

PX333

# Mini DMX Controller

INSTRUCTIONS FOR  
THE USE OF  
THE APPLICATION ON PCs



# TABLE OF CONTENTS

1. Beginning.....	3
1.1. Construction of the application window.....	3
1.2. Information about the device and change of network settings, login....	5
2. Settings.....	6
2.1. DMX channels.....	6
2.2. Events.....	9
2.3. Elements lists.....	12
2.4. Security.....	14
2.5. Other.....	15
2.6. DMX preview.....	15
3. Edit mode.....	16
3.1. Create and edit scene.....	17
3.2. Creating and editing a program.....	22
4. Control mode.....	24
5. Configuration.....	25
6. Modbus protokol.....	25

*The manufacturer reserves the right to change the operation and handling of the controller in order to improve the product..*

# 1. BEGINNING

After launching the application, the welcome dialog will appear and the user will be able to choose from the following options:

- [Create new configuration file] - the application goes to the main window, a new configuration file is opened,
- [Open existing configuration file] - the application displays a selection window for a file saved on a disc,
- [Search devices] - the application searches for controllers in the local network,
- [Connect with controller] - a screen is displayed where you enter the address of the device (IP or domain name), your password and the port of the device located in the external network (as described in the PX333\_M\_pl\_2-1 manual);

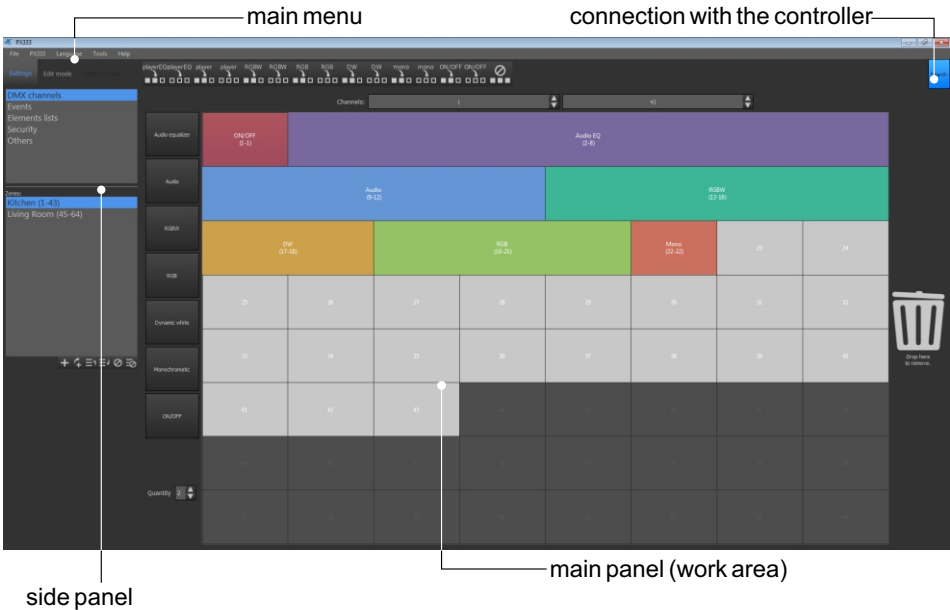
**NOTE:** When connected with the controller, changes made in the configuration are not uploaded to the device on an ongoing basis.

The uploading and downloading of the configuration are described in point 5, page 25.

## 1.1. Construction of the application window

The information presented in the program are grouped on the left side panel, divided into the following tabs: [Settings], [Edit mode], [Control mode], and in the main menu as a drop-down menu: [File], [PX333], [Language], [Tools], [Help]. In addition, the central part of the application window is a work area (main panel).

Example of application window:



The left panel consists of three tabs:

**[Settings]** - edition of zones, devices, events, lists, security options in the controller, a preview of DMX channels (only where it is connected to the controller) and **[Others]** - i.e. PWM settings and a description of the controller

**[Edit mode]** - editing programs and scenes

**[Control mode]** - ability to turn on and off scenes and programs directly from the application; it is active only when connected to the controller

The contents of the main panel are changed depending on the tab selected in the left panel.

The menu bar of the application includes 4 categories:

**[File]:**

- *New* - clears the existing configuration; if you select this option, the program asks you whether to save the currently edited configuration
- *Open* - opens the existing and previously saved configuration file
- *Save* - saves changes in the configuration; if the configuration was not saved, you can specify where to save the file
- *Save As...* - saves changes in the configuration under a given name
- *Exit* - closes the application

**[PX333]:**

- *Connect* - the application searches for controllers on the web
- *Disconnect* - disconnects the application and device
- *Get configuration* - downloads configuration from the software controller
- *Send configuration* - sends configuration to the controller

**[Language]:**

- *English*
- *German*
- *Polish*

**[Tools]**

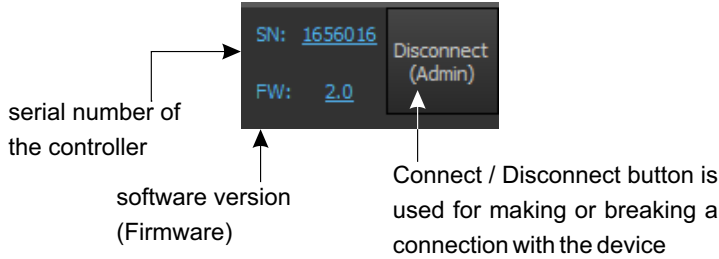
- *Modbus report* - a table setting out the assignment of controller functions to the Modbus register, and showing elements from the current configuration only.

**[Help]:**

- *About* - displays software information
- *Contact* - displays contact details of the manufacturer
- *Manual* - opens the manual (user guide is displayed in a language which is currently set in the application)

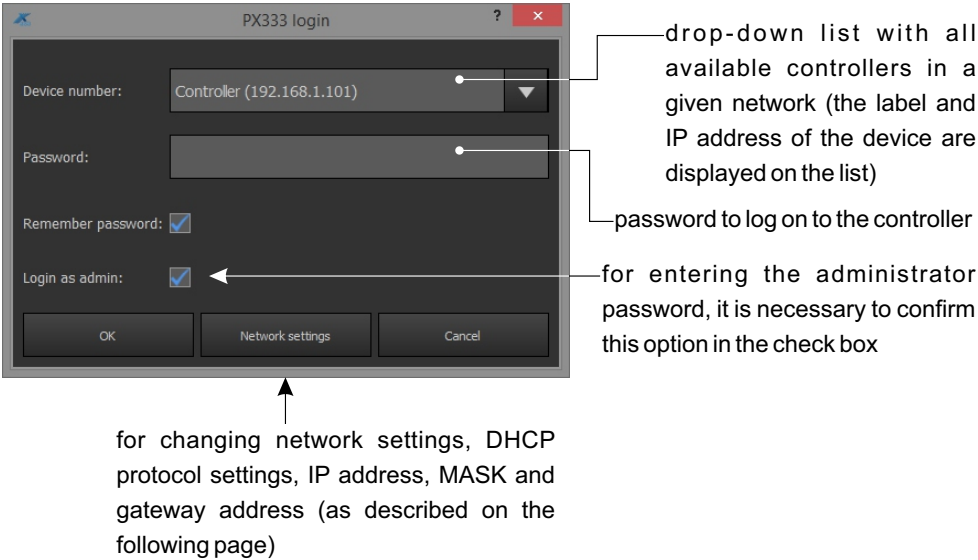
1.2. Information about the device and change of network settings, login

In the upper right corner there is a window supporting connection with the controller.



