

SYN-KEY10 User Manual

v1.0

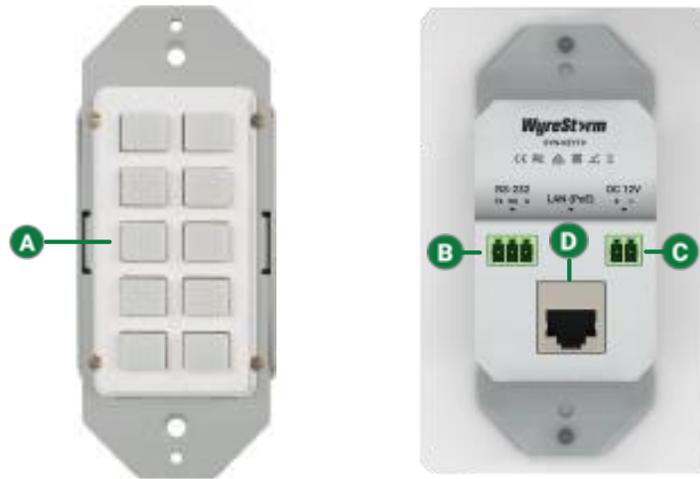
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Introduction

The SYN-KEY10 is a 10-button IP enabled keypad controller is a solution designed to provide a simple and easy way to control devices and specific actions. Devices including WyreStorm Synergy and Apollo products, as well as most 3rd party devices over TCP/IP or RS232 and can be powered via PoE or universal PSU (sold separately). The KEY10 comes with a single gang decora and can be mounted into a single gang wall box or can be fitted into a conference room table. With up to 10 presets, the KEY10 is an ideal solution to automate multiple actions and themes in conference and huddle room settings and even residential spaces.

Device Layout



- | | | |
|----------|-----------------|--|
| A | 10-Button Panel | Buttons are not defined by default and require configuration through the WebUI. Each button stores up to 6 commands. Note: Pressing the bottom two buttons simultaneously for 3 seconds until all backlights blink 3 times will restore the device to factory default settings. |
| B | RS-232 | Connect direct to a single RS232 device |
| C | DC 12V | Connect to DC 12V PSU (not included) |
| D | LAN (PoE) | Connect to an Ethernet switch or Ethernet enabled device to control |

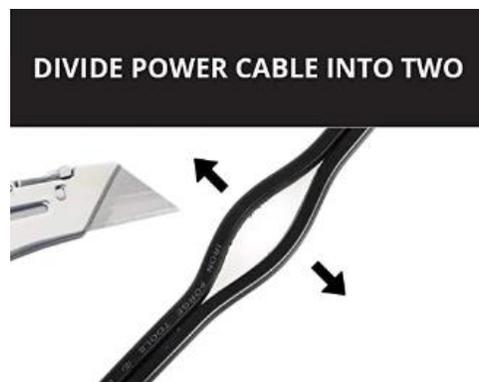
Power Connections

There are two methods of powering the SYN-KEY10; via PoE over Cat/Ethernet cable with a capable PoE device (switch, router, PoE injector). This method is recommended if available, however, if using a non PoE network device, or no connection to a network is needed, then a universal power supply can be used. Note: 12V and equal to or more than 0.5A is acceptable. See below diagram for connections.

- With the power supply disconnected from the outlet, cut the barrel end off.



- With the barrel end cut off, divide the two cables apart. Remove 2-3mm of insulation at the tips, exposing copper, twist if needed. **Note: it is recommended to pull the strips apart or carefully slice down the middle.**

