![ZeeVee logo]

Intelligent AV Distribution

ZyPerPad

IP Enabled Keypad Controller

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User Manual

Updated January 2023

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System Description

ZyPerPad is a 10-button IP enabled keypad controller aimed at providing customers a simple means of sending commands to the ZyPer Management Platform (ZMP). With built-in PoE, it can receive power from any PoE enabled ethernet switch. It supports individual button configuration via a simple to use web user interface.

The ZyPerPad is also capable of sending RS232 communications to other control devices for things such as AV equipment, lights, shades etc..

The IP feature of the ZyPerPad can we used with IP devices besides the ZMP. Examples include AVPro Edge Matrix's and ClearOne DSPs. (Functionality not guaranteed for non ZMP devices)

Package Contents

1 x ZyPerPad

1 x 1-Gang US Plastic Decora Plate, White

1 x Phoenix Male Connector (3.5mm, 2 Pins) - For Power

1 x Phoenix Male Connector (3.5mm, 3 Pins) - For RS232

2 x #6-32*20mm Cross-Head Screws, Silver

2 x US #6-32*7mm Philips Screws, White Head

1 x Sheet of pre-printed button labels

Panel Layout
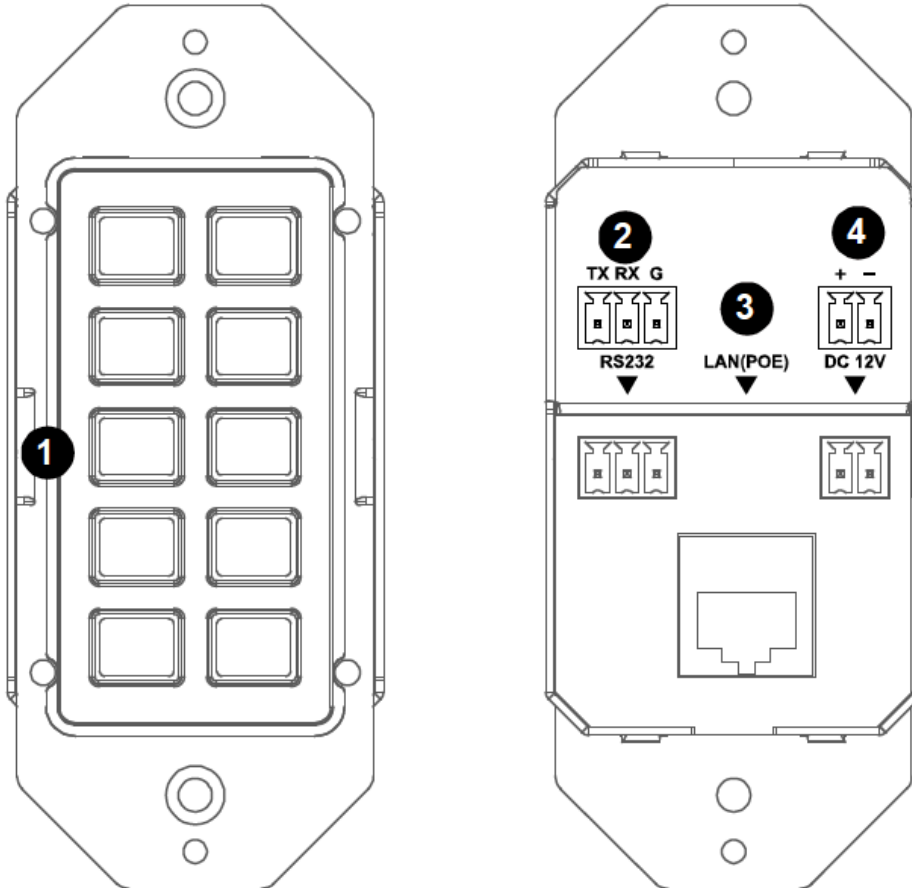
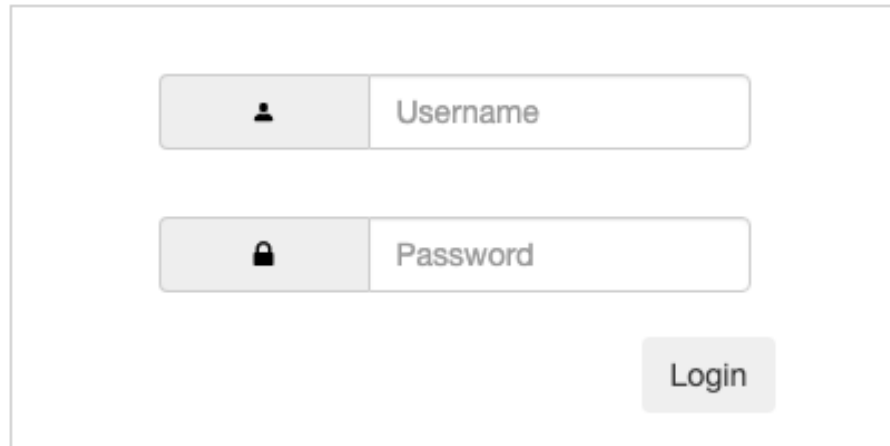| Number	Name	Description
1	Buttons	Ten buttons on front panel. Buttons are not defined by default. Configure buttons through the web user interface.
2	RS232	Connect to RS232 enabled device for RS232. (**Not used with ZyPer Management Platform**)
3	LAN (PoE)	Connect to an Ethernet switch. PoE supported.
4	DC 12V	Not required if using PoE for power. Connect to DC 12V power adapter if needed. **Power adapter not included in package.**

