

PX175

DMX-DALI Converter

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

DMX-DALI Converter is an advanced video converter that allows in easy way to combine dynamic light systems based on the DALI control and DMX-512 systems.

PX175 allows you to connect, in accordance with the standard DALI up to 64 DALI devices. Device menu allows to independently address any individual lamps or groups of devices, and user can create up to 16 groups. What is more for each of the lamp, you can define a number of individual parameters such as minimum and maximum brightness of the lamp, the time in which the brightness of the lamp reaches its maximum value (fade time), the amount of steps needed to achieve maximum brightness level (fade rate) and determine the brightness of each lamp in case of control system failure.

The PX175 allows also to select the response of the system on loss of DMX signal (either complete exclusion, the full brightness of a static scene or a user-specified brightness).

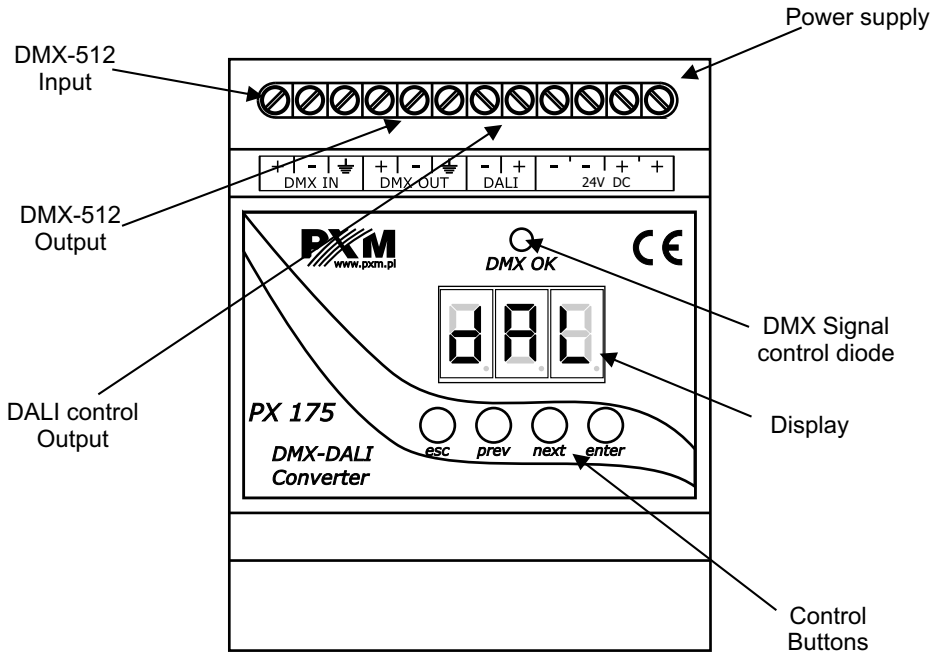
The device is powered from 24V DC. It is produced in a housing with a width of 4 standard DIN rail modules adapted for mounting on 35 mm wide DIN rails.

2. SAFETY CONDITIONS

The PX175 is a device powered with safe voltage 24V, however during its installation and use the following rules must be strictly observed:

1. Installation of the device should be carried out by a person with appropriate qualifications and in accordance with this document.
2. The device may only be connected to 24V DC current (stabilized voltage) with current-carrying load in accordance with technical data.
3. Protect the power cord from any mechanical and thermal damage.
4. In case of any cord damage, replace it with a wire of the same technical data.
5. Connection of DMX signal can only be made with shielded conductor.
5. All repairs and connections of outputs or DMX signal can only be made with cut off power supply.
6. The PX175 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 it with dump duster only.