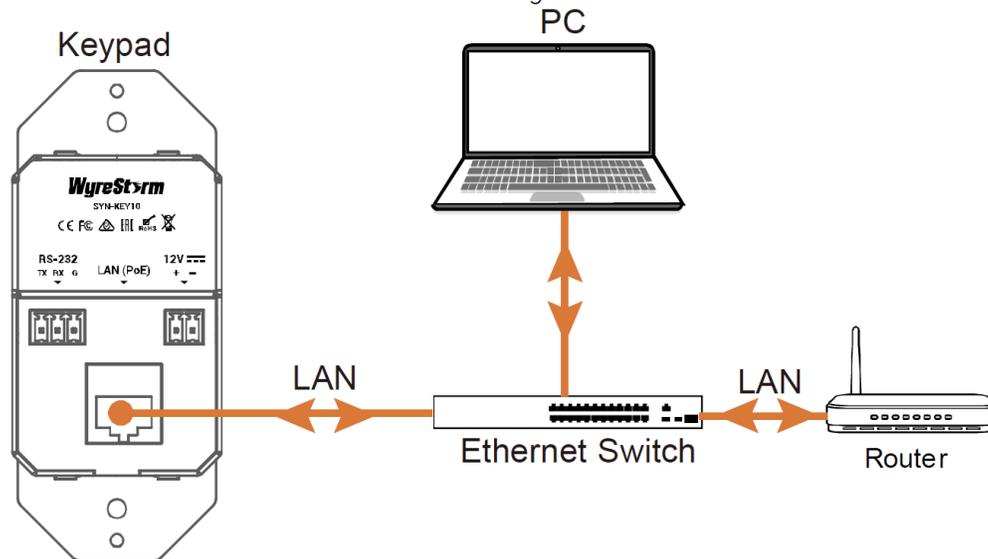


- Connect the separated cables into the 2-pin phoenix connector, provided. In most cases, the black/white cable is reserved for positive and solid black is for negative. Please refer to the labeled +/- indicators printed on the SYN-KEY10 and the power supply's manufacture pinout polarity. Insulate where needed and check continuity for proper connections before use.

Connections, Operation and Application

Connection and Operation

Below demonstrates the connections to access and configure the SYN-TOUCH10 via WebUI

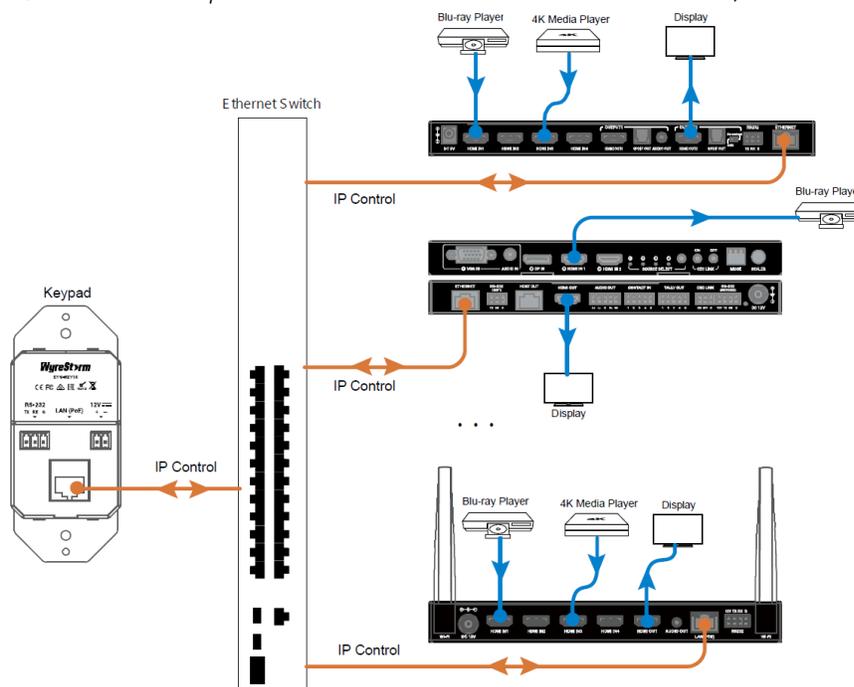


TCP/IP Control

1. Connect the SYN-KEY10, PC and device(s) to be controlled to the same network (PoE enabled switch must be used to power SYN-KEY10 over Ethernet)
2. If PoE is not available, connect a 12V power supply (as shown above) to power the keypad.
3. Install the SYN-KEY10 into a wallbox or table configured to accept a 1-gang device. **Note: Power on and test all devices before final installation**

TCP/IP Application

Controlling over TCP/IP means multiple devices can be controlled over the network, see below application example.

