

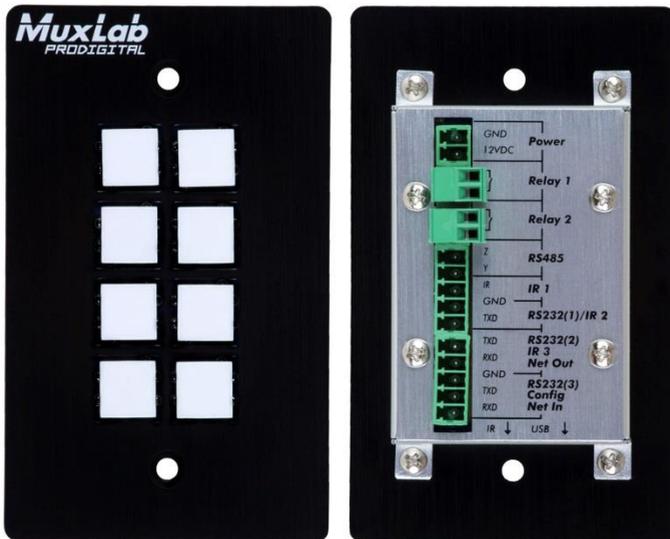
# MuxLab

## PRODIGITAL

8 Button RS232/IR

Control Panel

500816



## SAFETY PRECAUTIONS

To insure the best use from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water. Keep the product away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Using supplies or parts not meeting the product's specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- Install the device in a place with good ventilation to avoid damage due to overheating.
- Unplug the power cord when left unused for a long period of time.
- Do not put any heavy items on the unit or on extension cable.
- Do not remove the housing of the device as you may be exposed to dangerous voltage or other hazards.
- Information on disposal of devices: do not burn or mix with general household waste, please treat this device as normal electrical waste.
- Unpack the equipment carefully and save the original box and packing material for possible future shipment.
- Please read this user manual carefully before using the product.

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# 1. Introduction

## 1.1. Introduction to the 8 Button RS232/IR Control Panel

The programmable control panel is a Wall-Mounted Control Panel. Every button is programmable and works either individually or together. The programmable control panel is built with the following interface: three (3) RS232, One (1) RS485, Three (3) Infrared, two (2) Relay, and one (1) mini USB for programming.

Please note that:

- “RS232 (1)” and “IR2” share the same port, and cannot be used at the same time.
- “RS232 (2)” and “IR3” share the same port, and cannot be used at the same time.

The 8 Button RS232/IR Control Panel can control MuxLab products, as well as third party devices such as projectors, screens etc. It is an easy-to-use control device for presentation show rooms, classrooms and boardrooms.

## 1.2. Features

- Each button can be programmed to send bi-direction RS232 and RS485 commands simultaneously to control MuxLab and third party devices.
- Each button can be programmed to send infrared codes and control the relays simultaneously to control MuxLab and the third party devices.
- Each button supports a built in infrared code and RS232 code learning function, including baud-rate setting.
- ID looping function. Up to 99 units may be chained (looped) and controlled together, via an ID identification.
- The unit may be programmed through the USB or RS232 port, via the Control Panel PC Software.
- The unit supports backlit buttons with easy to change customizable labels.
- The backlit brightness is controllable.
- Face-Plate Dimension: 11.4cm (H) x 7cm (W).
- Antistatic case design: providing good protection for long-term and stable performance.

### 1.3. Package Content

- One (1) 8 Button RS232/IR Control Panel
- Four (4) captive screw Terminal Block connectors
- Three (3) IR Emitter probes
- One (1) Button Label sheet
- One (1) USB type A to Mini USB cable
- Eight (8) Button Caps
- One (1) 12VDC, 2.0A Power Adapter with US, UK & Euro Blade.
- One (1) User Manual

Please verify that the product and the accessories are all included; if not, please contact your dealer.

### 1.4. Installation

Follow the steps to install the device:

First, cut a hole on the surface of where the unit is to be installed, such as on a desktop or desk-side panel, etc. Cut to the size indicated by the cut-out diagram in Figure 1.

Second, fit the unit into the cut-out and adjust it so that it is flush with the surface (see Figure 2).

Next, screw the unit face-plate securely to the surface with two screws and nuts.

Lastly, connect the unit power connector to the provided 12VDC power supply, but do not connect the 12VDC power supply to the AC power outlet at this time.



Figure 1 Cut-out diagram

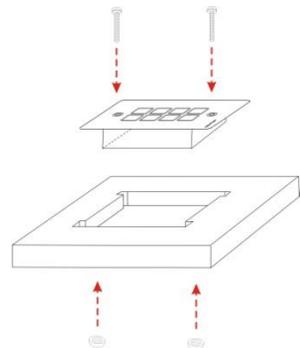


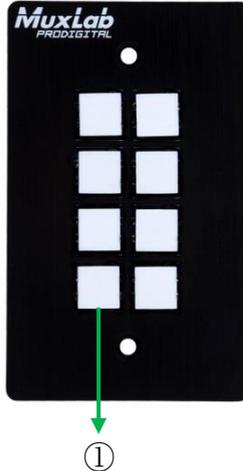
Figure 2 Installation Guide

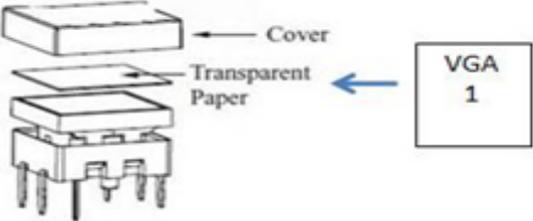
## 2. Specification

<b>Devices</b>	Matrix, Switch, DVD, projectors, monitors, TV.
<b>Compatibility</b>	Compatible with MuxLab & Third party products
<b>Output Ports</b>	Three (3) RS232 ports One (1) RS485 port Three (3) Infrared Emitter ports Two (2) Relay ports
<b>Control Ports</b>	USB or RS232 (either may be used)
<b>Connectors</b>	One (1) 2-pin terminal block (3.81 mm) for Power Two (2) 2-pin terminal blocks (3.81 mm) for Relay Two (2) 5-pin terminal blocks (3.81 mm) for Serial & IR One (1) USB Port for firmware upgrade
<b>Power Supply</b>	One (1) 110-240VAC to 12VDC/2.0A power supply with US, UK & Euro Blade
<b>Temperature</b>	Operating: 0° to 40°C      Storage: -20° to 70°C Humidity: Up to 95% non-condensing
<b>Enclosure</b>	Metal
<b>Dimensions</b>	4.49" x 2.76" x 1.10" (114mm x 70mm x 28mm)
<b>Weight</b>	0.33 lbs (0.15 kg)
<b>Compliance</b>	Regulatory: FCC, CE, RoHS
<b>Warranty</b>	2 years
<b>Order Information</b>	500816 8 Button RS232/IR Control Panel