Information on the serial number and software version is displayed only when the application is connected to the controller.

Pressing the **[Connect]** button displays the window for logging on to the controller:



FIRST LOGIN:

Leave the **[Password]** box blank for the first login and confirm with the **[OK]**. By default, the controller is not password protected.

**NOTE:** If the client account (Client 1, Client 2, Client 3) is created in the application, the administrator password cannot be saved.

Option **[Login as admin]** - it is only visible if client accounts were created in the program. When you point the mouse cursor over the controller name, the application displays advance network configuration.

IP address, mask and gateway address - network configuration used when the controller does not receive configuration from a DHCP server or when the auto DHCP option is disabled

the controller name displayed in the list of devices found on the network

enter the administrator password to save changes

exit without changing network settings of the controller

**[Label]** - can contain a maximum of 16 characters

**[DHCP]** - if the function is selected, the address is automatically assigned from the DHCP server. If the function is not checked or the device is not connected to the DHCP server, a static address entered by the user is used. After connecting to the controller, configuration is automatically downloaded from the device and uploaded to the application.

## 2. SETTINGS

The **[Settings]** tab is only active when the user is logged in as an administrator or when working offline (i.e. without connection to the device), and the settings are then saved in a file.

### 2.1. DMX channels

In the **[DMX channels]** tab, you can create zones of DMX channels and assign the selected device to them. You can create a maximum of 16 zones. Each zone has a name (max. 16 characters) and a continuous range of channels covered by it. Zones can overlap.

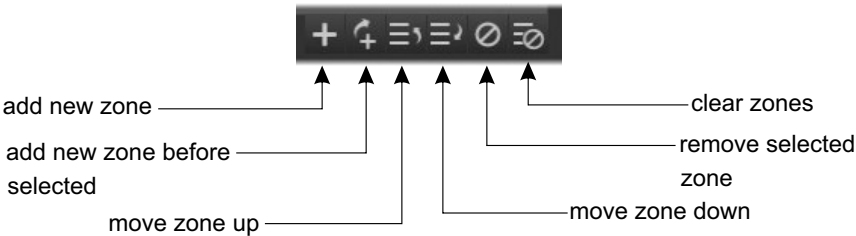
When adding a new zone, the range of channels is set to 1÷64 by default. You can change the range of channels using the following boxes:

In the left panel, under the list of settings, there is a list of established zones.

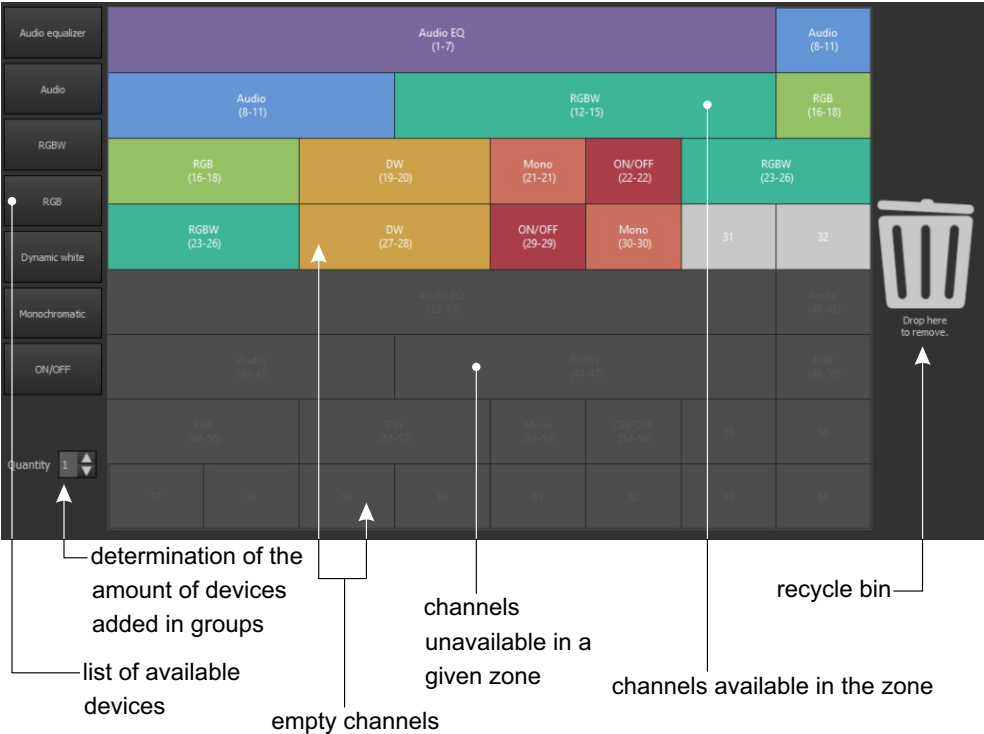
**NOTE:** When the list is empty, the table of channels in the right panel is disabled.

**NOTE:** The removal of the device resets the channels taken by it in all the scenes and programs.


Below the list of zones there is a toolbar assigned to it. The following functions are available on the toolbar:



Construction of the main panel :



**Grid of numbered DMX channels** - devices are assigned to DMX output channels. Only one device can be assigned to one channel. The program library contains 7 various devices which differ in the amount and type of channels.

**NOTE:** When adding devices, you cannot “regroup” the channels; the device must create a coherent block of channels. If the device would not fit, the program indicates an illegal action with an error indicator  and backlighting channel in red, and "dropping" the device does not cause its addition.

Devices can be added in the following way:

⌘ **Individually:**

a) Using the “drag and drop” technique - point the mouse cursor over the device that you want to copy or move. Hold down the left mouse button and “drag” the element on a clear space in the table. When you drag the device on the table, the application on an ongoing basis highlights channels that would have been occupied by the device if it was dropped at this moment.

