User Manual

TL-WPCT-01BK

Programmable Control Panel

Version: TL-WPCT-01BK_160822

Preface

Read this user manual carefully before using this product. Pictures shown in this manual is for reference only, different model and specifications are subject to real product.

This manual is only for operation instruction only, not for any maintenance usage.

Trademarks

Mentioned product model and logo are trademarks. Any other trademarks mentioned in this manual are acknowledged as the properties of the trademark owner. No part of this publication may be copied or reproduced without prior written consent.

FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It 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 commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.

SAFETY PRECAUTIONS

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

- Unpack the equipment carefully and save the original box and packing material for possible future shipment
- 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.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheat.
- Keep the module 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 twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.

Table of Contents

1. Introduction

1.1 Introduction to TL-WPCT-01BK

The TL-WPCT-01BK is a programmable Wall Control Panel. It is designed to control TechLogix Networx products as well as third party devices such as projectors, screens, LCDs, media players, lighting systems, etc. Programmable macros allow each button to send commands to multiple devices using a single button press.

The TL-WPCT-01BK has [3] RS232, [1] RS485, [3] Infrared, [2] Relays, and [1] mini USB for programming. Please notice, RS232 (1) and IR2 share the same port, and cannot be used at the same time. Also, RS232 (2) and IR3 share the same port, and cannot be used at the same time. The unit also features an IR learning window that can read commands directly from a device's OEM remote, so no extra hardware is required to program IR commands

Up to [10] TL-WPCT-01BK units can be chained together to provide expanded control capabilities.

It is an easy-to-use control device for huddle, training rooms, classrooms and boardrooms.

1.2 Features

- Every button can be programmed to send bi-directional RS232 and RS485 commands simultaneously to control third party devices.
- Every button can be programmed to send infrared codes and relay commands simultaneously to control the third party devices.
- Every button can learn infrared and RS232 codes as well as individual baud-rate setting.
- ID looping function. [10] TL-WPCT-01BKs can be looped and controlled together, by ID identifying.
- Programmed by USB or RS232, works with the Control Panel PC Software.
- Crystal and backlit buttons with user-friendly customizable labels.
- Dimmable backlight brightness.
- Dimension: 11.4cm long and 7cm wide.

1.3 Package List

- 1 x TL-WPCT-01BK
- 1 x Power adapter (DC 12V)
- [5] Captive screw connector
- [3] x IR emitters
- 1 x Button labels

Notes: Please confirm if the product and the accessories are all included, if not, please contact with the dealers.

1.4 Installation

Follow the steps to install the device:

First, cut a hole in the wall or desk to the size marked on the template (shown in Figure 1-1). (do not print this page out as a template – variances in printers and drivers can alter the size).

Secondly, put the device into the hole and adjust it flush (shown in Figure 1-2).

Lastly, affix the device by mounting and screw the nuts down tightly.

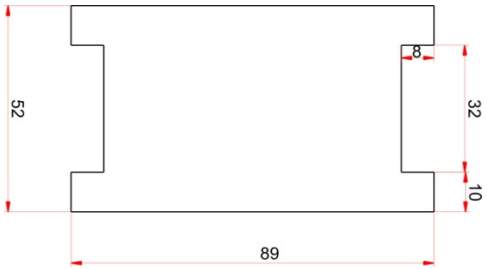


Figure 1- 1 Template

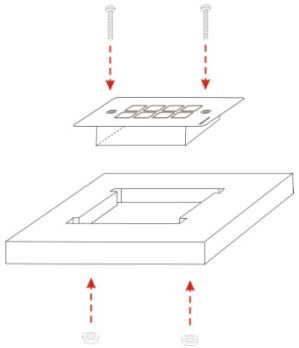
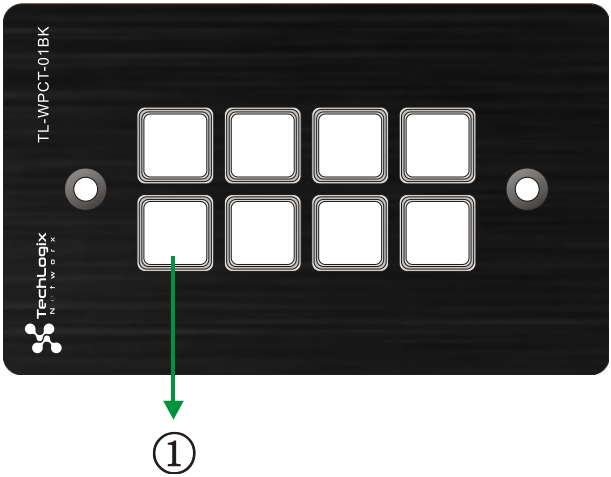
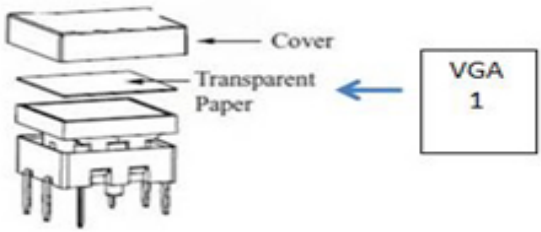


Figure 1- 2 Installation Guide

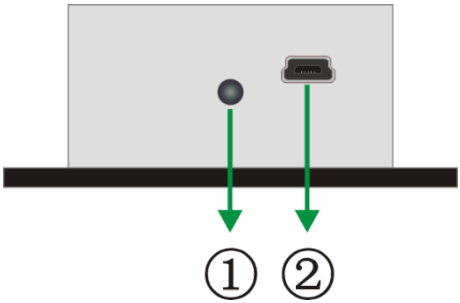
2. Panel Descriptions

2.1 Front Panel



No.	Name	Description
1	Button	Crystal clear and illuminated programmable buttons: Each button can be independently programed 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). Each label within a button can be easily changed. Simply select the label you need and change as shown below: 

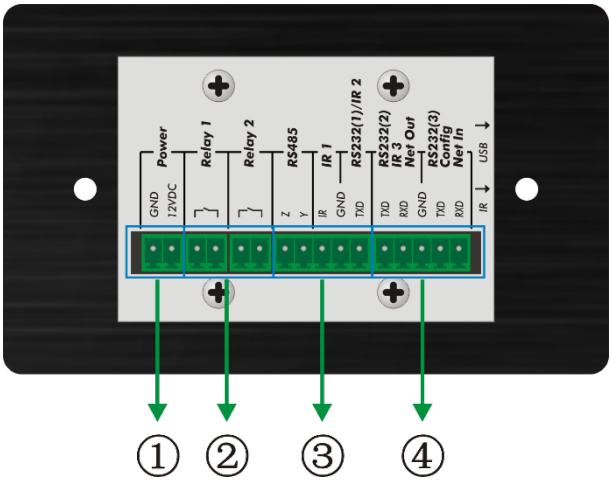
2.2 Side Panel



No.	Name	Description
1	IR Sensor	Receives and learns IR codes, in order to build an IR command database.
2	Mini USB	• 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. • Transmits the infrared data when learning IR (Optional).

Note: When using this USB port to program the control panel's buttons, the available COM port number should not be higher than 10.

