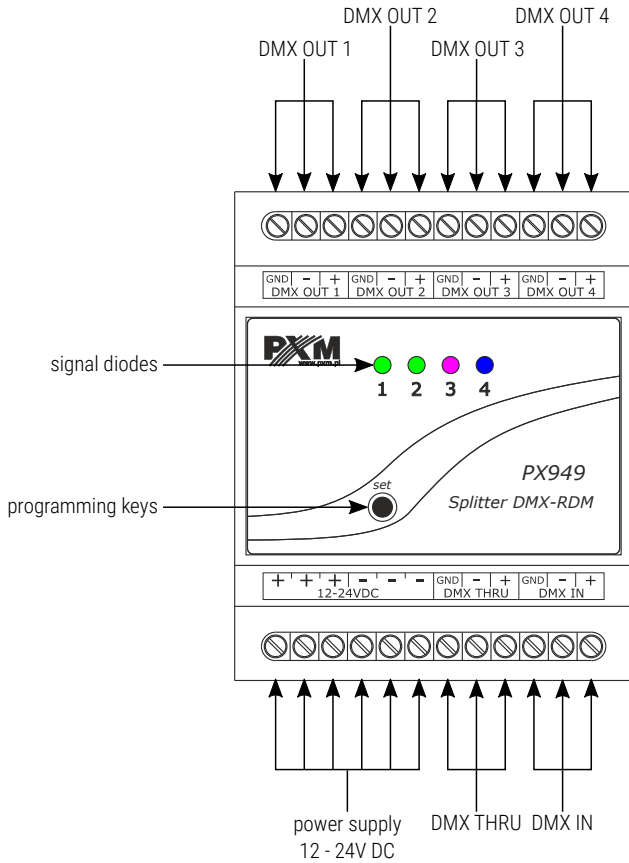
The DMX-RDM splitter is manufactured in housing adapted for mounting on standard 35mm DIN rails.

2 Safety conditions

PX949 is a device powered with safe voltage up to 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 (stabilized voltage) 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. Only a shielded cable should be used to connect the DMX signal.
5. All repairs and connections of outputs can only be made with cut off power supply.
6. PX949 should be strictly protected against contact with water and other liquids.
7. All sudden shocks, particularly dropping, should be avoided.
8. Do not connect a damaged (cracked) device to the power supply.
9. The device cannot be turned on in places with humidity exceeding 90%.
10. The device cannot be used in places with temperature lower than +2°C or higher than +40°C.
11. Use only a slightly damp cloth for cleaning – the device must be completely disconnected from the power supply at this time.