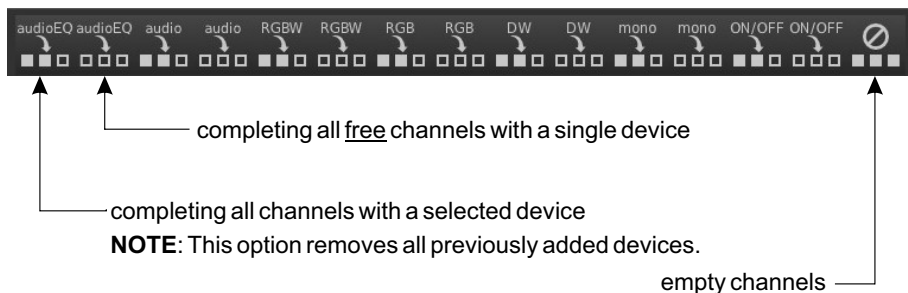
Devices added on the DMX net can be moved in the same way.

b) By clicking on the name of the device - the device is inserted into the DMX net in the first free site of an appropriate size (number of channels).

⌘ **In groups**

a) Using buttons which allow for assigning a maximum number of devices.


Two buttons are available for each type of the device:



b) The **[Quantity]** option allows you to specify how many devices will be added at the same time. Use the “drag and drop” technique to drag the selected device on the table. Devices will be added one by one, starting from the selected channel.

Devices can be removed in the following way:

⌘ **Individually:**

To remove a device from the DMX net, right-click on any channel of the device or drag the device on the icon 

⌘ **In groups:**

To remove all the devices, click on the **[Clear channels]** icon located on the toolbar above the DMX net.

Renaming:

Devices on the table are displayed as a block of channels. On this block are displayed: numbers of DMX channels occupied by the device, and the device name. You can change the name of the device by double-clicking on the device tile on the table. The name can contain a maximum of 16 characters.



## Devices and their functions:

Device	Signature	Number of channels	Type of channels
Monochromatic Lamp	mono	1	Brightness
Dynamic White Lamp	DW	2	Color temperature Brightness
Lamp RGB	RGB	3	Red Green Blue
Lamp RGBW	RGBW	4	Red Green Blue White
Switch	ON/OFF	1	ON/OFF
4-channel Media Player	Media Player	4	Command Track Playing Mode Volume
7-channel Media Player	Media Player EQ	7	Command Track Playing Mode Volume Bass Treble Balance

## **2.2. Events**

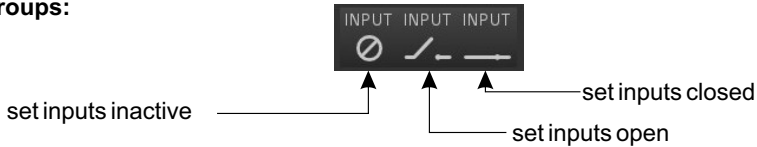
Once you have selected the **[Events]** tab in the left side panel, a table of events and a list of actions for the selected event will be displayed in the main panel.

The following events are available:

- ⌘ PX333 ON - running the controller (power on),
- ⌘ INPUT 1÷ INPUT8 - signals on the subsequent control inputs.

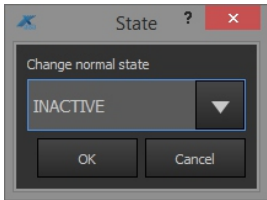
For events of inputs you can define the characteristics of the input:

⌘ **In groups:**



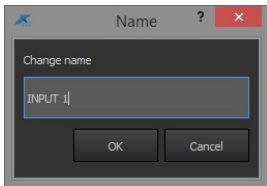
The above options are available on the toolbar. Selecting one of them sets the same characteristics on all inputs.

⌘ **Individually** - double-click on the status of appropriate event, and then, select the specification of the input from a drop-down menu.



The user can assign a maximum of 16 actions to each of 9 events.

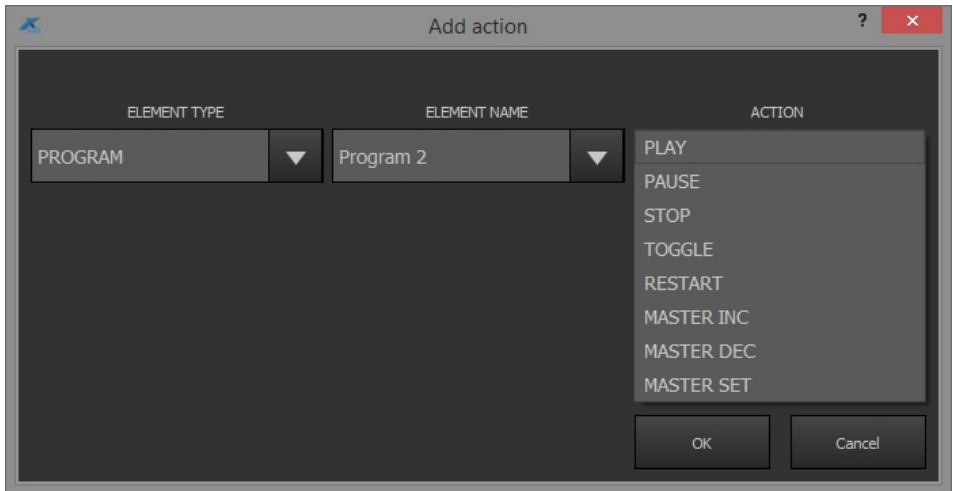
Changing the name of the event:



To change the name, double-click the event name in the table, the application will display a window.

The name can contain a maximum of 16 characters.

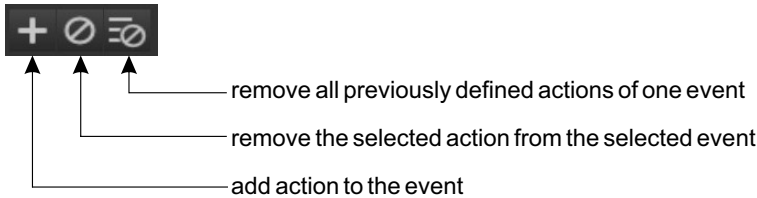
When adding an action on a list of actions, the element is added together with a defined action that is to be done on it.