2.3 Rear Panel



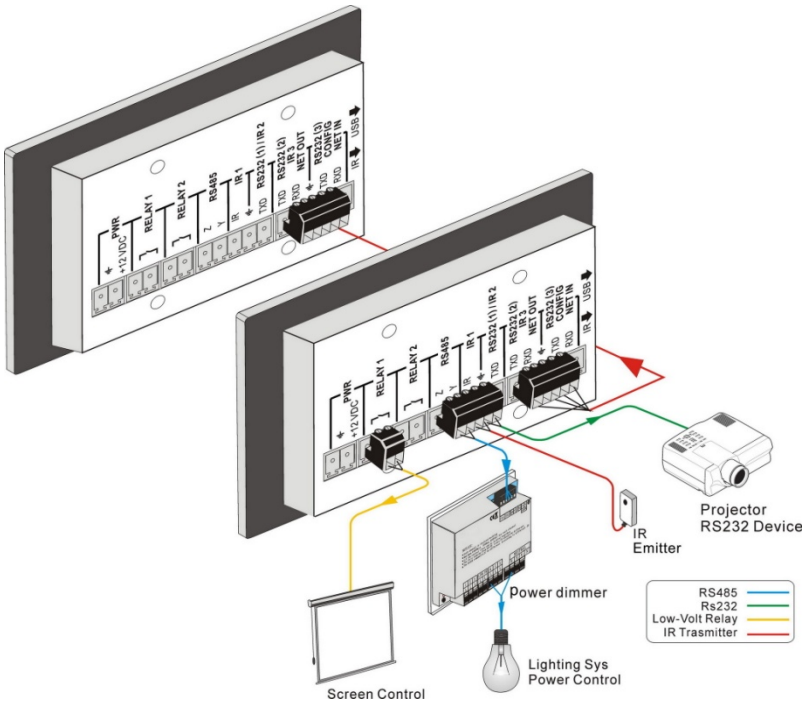
No.	Name	Description
1	Power	Power connector: 12VDC. **Please make sure the "+" and "-" are connected correctly (using the correct polarity), in order not to damage the unit.**
2	Relay	Low Voltage Relay.
3	Output Port (Section 1)	• RS232 (1)/IR2: RS232 (1) and IR2 share the same port, the actual use 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. • IR1: IR1 may be used to control devices, and can be program via the Control Panel PC Software. • 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).
4	Output Port (Section 2)	The section includes two groups: • RS232 (2)/IR3: RS232 (2) and IR3 may be used to control devices, or used for chaining (looping output). RS232 (2) and IR3 share the same port, the actual use depends on the configuration set by the Control Panel PC Software.

No.	Name	Description
		• 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. These two groups share the same ground.

3. Connections

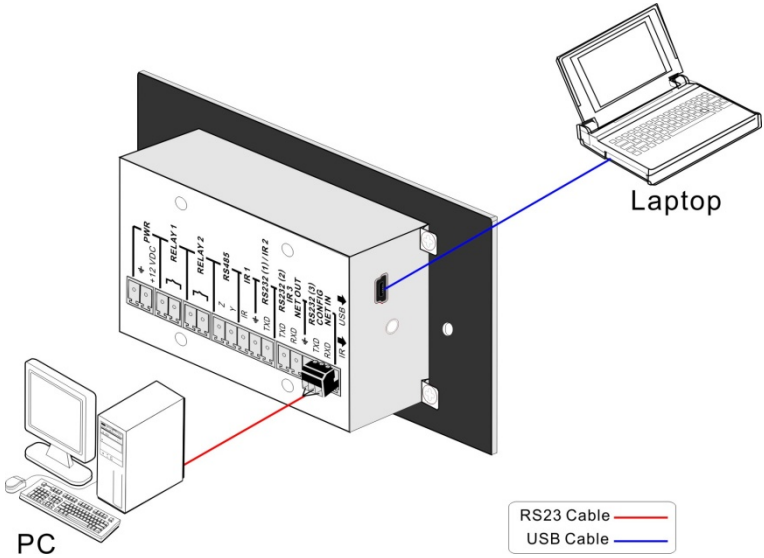
3.1 System Diagram

TL-WPCT-01BK can activate different ports simultaneously. This means every button can send the RS232 and RS485 commands, IR code and relays at the same time. The demo system diagram as below:



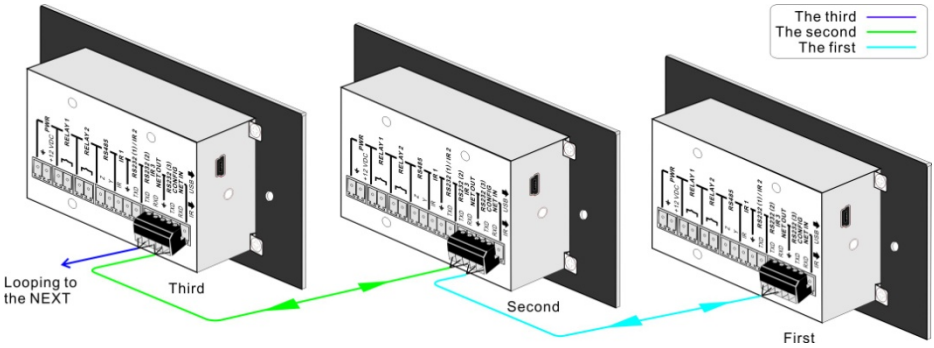
3.2 Connection of Programming and Looping

The TL-WPCT-01BK can be connected to a computer for programming, to set the functions of every button. It can be connected by USB or RS232, working with the Control Panel PC Software. It is shown as below:



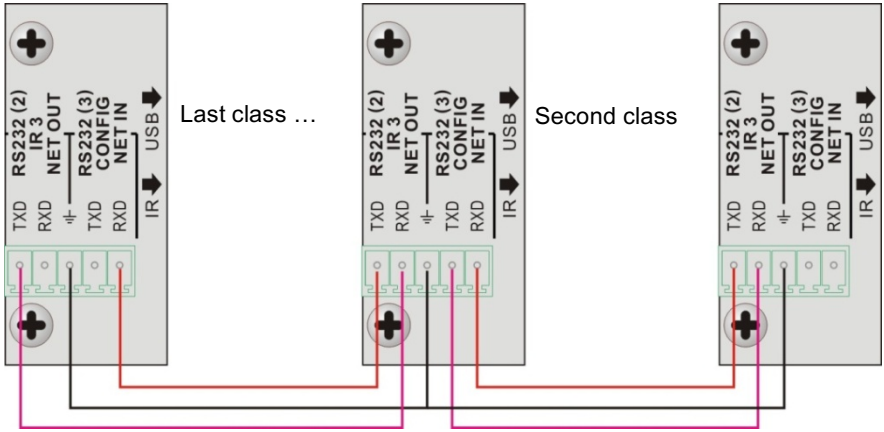
Programming Connection

Up to [10] TL-WPCT-01BKs can be also looped to be a system, for control more devices. It is looped by the inter RS232 setting. Please check the demo picture as below:



Several TL-WPCT-01BKs Looping Connection

After connecting TL-WPCT-01BKs as above, set the ID of each TL-WPCT-01BK using the Control Panel PC Software. ID numbers range from 01 to 99, which also sets the class of TL-WPCT-01BK in the loop. Each TL-WPCT-01BKs should be set to a different ID. After connecting, set the control modes using the Control Panel PC Software. For detailed connecting, please check the picture below:



Detailed looping connecting

Note: Up to 99 TL-WPCT-01BKs can be looped within one system. However, to achieve normal interaction, loop less TL-WPCT-01BKs (maximum 10) in the system.