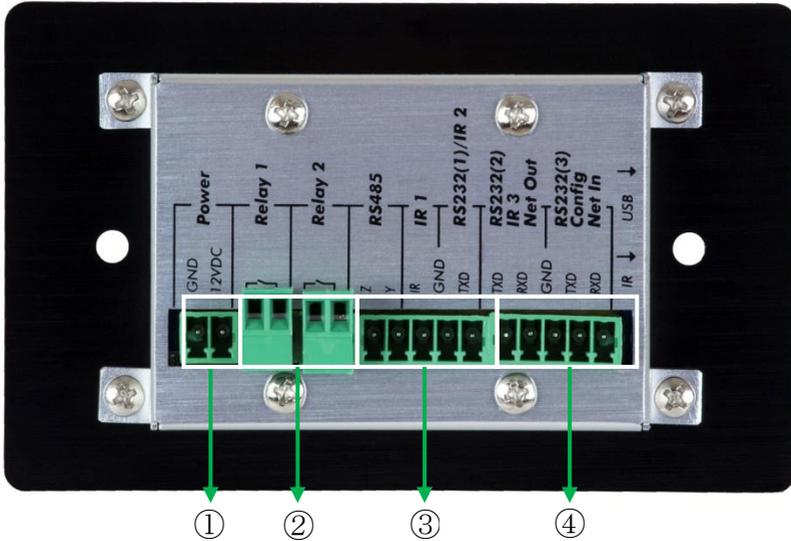
### 3. Panel Description

#### 3.1. Front Panel



No.	Name	Description
1	Button	<p>Crystal clear and luminescent, programmable buttons:</p> <p>Each button can be independently programmed using the Control Panel PC Software. To do so run the application and connect the computer via a USB or RS232 connection to the 8 button RS232/IR Control Panel (see section 5 for details on using the Control Panel PC Software, found on the MuxLab website).</p> <p>Each label within a button can be easily changed. Simply select the label you need and change it as shown below:</p> 

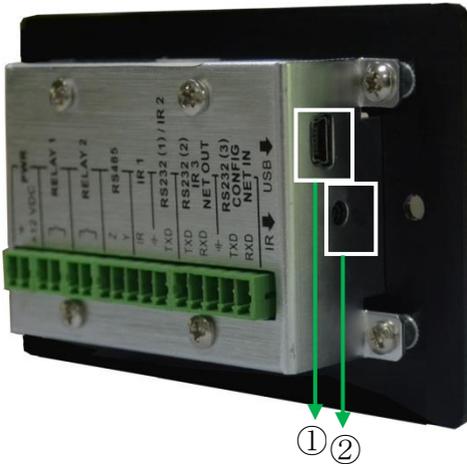
### 3.2. Rear Panel



No.	Name	Description
1	Power	Power connector: 12VDC. <b>Please make sure the “+” and “-” are connected correctly (using the correct polarity), in order not to damage the unit.</b>
2	Relay	Low Voltage Relay.
3	Output Port (Section 1)	<ul style="list-style-type: none"> <li>RS232 (1)/IR2: RS232 (1) and IR2 share the same port, the actual use depends on the configuration set by the Control Panel PC Software. When configured for RS232, it is a unidirectional transmission, meaning data may be transmitted, but not received.</li> <li>IR1: IR1 may be used to control devices, and can be program via the Control Panel PC Software.</li> <li>RS485: The RS485 can be programmed to control a device via the RS485 port. The command set for RS485 is the same as for RS232 (1).</li> </ul>
4	Output Port (Section 2)	The section includes two groups: <ul style="list-style-type: none"> <li>RS232 (2)/IR3: RS232 (2) and IR3 may be used to control devices, or used for chaining (looping output).</li> </ul>

No.	Name	Description
		<p>RS232 (2) and IR3 share the same port, the actual use depends on the configuration set by the Control Panel PC Software.</p> <ul style="list-style-type: none"> <li>RS232 (3): RS232(3) may be used to control devices, used for chaining (looping output), or to connect to a computer when programming the 8 button RS232/IR Control Panel.</li> </ul> <p>These two groups share the same ground.</p>

### 3.3. Side Panel



No.	Name	Description
1	Mini USB	<ul style="list-style-type: none"> <li>Communicates with the computer and may be used to update the unit firmware, or used in conjunction with the Control Panel PC Software to program the buttons of the device.</li> <li>Transmit the infrared data when learning IR (Optional).</li> </ul>
2	IR Sensor	Receives and learns IR codes, in order to build an IR command database.

## 4. Connections

### 4.1. Safety Precautions

The system should be installed in a clean environment with temperature and humidity levels within the specified operating range.

All devices should be connected before turning on power.

### 4.2. System Diagram

The programmable 8 Button RS232/IR Control Panel (also references here-in as programmable Control Panel) can send commands to different ports at the same time. Meaning, each button can send RS232 commands, RS485 commands, IR codes and control the relays with a single push of one button. See the example system diagram below (Figure 3).

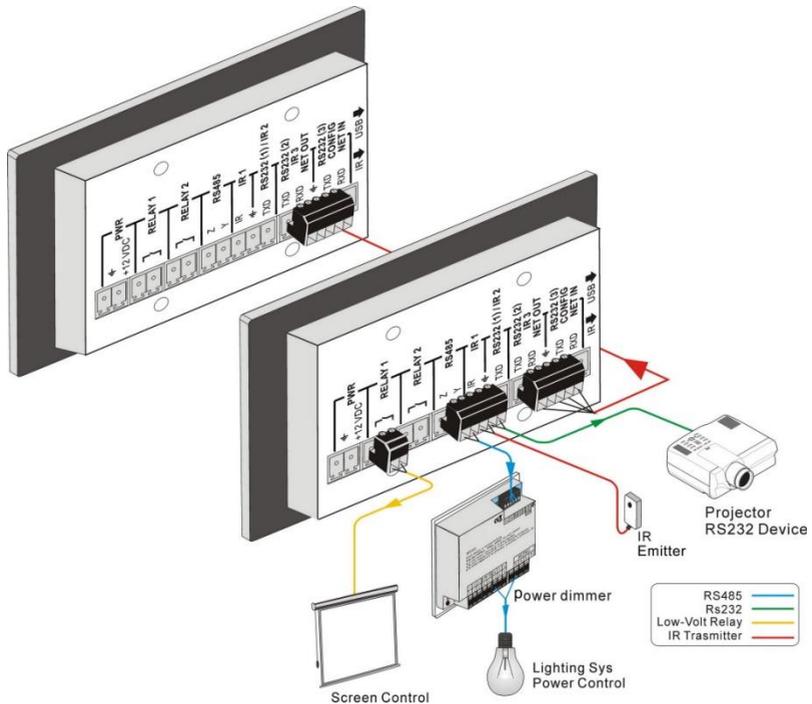
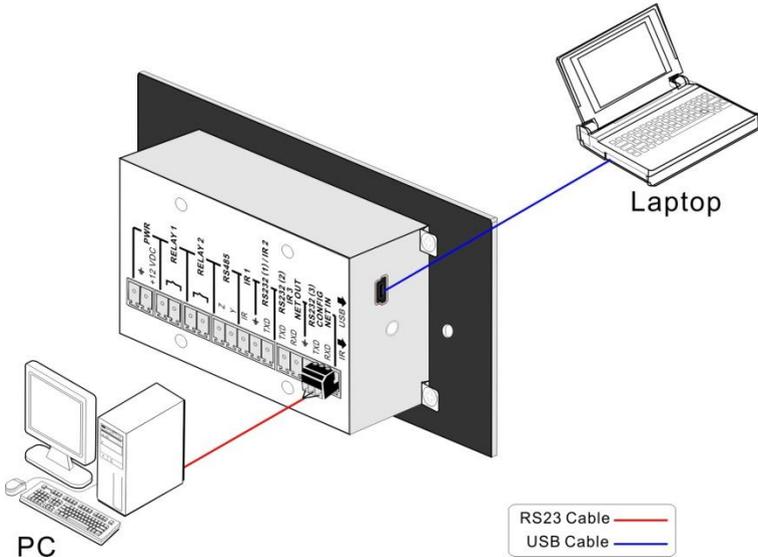