3. CONNECTIONS AND CONTROL ELEMENTS DESCRIPTION



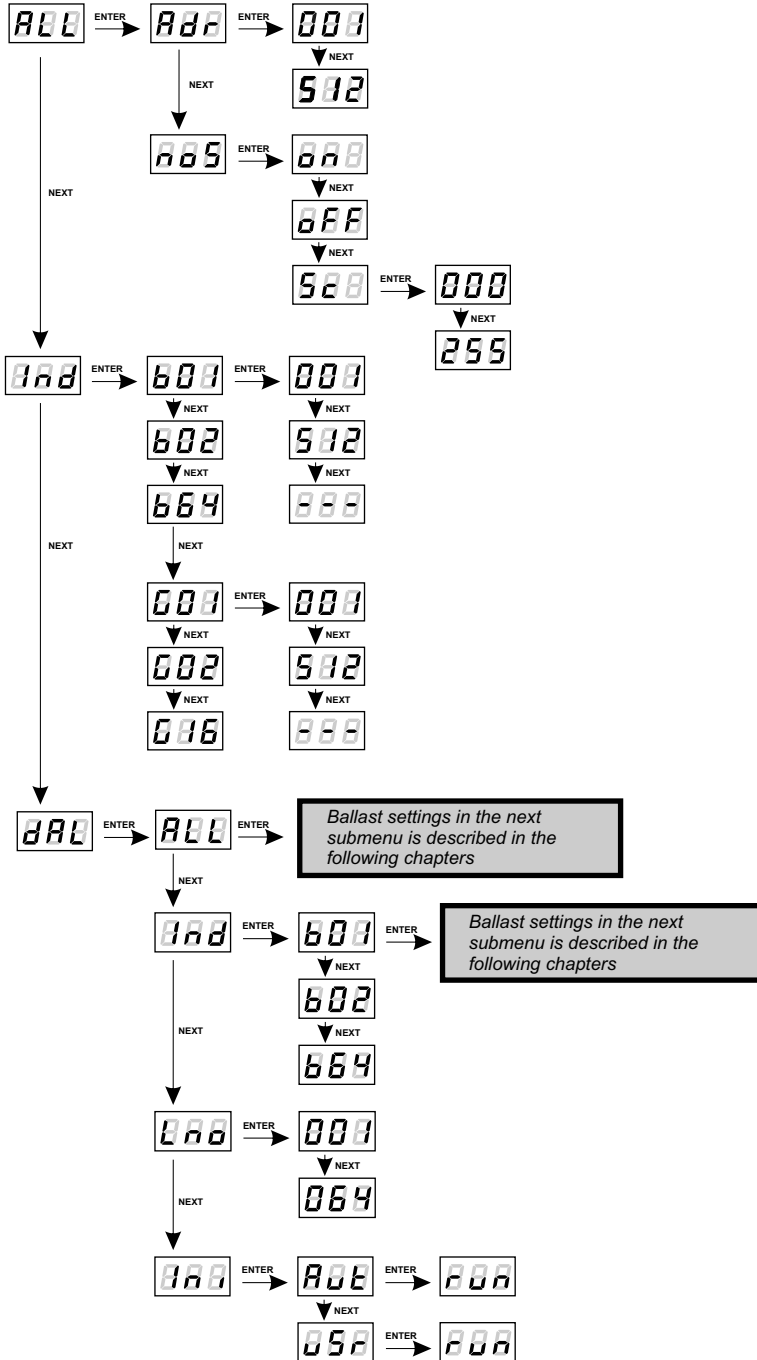
4. PROGRAMING THE DEVICE

After switching on the display of the device shows the version of the program. During normal work of the DALI converter on the display is visible the main DMX address of the PX175. To go to the main menu, press ENTER and on the display will appear `ALL`. Press the PREVIOUS or NEXT to select the menu for programming (`ALL` `Ind` `dAL`) and press ENTER to confirm.

4.1. NAVIGATING THE MENU

- esc** - allows to exit from the currently programmed parameter without saving the changes or to go in the menu to a level above
 additionally pressing **esc** in working mode allows you to test DMX control diode and the display.
- prev** - scrolls menu back or decreases the set value
- next** - scrolls menu forward or set the value increases
- enter** - allows to enter programming device mode or approve the set value