4. System Operations

4.1 USB Driver Installation

There is a USB driver file and the Control Panel PC Software located on the TechLogix Networx website. The Control Panel PC Software can run directly without installation when using RS232.

When connecting the TL-WPCT-01BK to a PC via USB, it may be necessary to install the USB driver.

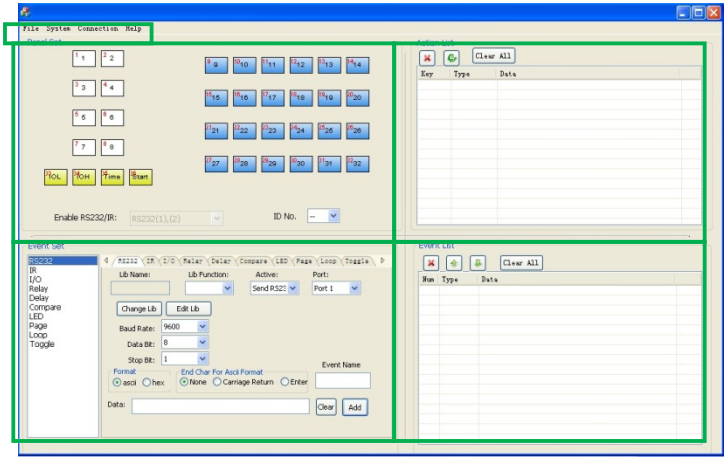
4.2 Software Programming

You can use this Control Panel PC Software to program every button of TL-WPCT-01BK.

After connecting the TL-WPCT-01BK with PC by USB or RS232, open the Control Panel PC Software to program the buttons.

The main window of Control Panel PC Software has five parts: main menu, panel (button) setting, event setting, action list and event list. In this manual we will take TL-WPCT-01BKs-V for example, to show the uses of all functions.

The main window of Control Panel PC Software is as below:



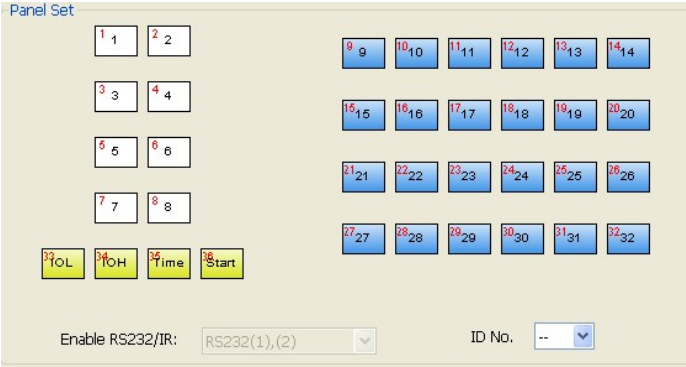
We will introduce all the configurations one by one.

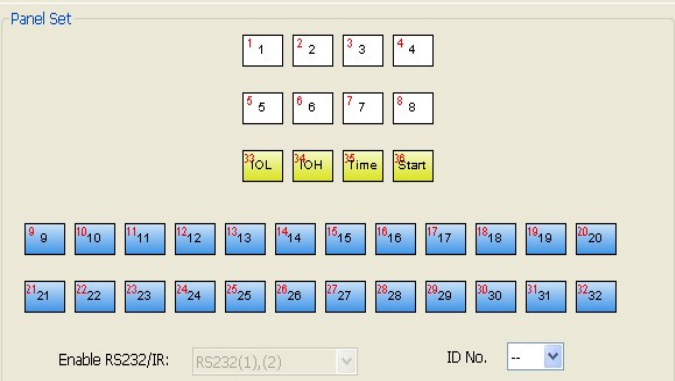
4.2.1 Main Menu

The main menu includes file management, system model, connection type and help.

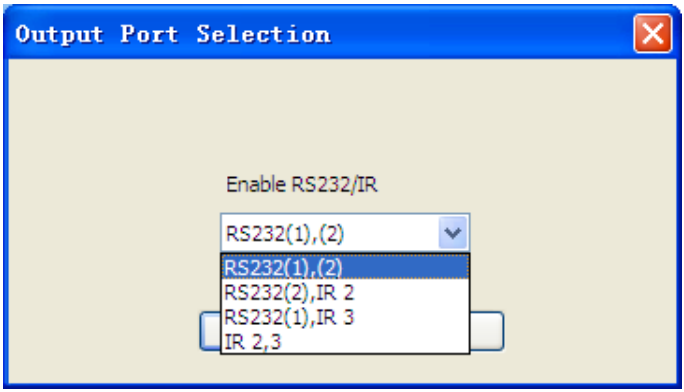
1) File management: Open/Save/Save as a configuration. After programming, save the configuration to a file, so that you can use the same configuration next time.
2) System model: includes TL-WPCT-01BKs-H, TL-WPCT-01BKs-V, WP19R etc., and the buttons interface view are different with different models. The pictures below show the differences between TL-WPCT-01BKs-V and TL-WPCT-01BKs-H.

Depending on the installation orientation (horizontal or vertical), select the matching mode.





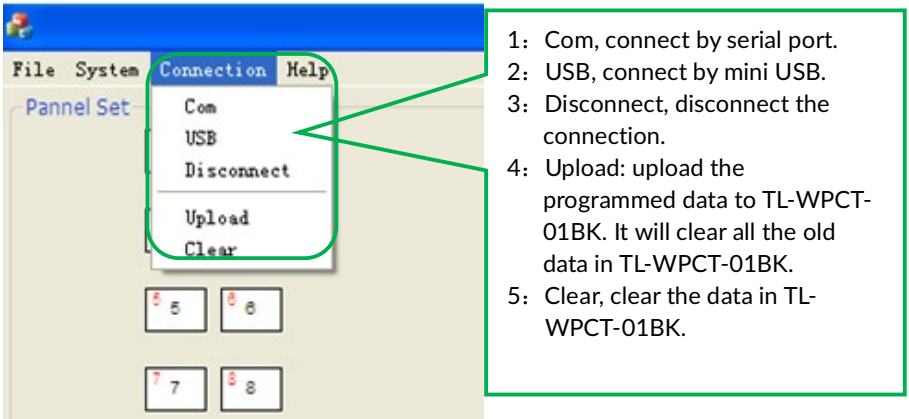
NOTICE: When selecting the model, it will pop up "Output Port Selection" dialog, you can select different RS232 and IR types, depend on the usage of the two shared ports. The dialog is as the picture below:



The output port set in the Control Panel PC Software corresponds to the port used on the TL-WPCT-01BK. And there are four output types. They are showed as below form ("√" means port is available):

Output port of the Panel / Output mode of Control Panel PC Software	IR1	RS232(1)	IR2	RS232(2)	IR3	RS232(3)	RS485
RS232(1)(2)	√	√		√		√	√
RS232(2),IR2	√		√	√		√	
RS232(1),IR3	√	√			√	√	√
IR2,3	√		√		√	√	

3) Connection type: the instructions are in the picture below:

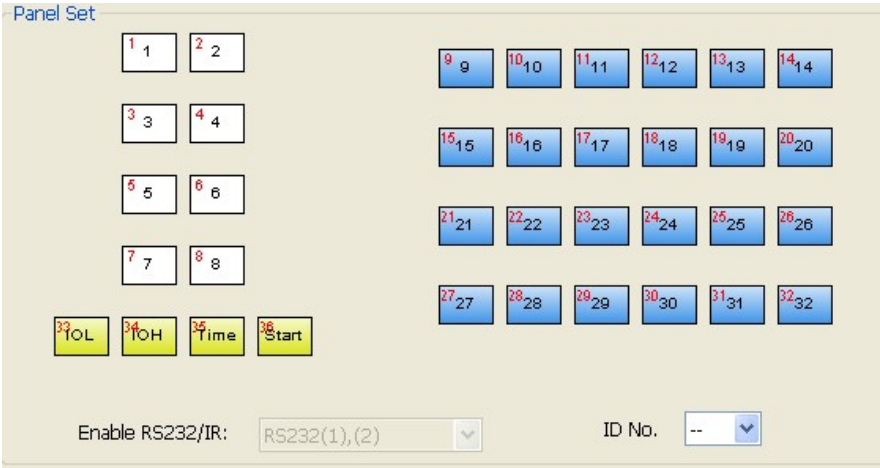


The functions of the TL-WPCT-01BK's buttons will be available only after the programmed data is uploaded successfully.