Figure 3 Example System Diagram

### 4.3. Connections for Programming and Looping

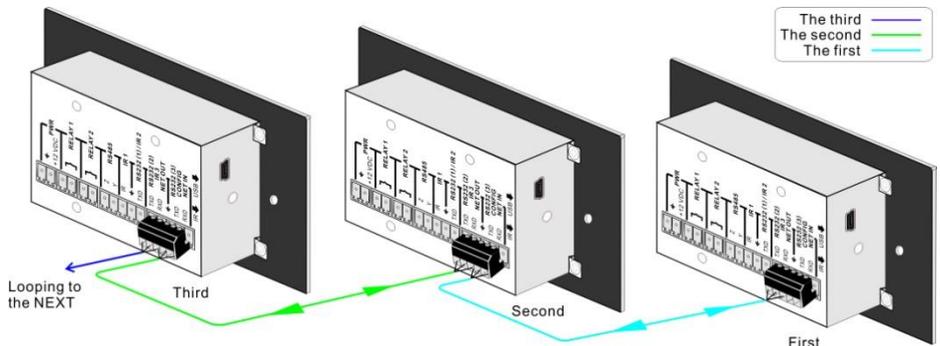
The programmable control panel may be connected to a computer in order to program

the customized functions of each button. The connection to the computer may be made via USB or RS232 (see Figure 4), and the Control Panel PC Software running on the computer provides the programming capability.



**Figure 4 Programming Connection**

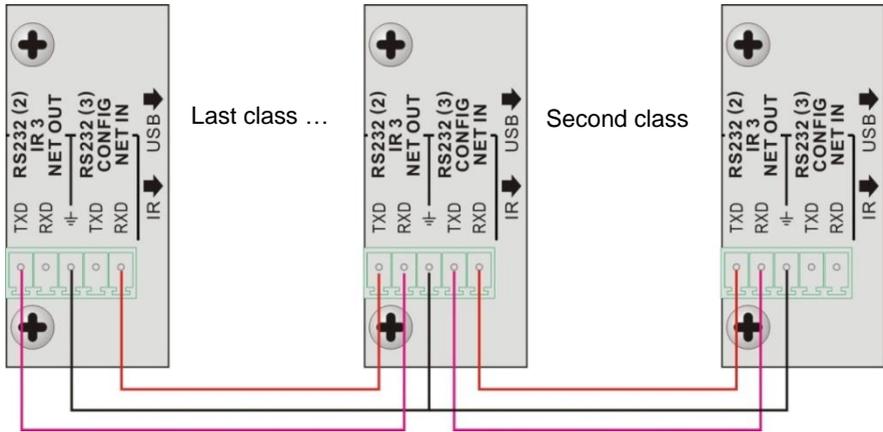
In order to control more devices and support more command buttons, several 8 Button RS232/IR Control Panel units may be chained (looped) and managed as a grouped system. The units are looped by two RS232 ports, see Figure 5 below.



**Figure 5 Looping several programmable control panels**

After chaining several programmable Control Panels as shown above, you must set the ID of each programmable Control Panel with the Control Panel PC Software. The ID number can range from 01 to 99, and each device in the grouped system must have

a unique ID. Once the looped connections are made and the ID is set, we can then set the control modes with the Control Panel PC Software. For a detailed view of the looped connections, see Figure 6 below.



**Figure 6 Detailed view of looped connects**

**Note:** Up to 99 programmable control panels can be looped within one system. However, in order to keep the reaction time for command execution to within a reasonable time delay, loop no more than 10 programmable Control Panels within a given grouped system.

## 5. System Operation

### 5.1. USB Driver Installation

The 8 Button RS232/IR Control Panel can be programmed via a computer and either the USB port or the RS232 port, and running the Control Panel PC Software.

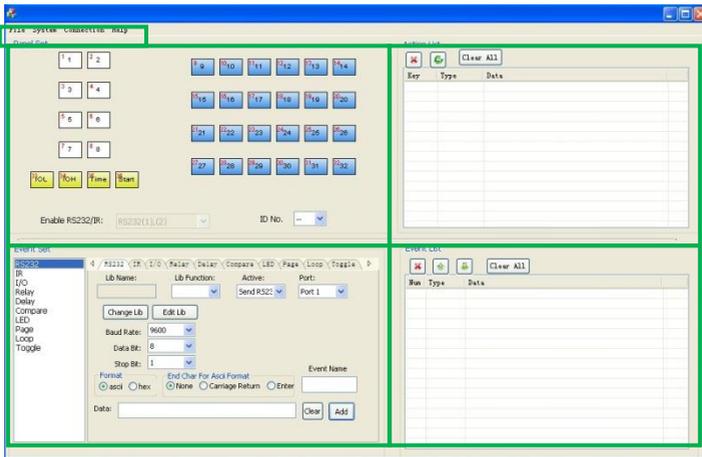
When connecting the programmable Control Panel to a computer using the USB port, it may be necessary to install the USB driver first. The USB driver for the programmable Control Panel may be found on the MuxLab Website. Use the programmable Control Panel driver file to install the USB driver on your computer.

### 5.2. Software Programming

You can use this Control Panel PC Software to easily set the function of each button on the programmable Control Panel. The Control Panel PC Software can run directly without the need to be installed.

After connecting the programmable Control Panel to the computer using the USB or RS232, run the Control Panel PC Software to program each button function.

The main window of Control Panel PC Software has five sections: main menu, panel (button) setting, event setting, action list and event list. The main window of the Control Panel PC Software is shown in Figure 7.



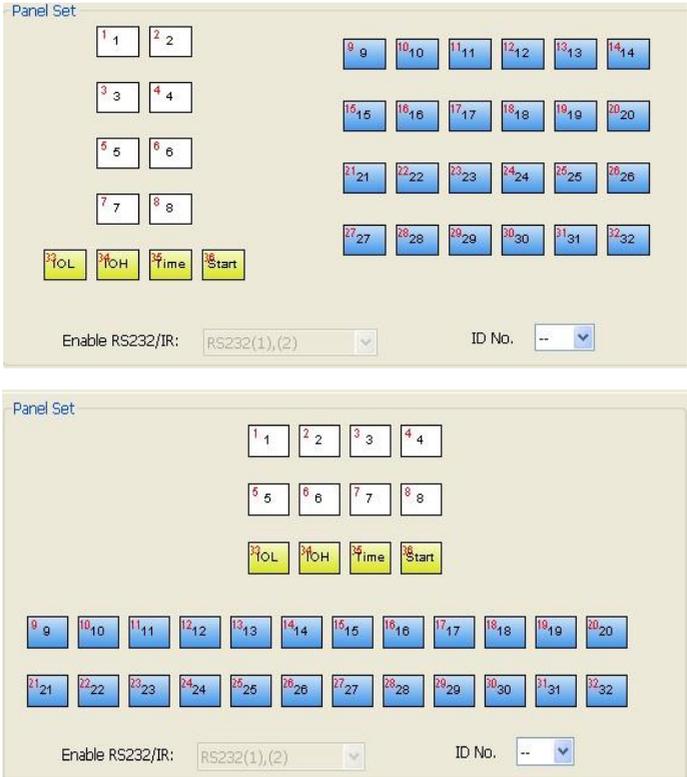
**Figure 7 Main Window**

Each configuration windows will be introduced below.