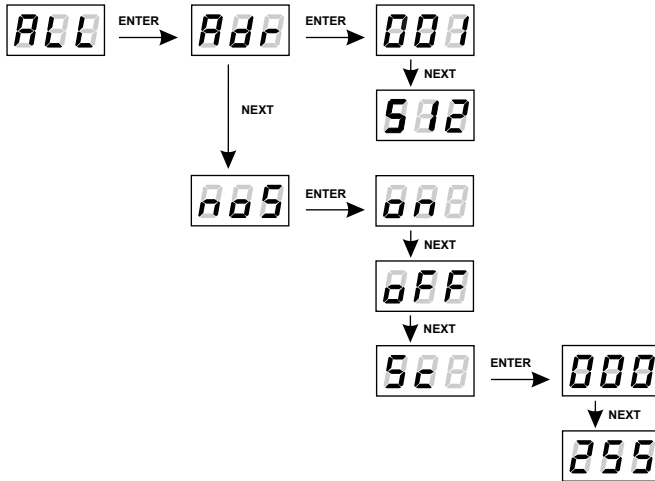
4.2. MENU SCHEME



4.3. A DETAILED SCHEME OF THE MENU

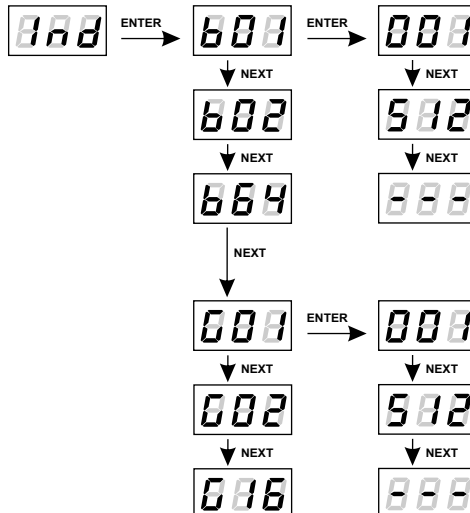
4.3.1. Menu ALL

This menu allows to set the DMX address of the converter and to set a response of DALI equipment to DMX signal loss (see chapter 4.5).