4) Help: Show the information of the Control Panel PC Software.

4.2.2 Panel/Key setting

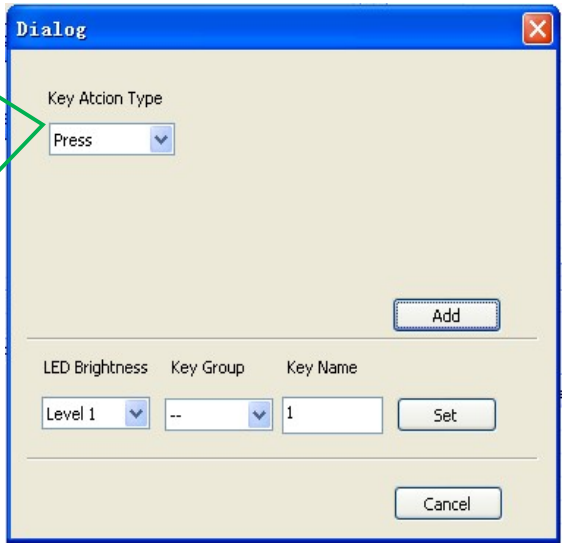
There are three different colors of keys in the panel set of the Control Panel PC Software. Add a key action to action list, then add events to this action, then the action will execute the events. Here take TL-WPCT-01BKs-V for example, to introduce the uses of different buttons:



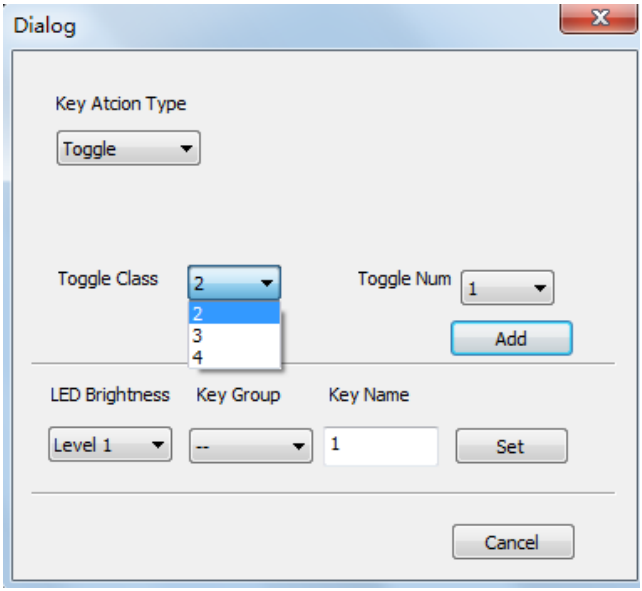
1. White keys: keys 1-8, correspond to the buttons on TL-WPCT-01BK. Click the key, it

will pop up dialog as below:

Key Action Type：
1. Press: Execute events on button press.
2. Release: Execute events on button release.
3. Page: Allows a key to be assigned up to 4 actions, only one enabled at a time.
4. Toggle: Allows a key to be assigned up to 4 actions, executed in a loop

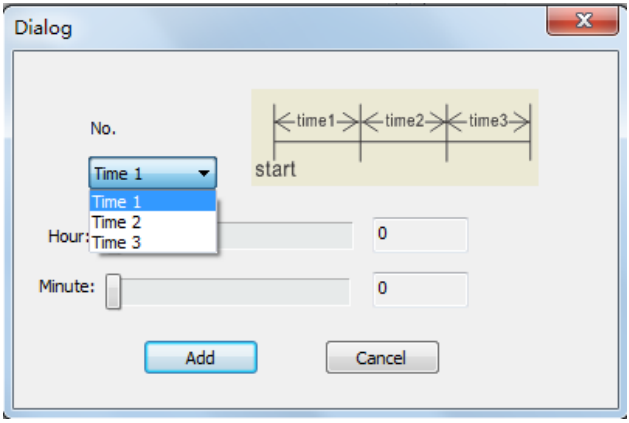


When the type “Toggle” is selected, the setting interface appears as below:



When ‘toggle’ is the key action type, events depend on the toggle class selection. When the class is 2, there are two actions in the toggle. And so on.

2. Blue Keys: Keys 9-32, all are virtual keys, used when multiple units are looped together. When using the loop function, the ID must be set, the ID can be 1 to 99. Pressing “add” will add the button to action list.
3. Yellow Keys: Keys 33-36, all are virtual keys. Key 33 and 34 are for I/O control, which is not supported by the TL-WPCT-01BK. Key 36 is a start action, if events are added to this action, when TL-WPCT-01BK is powered on, it will execute the events in this action. Key 35 is delay button, there are three time slots that can be set. See in the picture below:

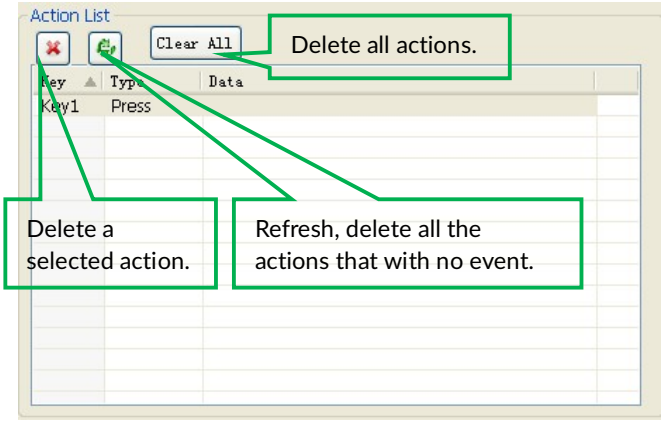


The time is counted from when the TL-WPCT-01BK is powered on. When time equal to the value of ‘Time 1’ has elapsed, TL-WPCT-01BK will execute the events in Time 1. Time will continue to count to Time 2, then Time 3.

Example: Set ‘Time 1’ to 5 minutes, and ‘Time 2’ to 3 minutes, add ‘Event 1’ to ‘Time 1’ and ‘Event 2’ to ‘Time 2’. When the unit starts, it will execute Event 1 after 5 minutes, and then execute Event 2 after 8 minutes.