### 5.2.1. Main Menu

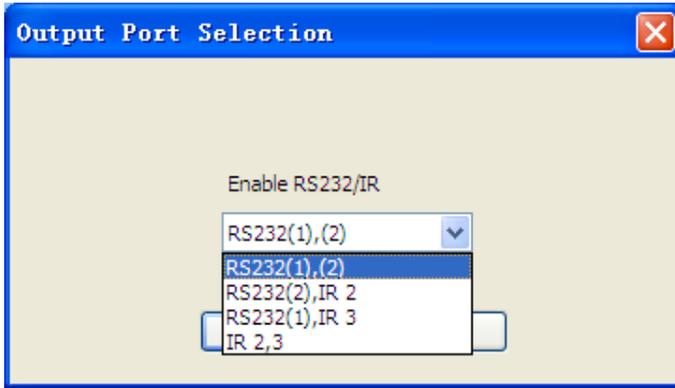
The main menus include: **File** (management), **System** (orientation), **Connection** (type) and **Help**.

- 1) **File management:** Allows the user to “Open” an existing configuration file, or “Save” and “Save As” to a configuration file. Thus after programming the user can save the configuration to a file, so that it can be re-used anytime. Different configuration files can be saved under different file names.
- 2) **System (orientation):** Sets the screen view of the programmable Control Panel to the same orientation of the actual installed device, since the programmable Control Panel may be mounted horizontally or vertically. Set the mode to 500816-H for horizontal or 500816-V for vertical depending on the installed orientation of the actual unit. The button screen interface views are changed accordingly as per the setting selected (see Figure 8).



**Figure 8 System screen view depending on orientation selected**

**NOTICE:** When selecting the device orientation, you will get a pop up dialog “Output Port Selection”, allowing the user to select different RS232 and IR port combinations, depend on the uses of the two shared ports (see Figure 9).



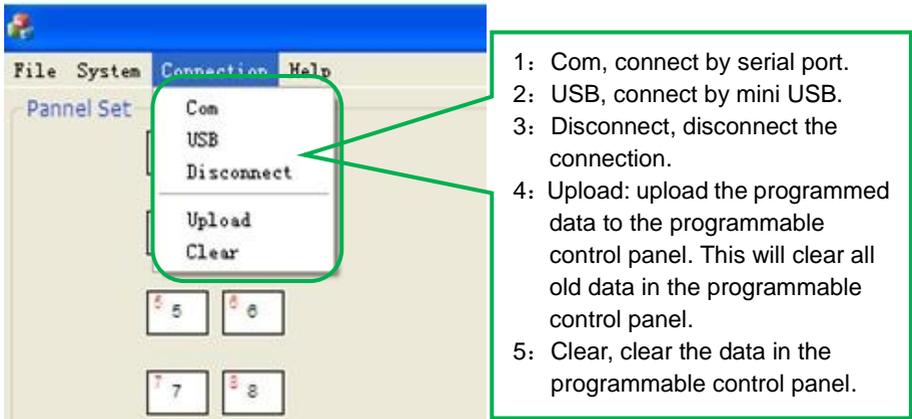
**Figure 9 Output port selection**

The output port mode set in the Control Panel PC Software, corresponds with the ports available for use by the programmable Control Panel. And there are four output types. They are shown on Table 1 (“√” means the port is available):

Output port of the Panel Output mode of 500816	IR1	RS232(1)	IR2	RS232(2)	IR3	RS232(3)	RS485
RS232(1)(2)	√	√		√		√	√
RS232(2),IR2	√		√	√		√	
RS232(1),IR3	√	√			√	√	√
IR2,3	√		√		√	√	

**Table 1 Output types**

- 3) Connection type: There are five connection types (modes), which are described and listed in Figure 10 below.



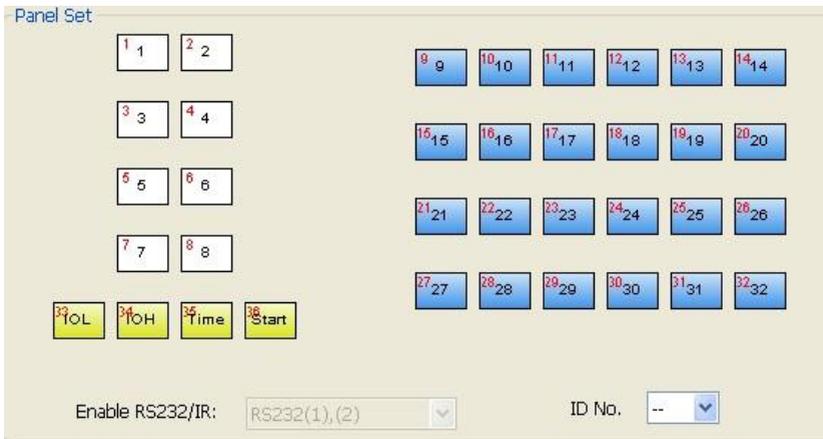
**Figure 10 Connection type**

The button functions of the programmable control panel will be available only after the programmed data has been successfully uploaded.

4) Help: Provides assistance on using the Control Panel PC Software.

**5.2.2. Panel/Key setting**

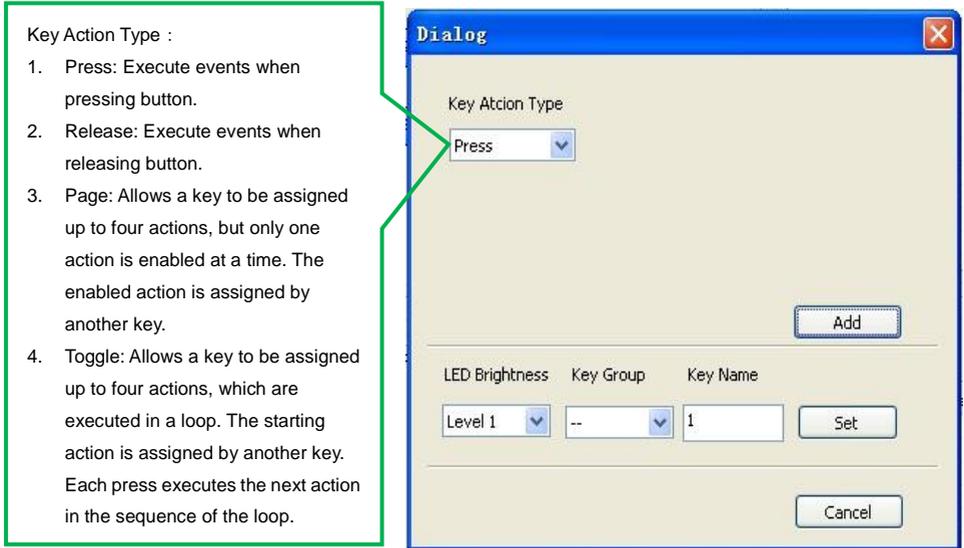
There are three different key colors in the panel view shown in the Control Panel PC Software. By adding a key action to the action list, and then adding events to this action, will make the action execute based on the selected events. We will use the vertical orientation as an example, to introduce the use of the various buttons.