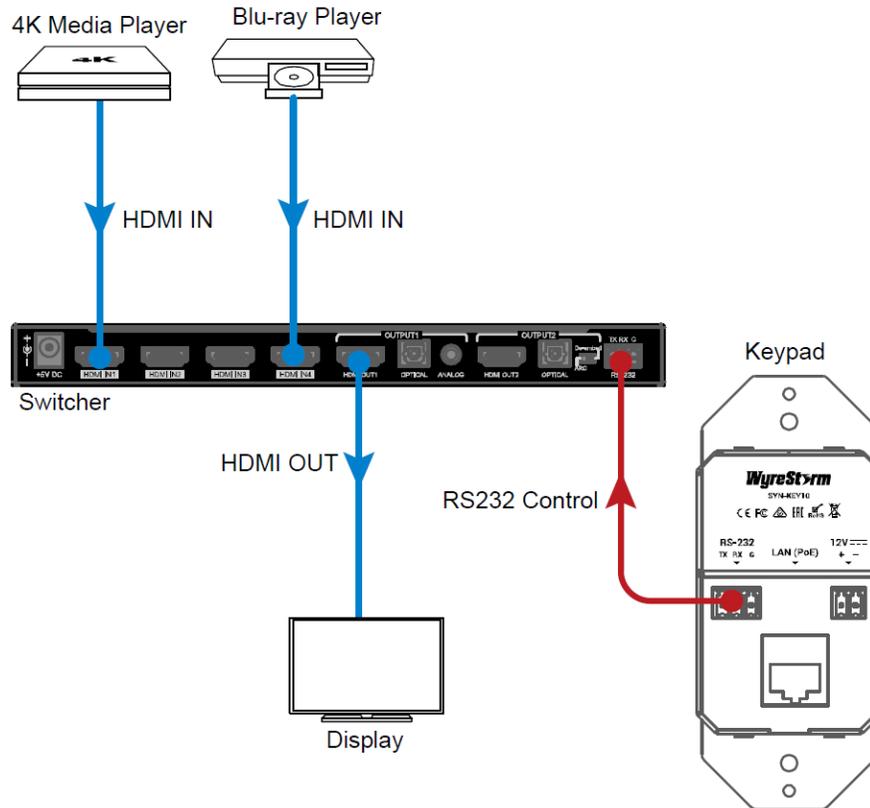


RS-232 Control

1. Connect the device to be controlled to the RS232 port on the back of the SYN-KEY10 with the provided 3-pin phoenix connector
2. Connect the SYN-KEY10 to a power source (Ethernet switch or power supply)
3. Install the SYN-KEY10 into a wallbox or table configured to accept a 1-gang device. **Note: Power on and test all devices before final installation**

RS-232 Application

Controlling over RS232 means only a single device can be connected and controlled. See below application example:
Note: While it is uncommon, it is possible to control a single device over RS232 while controlling multiple devices over TCP/IP at the same time.



Accessing the Web UI

The Web UI can be accessed through a browser, e.g. Chrome, Firefox, Safari, Opera, IE10+, etc.

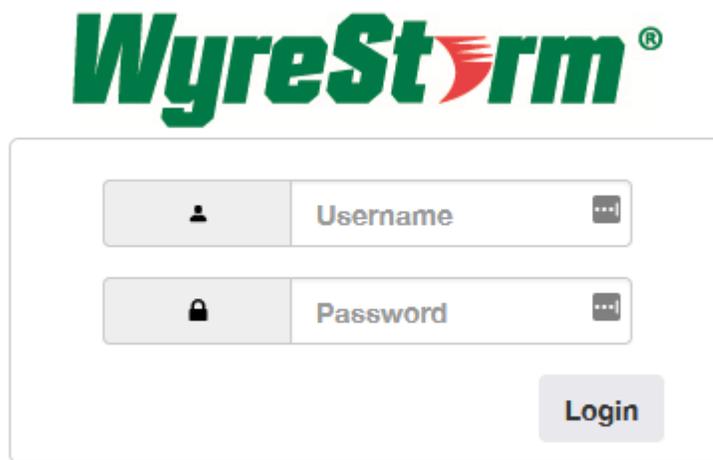
1. Connect to the LAN port of the SYN-KEY10 to the Ethernet switch/router using a CAT5e/6 cable.

