

PX 235

Advanced DMX Multiplexer

MANUAL



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

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1. GENERAL DESCRIPTION

Advanced DMX Multiplexer is a complex device that allows to change analog signal 0-10V to the DMX-512 signal. Analog signal is converted into a digital signal and then it is inserted or replaced at the appropriate (chosen by the user) DMX channel from the DMX-512 package.

It has eight inputs parametrized as a 0-10V analog or digital (active with low or high state). In case of choosing replacing of DMX channels by the converted analog signal, the last channel DMX-512 package are cut to make room for the added channels (their number depends on the number of analog inputs are connected).

The PX235 has built-in one input and output of DMX signal. Color display provides a graphical representation of information about the state of the signal and thus its' control.

Pulse input allows to cooperate with the PNP and NPN signals (e.g. wind sensors connected - anemometer). Signal parameters and the current value are displayed on the display screen. The USB connector allows communication with a computer and simplifies update firmware installed on the PX235.

Built-in OC output (Open Collector) allows you to configure and then signaling the set of states in the form of alarms. The device also has a 10V output that can power analog sensors such as potentiometers and photometers.

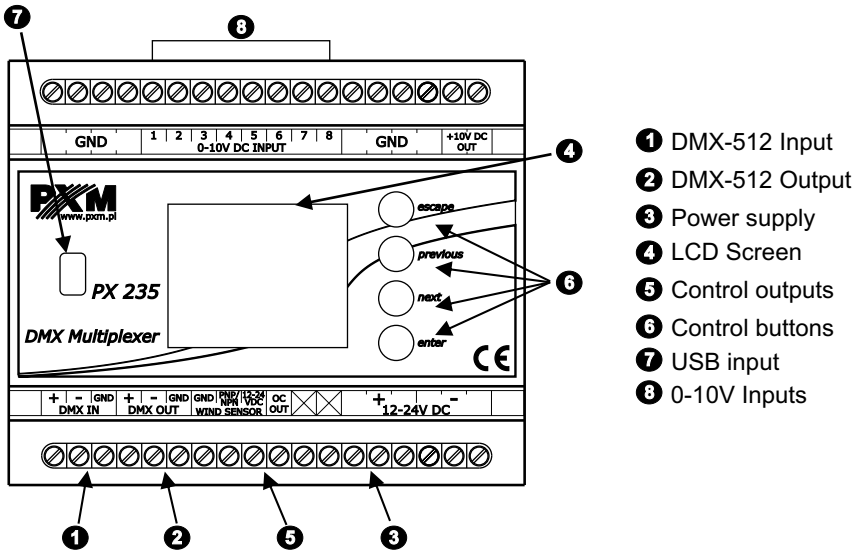
Starting from Px235 serial number: 13091243. a new firmware 2.0 has been introduced. It may only be used with PC software version 2.0 or higher.

2. SAFETY CONDITIONS

Advanced DMX Multiplexer PX235 is powered with safe voltage 12 - 24V; however, during its installation and use the following rules must be strictly observed:





1. The device may only be connected to 12 - 24V DC current (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 any conductor damaging, it should be replaced with the one of the same technical data and attestations.
4. Connection of DMX signal should be made with shielded conductor.
5. All repairs and connections of outputs or DMX signal can only be made with power off.
6. PX235 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. For cleaning use only a damp cloth.

3. DESCRIPTION OF THE CONNECTORS AND CONTROL ELEMENTS



4. NAVIGATING THE MENU

Navigating the menu allow programmable buttons. Every button is described on the right side and their use is as follows:

-  *enter* - allows to enter the selected option and approve set value
-  *next* - scrolls up the menu or right (horizontal menu)
-  *previous* - scrolls back the menu or left (horizontal menu)
-  *escape* - exits from the currently programmed parameter without saving the changes or goes to the level in the menu above (pressing the *escape* button while being in main menu will cause to exit to the summary screen)

To change the value of selected parameter, you must choose on the screen button **+** or **-** using the button *next* or *previous*, and then using the *enter* button to change the value.

After that you need to save the settings before going level up, this will allow storing value in memory of the PX235. To do this, after moving to the screen button

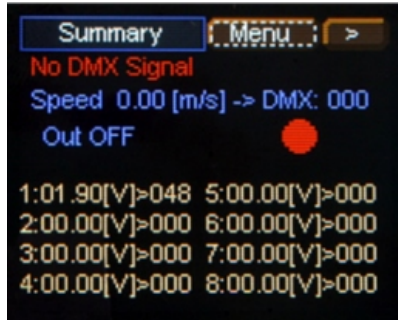


you need to push enter button.