Available elements and actions:

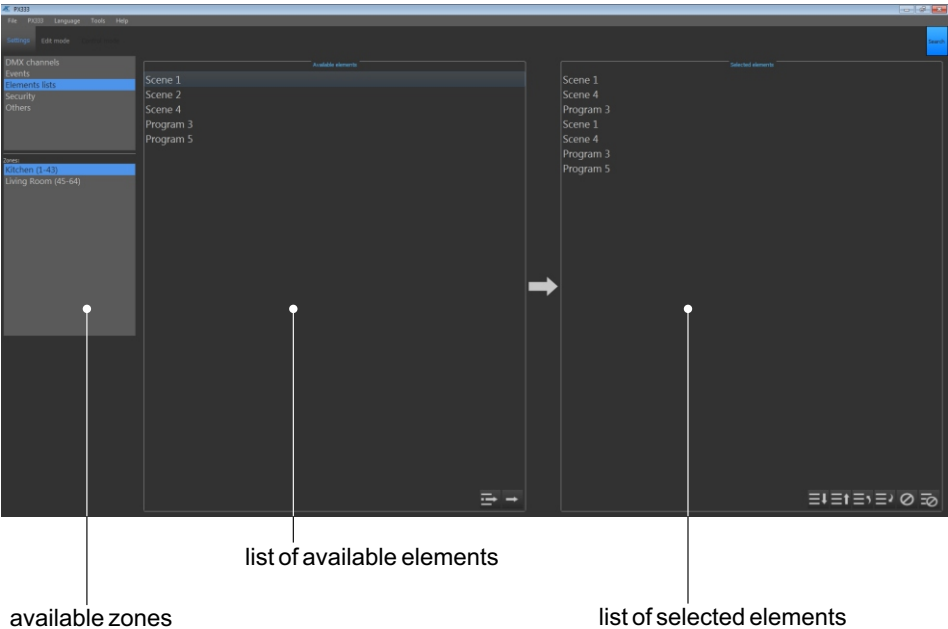
Element		Action
Scene	SCENE 1 SCENE 2 ⋮ SCENE 32 ALL	ON OFF TOGGLE
Program	PROGRAM 1 PROGRAM 2 ⋮ PROGRAM 8 ALL	PLAY PAUSE STOP TOGGLE RESTART MASTER INCREMENT MASTER DECREMENT MASTER SET
Element list	ELEMENT LIST 1 ELEMENT LIST 2 ⋮ ELEMENT LIST 16 ALL	NEXT PREVIOUS
Zone	ZONE 1 ZONE 2 ⋮ ZONE 16 ALL	ALL ON ALL OFF MASTER INCREMENT MASTER DECREMENT MASTER SET

The toolbar located in the action table includes:



**2.3. Elements lists**

The list of elements is a list of consecutive elements from a given zone.  
Each zone has its list of elements, scenes and programs; the list can be empty.  
Once you have selected the [**Elements lists**] tab in the left side panel, a list of created zones will be displayed below. If you select a zone, a list of elements available in a given zone and the target list of selected elements will be displayed on the main panel.



Adding elements to the list of elements:

1. In the left side panel, select a zone for which a list of elements will be created, the elements available in the zone are displayed in the table [**Available elements**].
2. Move elements of your choice to the table [**Selected elements**].

**NOTE:** The selected element can appear on the list several times, but there can be up to 16 elements on the list.

### Moving elements to the list of elements:

a) Using buttons located under the left column of the table **[Elements lists]**



adds the selected element to the list of selected element

You can select several elements at the same time by pushing and holding "Ctrl" button and selecting elements with the mouse, or clicking in the desired location and dragging the mouse cursor (hold down the mouse button).

adds all elements located in the left column to the list of selected elements

When you select the **[Add all]** option and the list of selected elements contains more than 16 elements (the maximum amount), the application displays the following message: "Max elements reached!" and selects only the maximum number of elements.

b) Using the "drag and drop" option

You can move several selected elements at the same time. The method of selecting several elements at the same time is described above

### **Operation of the list**

**NOTE:** If a list of elements is "activated" in a given zone (e.g. by using buttons), all the elements on the list and previously launched in another way will be automatically turned off.

The activation of the first or the last element in the list after the execution of "NEXT" or "PREVIOUS" action. Subsequent "NEXT" or "PREVIOUS" calls cause the transition to the next or previous element in the list.

When a scene is activated from the list, its duration is defined as infinity, and similarly, when a program is activated from the list, it will be played in the loop until the re-call of the "NEXT" or "PREVIOUS" action.

Elements on the list of elements can also be activated in the control mode or by events and then their duration is the same as the previously defined one (**[Control mode]** tab).

For the **[Selected elements]** list, the following toolbar is available:



sort in descending order

sort in ascending order

move selected up

move selected down

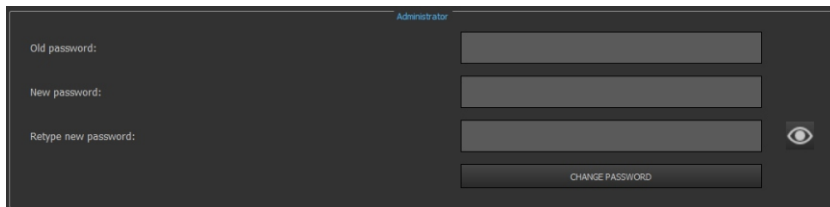
remove all

remove selected

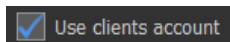
## 2.4. Security

In the **[Security]** tab there is an option to change the administrator password, but it is available only when the application is connected to the controller.

When you change the administrator password, the program asks you to enter the old password, enter a new password and repeat a new password.

A dark-themed form titled "Administrator" for changing the administrator password. It contains three input fields: "Old password:", "New password:", and "Retype new password:". To the right of the "Retype new password:" field is an eye icon for toggling password visibility. At the bottom right is a button labeled "CHANGE PASSWORD".

Additionally, user logged in as an administrator may activate client accounts at this point.

A checkbox labeled "Use clients account" with a blue checkmark icon to its left.A dark-themed login form for a client account. It has two input fields: the top one contains the text "12345" and the bottom one contains a series of dots. To the right of each field is an eye icon for toggling password visibility.

the option "show characters" allows you to preview the passphrase

There are available 3 levels of access for client and they can be simultaneously activated.

**NOTE:** Each client account should have an individual password.

### Available safety levels for the Client:

- ⌘ **Client 3 mode** - allows only for activating / deactivating scenes and programs and accessing the buttons of the panel of events, which means that edition is not possible for this level of access.
- ⌘ **Client 2 mode** - has the same authorisation as Client 1, and additionally, has access to the slider of scenes, master and basic program options (x-fade, master, speed). The changes are stored in temporary memory (they will be deleted after restarting the controller).
- ⌘ **Client 1 mode** - has the same authorisations as Client 2, and additionally, the changes are uploaded to the memory controller.

2.5. Others

In the **[Others]** tab, you can set the addresses for the three PWM outputs (range 1÷64). Additionally, the option of renaming and describing the device is also available. The name of the device is visible when searching for controllers in the network and it can contain a maximum of 16 characters. The device description can contain a maximum of 64 characters.