Note: If the switch/router does not support PoE, connect a 12V DC power adapter to the keypad

2. Connect a PC to the same switch/network
3. Using an IP scanner, search for the IP address of the SYN-KEY10. The exact name will show.

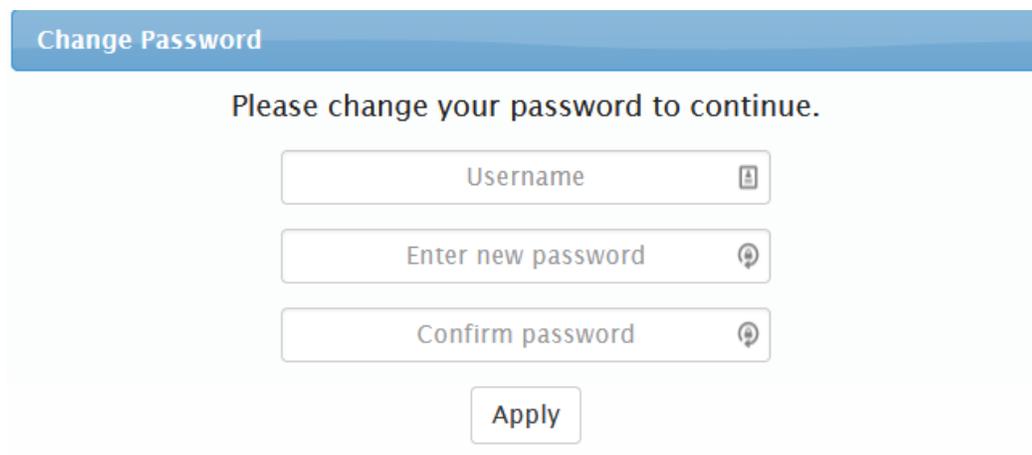
Note: Alternatively, reference the unique MAC address sticker found atop the SYN-KEY10

4. Type the IP address in your browser and hit enter. The following will be shown below.



The image shows the WyreStorm logo at the top, which consists of the word "WyreStorm" in a green, bold, sans-serif font with a red stylized "S" that has three horizontal lines extending from its right side. Below the logo is a login form with a light gray border. It contains two input fields: the first is labeled "Username" and has a person icon on the left and a "show/hide" icon on the right; the second is labeled "Password" and has a lock icon on the left and a "show/hide" icon on the right. Below these fields is a "Login" button.

5. Input the default username and password: "admin"



The image shows a "Change Password" form. At the top is a blue header bar with the text "Change Password" in white. Below the header is the instruction "Please change your password to continue." in bold. There are three input fields: "Username" with a person icon, "Enter new password" with a lock icon, and "Confirm password" with a lock icon. Below these fields is an "Apply" button.

6. Upon logging in, you will be prompted to change your username and password.

The main page includes 6 submenus: Edit/Test Keys, LED Settings, Add/Edit Devices, Command Settings, Network Settings, System Settings