**Figure 11 Key setting – vertical mode view**

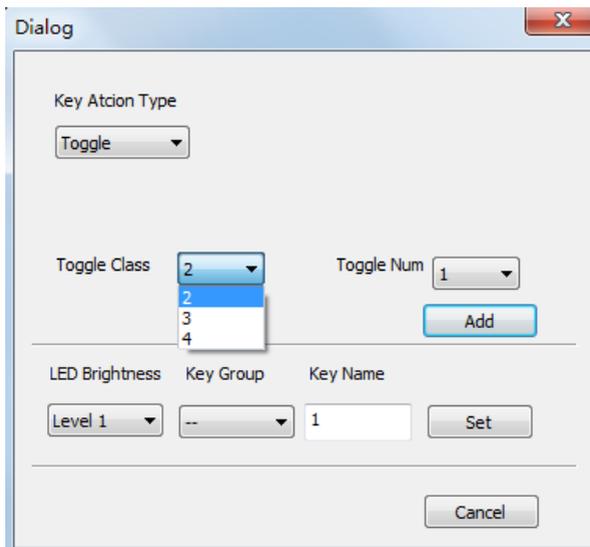
1. White keys: Keys 1-8, correspond to the buttons on the programmable control

panel. Clicking a key will pop-up a dialog as shown in Figure 12 below.



**Figure 12 Pop up dialog for Press Action**

Figure 13 shows the screen pop-up when selecting the “Toggle” key action.

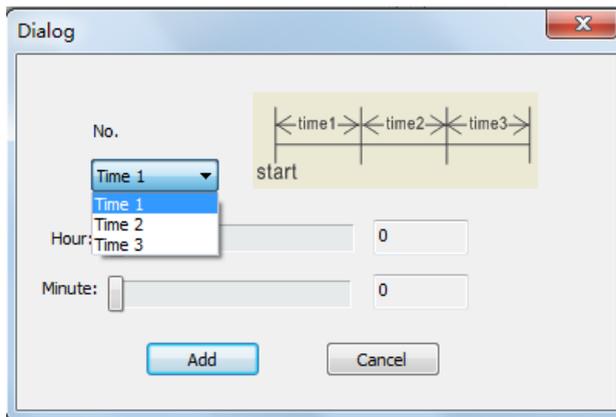


**Figure 13 Pop up dialog for Toggle Action**

The toggle class is the action loop class, and depends on the number of

looped actions. When the class is 2, there are two actions in the toggle, and so on.

2. Blue Keys: Keys 9-32, are virtual keys, used in the loop function. When using the loop function, the ID must be set. The ID can be 1 to 99. Pressing “add” will add the button to the action list.
3. Yellow Keys: Keys 33-36, are virtual keys. Key 33 and 34 are for I/O control, which is not supported by the programmable Control Panel. Key 36 is a power up (boot up) action, and if events are added to this action, when the programmable Control Panel is power on, it will execute the events in this action. Key 35 is a delay button, and there are three programmable timed delays that can be set (see Figure 14).



**Figure 14 Programmable timed delays**

The delay time is started from the programmable Control Panel power up (boot up). When time1 is expired, the programmable control panel will execute the events in time1. This will repeat for time2, and then time3.

Example: Set time1 to 5 minutes, and time2 to 3 minutes, add event1 to time1 and event2 to time2. When the unit starts, it will execute event1 after 5 minutes, and then execute event2 after another 3 minutes.

### 5.2.3. Action List

The action list shows all the set actions. For an action to be available, it must be added to the list. An example of the action list is shown in Figure 15, where Key1 was added as an action of type “Press”. Thus when Key1 is pressed the assigned events will be executed. Think of an action as a container to hold events, and think of events as commands. Each action can have multiple events assigned to it. The next section explains how to assign events to an action.

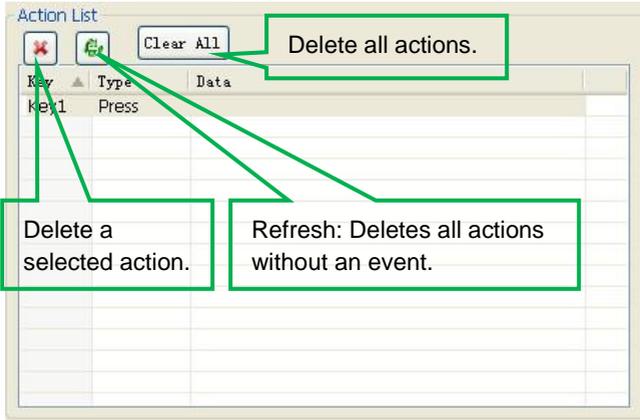


Figure 15 Action list

### 5.2.4. Setting Events

Events may be set for RS232, IR, I/O, Relay, Delay, Compare, LED, Page, Loop and Toggle. Before setting an event, an action must first be added. In addition the action must be highlighted (selected), so that the events being created are assigned to it. Each action can have multiple events assigned. Events in an event list are executed from top to bottom, but the user can rearrange the order of this list. The following examples show how to set each event type:

#### ➤ Setting RS232 Events

This section explains how to set the parameters of the programmable Control Panel's serial ports. Clicking the "RS232" tab will display the control screen for this event (see Figure 16):

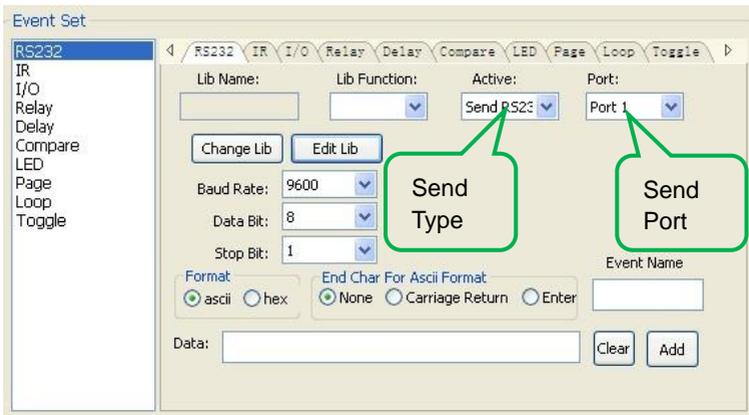


Figure 16 Setting an RS232 Event

- 1) First select the action to be assigned this event. The RS232 data for the event can be entered directly or selected from a library. Click “Change Lib” to select a library file and open it. Click “Edit Lib” to open the window in Figure 17 in order to create or edit a library file.

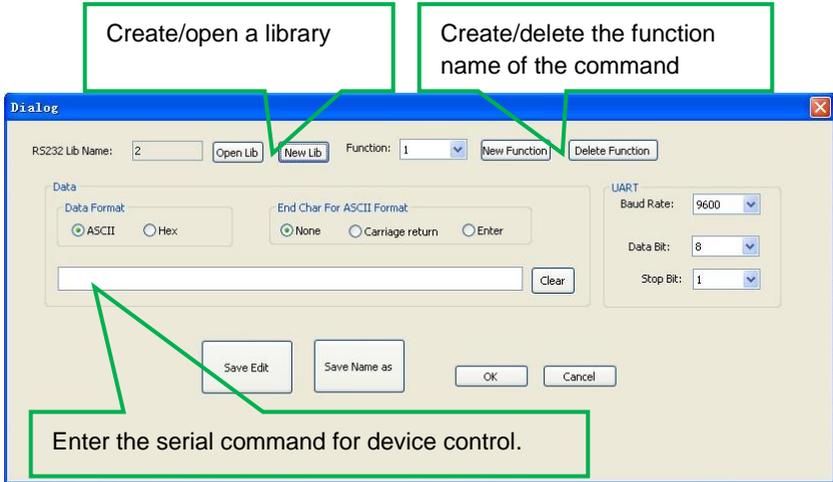


Figure 17 RS232 Library file

**Note:** When you completed your editing, remember to save and then press “OK”.

- 2) There are two ways to send the RS232 data string: “send RS232 once” and send “more times”. When you select “more times”, you must also select the number of times to send the data string, and the delay between each time the data is sent, see Figure 18 below.

