

PX257-OC  
PX257-RE

# DMX/Relay Interface 8ch

MANUAL



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

Ver. 1.3.

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# 1. GENERAL DESCRIPTION

PX257 is a device made in two versions: **8 Relay Module** and **Switch 8x1.3A OC**. It is used for switching on and off stage lighting and theatrical effects as well as architectural lighting equipment using the DMX-512 signal. The module incorporates a set of 8 relays that control on/off outputs.

The PX257 OC version is an 8-channel digital DC switch, featuring maximum single circuit switching load of 1.3A.

The device menu allows the user to program DMX addresses for all the output channels and to set characteristics for the purpose of controlling electric motors.

In both versions of the device is designed for mounting on standard DIN rails in electrical switchgear.

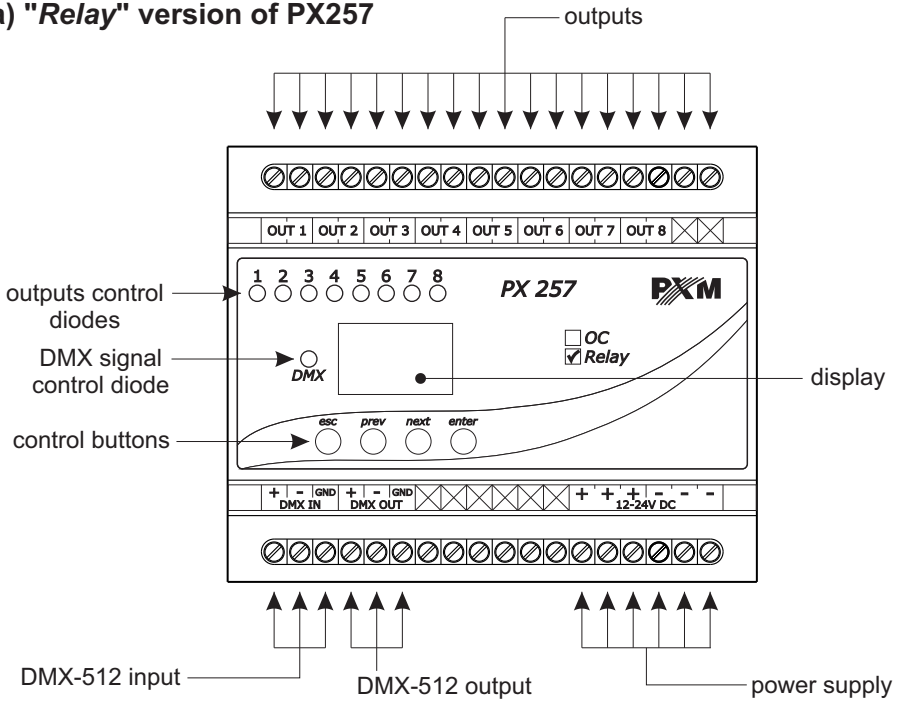
# 2. SAFETY CONDITIONS

The PX257 is a device powered with safe voltage 12-24 V; however, during its installation and use the following rules must be strictly observed:

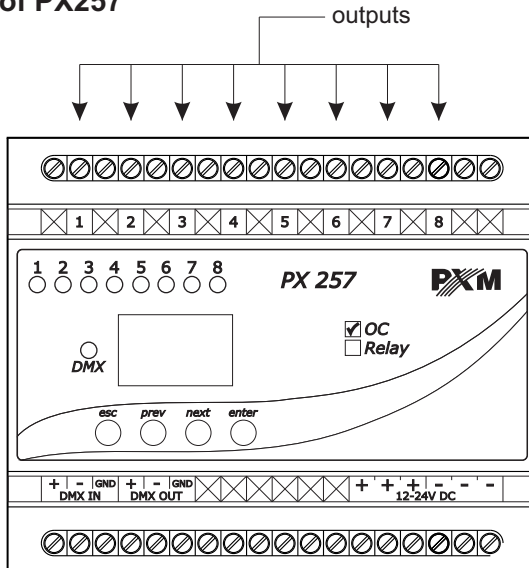
1. The device may only be connected to the 12-24V DC power supply (stabilized voltage) with current-carrying capacity compatible with technical data.
2. All conductors should be protected against any mechanical and thermal damage.
3. In case of any wire damaging, it should be replaced with one of the same parameters.
4. Connection of DMX signal should be made only shielded conductor.
5. All repairs or wire connection can only be made with power supply disconnected.
6. In case of connecting output relays to 230V mains You should be double cautious because of the risk of getting electrocuted (applies to PX257-RE).
7. PX257 should be strictly protected against contact with water and other liquids.
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