Output 1: ☒ enable

Output 2: ☒ enable

Output 3: ☒ enable

PWM

1

2

3

Driver info

Name:

Controller

Description:

Controller

2.6. DMX preview

The **[Preview DMX]** tab is enabled only if the application is connected to the device. In this tab, a preview of values on DMX channels and a list of currently running elements are available. On the DMX net there is visible a number of DMX channels and its current value.

Currently running

Scene 0 (Kitchen)

Scene 1 (Kitchen)

Scene 3 (Kitchen)

Library (Living room)

Table (Living room)

DMX output

1	2	3	4	5	6	7	8
192	17	224	135	206	188	8	192
9	10	11	12	13	14	15	16
2	146	70	199	130	63	0	243
17	18	19	20	21	22	23	24
94	165	138	0	157	255	0	238
25	26	27	28	29	30	31	32
0	0	0	0	0	0	0	0
33	34	35	36	37	38	39	40
96	96	255	255	255	96	96	149
41	42	43	44	45	46	47	48
96	95	160	96	46	63	96	209
49	50	51	52	53	54	55	56
96	221	96	140	194	0	103	0
57	58	59	60	61	62	63	64
0	0	0	0	0	0	0	0

number of DMX channel

DMX value

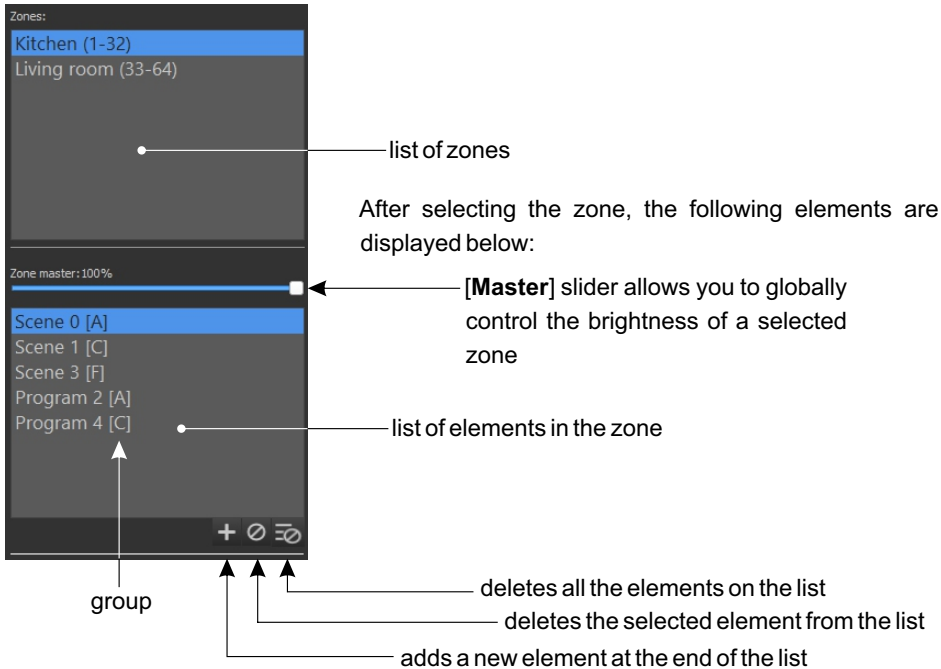
### 3. EDIT MODE

The edit mode is also available when working offline (i.e. without connection to the device), and the settings are then saved in a file.

**NOTE:** The user must connect the device to upload the saved setting to the file.

Settings can be edited only by a user who is logged in as an administrator. Client 1, 2 and 3 are not able to edit.

The side panel includes:



Each zone can contain a maximum of 24 elements, including 16 scenes and 8 programs. In total, all zones can contain a maximum of 32 scenes and 8 programs.

Next to the element name on the list, there is a symbol of the group to which it belongs (if it was previously defined and the element was added to the group).

On the work zone there is a panel for editing the selected element. If no element is selected, the panel is empty.

Master parameter affects only those channels in which a device with brightness is assigned, i.e. RGB, RGBW, DW and Mono.



3.1. Create and edit scene

If a scene is selected from the list of available elements of the zone, in the edit panel there will appear sliders that correspond to the output DMX channels assigned to a particular zone and are grouped in the device, according to the table of DMX channel available in the [Settings] tab → [DMX channels].

**NOTE:** If the device is only partially available in a selected zone - i.e. not all of its channels are in the zone - it is shown as inactive and you cannot control it.

Work area of the edit mode:

The screenshot displays a control interface for DMX channels, organized into five main sections: Audio EQ (1-7), Audio (8-11), RGBW (12-15), RGB (16-18), and DW (19-20). Each section contains vertical sliders and numerical input fields. Below the sliders, a scroll bar is visible. Labels with arrows point to specific elements: 'scroll bar' points to the horizontal scroll bar at the bottom; 'DMX channel value' points to the numerical input fields; 'slider - used to manually set the channel value in the range 0+255' points to a slider in the Audio (8-11) section; and 'name of the device together with a range of channels occupied in the DMX net and window for colour preview' points to the header of the RGB (16-18) section.

The slider and the text box are coupled together. Each device is described and has a colour/status preview window. Sliders and the entire device can be selected and controlled in groups. Selection of channels and selection of devices are independent of each other. If you change the value of a channel that is selected, the value in all the other selected channels will also be changed. Under channel sliders there are scene parameters. The [Group] box is a drop-down list with available groups. It is not necessary to add an element to the group.

**NOTE:** The groups are not inter-territorial, i.e. if a group is already “in use” on a different zone, its name does not appear in the drop-down list. If the element from a given zone is assigned to the selected group, its symbol will appear next to its name on the list of elements of the zone. Activation of element from the group will automatically disable all other elements belonging to that group.

Time options of the scene:

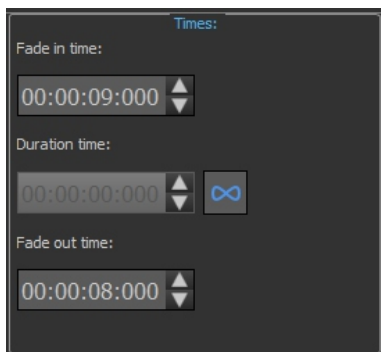
- ⌘ fade in time
- ⌘ duration time
- ⌘ fade out time

The default values of scene times are:

- ⌘ fade in time: 00h 00m 00,1s
- ⌘ duration time: infinite
- ⌘ fade out time: 00h 00m 00,1s

Each of the fields may have a maximum value of 23h59m59.9s entered, and the value of fields can be changed with an accuracy of 0.1 s.