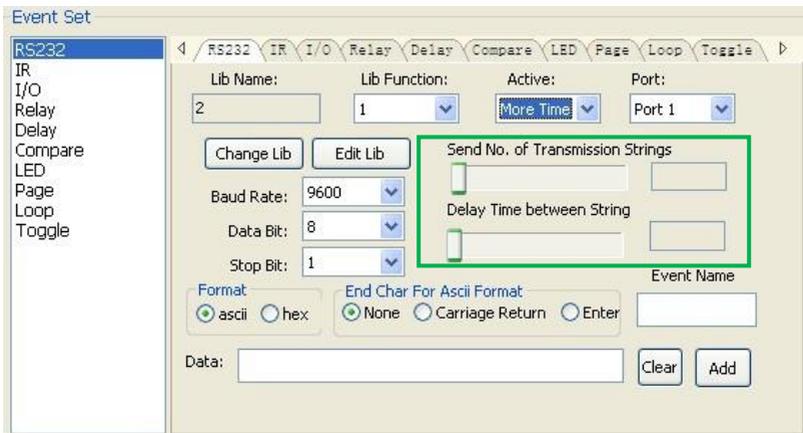
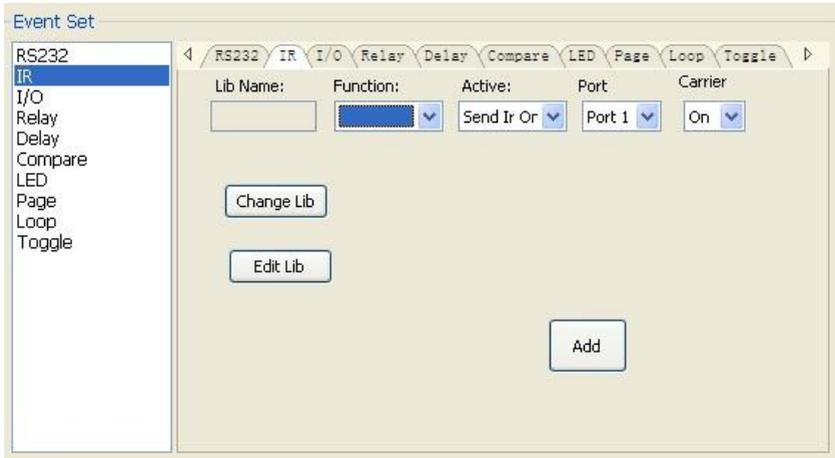


Figure 18 RS232 send number of strings & delay setting

- 3) The send port number must be set to the same port as was previously set to be consistent, otherwise the event cannot be added.
- 4) The user can set the event name, but this is optional.

### ➤ Setting IR Events

This section explains how to set the parameters of the programmable Control Panel's IR ports. Clicking the "IR" tab, will bring up the IR event setting screen as shown in Figure 19.



**Figure 19 Setting an IR Event**

- 1) First select the action to be assigned this event. The data for the IR event needs to be selected from a saved library. Click "Change Lib" to select a library file and open it, or click "Edit Lib" to create or edit a library file as shown in Figure 20 below.

Create/open a library

Create/delete/rename the function name of the IR data

Select a function, and then click “learn”, press the IR remote control button to send the IR code to the infrared sensor port, it will refresh the IR data. Follow the same steps to learn other functions from the remote control unit.

**Figure 20 IR Event Library file**

**Note:** When you completed your editing, remember to save and then press “OK”.

- There are two ways to send IR data: “send once” and send “more times”. When you select “more times”, you must also select the number of times to send the data, and the delay between each time the data is sent, see Figure 21 below.

Event Set

RS232 IR I/O Relay Delay Compare LED Page Loop Toggle

Lib Name: dvd    Function: open/close    Active: More Time    Port: Port 1    Carrier: On

Change Lib    Edit Lib

Send No. of Transmission Strings: 1

Delay Time between String: 1

Add

**Figure 21 IR send number of strings & delay setting**

- The send port number must be set to the same port as was previously set to be

consistent, otherwise the event cannot be added.

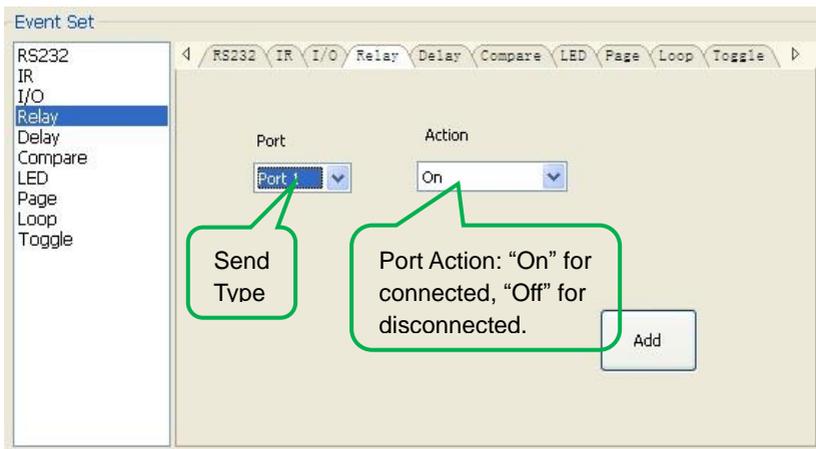
- 4) The IR carrier on/off, can be used to turn On (enable) or turn Off (disable) IR transmission.

#### ➤ **Setting I/O Events**

The I/O port is not supported by the programmable Control Panel, disregard this tab setting.

#### ➤ **Setting Relay Events**

This section explains how to set the parameters of the programmable Control Panel's relay ports. Clicking the "Relay" tab, will bring up the Relay event setting screen as shown below in Figure 22.



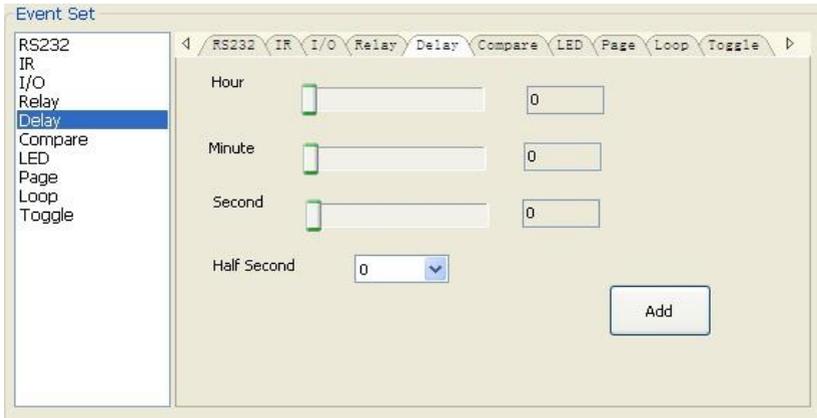
**Figure 22 Setting a Relay Event**

First select the action to be assigned this event. To set the event, select the port and the action to either, On (relay connected) or Off (relay disconnected), and press "Add".