#### a) "Relay" version of PX257



#### b) "OC" version of PX257



## 4. DEVICE PROGRAMMING

After you switch on the module, its display shows the program version for a brief moment. To access the main menu, press „*enter*”, and the display will show **Adr**. Press „*previous*” or „*next*” to select the appropriate menu and press „*enter*” to confirm your selection.

### 4.1. Button features

- escape** - goes back to the previous MENU level or discards changes made
- previous** - scrolls to the previous feature on the same MENU level or decreases the parameter's value
- next** - scrolls to the next feature on the same MENU level or increases the parameter's value
- enter** - enters the next MENU level and confirms changes made

### 4.2. DMX channel value for the output turning on and off

The output will be switched on once the DMX channel is set to values over the upper hysteresis threshold. On the other hand, the output will be switched off after the DMX channel is set to values below the lower hysteresis threshold.

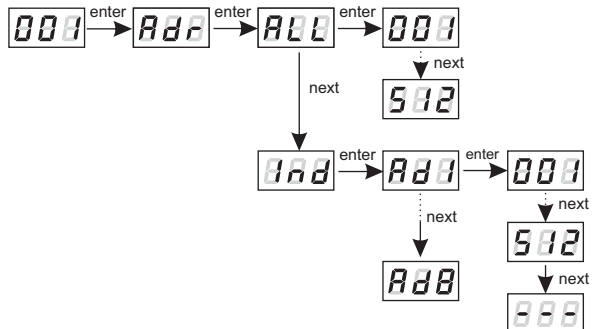
### 4.3. DMX address

The PX257 menu allows the user to set a DMX address in the 1 - 512 range. It is possible to set an address individually **Ind** for one of the eight outputs (**Ad1 - Ad8**) or on a group basis (**ALL**) for all the eight channels simultaneously.

#### ON A GROUP BASIS

Using the „*next*” or „*previous*” keys, set the desired DMX address by selecting values from 1 to 512 and press „*enter*”. The address thus set will be assigned to the first channel, subsequent DMX addresses will be assigned to subsequent channels.

Once an address is programmed in this manner, the individual settings for each channel are cancelled.



## ON AN INDIVIDUAL BASIS

Using this menu you can set a DMX address individually for the 8 outputs.

After you select *Ind* in the main menu, press „*enter*” to confirm your selection.

Using the „*previous*” or „*next*” keys, select the output you want to configure (***Pr1 - Pr8***) and press „*enter*”.

Using the „*previous*” or „*next*” keys, select a value from the range 1 - 512, or  to disable DMX control on the output, and press „*enter*”.

## 4.4. Reaction of the device to DMX signal interruption

In the ***noS*** menu you can configure the response of the device to DMX signal interruptions.

Available options include:

- Pr1, Pr2, Pr3, Pr4*** - 4 built-in programs
- Sc*** - a scene that can be programmed
- on*** - switching on of all the outputs
- oFF*** - switching off of all the outputs
- hld*** - holding the last value

## PROGRAM

In order to configure a program, access the ***noS*** menu by pressing „*enter*” and select the desired program with „*next*” or „*prev*” keys, and finally press „*enter*” to confirm your selection.