4.2.3 Action list

The action list shows all the contained events. An event must be added to the action list to be used. is as the picture below:

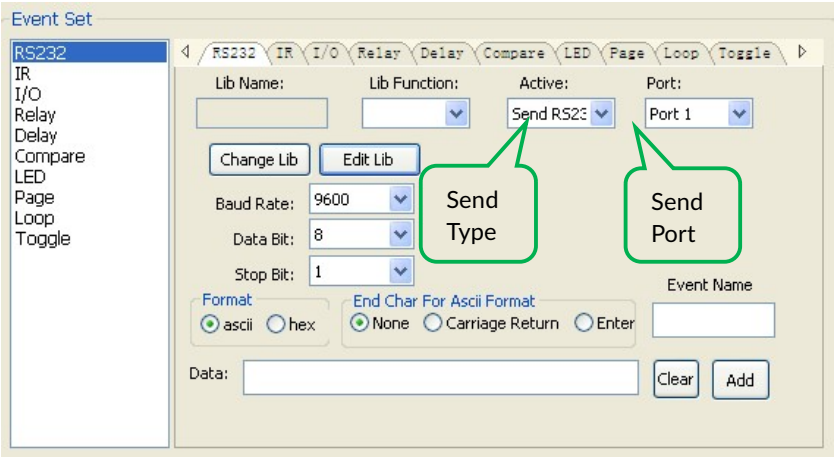


4.2.4 Event setting

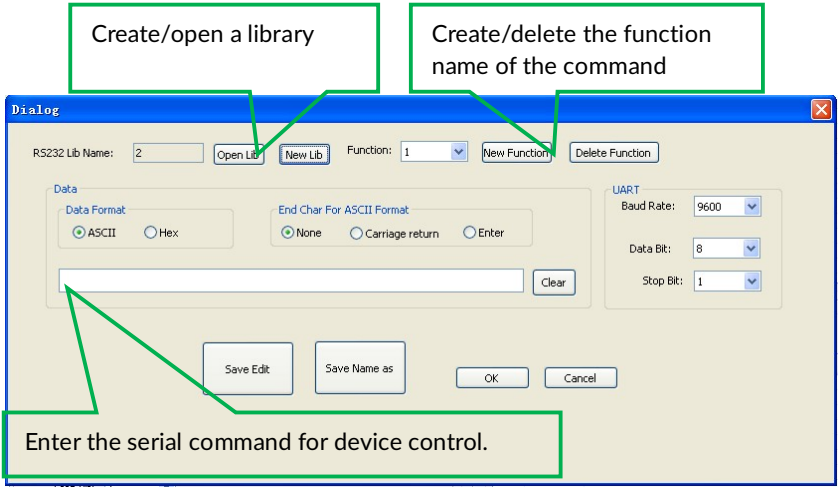
Event setting includes RS232, IR, I/O, Relay, Delay, Compare, LED, Page, Loop and Toggle setting. Before set events, an action must be added first. The following introduction will show you the setting of each event:

➢ **RS232 Setting**

This item is used for setting the parameters of TL-WPCT-01BK's serial ports. Click "RS232", it will show as below:

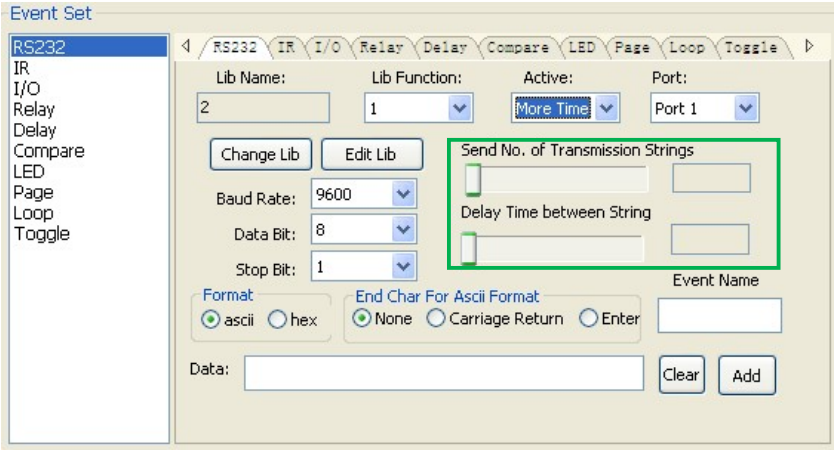


1) The data of RS232 can be directly entered or selected from library. Click "Change Lib" to select a library file and open it. Click "Edit Lib" to create or edit a library file as below:



Notice: When editing finish, remember to save the editing, and then press "OK".

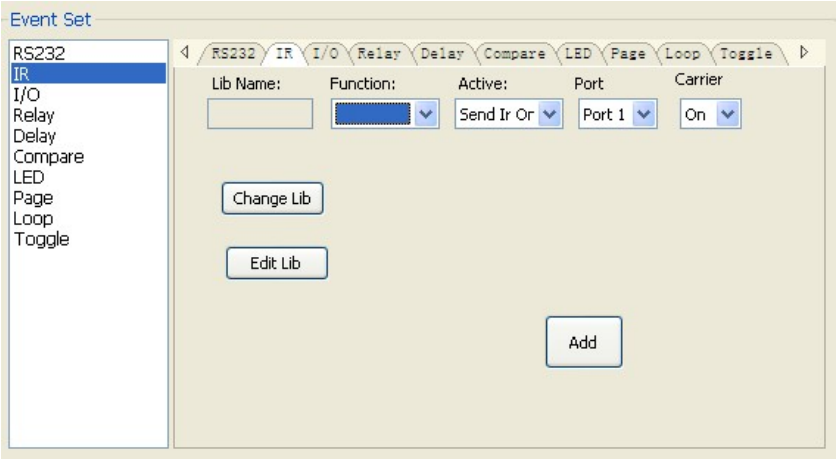
2) There are two send types: send once and send more times. When select "more times", the send times and the delay between times can be set. See in picture below:



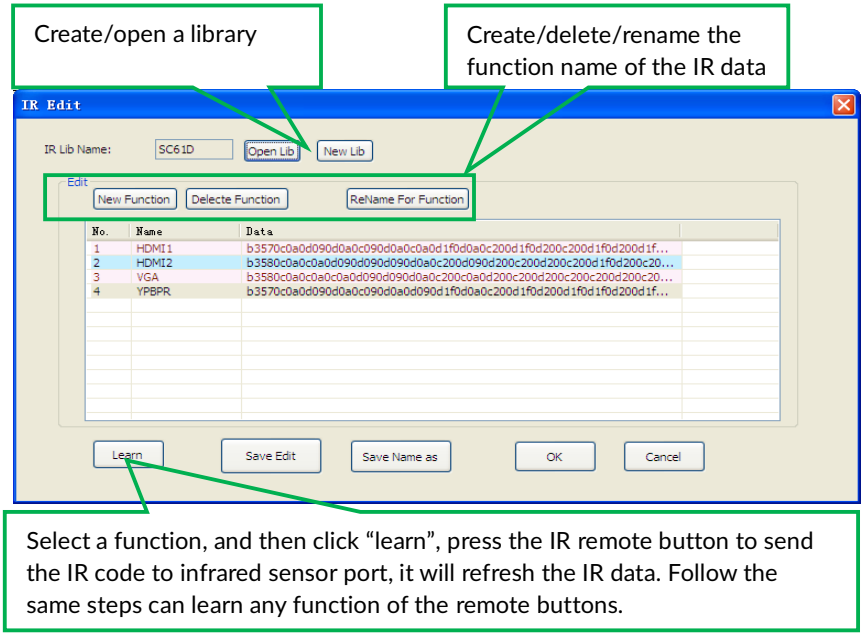
3) The send port must be selected as the same as model setting, otherwise the event cannot be added.
4) User can set the event name. It is optional function, not necessary.