#### ➤ **Setting Delay Events**

This section explains how to set the parameters of the programmable Control Panel's Delay time. Clicking the "Delay" tab, will bring up the Delay event setting screen as shown in Figure 23.

Begin by first selecting an action to be assigned this event. The user can add a delay between two events; such that when one event is completed, a delay will occur as set by the "delay time" and will then start the next event.

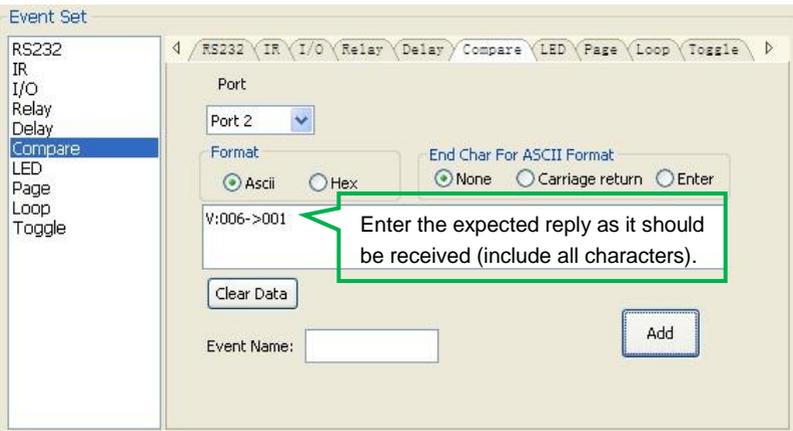


**Figure 23 Setting a Delay Time**

Set the delay time and press “Add”.

#### ➤ **Setting Compare Events for RS232 Replies**

This setting is used to compare the reply from RS232 commands. When the programmable Control Panel sends an RS232 command to the end device being controlled, the end device will send back a reply string or an acknowledgement. If the expected reply is entered in the data field as shown below in Figure 24, then the programmable Control Panel will compare this expected reply with the actual reply to verify that the command worked correctly.



**Figure 24 Compare reply from RS232 command**

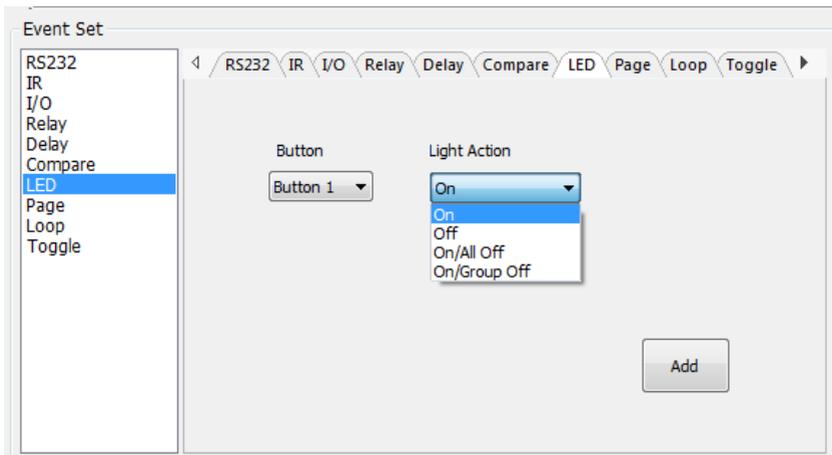
- 1) First select the action to be assigned this event. The send port number must be set to the same port as was previously set, otherwise the event cannot be added.

Note that port 1 cannot be used for comparing the reply since there is no receive pin in this port.

- 2) The user can set the event name, but this is optional.
- 3) Events in an event list are executed from top to bottom. As such when comparing replies for each event on the list, if any of the events have a failed reply, then execution stops and none of the remaining events on the list are executed.

### ➤ Setting LED Events

This configuration setting is used to turn On or turn Off the key LEDs on the 8 Button RS232/IR Control Panel, see Figure 25 below.



**Figure 25 Setting the Button LEDs**

First select the action to be assigned this event. Select the button number and the LED action, and then press “Add”.

### ➤ Setting Page Events

Any of the 8 white keys can be set to type “page”. A key of type “page” is able to contain from 2 to 4 possible actions (and each of these actions can hold multiple events), but only one of these actions can be enabled at any given time. Other keys are used to enable one of the four possible actions in the page list. The best way to explain this is by example.

- 1) Let’s assume that Key1 will be set to type “page”. To do this press on Key1 to program it, and then select “page” as the action type and set “Page Num” to 1 (for Action1, called Num1). Repeat this last step in its entirety but this time set “Page Num” to 2. Do the same for Num3 and Num4. You should now have the first 4 lines shown in Figure 26. Note that each of these four actions (Num1 to Num4) can each be assigned multiple events. Assigning events was explained above,



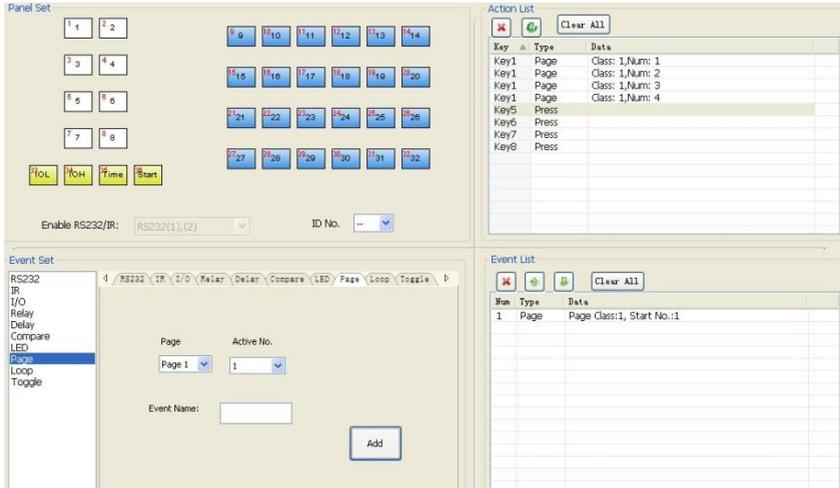


Figure 27

Once the above is complete the page function will operate as follows:

- a) When you press Key5, then Num1 action will be enabled for Key1. Each time Key1 is pressed then Num1 action will be executed along with the assigned events for Num1. Key1 will continue to behave in this manner until one of the other controlling keys (Key6, Key7 or Key8) is pressed.
- b) When you press Key6, then Num2 action will be enabled for Key1. Each time Key1 is pressed then Num2 action will be executed along with the assigned events for Num2. Key1 will continue to behave in this manner until one of the other controlling keys (Key5, Key7 or Key8) is pressed.
- c) When you press Key7, then Num3 action will be enabled for Key1. Each time Key1 is pressed then Num3 action will be executed along with the assigned events for Num3. Key1 will continue to behave in this manner until one of the other controlling keys (Key5, Key6 or Key8) is pressed.
- d) When you press Key8, then Num4 action will be enabled for Key1. Each time Key1 is pressed then Num4 action will be executed along with the assigned events for Num4. Key1 will continue to behave in this manner until one of the other controlling keys (Key5, Key6 or Key7) is pressed.