| Program number                     | Action   |
|------------------------------------|--|
| First program - <b><i>Pr1</i></b>  | all the outputs and diodes are switched on, and blink, simultaneously  |
| Second program - <b><i>Pr2</i></b> | outputs and LEDs blink alternately in two groups, the first group being outputs 1-4, and the other - outputs 5-8         |
| Third program - <b><i>Pr3</i></b>  | outputs and LEDs blink one after another: when one goes out another turns on, in the direction from output 1 to output 8 |
| Fourth program - <b><i>Pr4</i></b> | outputs and LEDs blink one after another: when one goes out another turns on, in the direction from output 8 to output 1 |

***Spd*** - this option allows the user to adjust program speed within the range of 0.1 - 60 seconds.

## SCENE

**Sc** - allows you to select a static scene, what means to activate selected outputs.

To select all outputs responsible for a static scene, press the „*enter*” button, then use the „*next*” or „*prev*” button to set the chosen input marked as **Ou1 - Ou8** and press „*enter*”. Using the buttons „*next*” or „*prev*” set **SEt** to activate the selected output or **CLr** to turn it off.

### 4.5. Complementary outputs

The PX257 switch can operate in a complementary output mode.

In the **Cpl** menu you can select **oFF** - the complementary mode is switched off - the control process is carried out normally, **on1** and **on2**.

⌘ In mode **on1**, the outputs operate in pairs, whereby one of the outputs is switched on, and the other is switched off. The complementary pairs constitute outputs 1-2, 3-4, 5-6 and 7-8. In this mode, control is performed by means of 4 DMX channels. This feature is utilised e.g. for controlling electric motors.

When control is performed using the DMX signal, the device operates in the following way:

| Input DMX channels                            | 1     |     | 2     |     | 3     |     | 4     |     |
|---|-------|-----|-------|-----|-------|-----|-------|-----|
| Outputs number                                | 1 - 2 |     | 3 - 4 |     | 5 - 6 |     | 7 - 8 |     |
| DMX signal value > upper hysteresis threshold | on    | off | on    | off | on    | off | on    | off |
| DMX signal value < lower hysteresis threshold | off   | on  | off   | on  | off   | on  | off   | on  |

In case of lack of DMX control device operates as follows:



| Outputs number | 1 - 2 |     | 3 - 4 |     | 5 - 6 |     | 7 - 8 |     |
|----------------|-------|-----|-------|-----|-------|-----|-------|-----|
| No signal ON   | on    | off | on    | off | on    | off | on    | off |
| No signal OFF  | off   | on  | off   | on  | off   | on  | off   | on  |

Where:

**on** - the output is enabled

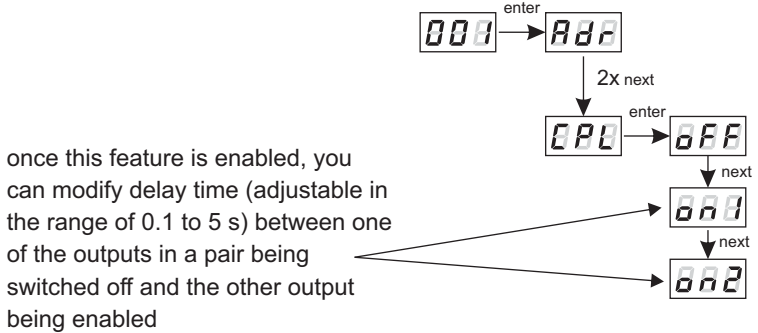
**off** - the output is disabled

⌘ Mode **on2**: outputs are paired, each DMX channel controls one output, but the outputs are never enabled simultaneously. If both channels are enabled (on), the output that is switched on is the one whose DMX channel was first to be enabled.

By way of example:

The action of switching on the first DMX channel will cause the first output to be switched on. The action of switching on the second channel (with the first channel still being on) will not switch on output 2. This output 2 can only be switched on after the first channel (of the enabled channel pair 1-2) is switched off (after a pre-set time).

If both DMX channels are switched off, none of the outputs are switched on.



**NOTE:** If you want to connect an electric motor to the device, it has to be connected to paired outputs (e.g. output 1 - phase 1 and output 2 - phase 2). If a motor is connected to unpaired outputs, a short circuit may occur.