SYN-KEY10

Edit/Test Keys

LED Settings

Add/Edit Devices

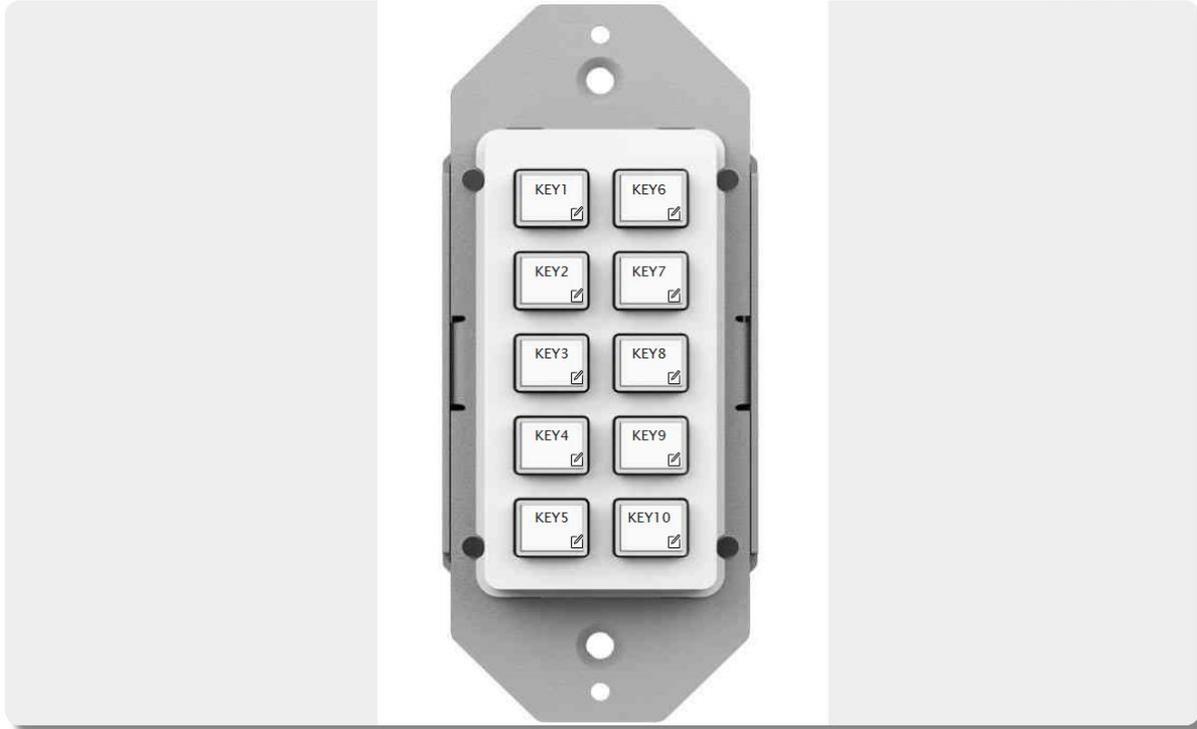
Command Settings

Network Settings

System Settings

MCU Version : V1.3

Web Version : V1.03



Button Configuration

Follow the configuration sequence below to store button commands:

1. **Add/Edit Devices:** In this menu, you will configure parameters of each communication interface for most commonly used devices (displays, lighting, shades etc.)
2. **Command Settings:** Here you will create a library of commands for the devices stored in the **Add/Edit Devices** page.
3. **Edit/Test Keys:** This is where you set the commands to each button using the configurations made in the **Add/Edit Devices** and **Commands Settings** menus.

Add/Edit Devices Tab

MCU Version : V1.3
Web Version : V1.03

Active	Device Name	Interface	Edit	Remove
<input type="checkbox"/> Disable	-	-	Edit IP Control	Remove
<input type="checkbox"/> Disable	-	-	Edit RS232 Control	Remove
<input type="checkbox"/> Disable	-	-	Edit IP Control	Remove
<input type="checkbox"/> Disable	-	-	Edit RS232 Control	Remove
<input type="checkbox"/> Disable	-	-	Edit IP Control	Remove
<input type="checkbox"/> Disable	-	-	Edit RS232 Control	Remove
<input type="checkbox"/> Disable	-	-	Edit IP Control	Remove
<input type="checkbox"/> Disable	-	-	Edit RS232 Control	Remove
<input type="checkbox"/> Disable	-	-	Edit IP Control	Remove
<input type="checkbox"/> Disable	-	-	Edit RS232 Control	Remove
<input type="checkbox"/> Disable	-	-	Edit IP Control	Remove
<input type="checkbox"/> Disable	-	-	Edit RS232 Control	Remove

Under the Edit menu, select whether the device will be controlled via IP or RS232.

IP Control

Device Edit

Device Name:

IP Address:

Port:

Username:

Password:

Device Name: Name the device to be controlled (Up to 16 characters)

IP Address: Enter the IP address of the device to be controlled

Port: Input the telnet control port number of the device to be controlled such as "23"

Username/Password: If the device to be controlled requires a username and password to be accessed, enter it here.

After saving the settings above, the first indicator in the "active" portion of the table will slide to "Enable"

RS232 Control

Device Edit

Device Name:

Baud Rate:

Parity Bits:

Data Bits:

Stop Bits:

Device Name: If editing the same device (MX-0808-MK2 in this example), the device name will show up. If it is a new device, then enter the name of the device

Baud Rate: Select the baud rate from the drop-down menu, such as "9600"

Parity Bits: Select the parity bits from the drop-down menu, such as "NONE"

Data Bits: Select the data bits from the drop-down menu, such as "8".