➢ IR Setting

This item is used for setting the parameters of TL-WPCT-01BK's IR ports. Click "IR", it will show as below:



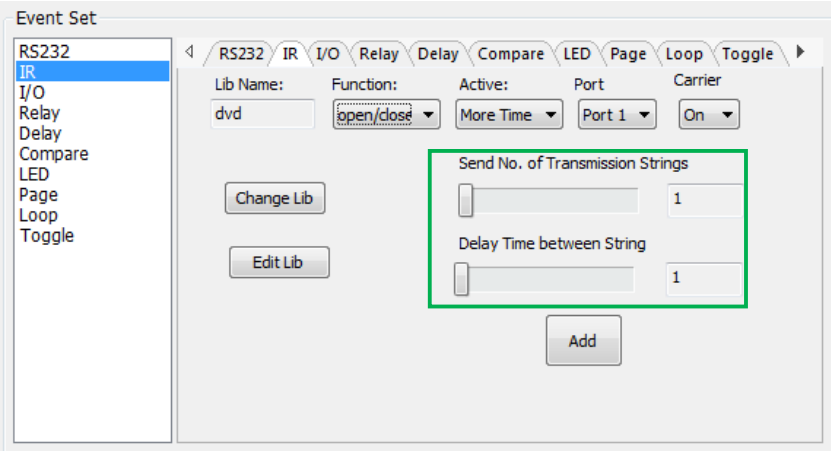
1) The data of IR need to be selected from library. Click "Change Lib" to select a library file and open it. Click "Edit Lib" to create or edit a library file as below:



Select a function, and then click "learn", press the IR remote button to send the IR code to infrared sensor port, it will refresh the IR data. Follow the same steps can learn any function of the remote buttons.

Notice: When editing finish, remember to save the editing, and then press "OK".

2) There are two send types: send once and send more times. When select "more times", the send times and the delay between times can be set. See in picture below:



3) The send port must be selected as the same as model setting, otherwise the event cannot be added.

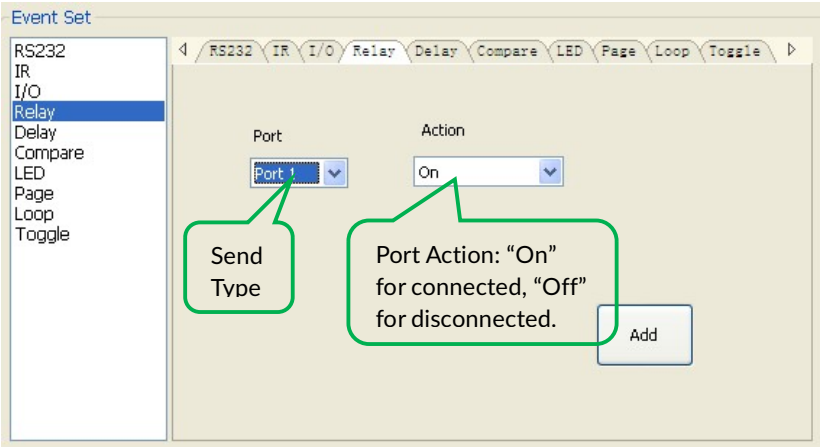
4) The IR can set the carrier on/off, to turn on/turn off the IR sending.

- **I/O Setting**

  There is no I/O port in TL-WPCT-01BK, so the setting is not introduced in this manual.

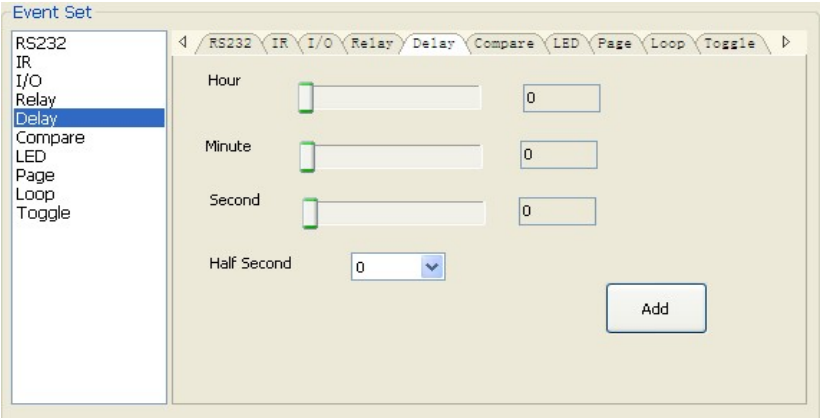
- **Relay Setting**

  This item is for the replay ports setting. The setting is as the picture below:



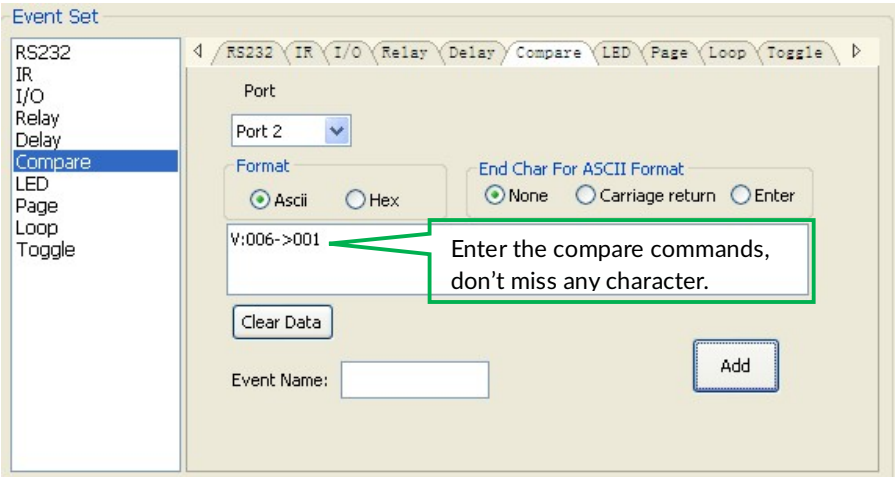
➢ **Delay setting**

This item is to set a delay time, user can add a delay between two events; so when one event is finished, it will delay a certain time then start another event. The delay setting is as picture below:



➢ **Compare Setting**

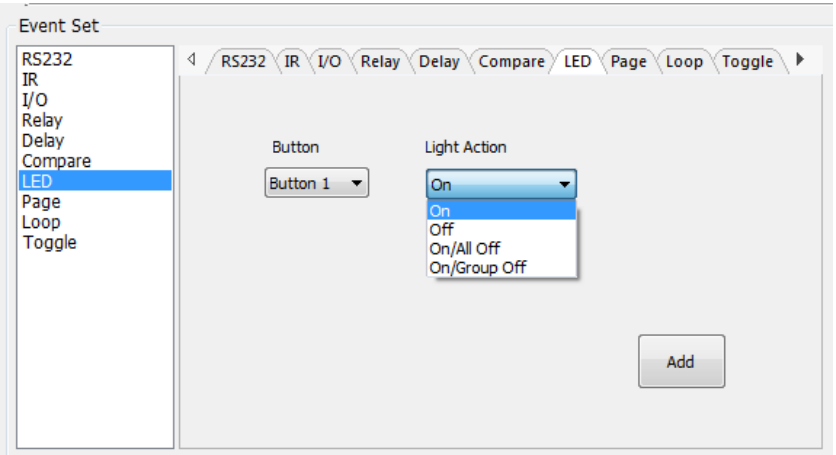
This item is used for compare the feedback of RS232 commands. When the TL-WPCT-01BK send a RS232 command to the controlled device, the device will send back a feedback. If we add the correct feedback in the data, the TL-WPCT-01BK will compare it with the feedback received from controlled device, to verify the command is work or not. The compare setting is as the picture below:



1) The send port must be selected as the same as model setting, otherwise the event cannot be added. And port 1 cannot be used for compare, for there is no a receive pin in this port.
2) User can set the event name; it is optional function, not necessary.
3) For the events in one event list have priority, from top to bottom, so that the compare function can be used in action which with three or more events. When send a serial command, we can add a compare then other events. If the compare is incorrect, the event behind compare will not be executed.