### 4.6. Hysteresis thresholds

The device can employ hysteresis which prevents relay contact vibration during switching on and off.

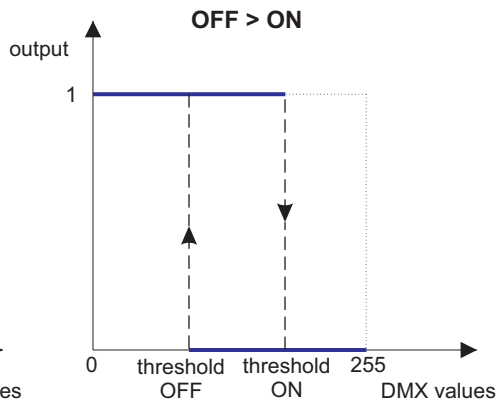
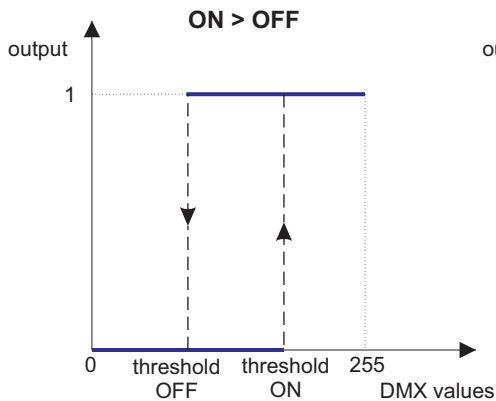
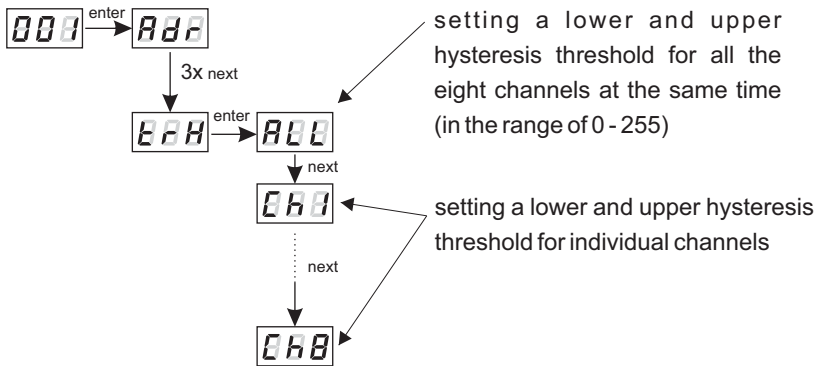
Two hysteresis thresholds are applied, one for switching to the ON position, the other - to the OFF position.

If the lower hysteresis threshold is below the upper one, a normal characteristic is obtained.

If the lower hysteresis threshold is above the upper one, a reversed control characteristic is obtained.

If the upper and lower thresholds are identical, the channel will be switched on at all times.





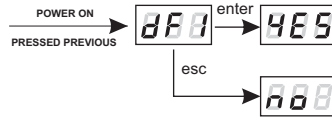
## 4.7. Default settings and memory error

If you have any difficulty accessing the device menu, e.g. it is not possible to enter a particular menu level or it is necessary to restore the device to its default settings, follow the instructions below.

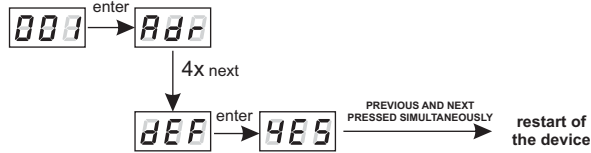
In the first case, when a particular menu level cannot be accessed or menu items are displayed incorrectly, this may indicate that a saving-in-memory error has occurred. In such a case, try to restore the device to its default settings before sending the PX257 to the service centre. If, after restoring to its default settings, the device still does not operate correctly, please send it to our service centre.

To restore the device to its default settings, press and hold the previous key while switching on the device. One of the messages that will be displayed will say **dFI**, which means successful restoring to default settings (the previous key has to be held down while powering on the device, until the **dFI** message is displayed).