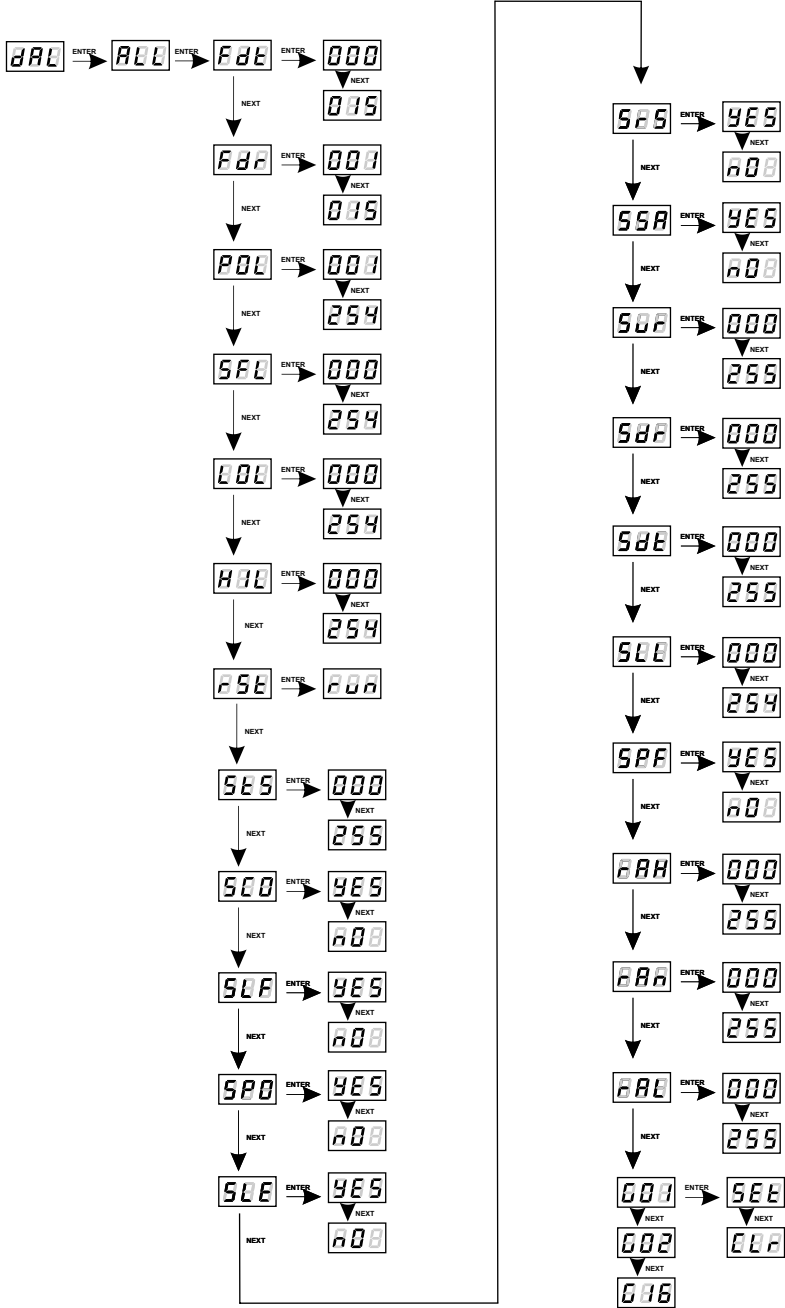
4.3.2. Menu Ind

It allows to set individually DMX addresses of the ballasts and groups (see chapter 4.6).