5. SUMMARY SCREEN

When you turn the device appears on the screen panel, which describes the current state of DMX signal. If the device takes the DMX signal is green displays **DMX Signal OK**.

In case of no DMX signal detected at the input to the device on the screen will be showed message **No DMX Signal**.



Description of the other messages on the *Summary* screen:

- *Speed 0.00 [m/s] -> DMX: 000* - Current wind speed from the anemometer and its value after conversion to the DMX protocol (value of this function can be changed in a Menu *Wind Speed > DMX*)
- *Out OFF/ON* - information regarding the status of alarm output: red dot indicates the output off and the green output on.
- *1: 00.00[V]>000,...* - voltage value in the subsequent analog inputs 0-10V and the value in DMX protocol of assigned to them DMX channels.

6. MAIN MENU

At the top of the *Summary* screen is a bar to choose between a 3 screens of the main menu. To go to the other two please select the > button by pressing *Previous* or *Next*, and then confirm the selection of the enter key. The first screen shown after hitting the button is the *DMX In*. Another is the *DMX out*. Both represent in graphic form the current state of input and output signal from the device.



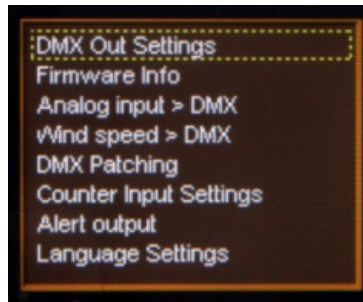
The presentation of the DMX signal:

The value of DMX signal to the frame (DMX channel) is portrayed as a white column, whose height varies proportionally according to the formula: the highest = largest value of DMX signal - 255, no column = no DMX signal, value is 0.

Number of frame (DMX channel) is described on the left, respectively: 1, 129, 257, 385 for subsequent lines. In addition, each line is divided into parts, where red dots means another ten channels, and green ones the next 100 channels.

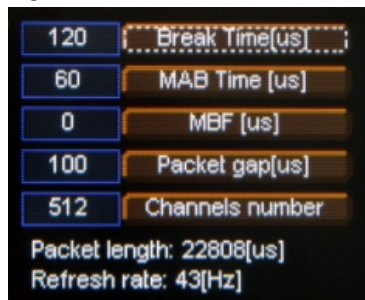
7. PROGRAMMING THE DEVICE FUNCTIONS

On the top of each of the main screens is the *Menu* button. After the selection of which, from each of the three screens, the user will be moved to the menu screen, which allows to set all the functions of the device.



7.1. DMX Out Settings

After selecting a submenu *DMX Out Settings* on the screen show up currently set parameters of the DMX signal. Default values set on the device are visible below.




At the bottom of the screen is displayed the aggregate *Packet length* and *Refresh rate* for so configured parameters.


1. Break Time allows to change the length of the interval between successive DMX packets. Break signal may take longer, but can not be less than 120 microseconds. Usually it lasts about 120-140 microseconds.

At the top of the screen next to the option name are visible important information that simplify setting an appropriate value.



To save the value before leaving level up in menu You need to select floppy disc  button and press *enter*.

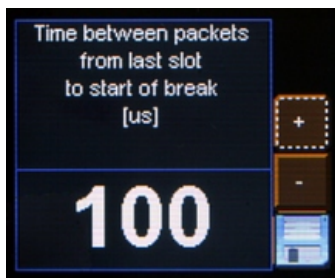
2. MAB Time (Mark after break) is the interval time that occurs in each package according to the standard DMX-512. The PX235 allows minimum value of 16 microseconds.

Remember to save values by selecting the button  and pressing *enter*



3. MBF (Mark Between Frame) - the amount of time (if any) between the end of one frame (end of the 2nd stop bit) and the start of the next - Mark Time Between Frames (MTBF) is the full name. Its length can range from 0 to 1000 microseconds, the shorter the better.

4. Packet gap - the amount of time between packets. Its length can range from 16 to 5000 microseconds.



5. Channels number - Using this feature, you can limit the number of channels sent from the PX235. The minimum value is 24 channels and the maximum is 512 (default).