If this message is accepted by pressing „enter”, the default settings will be restored. The user can also exit this menu level without restoring the default settings. In order to do this, press the „esc” key.



You can also restore the default settings from the menu level by carrying out the following steps:



When the **YES** message appears on the display, press and hold down the keys „prev” and „next” simultaneously until the device resets itself and the start menu is displayed.

Please note that after restoring to default settings, all the operating parameters of the device will revert to the following ones:

- ⌘ **DMX address:** 1
- ⌘ **complementary outputs:** off
- ⌘ **no signal operating mode:** off
- ⌘ **hysteresis thresholds:** ON = 141, OFF = 115

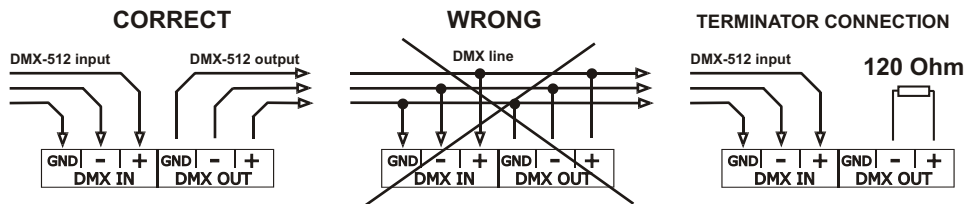
The device incorporates an embedded memory controller.

If the device experiences memory issues, the display will show an **Err** message - a memory error. In such a case, press „enter” and the device will load its default configuration into the memory. If despite those steps the device continues to display the **Err** message, this means that the memory is permanently damaged and should be sent to the service centre.

## 5. DMX SIGNAL CONNECTION

PX257 have to be connected to DMX line in serial mode, with no branches on DMX control cable. That means that DMX line, from the signal source, must be connected to DMX IN pins of PX257 and later, directly from DMX OUT pins to the next device in DMX chain.

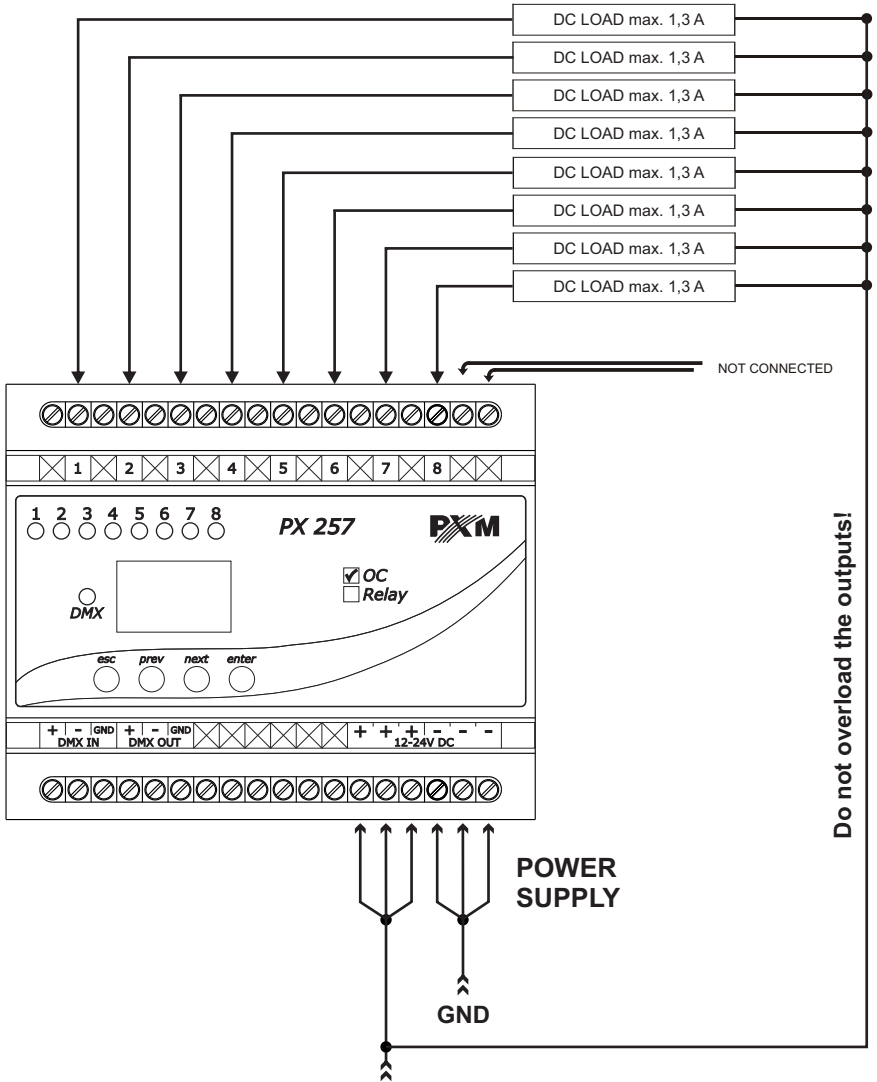
If the PX257 is the last DMX chain receiver there should be terminator (resistor 120 Ohm) mounted between "DMX+" and "DMX-" pins of DMX OUT section.