Factory Reset
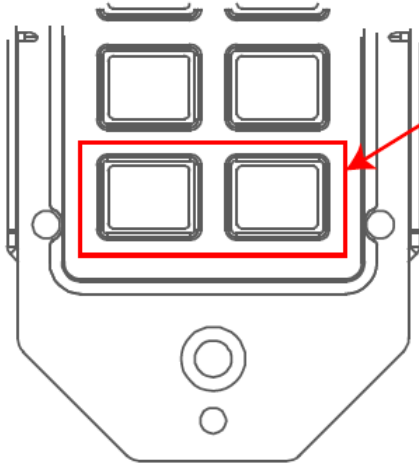
Press and hold the 2 bottom buttons simultaneously and hold for about 8 seconds. This will cause all 10 buttons to blink 3 times and indicate the ZyPerPad is being reset to factory defaults.

Accessing the Web User Interface

The ZyPerPad supports a simple to use web user interface to setup the ZyPerPad and configure commands for the buttons. The Web UI can be accessed via a browser such as Chrome, Firefox or Safari.

1. Connect the LAN (PoE) port of the ZyPerPad to an Ethernet switch using a Cat5e cable or better.
    ~ If the switch supports PoE, the ZyPerPad will receive power from it. Otherwise, connect a DC 12V power adapter to the ZyPerPad.(Not included)
2. Connect a PC to the same network
3. Power on all devices.
4. The default IP address for the ZyPerPad is **192.168.0.101** with a subnet mask of 255.255.255.0
5. You will be prompted in the browser for a Username and Password. The default Username and Password are both "admin"

6. Entering the Username and Password will take you to the main page of the User Interface. The main page includes six submenus. **Key Settings**, **Command Settings**, **Device Settings**, **Group Settings**, **Network Settings** and **System Settings**.

✦ *Device Settings*, *Command Settings* and *Key Settings* are to configure and store functions for the buttons.

✦ *Group Settings* is used to group the buttons so that the status of the buttons can be viewed conveniently according to the LEDs status in different groups.

✦ *Network Settings* is used to configure DHCP/Static IP information

✦ *System Settings* is used to configure general system settings and perform system updates.

Device Settings - IP Control

This section allows you to configure the ZyPerPad to talk to the ZyPer Management Platform (ZMP)

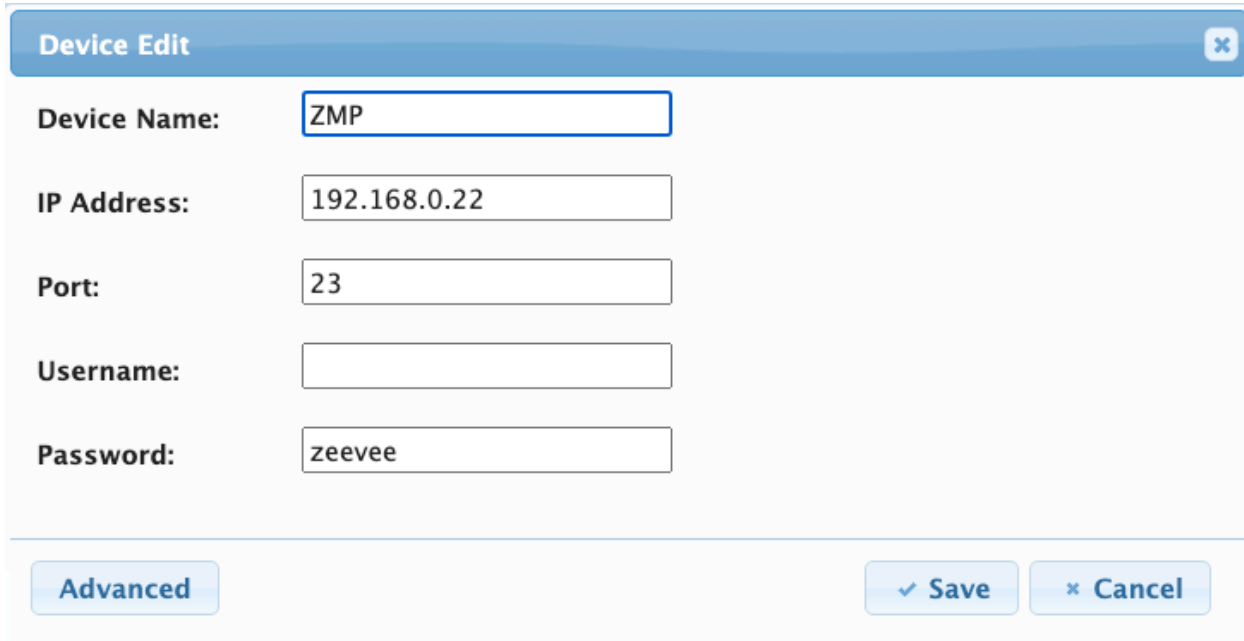| Active	Device Name	Interface	Edit	Remove
Enable	ZMP	IP Control	Edit	Remove
		–	Edit	Remove
Enable	QSC	–	Edit	Remove
		RS232 Control	Edit	Remove
Disable	–	–	Edit	Remove
		–	Edit	Remove
Disable	–	–	Edit	Remove
		–	Edit	Remove
Disable	–	–	Edit	Remove
		–	Edit	Remove
Disable	–	–	Edit	Remove
		–	Edit	Remove
Disable	–	–	Edit	Remove
		–	Edit	Remove
Disable	–	–	Edit	Remove
		–	Edit	Remove