➢ **LED setting**

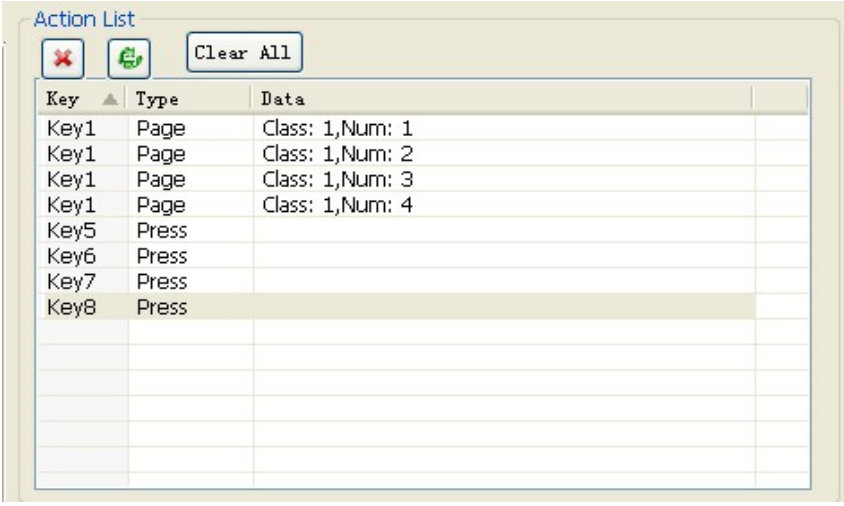
This item is used for set the button LEDs in TL-WPCT-01BK to turn on/off. The setting is as below:



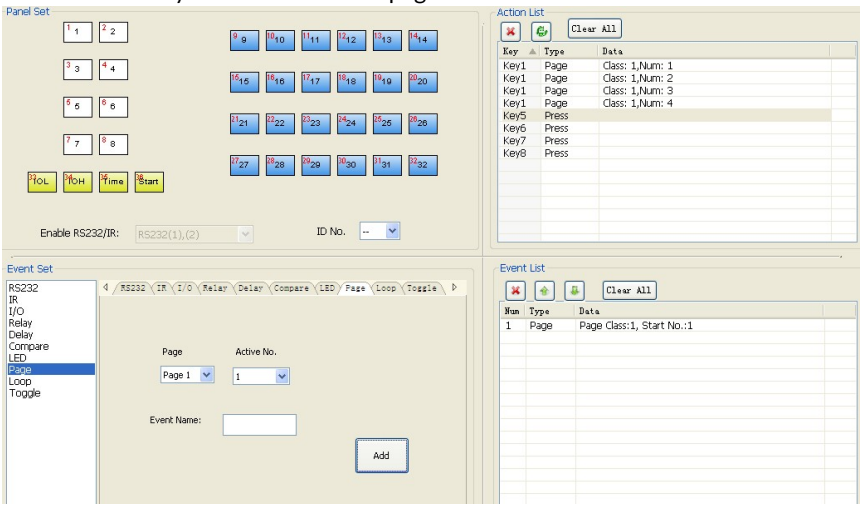
➢ **Page setting**

White buttons can be set to type “page” that include four actions. To change different actions, it will need other white buttons to active the page action number. Here take a example to show you the use of this function:

1) Take button1 for example: click key1 and select the action type “page”, add the four actions to the action list. Then add other four buttons “press” action to the list (here take keys 5-8 for example):



2) In event setting, we add four different events to the four page actions of key1, and the four other keys will be added the page event to each of them as below:



Then set the “page” event to make four “press” actions to active the four page number: key5-num1, key6-num2, key7-num3 and key8-num4. It will perform like this:

a) When press the button5 and then button1, the button1 will execute the event of num1, press button1 more times it will execute num1 more times;

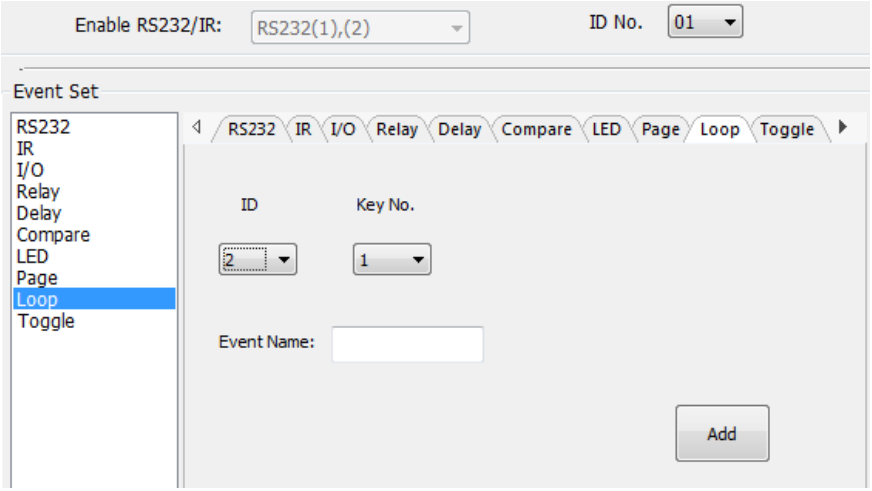
b) When press the button6 and then button1, the button1 will execute the event of num2, press button1 more times it will execute num2 more times;

c) When press the button7 and then button1, the button1 will execute the event of num3, press button1 more times it will execute num3 more times;

d) When press the button8 and then button1, the button1 will execute the event of num4, press button1 more times it will execute num4 more times.

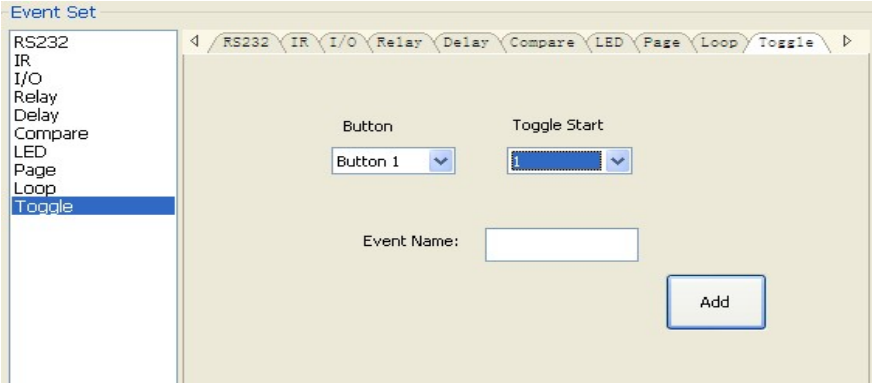
➢ **Loop Setting**

This item is used for looping TL-WPCT-01BK. When use the loop function, the ID of each TL-WPCT-01BK must be set.