**NOTE:** The sum of all time values cannot be equal to 0.



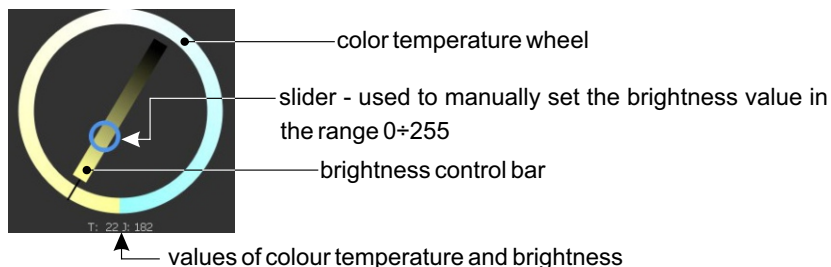
If the duration of the scene is set as infinite, the input field is greyed.

Right-clicking on the time window opens a context-sensitive window with commands such as: back (previous action), redo, cut (selected value), copy, paste, delete, select all and increase and decrease.

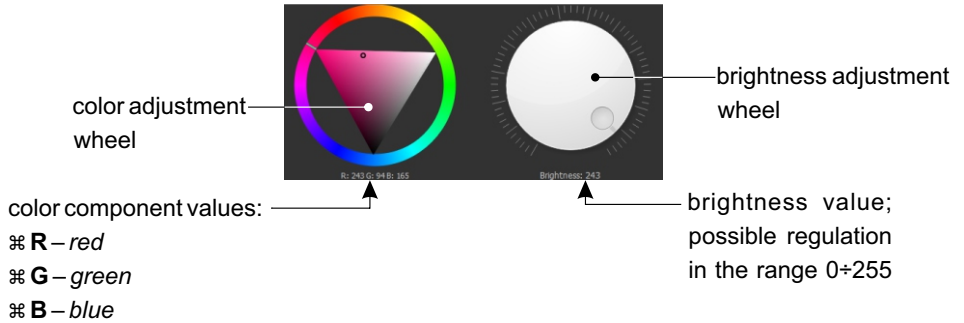
Next to the scene parameters there is a panel for the control of the selected device. The control box includes elements adjusted to the selected devices.

Control elements for each device:

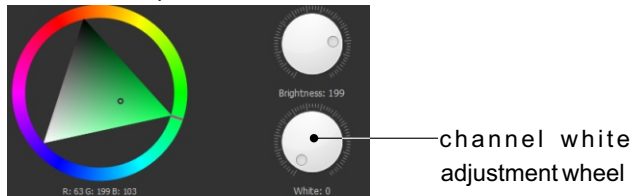
- ⌘ **ON/OFF**- single channel and corresponding ON/OFF switch. DMX values within the range 0÷122 mean OFF, values within the range 123÷255 mean that the switch is set to ON.
- ⌘ **Mono** - single brightness control channel
- ⌘ **DW** (Dynamic white) - two channels for the control of color temperature and brightness



⌘ **RGB** - three channels for the change of color and the corresponding wheels for the change of colour and adjusting of brightness

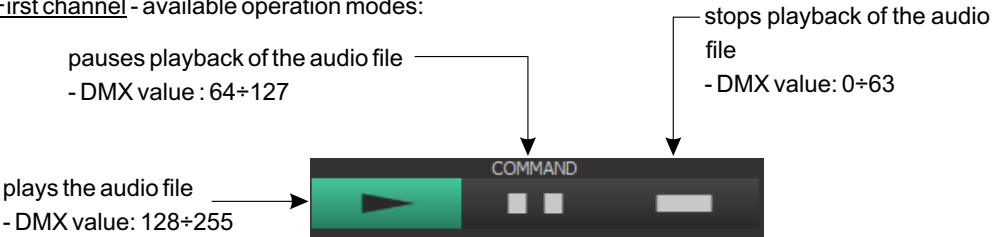


⌘ **RGBW** - four channels for the change of colour and the corresponding wheels for the change of colour, adjusting of brightness and white component



⌘ **Media Player** - four sliders and the corresponding control buttons and mode selection buttons and two wheels: path number and volume

First channel - available operation modes:



Second channel - selection of the track number (DMX values and track number are presented in the following table and on the next page):

DMX value	0-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	37-39
track number	001	002	003	004	005	006	007	008	009	010	011	012	013

DMX value	40-42	43-45	46-48	49-51	52-54	55-57	58-60	61-63	64-66	67-69	70-72	73-75	76-78
track number	014	015	016	017	018	019	020	021	022	023	024	025	026

DMX value	79-81	82-84	85-87	88-90	91-93	94-96	97-99	100-102	103-105	106-108	109-111	112-114	115-117
track number	027	028	029	030	031	032	033	034	035	036	037	038	039

DMX value	118-120	121-123	124-126	127-129	130-132	133-135	136-138	139-141	142-144	145-147	148-150	151-153	154-156
track number	040	041	042	043	044	045	046	047	048	049	050	051	052

DMX value	157-159	160-162	163-165	166-168	169-171	172-174	175-177	178-180	181-183	184-186	187-189	190-192	193-195
track number	053	054	055	056	057	058	059	060	061	062	063	064	065

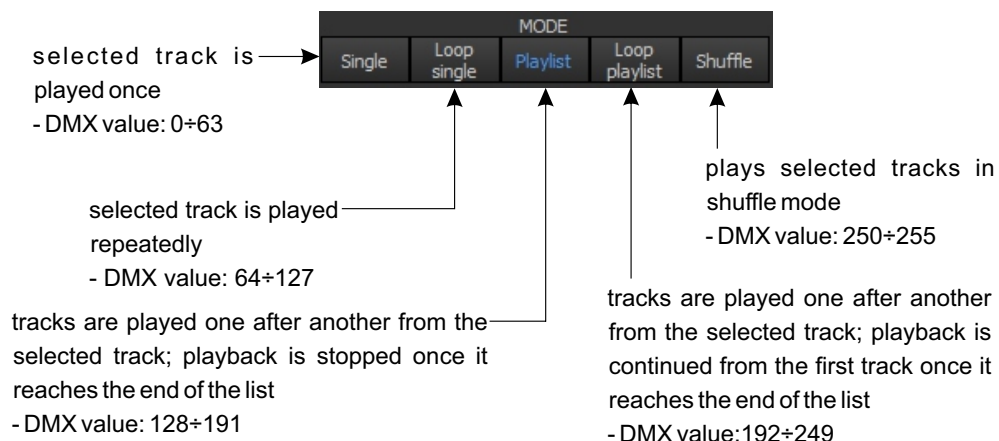
  

DMX value	196-198	199-201	202-204	205-207	208-210	211-213	214-216	217-219	220-222	223-225	226-228	229-231	232-234
track number	066	067	068	069	070	071	072	073	074	075	076	077	078

DMX value	235-237	238-240	241-243	244-246	247-249	250-252	253-255
track number	079	080	081	082	083	084	085

Third channel - selection of the operation mode:



Fourth channel - adjustment of the playback volume - in the range between 0% and 100%

Change of the volume is made in a linear way according to the following schedule: for DMX signal of 0, the volume is 0%, while for the value of 255, the volume is 100%.