7.2. FIRMWARE INFO

In this submenu you can check the firmware installed on the device. You can also restore the default settings implemented on the device.




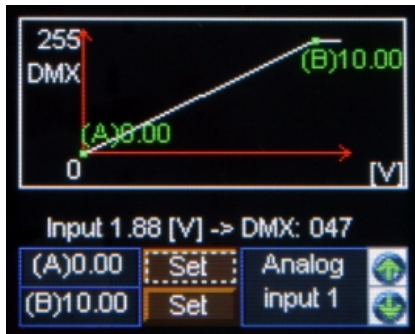
To do this push *enter*, then select the *Yes* button and again approve with enter. In the case of incorrect choosing this option, you can go back by selecting *No*, or go directly level up in menu by pressing escape.

7.3. ANALOG INPUT > DMX

This option allows you to set up conversion voltage of the analog inputs onto the DMX signal. Thus allows the selection characteristic conversion.

(Default) Setting the value (A) 0 [V] and values (B) at 10 [V] allows to obtain linear proportional operating characteristic.

Remember to save values by selecting the button  and pressing *enter*



Changing to opposite values of the A and B allows to get reverse operating characteristic. To set the value You need to select the Set button, and then proceed as described in Section 4 on page 2 to change the parameter value and save it. Each input can have distinct characteristics of the signal conversion.


To change operating characteristic of each input You need to select buttons \uparrow or \downarrow on the screen in right bottom corner and using the enter key set the number of currently modified input.

7.4. WIND SPEED > DMX

Wind speed onto the DMX is a function that allows you to set parameters of conversion of the voltage signal from the anemometers to values compatible with DMX protocol. To set the limit values You need to approve with the enter the set button on the screen and follow the point 4 on page 2. Changes made to the settings are shown graphically in the chart.

A parameter in the default settings is 0. B parameter value is 50.



Remember to save values in menu *set* by selecting the button  and pressing *enter*

7.5. DMX PATCHING


DMX Patching allows to assign the subsequent channels of DMX512 package output value from both DMX inputs, as well as analog and counter input. It is also possible to set each channel to a constant value of 0 or 255 (default channels 511 and 512 are set to 0 and 255).

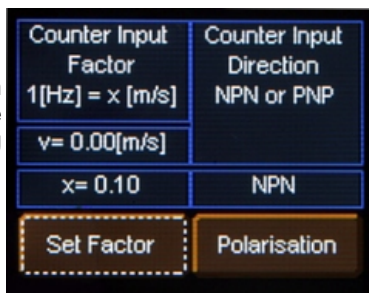


In order to assign a output DMX channel with a different input parameter you should choose that one, on which we want to make changes and press the *enter* key. Then using *next* or *previous* buttons set the new value and confirm with *enter*.

7.6. COUNTER INPUT SETTINGS

Counting Input Settings menu allows to change some values and the characteristic parameter of the anemometer (Transducer output) of formula $1 \text{ [Hz]} = x \text{ [m / s]}$. The default is set to 0.1 [m / s] , but be sure to check this parameter and (if needed) to change after connection of the new anemometer.


Remember to save values in menu *set* by selecting the button  and pressing *enter*

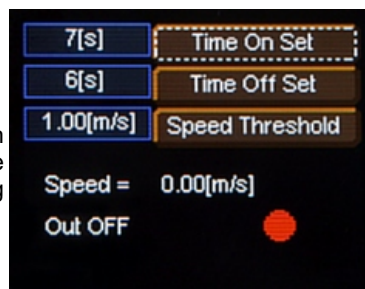


Another option you can set is the counting input configuration. Sometimes there is need to change the type of electric signal amplifying transistor (PNP or NPN) dependent on the anemometers (or if both types of method connecting to the device are used). To change the type select the field *polarization* and confirm with *enter*.

7.7. ALERT OUTPUT

Alarm output allows the individual set the parameters on and off the alarm output. *Time On Set* determines how many seconds takes to turn on the alarm, during which the wind speed exceeds a threshold alarm. *Time Off Set* is the time after which the alarm turns off, the alarm status changes if wind speed decreases below the predetermined threshold.