Stop Bits: Select the Stop Bits from the drop-down menu, such as "1"

Once saved, the device added previously will display as shown in the image below

MCU Version : V1.3
Web Version : V1.03

Active	Device Name	Interface	Edit	Remove
<input checked="" type="checkbox"/>	MX-0808-MK2	IP Control	<input type="button" value="Edit IP Control"/>	<input type="button" value="Remove"/>
		RS232 Control	<input type="button" value="Edit RS232 Control"/>	<input type="button" value="Remove"/>
<input type="checkbox"/>	-	-	<input type="button" value="Edit IP Control"/>	<input type="button" value="Remove"/>
		-	<input type="button" value="Edit RS232 Control"/>	<input type="button" value="Remove"/>
<input type="checkbox"/>	-	-	<input type="button" value="Edit IP Control"/>	<input type="button" value="Remove"/>
		-	<input type="button" value="Edit RS232 Control"/>	<input type="button" value="Remove"/>

Command Settings Tab

After all desired devices in the **Add/Edit Devices** have been configured, click on the **Command Settings** tab where you will see the device(s) appear under the **Device Name** portion of the table.

Device Name	Command Name	Command	Edit	Remove
	-		Edit	Remove
	-		Edit	Remove
	-		Edit	Remove
	-		Edit	Remove
MX-0808-MK2	-		Edit	Remove
	-		Edit	Remove
	-		Edit	Remove
	-		Edit	Remove
	-		Edit	Remove
	-		Edit	Remove
	-		Edit	Remove
	-		Edit	Remove
	-		Edit	Remove
	-		Edit	Remove

Note: Up to 10 devices can be added with up to 10 commands per device. **Tip:** if more commands are needed for a single device, configure a second device with the parameters in the **Add/Edit Devices** tab. There you will have 10 more commands to implement.

Click "Edit" to start entering commands

Command Edit 1

Command Name: All Displays On

Command Type: ASCII HEX

Command: SET CEC_PWR all on

End Flag: \r\n \r \n None

Save Cancel

Command Name: Set a name for the desired command (Up to 32 characters)

Command Type: Select the character encoding that is compatible with the device's API. ASCII is default.

Command: input the command that controls the device.

End Flag: Select the appropriate end flag according to the device's API

Save/Cancel: save or cancel the configuration

Device Name	Command Name	Command	Edit	Remove
MX-0808-H2A-MK2	All Displays On	SET CEC_PWR all on	Edit	Remove
	All Displays Off	SET CEC_PWR all off	Edit	Remove
	-		Edit	Remove
	-		Edit	Remove
	-		Edit	Remove
	-		Edit	Remove
	-		Edit	Remove
	-		Edit	Remove
	-		Edit	Remove
	-		Edit	Remove

MCU Version : V1.3
Web Version : V1.03

Edit/Test Keys

After **Command Settings** have been configured, it is time to configure commands for each button (Up to 6 commands per button). To start, click the edit button located in the lower right hand corner.



Key Edit 1
✕

Key alias edit:

Save

Command:

Device Name	Command Name	Interface	param1	param2	Delay(ms)	Edit	Remove
					0	Edit	Remove
					0	Edit	Remove
					0	Edit	Remove
					0	Edit	Remove
					0	Edit	Remove
					0	Edit	Remove

Save

✕ Cancel

Key alias edit: This changes the button's name (up to 24 characters), click "save" to take effect.

Command: Click "Edit" in the table, opens the following page:

Device List	
MX-0808-H2A-MK2	-
-	-
-	-
-	-
-	-

* Cancel

Select the device you would like to configure, which brings you to "Command Destination"

Command Destination

Delay(ms)

Interface Telnet

Command: All Displays On

Trigger Mode: Send by pressing

Save * Cancel

Delay (ms): Set the delay time for the command to be sent to the controlled device upon button press. (200ms max)

Interface: Select the control interface (Telnet or RS232)

Command: Select one of the commands made in the previous tab "Command Settings"

Trigger Mode: Select "Send by pressing" the button or "Send by releasing" the button in this menu. Save or cancel edits.