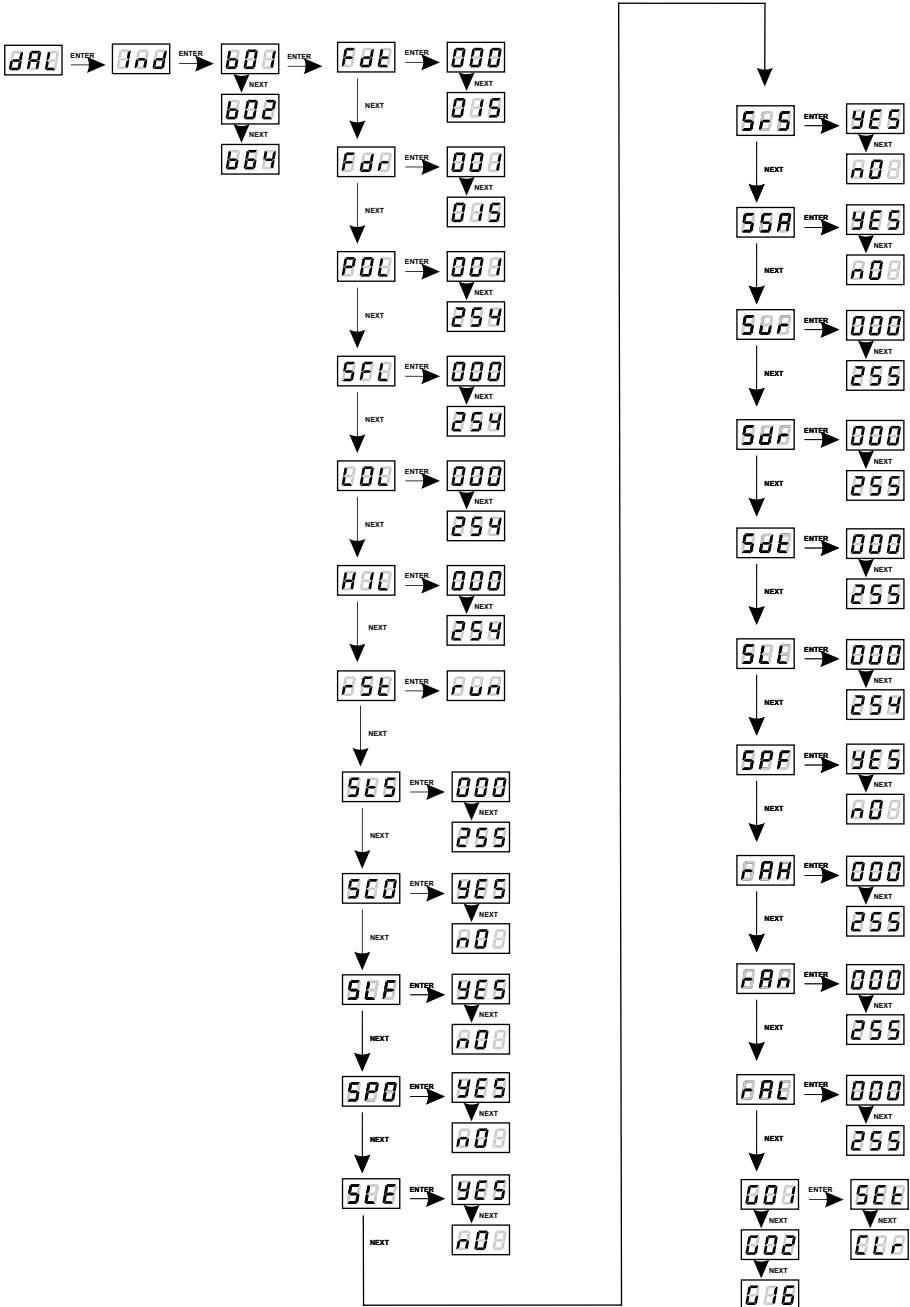
4.3.3. Menu dAL → ALL

Menu where you can group and set the parameters of all DALI devices.



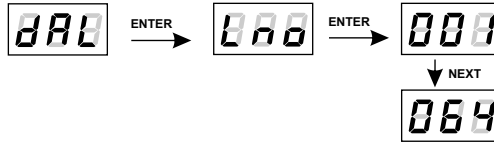
4.3.4. Menu dAL → Ind

Menu where you can group and set the parameters of individual DALI devices.



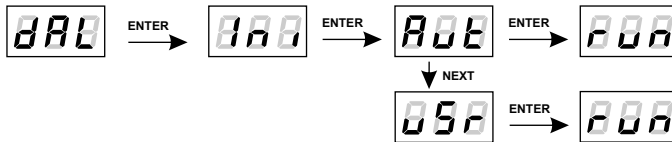
4.3.5. Menu dAL → Lno

It allows to set the number of the DALI devices connected to the PX175.



4.3.6. Menu dAL → Ini

This menu allows to set addresses of the DALI devices.



4.3.7. REMARKS

Ballast - is a device plugged into the DALI bus. This is usually part of the lamp, but it may also be other DALI devices.

DALI interface protocol is relatively slow compared to the DMX protocol, therefore in large installations is recommended:

- Reducing the number of ballasts (in the **Lno** menu) to the actual number of lamps in the system
- Grouping ballasts.
- Removing redundant group addresses.

4.4. SETTING ADDRESSES OF THE DALI DEVICES

To start programming, at a beginning the DALI devices should be given the addresses. This can be done in two ways: manually (by users), auto (the converter itself gives the addresses of the DALI devices.) It is recommended to manually set the addresses.

To automatically assign addresses to ballasts you need in the **dRL** menu to choose the **ind** submenu using buttons NEXT or PREV, press ENTER. Then select **Aut** and confirm by pressing ENTER. When on the device display will appear **run** press ENTER. The converter will start automatically search the network in order to give addresses to encountered ballasts. The display will start to flash, and found ballasts will in turn on. Addresses will be assigned in the same order as they were detected starting from 001.

To manually assign addresses you need to go to the **ind** menu using buttons NEXT or PREV, and confirming with ENTER. Then select **usr** and confirm with ENTER. When on the converter display will appear **run**, press ENTER. To begin the process of locating ballast proceed as follows:

While the converter looks for ballasts on the display blinks with message **SRH**, after detecting lamp it lights up and on the screen flashes the suggested address of the ballast. You can change the address using buttons NEXT or PREV. To accept press the ENTER button, after that the ballast dims. This process is repeated until the final weights will be found.

The procedure can interrupted by ESC button.

Note. Number of visible and available addresses for the lamp depends on the number of units declared by the user when selecting a quantity of ballast in the **LnD** menu.

If necessary, increase this value (see chapter 4.5).

4.5. SETTING THE NUMBER OF THE DALI DEVICES

Max ballasts number that are supported by the DALI protocol is limited to 64. To facilitate programming and to optimize the performance it is recommended to introduce the required amount of ballast by the user. You can do this as follows:

After running the converter to go to the **ALL** menu by pressing the ENTER button, then pressing NEXT or PREV to go to the menu **dRL** and press ENTER.

Then go to the **LnD** menu using NEXT or PREV buttons and press ENTER. Then select the desired number of ballasts and pressing ENTER.

After this operation, the **ind** menu will only show number of ballast addresses which was approved on the menu **LnD**.

4.6. MENU ALL

4.6.1. Main DMX address

In the **Adr** menu you can set the DMX address of converter for DALI-controlled devices in a range between 1 and 512. To do this, after selecting the **Adr** in **ALL** menu, press ENTER to confirm. Use NEXT or PREV buttons to adjust the DMX address by selecting a value from 1 to 512 and press ENTER. Select another parameter to be set or press ESC to return to the main menu.