Remember to save values in menu *set* by selecting the button  and pressing *enter*



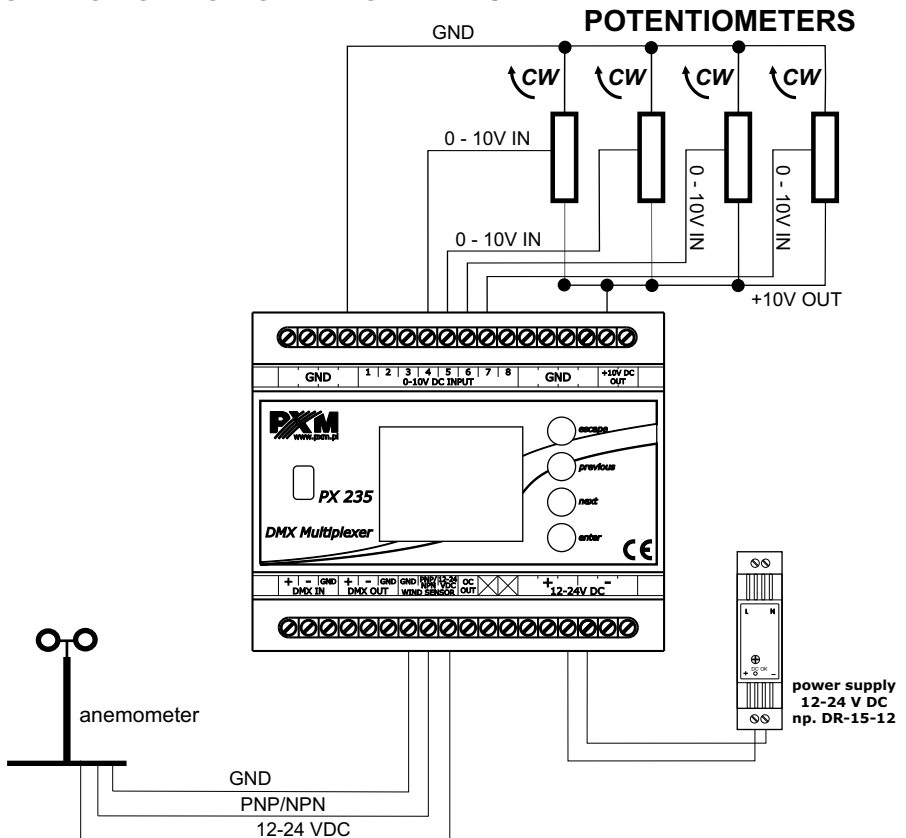
7.8. LANGUAGE SETTINGS

Language Settings allows you to change the menu language. To do this select appropriate language with *previous* or *next* buttons and press *enter*.