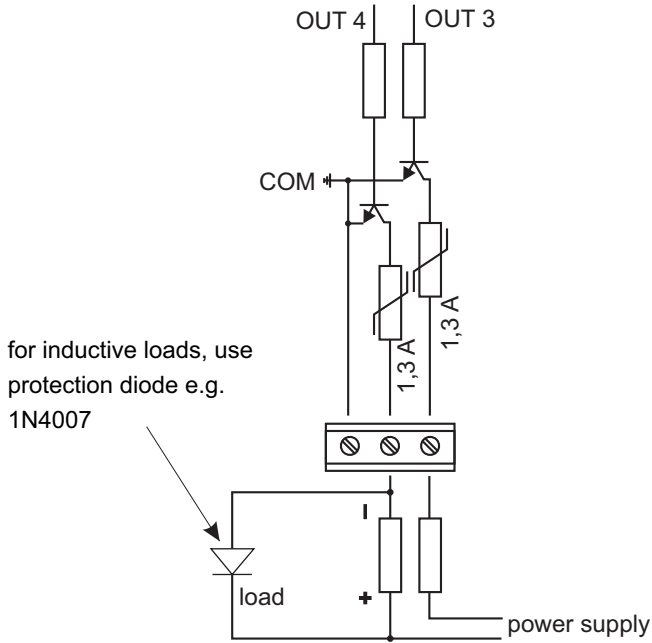
# 7. CONNECTION SCHEME

## a) for "OC" version of PX257

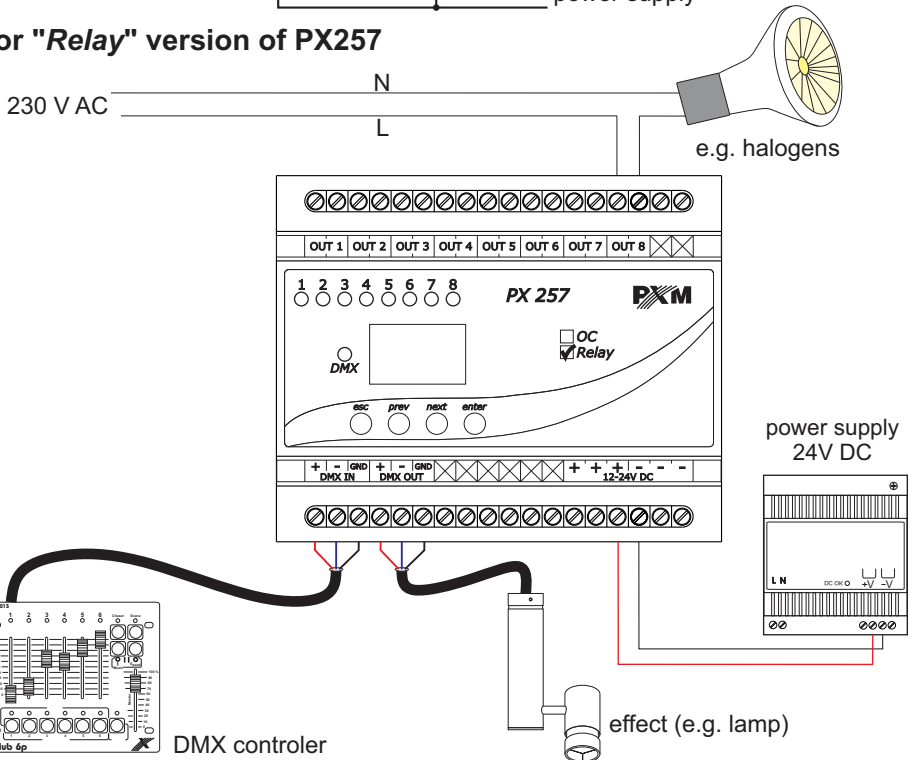


**NOTE:** To evenly load each of power supply dedicated pins connect power supply conductors (12 - 24V DC and GND one) to all suitable PX257 pins - according to diagram.

Each output in PX257 is an open collector, its inner construction is shown on picture below.



**b) for "Relay" version of PX257**

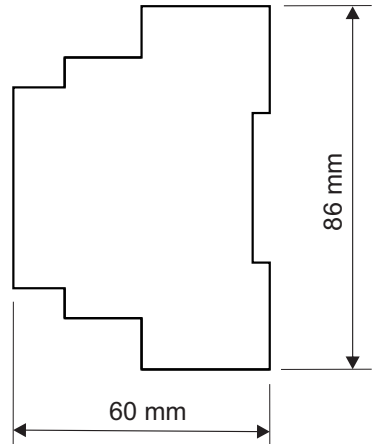
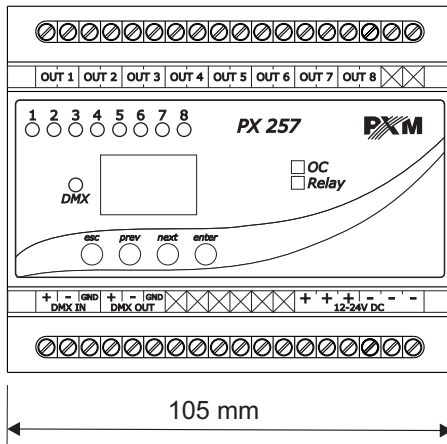


## 8. TECHNICAL DATA

|  |  |
|--|--|
| - DMX channels                               | 512                                    |
| - power supply                               | 12-24 V DC                             |
| - current consumption                        | 130 mA for 24V DC<br>250 mA for 12V DC |
| - number of output channels                  | 8                                      |
| - load capacity of outputs (RE version)      |  |
| resistance load                              | max. 2A, 250 V AC / channel            |
| resistance load                              | max. 2A, 24 V DC / channel             |
| induction load                               | max. 0.5A, 250 V AC / channel          |
| induction load                               | max. 0.5A, 24 V DC / channel           |
| - load capacity of outputs (OC version)      | max. 1.3A, 24 V DC / channel           |
| - max. switching frequency (only version RE) | 600 cycles/h (for the nominal AC load) |
| - output sockets                             | terminal blocks                        |
| - DMX input / through                        | Yes                                    |
| - dimensions:                                |  |
| - width                                      | 105 mm                                 |
| - height                                     | 60 mm                                  |
| - length                                     | 86 mm                                  |



## 9. DIMENSIONS





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## DECLARATION OF CONFORMITY according to guide lines 2004/108/WE

Name of producer: PXM s.c.

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

*declares that the product:*

Name of product: Switch 8 x OC / 8 Relay DMX

Type: **PX257**

answers the following product specifications:

**EMC:** **PN-EN 55103-1**  
**PN-EN 55103-2**

*Additional information:* The DMX-512 output must be shielded and the shielding must be connected to the ground responding to the DMX connectors



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Kraków, 24.11.2011

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