Key Edit 1

Key alias edit:

Power All

Command:

Device Name	Command Name	Interface	param 1	param2	Delay(ms)	Edit	Remove
MX-0808-H2A-MK2	All Displays On	Telnet	192.168.11.143	23	0	Edit	Remove
MX-0808-H2A-MK2	All Displays On	Telnet	192.168.11.143	23	0	Edit	Remove
					0	Edit	Remove
					0	Edit	Remove
					0	Edit	Remove
					0	Edit	Remove

Above shows the information set before. Each button is capable of saving up to 6 commands

Once configured, head back to **Edit/Test Keys** tab. There, move the mouse over the edit function shown on the button just edited to preview configuration.



LED Settings

LED Settings allows the user to configure how the button(s) behave with LED feedback indicating the button(s) status. See below for steps on grouping buttons:

MCU Version : V1.3
Web Version : V1.03

Button Group	LED Behavior	Key	Edit	Remove
Group 1	independent and reserve		Edit	Remove

1. Click the **Add** to add a single group line to the table.

2. Click the **Edit** button to enter the page above.

- **LED Behavior:** Chose 1 of 3 behaviors
 - i. **independent and reserve:** Each button selected in this group will act as an independent button and the LEDs of the buttons in this group with blink and then extinguish after pressing them. This is designed for buttons like discrete volume, next/previous etc.
 - ii. **independent and toggle:** Each button selected in this group is also independent of each other and the LEDs will toggle upon button press i.e., light up and stay lit or extinguish and stay extinguished. This feature is useful to get status feedback for devices that are on/off, or active/inactive.
 - iii. **mutual and exclusion:** Each button selected in this group is mutually exclusive and only one button can be illuminated at any given time. For example, KEY 5-8 are mutually exclusive and KEY 5 is illuminated, once another button in this group is pressed, KEY 5 will extinguish and the newly pressed button will illuminate. This feature is useful for switching of any kind, like for a matrix or switcher.
- **Key Select:** Click the checkbox to configure the corresponding button to the currently selected group. Then press **Save** to save configuration or **Cancel** to delete.

MCU Version : V1.3
Web Version : V1.03

Button Group	LED Behavior	Key	Edit	Remove
Group 1	independent and reserve	KEY8	Edit	Remove
Group 2	independent and toggle	BluRay,KEY7	Edit	Remove
Group 3	mutual exclusion	ATV4,KEY6	Edit	Remove
Add				

Note:

- The same button cannot be grouped into more than one group at the same time, if this is attempted, the button will be removed from the previous group and added to the newest group.
- Buttons can be divided up to 6 groups maximum.

Network Settings

MCU Version : V1.3
Web Version : V1.03

Network Setting

IP Mode: DHCP

IP Address: IP Address

Netmask: Netmask

Gateway: Gateway

Save

T

This tab allows you to select between the dynamic and static IP addressing.

DHCP: When enabled, the IP address of the devices is assigned automatically by the DHCP server.

Static: When the device fails to obtain an IP address from the network connection, select **Static** to set up the IP address manually.

Note: The default setting is DHCP. If the device fails to obtain an IP address from the network, or is set as "Static", ensure your PC is in the same network arrangement as the device.

System Settings

1. System Settings

This menu is used to change the Username and password.

Note: username and password must be within 4-16 characters in length. Default user and password is "admin"

2. Long-press Setting (Milliseconds)

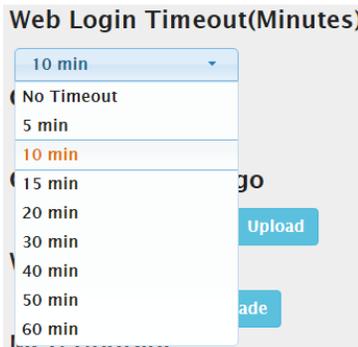
This tab allows users to set the button-press-threshold before the SYN-KEY10 enters "Long-press mode" up to 500ms. Once button press time exceeds configured value, the keypad enters "Long-press mode" and will repeat sending commands out at intervals of configured delays that have been configured in the **Edit/Test Keys** section. See example below:

Device Name	Command Name	Interface	param1	param2	Delay(ms)	Edit	Remove
A-1	Add Volume	RS232	9600	none	100	Edit	Remove
					0	Edit	Remove
					0	Edit	Remove
					0	Edit	Remove
					0	Edit	Remove
					0	Edit	Remove

In the example above, KEY6 is configured with the command "Increase Volume" with a delay set to 100ms. The **Long-press setting (Milliseconds)** value is set to 300ms. When the user presses KEY6, the "Increase Volume" command will be sent out once. Once pressing time reaches 300ms, the button will enter Long-press mode and the "Increase Volume" command will be sent out repeatedly at intervals of 100ms until the button is released.

3. Web Login Timeout (Minutes)

Configure the web login timeout to automatically exit the WebUI in a certain amount of time (5-60 minutes or No Timeout). **Note: Default timeout is 10 minutes.**



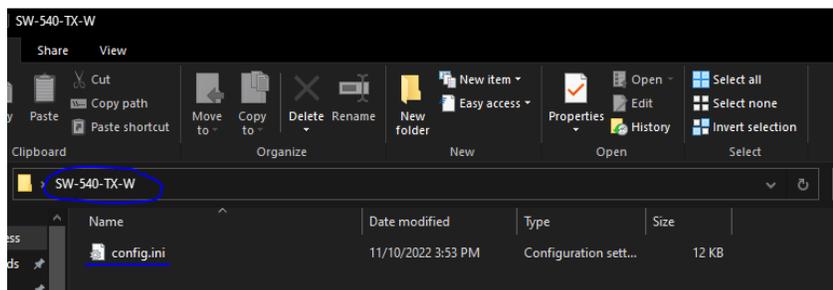
4. Configuration

This section allows users to save (**Export**) and restore (**Import**) current configurations via local storage

Export: Click to save the current configuration as a .ini file to local storage

Import: Click to select a saved configuration file to import. Once uploaded, the configuration will take full effect upon logging back in.

Note: It is important that the file name **config.ini** remains intact and is not changed, or the configuration will not load. It is recommended to create a folder of the file and name it to your choosing, then dropping the config.ini file into it. See below example:



5. Custom Web UI Logo

This section allows users to customize the logo at the login page.

Select Logo (.png): Click to select logo file

Upload: Click to upload the selected file

Note: The new logo used should be in PNG format and no greater than 300x60 pixels

6. Web Upgrade

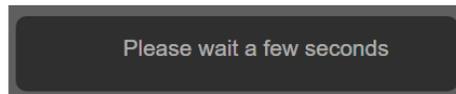
Should there be a firmware update for the WebUI, follow the steps below:

Select a file: Select a WebUI .bin file from local PC



Note: After selecting the wanted .bin file, it may show the message "fakepath". This is designed to hide the .bin file path for security

Upgrade: Click **Upgrade** to start the WebUI upgrade. A notice window will pop up as followed:



When the upgrade has completed, the SYN-KEY10 will reboot automatically and the webpage will automatically refresh.

Note: After selecting the wanted .bin file, it may show the message "fakepath". This is designed to hide the .bin file path for security

7. MCU Upgrade

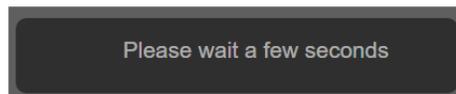
Should there be a firmware update for the MCU, follow the steps below:

Select a file: Select an MCU .bin file from local PC.



Note: After selecting the wanted .bin file, it may show the message "fakepath". This is designed to hide the .bin file path for security

Upgrade: Click **Upgrade** to start the MCU upgrade. A notice window will pop up as followed:



When the upgrade has completed, the SYN-KEY10 will reboot automatically and the webpage will automatically refresh.

8. System

This section allows user to factory default or reboot the SYN-KEY10

Factory Reset: Click to reset the device to factory defaults. Once confirmed, the webpage will refresh automatically with the default username and password "admin".

Note: The SYN-KEY10 can also be rest to factory default by pressing and holding the bottom 2 buttons on the keypad for 3 seconds.

Reboot: Click to reboot the SYN-KEY10. After confirming the webpage will refresh automatically.