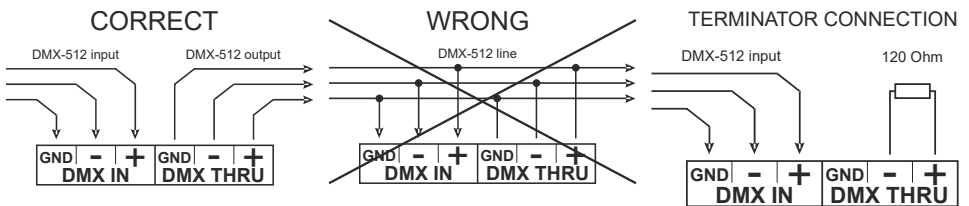
3 Connectors and control elements



4 Connecting the DMX signal

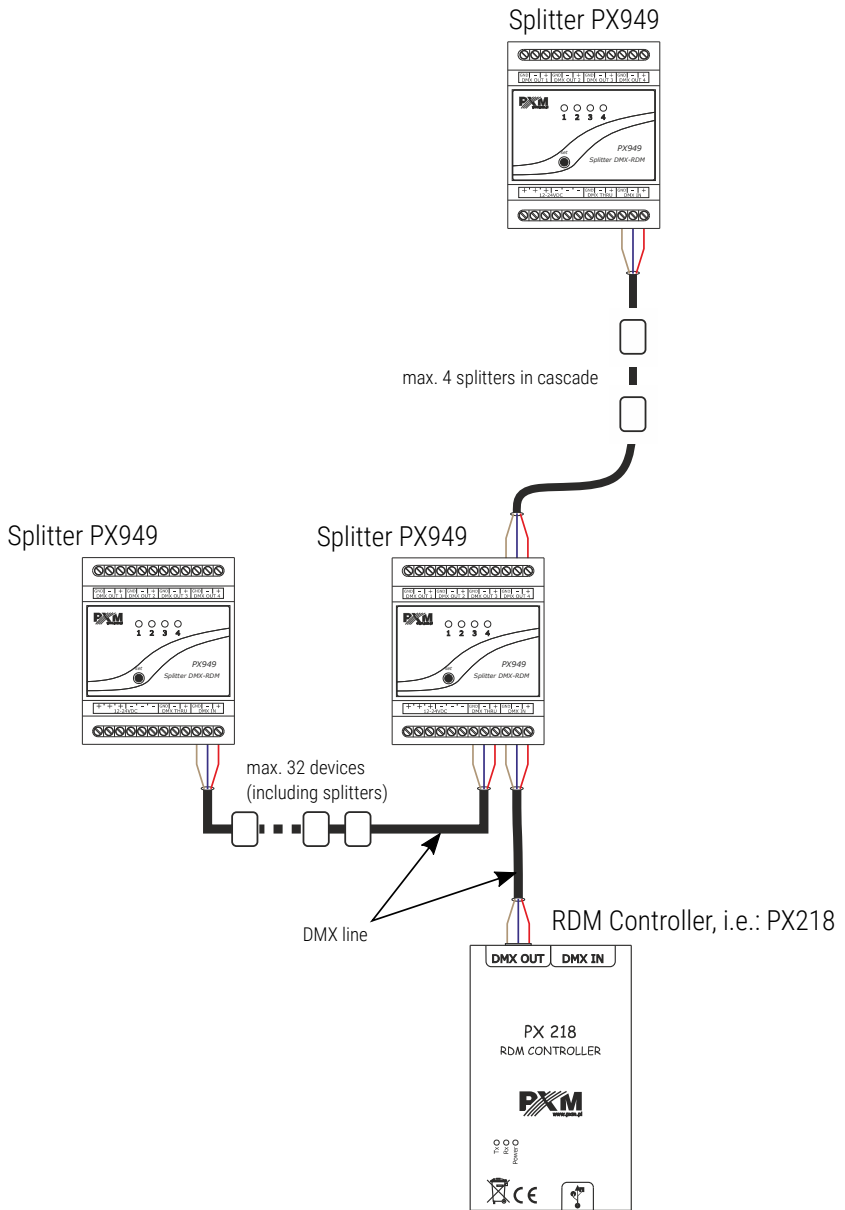
The PX949 must be connected to the DMX line in series, without branches on the control cable. This means that a control cable must be run to the **DMX IN** connector on the PX949 and then from the **DMX THRU** connector to the next DMX receivers.

If the PX949 is the last device in the DMX line (there is no receiver connected to the **DMX THRU** output), there should be a terminator – a 120 Ohm resistor – mounted between "DMX+" and "DMX-" pins of DMX THRU section.



Each of the four splitter 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 splitters can be connected in a cascade (the diagram is on the next page).



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 splitter 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*,

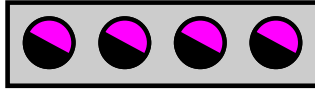
NOTE! The operating modes can be changed using the button located on the housing. An example of changing the operating mode is on the next page.

** – depending on the number of input channels – PX949 recognizes how many DMX channels are received*

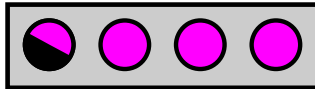
Example of changing the operating mode of output number 3 from

filtering mode to *bypass* mode:

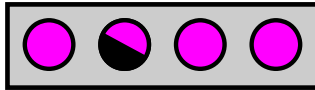
1. The diodes flash every ~1s or every ~3s (depending on whether there is a DMX input signal).



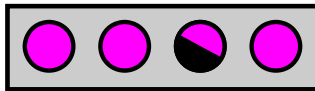
2. Press the button for ~2s.
3. The first LED flashes (or is responsible for the last edited output – in the example let's assume that the first one flashes), the rest light up.