Repeating what was done above for Key2, Key3 and Key4, then we can have the equivalent of 16 keys, where Keys1 to 4 have each 4 possible actions

and keys 5 to 8 select which of the 4 actions are enabled.

➤ **Setting a Looped (Chained) Event**

The user can create actions using virtual blue Keys, and assign events to these virtual keys, just as was explained earlier for the white keys. However because blue keys are virtual and do not support an actual button they must be activated in a different manner. The Loop event can be used to accomplish this, by allowing the user to assign Blue keys (and thus their assigned events) to a white key. This is a form of assigning macros (multiple blue keys, each with events) to a white key.

Begin by first creating blue key actions and assigning events to these blue keys. Then create a white key action and using the Loop event assign blue keys to the white key as events. For example with a white key highlighted in the action list, press the Loop event and then select a key # in the range of one of the blue keys that you previously assigned to the action list (see Figure 28). Multiple blue keys can be assigned to the white key in this manner. Again this is a form of macro function. When using the loop function, the ID of each programmable Control Panel must be set accordingly.



**Figure 28**

➤ **Setting Toggle Events**

The toggle setting screen is shown in Figure 29 below.



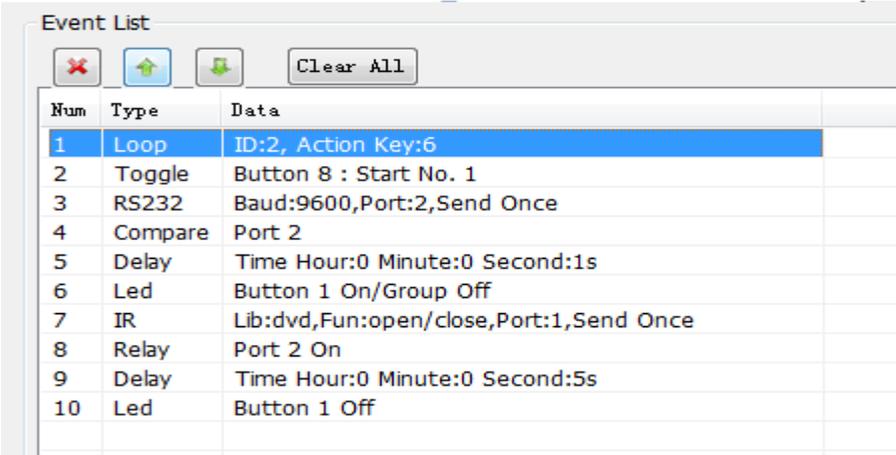
**Figure 29**

The steps for setting Toggle events are similar to the Page event case. Follow the same example steps as in the page event section above but replace the page settings by the Toggle settings.

The difference between Toggle and Page events are in how they are executed. We will again use the same example as in the Page event case. In the Toggle case, each press of Key1 will cycle through the 4 different actions (Num1→ Num2→ Num3→ Num4→ Num1...), but one at a time with each press of Key1. In the Toggle case, Keys5 to 8 do not enable one of the 4 actions, but instead cause the corresponding action to be the next action in the sequence to be executed with a press of Key1. As an example pressing Key6 and then Key1 will execute Num2 action. The next press of Key1 will execute Num3 action, then Num4, then Num1, etc. Pressing Key8 and then Key1 will execute Num4 action, and the next press of Key1 will execute Num1 action, and so on. A popular use for Toggle is an On/Off switch (therefore a Toggle set with 2 actions).

### 5.2.5. Event List

The event list shows all events for the selected action. The execution priority follows the sequence number, see Figure 30 below. If there is an event executed incorrectly, then all remaining events on the list will not be executed.



The screenshot shows a window titled "Event List" with a toolbar containing three icons (a red 'X', a green up arrow, and a green down arrow) and a "Clear All" button. Below the toolbar is a table with three columns: "Num", "Type", and "Data". The table contains 10 rows of event data, with the first row highlighted in blue.

Num	Type	Data
1	Loop	ID:2, Action Key:6
2	Toggle	Button 8 : Start No. 1
3	RS232	Baud:9600,Port:2,Send Once
4	Compare	Port 2
5	Delay	Time Hour:0 Minute:0 Second:1s
6	Led	Button 1 On/Group Off
7	IR	Lib:dvd,Fun:open/close,Port:1,Send Once
8	Relay	Port 2 On
9	Delay	Time Hour:0 Minute:0 Second:5s
10	Led	Button 1 Off

**Figure 30 Event List**

## 6. Panel Drawing

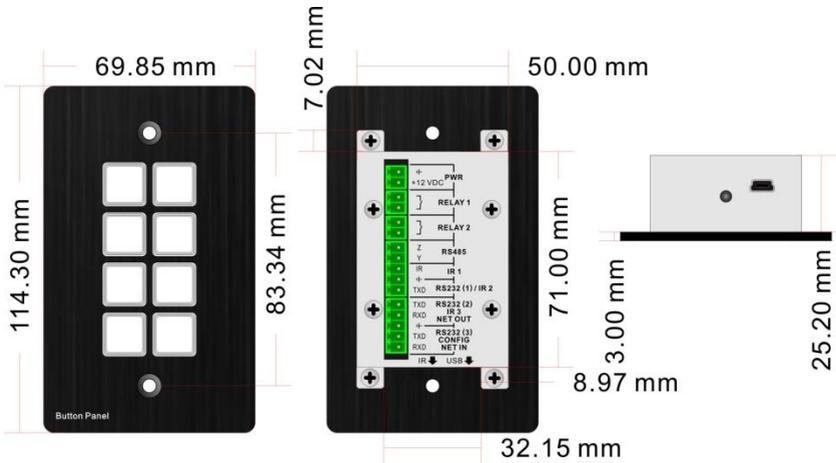


Figure 31 8 Button RS232/IR Control Panel Dimensions

## 7. Troubleshooting & Maintenance

The following table describes some of the symptoms, probable causes and possible solutions with respect to the installation of the 8 Button RS232/IR Control Panel.

<b>Problems</b>	<b>Causes</b>	<b>Solutions</b>
Control Panel Not working.	Power Failure.	Check the power supply connection to the device and to the wall outlet.
USB Port not working	USB Port cannot be opened or there was no response from the USB port.	Verify that the USB Driver is installed correctly and then reconnect the USB Cable.
Cannot Install USB Driver	Product not correctly detected.	Restart the Panel.
Button's LED do not light up	The compare function is not working correctly	Check if there is a compare event used for this button. If yes, delete the compare and try again. If the button's LED is still not working, then the LED may be defective.
Serial port not working	Wrong baud rate	Check the baud rate of the command and make sure they are correct. Also check the serial port connection.
Queue not working	Loop function not working	Reboot the programmable control panel.

If you still cannot diagnose the problem, please call MuxLab Customer Technical Support at 877-689-5228 (toll-free in North America) or at (+1) 514-905-0588 (International).

## Regulatory Compliance

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### ***CE/FCC & Recycling Information***

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#### ***CE Certification***

This equipment complies with the requirements relating to Electromagnetic Compatibility Standards EN55022/EN55024 and the further Standards cited therein. It must be used with shielded cables only. It has been manufactured under the scope of RoHS compliance.

#### ***FCC Certification***

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. You are cautioned that changes or modification not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation



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