The address programmed in this way changes the previous individual settings of ballast addresses so that they line up sequentially as the main address. The first ballast gets the equal address of the converter. The numbers of all groups that were set up previously are excluded (---). If necessary, you need to manually set the new addresses.

4.6.2. The reaction of the device on loss of DMX signal

When the converter is connected to DMX signal the DMX OK LED diode flashes on the front casing panel of the device, if there is no signal diode goes out.

To set the behavior of the device in case of DMX signal loss you need to:

After selecting **nos** in the menu **ALL** confirm the selection by pressing ENTER. Using NEXT or PREV buttons select an appropriate option and press ENTER.

- on** - all of the ballasts will be switched on with full power,
- off** - all of the ballasts will be switched off,
- sc** - a scene that can be programmed.

If you want to set the light to specified brightness level, you need to program scene.

To program a scene, press ENTER after choosing **sc** option. Then select a value from 0 to 255, where 255 is 100% of lamps brightness, and 0 is a lamp dimmed to a minimum.

This value will be sent to all of the lamps in the absence of DMX signal.

Note:

The maximum brightness when you choose **on** or **sc** depends on the settings and parameters of the individual DALI ballasts (see chapter 4.7.1. or 4.8.1.)

A value of 100% brightness is a maximum level parameter (**HL**).

The value 0 is the minimum level parameter (**LL**).

4.7. PROGRAMMING OF INDIVIDUAL DMX ADDRESS

Automatic DMX Addressing made during setting of the main DMX address may be insufficient for in many cases. That is why, in the menu **ind** DMX addresses can be individually set for each of the 64 ballast, and each of the 16 groups (see chapters 4.7.3 or 4.8.2).

After entering the **ind** menu, you can choose number **b01** of the ballast. Using NEXT or PREV buttons to navigate, go to the requested number of the ballast, and as indicated the ballast will light up. Press ENTER to confirm. Select the desired DMX address for the ballast from the scope of 1-512, or choose **- - -** to turn off the ballast with DMX control. Number of ballasts is determined by the user (see chapter 4.4.). Default setting is the maximum number allowed by the standard DALI ballast i.e. 64.

The same procedure applies if you want to set the DMX address of the group (**g01**). To do that you need to go using NEXT button in the same menu to the group option. After choosing group of lamps, those ones being members of this pack will light up. The DALI standard can set address up to the 16 groups.

4.8. MENU dAL → ALL

4.8.1. Determination of parameters for all DALI ballasts

To set the parameters for all DALI ballasts you need to: choose **dAL** from the main menu and press ENTER. On the display will appear **ALL** confirm with ENTER. Using NEXT or PREV buttons go to the DALI parameter (or one of the groups) you want to and then press ENTER to select the desired value.

In ALL menu you can enter parameter values, but it is not possible to read them. There will always be displayed the minimum value, although the real ones may be different. To read the value placed on the parameter settings you need to go to a specific individual ballast (see chapter 4.8.1.)

4.8.2. Description of the available DALI parameters

4.8.2.1. The configurable parameters

Fdt Fade Time

range: 0-15

Time of transition between the levels of brightness

0 - instantly switch between brightness levels

1-15 transition time [s]

Fdr Fade Rate

range: 0-15

Number of steps needed to achieve the maximum level of brightness

POL Power On Level

range: 0-254

Lamp brightness level when it is switched on.

0 - disabled

254 - 100% brightness

SFL System Failure Level

range: 0-254

Lamp brightness level when on control bus occurs an error

0 - disabled

254 - 100% brightness

LOL Minimum Level

range: 0-254

The lowest brightness level of the lamp

0 - disabled

254 - 100% brightness

When it is set to a relatively high level, DMX control will respond to the reduction of the value to some specified level. After crossing this parameter the further reduction will not affect the behavior of the lamp.

Setting the DMX signal to 0, will cause the lamp to switch off every time, no matter how high the level of the minimum lamp brightness will be set.

Lowest possible to set the brightness level depending on the manufacturer of ballast, you can check the SSL parameter (see chapter 4.8.2.2.).