Value change wheels allow for convenient control of the selected parameter (track number, volume, etc.).

⌘ **Media Player EQ** - seven sliders and the corresponding control elements

Channels from the first to the fourth have analogous functions as in the case of Media Player device (description is above)

Channels from the fifth to the seventh - adjustment:

For each of these channels, the adjustment by DMX control is performed for the same values.

These values are shown in the table on the next page:

Fifth slider - adjustment of bass, value range from -10 to 10

Sixth slider - adjustment of highs, value range from -10 to 10

Seventh slider - adjustment of balance, value range from: L-10,-9,...0...,9,10-R

DMX value	0-12	13-24	25-36	37-48	49-60	61-72	73-84	85-96	97-108	109-120	121-135
value adjustment	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0

DMX value	136-147	148-159	160-171	172-183	184-195	196-207	208-219	220-231	232-243	244-255
value adjustment	1	2	3	4	5	6	7	8	9	10

The toolbar above the edit panel includes:

LIVE MODE

⌘ select all channel:  
(**Ctrl+a**)

⌘ deselect all channels

⌘ red (**Shift+r**)

⌘ green (**Shift+g**)

⌘ blue (**Shift+b**)

⌘ white (**Shift+w**)

⌘ temperature (**Shift+t**)

⌘ brightness (**Shift+d**)

⌘ set the values of all channels to 100% (**Page Up**)

⌘ set the values of all channels to 0% (**Page Down**)

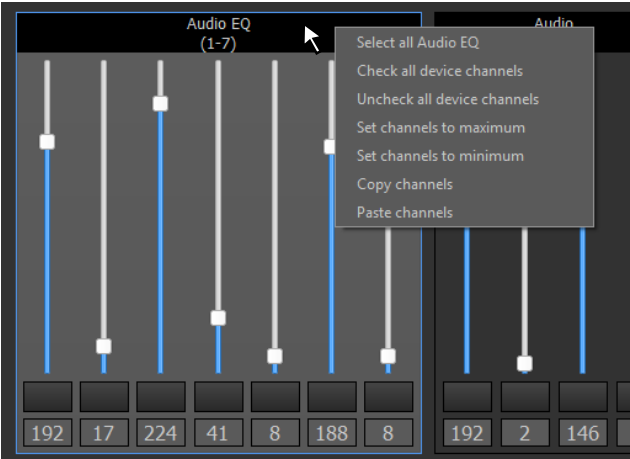
⌘ copy scene (**Ctrl+c**)

⌘ paste scene (**Ctrl+v**)

show empty channels (**Ctrl+e**)

preview mode (available only when connected to the controller), select this option to preview the edited current scene or program step without uploading the configuration to the controller (**Ctrl+m**)

Right-clicking on the preview panel opens a context menu together with appropriate control elements:

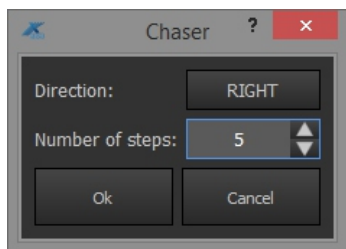
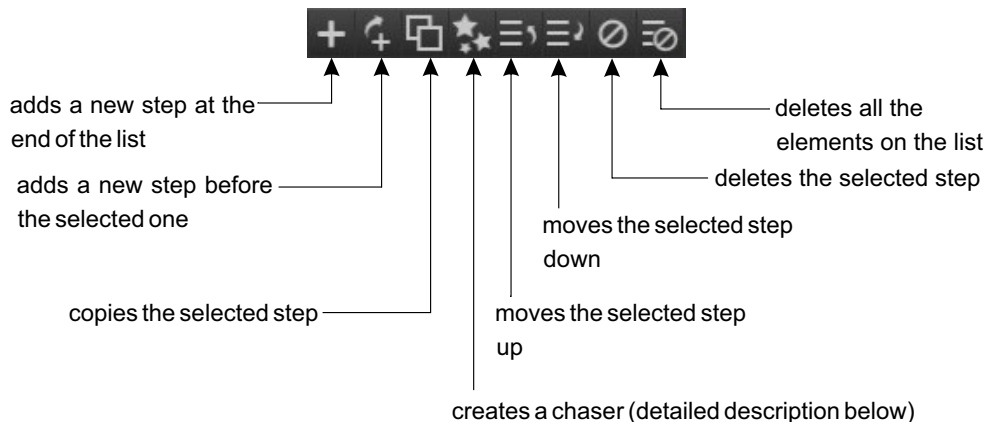


### 3.2 Creating and editing a program

If the **[Program]** is highlighted on the list of available zone elements, below is displayed a list of steps for the program. For each program you can create a maximum of 64 steps.

Program defining involves the creation and specifying of the appearance of the next steps. Each step is defined in the same way as the scene. Additionally, you can define program option and step duration.

Below the list of steps there is a toolbar assigned to it:



**Creating a chaser** - allows you to quickly create a simple transition of pattern to all devices.

**NOTE:** Chaser option is available only if channels (selected zone) are assigned to devices of the same type. Selecting this option will display a dialog box with parameters: the number of steps and direction.

Then, the application will create in the current program (if the maximum limit of steps is not exceeded) an appropriate number of new steps (under the currently selected step), which will contain the same color "formula" as the selected step, but moved in the desired direction. This allows you to create, e.g. the effect of "running point".

Program is created in the following manner:

1. Select the zone for which you want to create a program (highlight it)
2. In the following window of zone elements, click **[Add new]**
3. From the drop-down menu select **[Program]** and confirm by pressing **[OK]**
4. **[Add new]** program step in the window which appeared below the zone elements

Next to it there are two windows: **[Program options]** and **[Step options]**. Parameters set in the **[Program options]** window are global for the entire program and include:

Group:  
A

X-fade: 100%

Speed: 1.0x

Program master: 100%

Repeat: 5

program is played "in loop mode"

[Program master] allows you to globally control the brightness of a created program

program speed acceleration, speeds up or slows down the playback of the program, user can adjust the range: 0,4x÷100x

setting default speed value(1x)

a smooth transition between steps

group to which the program can not add the program to any groups [NONE]

**NOTE:** Switching off time (automatic or forced) of the program is dependent on its speed and [X-fade], but it cannot exceed 5 s.