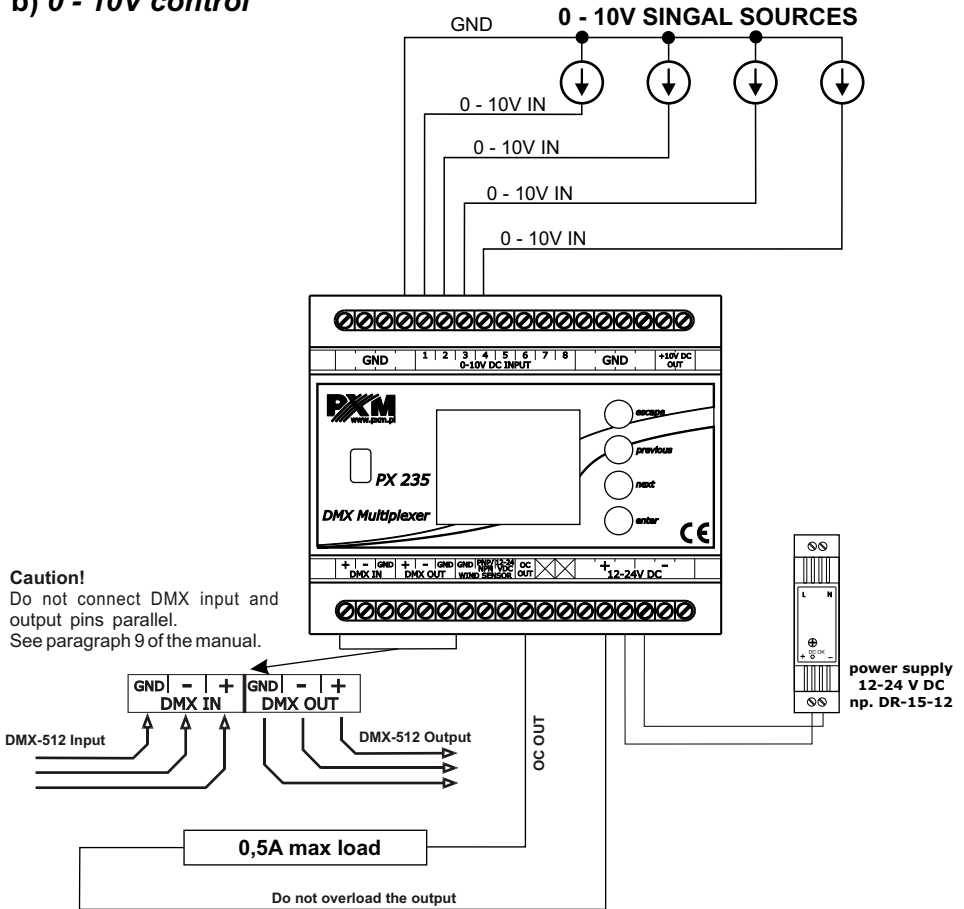


8. CONNECTIONS DIAGRAM

a) CONNECTION TO POTENTIOMETERS

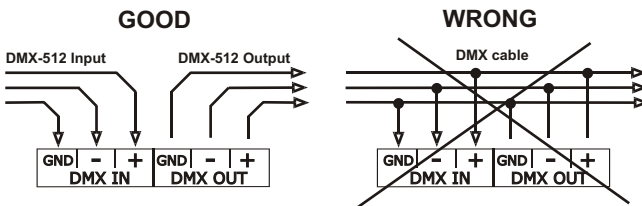


b) 0 - 10V control

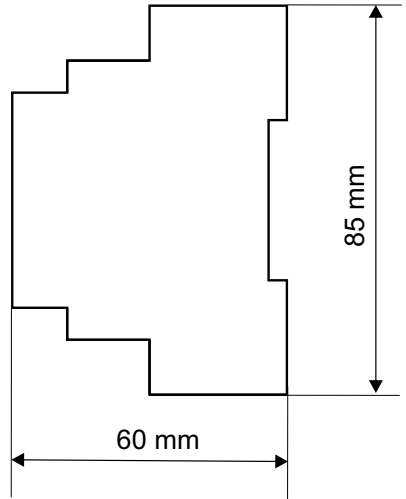
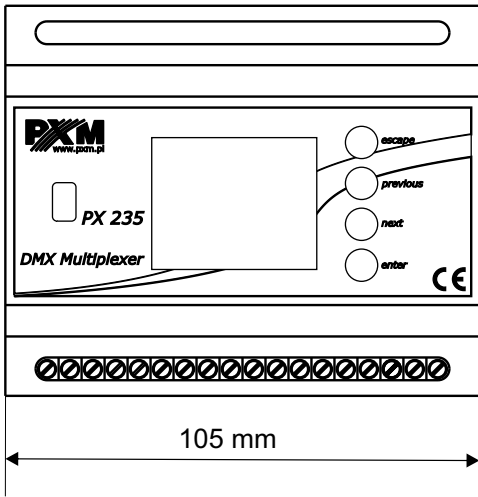


9. DMX SIGNAL CONNECTION

PX235 must be connected to the DMX line in series. This means that a cable should be connected to the DMX IN terminal, and then from the DMX OUT terminal the cable should go to other DMX receivers.



10. DIMENSIONS



11. TECHNICAL DATA

- Power Supply	12 - 24V DC
- DMX Input	1
- DMX Output	1
- 0-10V Inputs	8
- 10V Output	1 (to power supply ex. potentiometers)
- OC Type Output	1
- Connectors	Clamping screws, USB
- Weight	0,2kg
- Dimensions:	Width: 105mm
	Height: 85mm
	Depth: 60mm





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DECLARATION OF CONFORMITY according to guide lines 2004/108/EC

Name of producer: PXM Marek Żupnik sp. k.

Address of producer: ul. Przemysłowa 12
30-701 Kraków, POLAND

declares that the product:

Name of product: **Advanced DMX Multiplexer**

Type: **PX235**

answers the following product specifications:

EMC: **PN-EN 61000-6-1:2008**
PN-EN 61000-6-3:2008

Additional informations: All DMX512 inputs and outputs must be shielded and the shielding must be connected to the ground responding to the DMX connectors.

Kraków, 03.02.2011


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