HIL Maximum Level

range: 0-254

The highest brightness level of the lamp

0 - disabled

254 - 100% brightness

When it is set to a relatively low level, DMX control will respond to the increase of the value to some specified level. After crossing this parameter the further increase will not affect the behavior of the lamp.

Lowest possible to set brightness level is depending on the manufacturer of ballast, you can check it in the SSL parameter (see chapter 4.8.2.2.).

rSt Reset

ballast reset

To reset the ballast you have to press ENTER when on the screen appears **rSt**. After that display will show **run**, press ENTER to accept.

4.8.2.2. Read-only messages

All these data are collected from DALI devices:

StS Status

range: 0-255

Indicates the decimal value of the device status

SC0 Lamp Cooperative

range: Yes | No

Indicates that the lamp is responding to messages

SLF Lamp Failure

Range: Yes | No

Indicates a lamp defect message

SP0 Lamp Power ON

Range: Yes | No

Indicates whether a lamp was switched on

SLE Lamp Error

Range: Yes | No

This determines if lamp reports an error or not.

5r5 Lamp Reset State

range: Yes | No

Indicates whether the lamp has been reset.

5SA Missing Short Address

range: Yes | No

Indicates whether a lamp has lost the address

5ur Version Number

range: 0-255

Displays the version of lamp

5dr Lamp Data Register (DTR)

range: 0-255

Indicates the decimal value of the data register

5dt Device Type

range: 0-255

Displays the type of device (0 - means the ballast)

5LL Physical minimum Level

range: 1-255

Indicates the minimum lighting level set by the manufacturer

5PF Power Failure

Range: Yes | No

Reports a power supply problem

rAH Random Address High

range: 0-255

Indicates the oldest byte from 3-byte address (RANDOM-ADDRESS)

rAn Random Medium Address

range: 0-255

Indicates the middle byte from 3-byte address (RANDOM-ADDRESS)

rAL Random Address Low

range: 0-255

Indicates the youngest byte from 3-byte address (RANDOM-ADDRESS)

4.8.3. Adding / removing of all the ballast from the group

To add all of the ballasts to the group you should in the **ALL** menu using NEXT or PREV buttons choose the desired group number, for example, (**001**) and press ENTER to accept. Then, set the device to parameter **SEt** using NEXT or PREV buttons on and then accept with ENTER. All ballasts are members of the selected group.

To remove the ballast from the group, select the group number, press ENTER to accept. Then, set the device to parameter **CLr** using NEXT or PREV buttons on and then accept with ENTER. All ballasts are removed from the selected group.