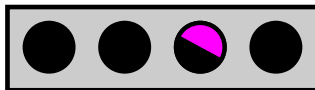
4. Click the button to go to the next output.
5. The second diode flashes, the others light up.



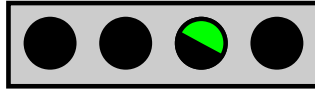
6. Click the button to go to the next output.
7. The third LED flashes, the others light up.



8. Output number 3 is selected.
9. Press and hold the button for ~2s.
10. The third LED flashes, the others go out.

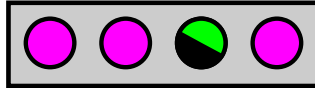


11. Clicking the button changes the mode.



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

13. The third LED flashes, the others light up.

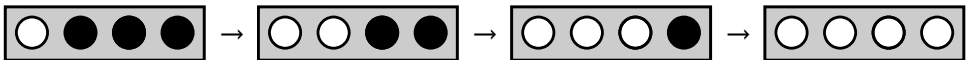


14. At this point you can repeat the steps for the other output by returning to point 6 or leave the device for ~10s – the LEDs will start flashing every ~1s or ~3s (depending on whether there is a DMX input signal).

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.

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



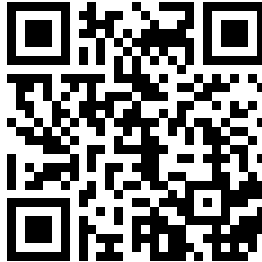
4. Release the button.

8 Device update

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

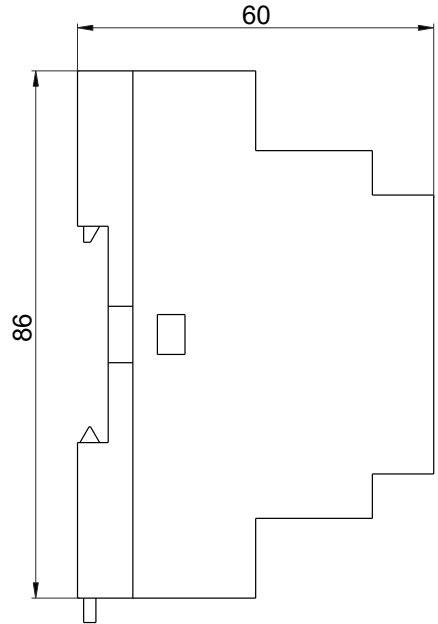
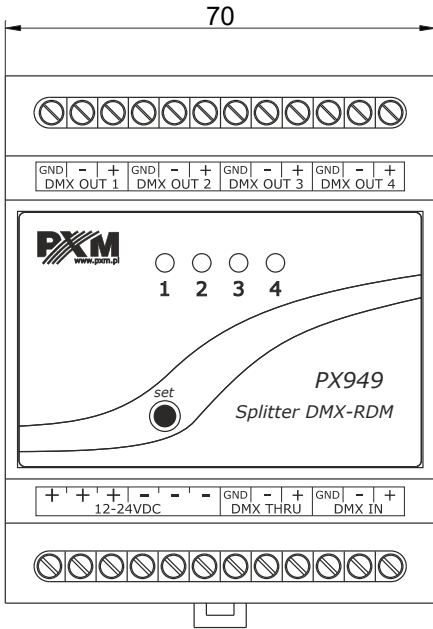


The device update was also presented in detail on our YouTube channel.



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

10 Dimensions



11 Technical data

type	PX949
power supply	12 – 24V DC
DMX channels (IN = OUT)	24 – 512
number of DMX inputs	1
number of DMX outputs	4
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. 5W
weight	0.2kg
dimensions	width: 70mm (4 DIN modules) height: 86mm depth: 60mm

DECLARATION OF CONFORMITY

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

we declare that our product:

Product name: Splitter DMX-RDM

Product code: PX949

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 harmonization of the laws of the Member States relating to electromagnetic compatibility (recast)
Text with EEA relevance.


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