Parameters set in **[Step options]** apply only to the currently edited step and include:

Step duration time:  
00:09:01:000

Set for all steps

the duration of the step is infinite and the duration window is disabled

the duration of the step in the format – hours:minutes:seconds:milliseconds

the setting of the duration entered for all the steps in the program

On the toolbar for program edit, there are the same tools as when creating a scene. Values of the scene channels (whole scene) can be copied to step program and vice versa.

4. CONTROL MODE

The configuration shown in the application, in the [Control Mode] tab is always up to date with the configuration on the controller. All changes made in this mode are regularly sent to the controller, without pressing the [PX333] → [Send configuration] option. During the transition to control mode, the application enforces configuration synchronisation.

A list of zones is displayed in the left panel. The [Events] option is added at the end of that list. If you select the zone, it will be displayed in the main menu. All elements available in the zone are displayed as buttons.

zone

zone master - allows you to globally control the brightness of a created program

zone elements - the button allows you to enable and disable the element

commands: stop, play or pause

quick change of settings for a given scene or program; this option is not available for the Client 3

After selecting ⚙️ of scene, the application displays a list of devices located in the zone, together with the appropriate controls:

selected zone

zone master

devices assigned to a given zone

After selecting ⚙️ of program, the application displays sliders for editing the master, speed of playback and x-fade parameter of the program.



## 5. CONFIGURATION

The configuration saved in the program is not continuously transmitted to the controller.

To send the created configuration file to the device, select **[PX333]** → **[Send configuration]** from the menu. This action will overwrite the configuration that was saved in the controller.

To download a configuration that is currently stored in the device, select **[PX333]** → **[Get configuration]** from the menu. This action will overwrite the configuration that is currently opened in the program.

The configuration file can also be saved on your computer. To do this, select **[File]** → **[Save]** or **[Save As...]**.

A configuration file saved on a disk can also be uploaded to the application by selecting **[File]** → **[Open]**.

## MODBUS PROTOCOL

The PX333 controller comes equipped with slave implementation of the ModBus TCP/IP protocol. The protocol allows the user to control the operation of the controller, by activating scenes/programmes, and to obtain information on the status of individual components.

In order to display a Modbus report in the application, select from the main menu: **[Tools]** → **[Modbus report]**.

The report contains the addresses of ModBus registers assigned to individual elements of the current configuration.

**NOTE:** changes to the configuration can result in changes to the addresses of the registers assigned to scenes, programmes and actions.

Below are examples of functions supported by the ModBus protocol.

### Parameter reading:

- DMX channel values
- digital input status
- scene/programme status

### Control:

- triggering events
- operation of areas
- scene/programme actions
- operation of element lists

A master device will connect with the controller through the standard Modbus/TCP port (port 502).

Table 1 is divided into two sections: read-only parameters (READ ONLY) and write-only parameters (WRITE ONLY). The first column contains parameter names and the number of these parameters. Column 2 sets out the ModBus function that should be used. Column 3 shows the addresses of individual parameters to which a command should be sent. The addresses are expressed both in decimal and hexadecimal notation. The right-most column shows allowed value ranges for individual parameters. In the case of the read functions, the allowed values are expected response values, while for the write functions (control functions) these are the values being transmitted. Table 2 sets out interpretations and brief descriptions of values for each parameter.

Table 1. Description of Modbus functions

Parameter		Modbus function	Address		Value
R E A D  O N L Y	DMX OUT	Read Holding Registers	dec	hex	0-255
	64		0	0000	
			1	0001	
			...	...	
		63	003F		
	DIGITAL INPUT	Read Holding Registers	4096	1000	0-1
	8		4097	1001	
			...	...	
			4103	1007	
	SCENE STATUS	Read Holding Registers	8192	2000	0-3
	32		8193	2001	
			...	...	
8223			201F		
PROGRAM STATUS	Read Holding Registers	12288	3000	0-3	
8		12289	3001		
		...	...		
		12295	3007		

W R I T E  O N L Y	EVENT	Write Single Register	16384	4000	0-8
	1				
	SCENE ACTION	Write Single Register	20480	5000	0-2
	32		20481	5001	
			...	...	
			20511	501F	
	PROGRAM ACTION	Write Single Register	20736	5100	0-7
	8		20737	5101	
			...	...	
			20743	5107	
	PROGRAM MASTER ACTION	Write Single Register	20992	5200	0-100
	8		20993	5201	
			...	...	
			20999	5207	
	PROGRAM X-FADE ACTION	Write Single Register	21248	5300	0-100
	8		21249	5301	
			...	...	
			21255	5307	
	PROGRAM SPEED ACTION	Write Single Register	21504	5400	0-255
	8		21505	5401	
			...	...	
			21511	5407	
	LIST ACTION	Write Single Register	21760	5500	0-2
	16		21761	5501	
...			...		
21775			550F		
ZONE ACTION	Write Single Register	22016	5600	0-1	
16		22017	5601		
		...	...		
		22031	560F		
ZONE MASTER ACTION	Write Single Register	22272	5700	0-100	
16		22273	5701		
		...	...		
		22287	570F		

Table 2. Description of parameters

	Parameter	Range	Description
READ ONLY	DMX OUT	0-255	Get DMX channel value
	DIGITAL INPUT	0-1	Get digital input state
			0: OFF
			1: ACTIVE
	SCENE STATUS	0-3	Get scene status
			0: OFF
			1: RISING
			2: ON
	PROGRAM STATUS	0-3	Get program status
			0: OFF
			1: PLAYING
			2: PAUSED
			3: FALLING
WRITE ONLY	EVENT	0-8	Trigger event
			0-7: DIGITAL INPUT EVENT
			8: CONTROLLER POWER ON
	SCENE ACTION	0-2	Trigger scene action
			0: ON
			1: OFF
			2: TOGGLE
	PROGRAM ACTION	0-7	Trigger program action
			0: PLAY
			1: PAUSE
			2: STOP
			3: TOGGLE
			4: RESTART
			5: RESUME
	PROGRAM MASTER	0-100	Set program master
	PROGRAM X-FADE	0-100	Set program x-fade
	PROGRAM SPEED	0-255	Set program speed
	Speed formula:  StepTime = Value * NominalStepTime / 100		Step time = 0.01s
			25: 0.25x NominalStepTime
			50: 0.5x NominalStepTime
			100: 1x NominalStepTime
			150: 1.5x NominalStepTime
			200: 2x NominalStepTime
			255: 2.55x NominalStepTime
	LIST ACTION	0-2	Trigger element list action
			0: NEXT
			1: PREV
			2: OFF
	ZONE ACTION	0-1	Trigger zone action
			0: ALL ON
			1: ALL OFF
	ZONE MASTER	0-100	Set zone master