4.9. MENU dAL → Ind

4.9.1. Determining the DALI parameters for the individual ballast

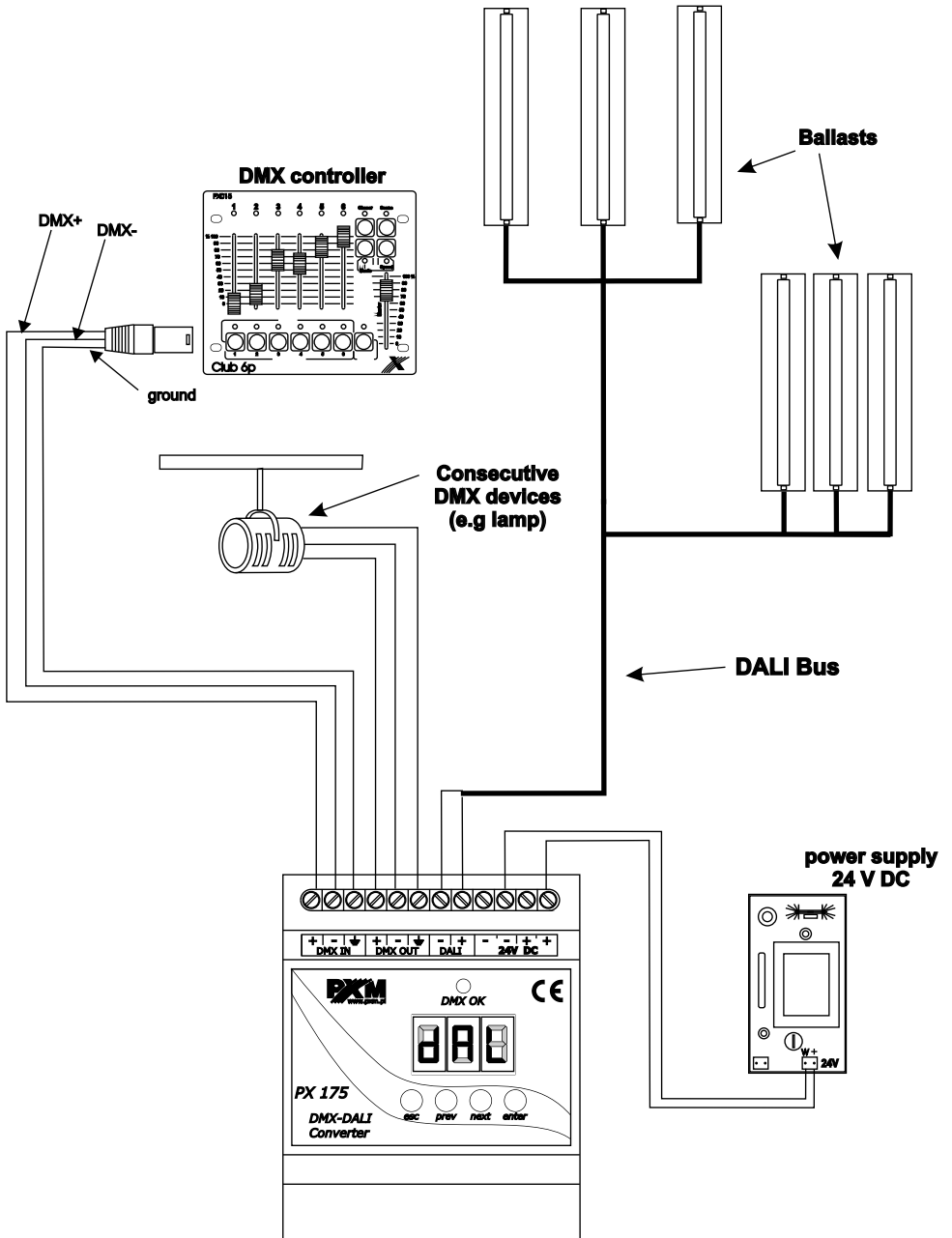
To determine the DALI parameters for the individual ballast you need to: select **dAL** from the main menu then press ENTER. The display will show **Ind** confirm with ENTER. Using NEXT or PREV buttons to select the ballast (**001**) and move to the DALI parameter you want to or one of the groups and press ENTER. Select the desired value and confirm. To make changes visible, go to the main menu by pressing ESC. The DALI parameters for the individual ballasts are identical with those for setting the parameters for all the ballast (see chapter 4.7.2.). If the lamp will be disconnected from the network converter will report an error, when you would want to change the parameter value.

4.9.2. Adding / removing individual ballast from the group

To add a lamp to a group, go to the **Ind** menu by pressing ENTER, select the requested ballast using the NEXT or PREV buttons. The selected lamp will light up. Accept that with ENTER. Then, set using the NEXT or PREV buttons to the requested group number (**001**) and press ENTER. Set parameter to **SEt** and accept with ENTER. The ballast is a member of a selected group. Adding lamp to the new group does not exclude it from the previous group, so that a lamp can belong to several groups.

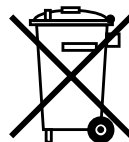
To remove the ballast from the group, select the requested ballast and press ENTER, then select the group number. Accept with ENTER. After that, set **CLr** using NEXT or PREV buttons on and then press ENTER. The ballast is removed from the selected group.

5. CONNECTION SCHEME



6. SPECIFICATIONS

- DMX channels	512
- DALI channels	64
- Power	+24V DC
- Current consumption	max. 250 mA
- Output Terminals	terminal blocks
- Dimensions:	
- width	70 mm
- height	86 mm
- depth	60 mm





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DECLARATION OF CONFORMITY according to guide lines 2004/108/WE and 2006/95/WE

Name of producer: PXM s.c.

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

declares that the product:

Name of product: **DMX-DALI Converter**

Type: **PX175**

answers the following product specifications:

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

Additional information:

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

Kraków, 01.01.2009

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