➢ **Toggle Setting**

The toggle setting is as the picture below:



The setting steps of toggle are similar with the page setting. But toggle performs differently, for the actions in it are loop running, it will perform as below (take the same example like page function):

a) When press the button5 and then button1, the button1 will execute the event of num1, press button1 more times it will execute num2, then num3->num4->num1 and so on.

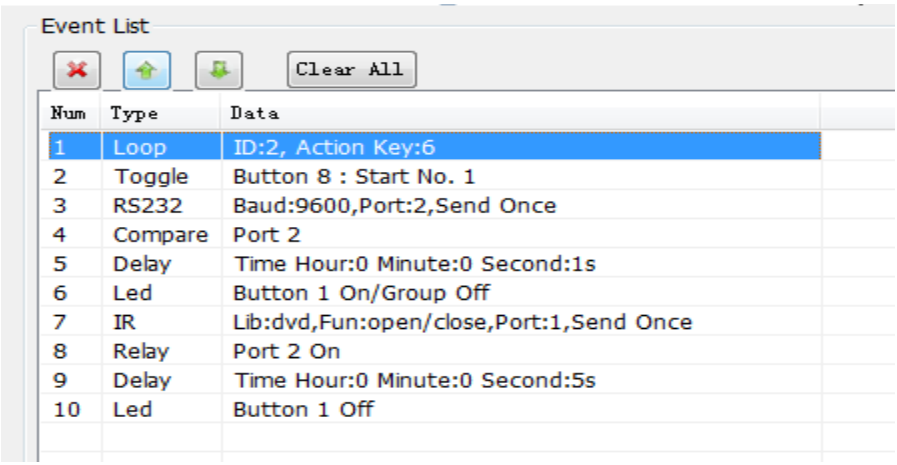
b) When press the button6 and then button1, the button1 will execute the event of num2, press button1 more times it will execute num3, then num4->num1->num2 and so on.

c) When press the button7 and then button1, the button1 will execute the event of num3, press button1 more times it will execute num4, then num1->num2->num3 and so on.

d) When press the button8 and then button1, the button1 will execute the event of num4, press button1 more times it will execute num1, then num2->num3->num4 and so on.

4.2.5 Event List

The event list shows all events of the selected action. The executing priority abides by the serial number, see the picture below. If there is an event execute incorrectly, all the events behind it will not be executed.

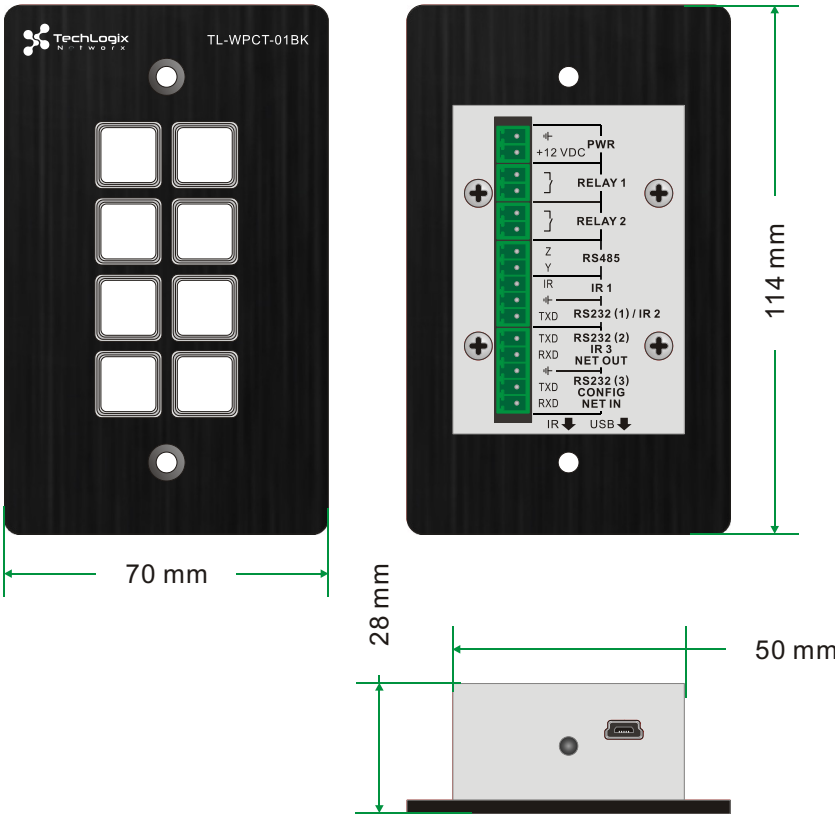


Num	Type	Data
1	Loop	ID:2, Action Key:6
2	Toggle	Button 8 : Start No. 1
3	RS232	Baud:9600,Port:2,Send Once
4	Compare	Port 2
5	Delay	Time Hour:0 Minute:0 Second:1s
6	Led	Button 1 On/Group Off
7	IR	Lib:dvd,Fun:open/close,Port:1,Send Once
8	Relay	Port 2 On
9	Delay	Time Hour:0 Minute:0 Second:5s
10	Led	Button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

5. Specification

Specification			
Program Port	USB or RS232	Output Port	3 x RS232, 1 x RS485, 3 x Infrared, 2 x Relay
Serial Control Port	RS232	Baud Rate And Protocol	9600 baud, 8 data bits, 1 stop bit, no parity
Software	the Control Panel PC Software	Temperature	-20 ~ +70°C
Frequency Response	20Hz ~20KHz	Humidity	10% ~ 90%
Power Supply	100VAC~240VAC, 50/60 Hz	Power Consumption	1W
Case Dimensions	114x70 x28mm	Product Weight	0.15kg

6. Panel Drawing



7. Troubleshooting & Maintenance

1) When the control panel cannot work, please check and make sure the power cord connection is well, plug cannot be mixed or connect wrong. Then restart, if still not work, the control panel may be broken. Please send it to the dealer for repairing.
2) When USB cannot open or without response, please make sure the USB driver is installed correctly, and then reconnect the USB cable.
3) When uploading the USB cannot be found, please restart the software or panel.
4) When the LED of a button cannot be lighted, please check if there is a compare event in this button. If yes, delete the compare and try again. If still not work, the LED may be broken. Please send the unit to dealer for repairing.
5) When serial commands sending without function executed, please check the baud rate and make sure is correct, and the serial connection is well.
6) If the controlling queue is confused when use loop function, please reboot the TL-WPCT-01BK.

8. After-sales Service

If there appear some problems when running the device, please check and deal with the problems referenced in this user manual.

1) **Product Limited Warranty:** We warrant that our products will be free from defects in materials and workmanship for **three years.** Please see warranty page posted on www.tlnetworx.com for more info.
2) **What the warranty does not cover:**
   - Warranty expiration.
   - Factory applied serial number has been altered or removed from the product.
   - Damage, deterioration or malfunction caused by:
     - Normal wear and tear
     - Use of supplies or parts not meeting our specifications
     - No certificate or invoice as the proof of warranty.
     - The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
     - Damage caused by force majeure.
     - Non-authorized service
     - Other causes which does not relate to a product defect
   - Delivery, installation or labor charges for installation or setup of the product
3) **Technical Support:** Email to our after-sales department or make a call, please inform us the following information about your cases.
   - Product version and name.
   - Detailed failure situations.
   - The formation of the cases.

Remarks: For any questions or problems, please try to get help from your local distributor.