Key Settings | Command Settings | Device Settings | Group Settings | Network Settings | System Settings

MCU Version : V1.0
Web Version : V1.03

The ZyPer Management Platform (ZMP) will be accessed and controlled over the LAN port.

Click the first/top "Edit" to enter the device name and IP information on the following page. This example is for the ZyPer Management Platform.

Device Edit

Device Name: ZMP

IP Address: 192.168.0.22

Port: 23

Username:

Password: zeevee

Advanced   ✓ Save   × Cancel

Note the IP Address is the address of the ZyPer Management Platform (ZMP) on the network. (Subnet mask is the same as the ZyPerPad unit itself) Be sure to put in port number 23.

Username and Password are not needed for default telnet communications to the ZMP unit. If a telnet password is enabled, be sure to enter it here. The ZMP does not support a Username, leave this field blank.   If using ZyPerPad with an IP device other than the ZMP, please see the Appendix at the end of this document.

Device Settings - RS232 Control

Note: The second or bottom "Edit" button in each group is for RS232 commands. These are not used with the ZyPer Management Platform but could be used with another 3rd party control system to control lights for example.

With RS232 there is no concept of IP address, just setup the appropriate serial settings for baud rate, parity, data bits and stop bits.

An example is shown below:

Important Note: Be sure to connect the TX and RX lines between the ZyPerPad and target device correctly. TX on ZyPerPad to RX on target device and vice versa.

Command Settings - IP Commands

This is where you will create the ZyPer Management Platform (ZMP) API commands that will eventually be assigned to the buttons. Any / All ZMP API commands can be executed from the ZyPerPad including the running of preconfigured Presets.

Key Settings	Command Settings	Device Settings	Group Settings	Network Settings	System Settings

MCU Version : V1.0
Web Version : V1.03

Device Name	Command Name	Command	Edit	Remove
ZMP	Join None	join none UHDdec fastSwitched	Edit	Remove
	Join One	join UHDenc1 UHDdec fastSwitched	Edit	Remove
	Join Two	join UHDenc2 UHDdec fastSwitched	Edit	Remove
	Run preset 1	run preset Keypad	Edit	Remove
	Test RS232	Hello World 2	Edit	Remove
	Hex Test	68 65 6c 6c 6f 20 77 6f 72 6c 64 0d 0a	Edit	Remove
	–		Edit	Remove
	–		Edit	Remove
	–		Edit	Remove
	–		Edit	Remove
QSC	Test RS232	HelloWorld	Edit	Remove
	–		Edit	Remove
	–		Edit	Remove
	–		Edit	Remove
	–		Edit	Remove
	–		Edit	Remove

Device Name in the table above shows the ZMP that was configured in the *Device Settings* section.

Click on any of the Edit buttons to create a command that will later be assigned to a button.

Assign a short description of the command to **Command Name**. (Note: Limited to 24 characters)
Set **HEX String Enable** to *String*.
Enter the desired API command in the **Command** line. Note command must be typed exactly as needed by the ZMP API. Note that encoder/decoder names are case sensitive.

End Flag should be set to *\r\n*.

Command Edit 1

Command Name: Join None

HEX String Enable: ● String   ○ HEX

Command: join none UHDdec2 fastSwit

End Flag: ● \r\n   ○ \r   ○ \n   ○ None

✓ Save   × Cancel

The example above with the name "Join None" is for the API command "join none UHDdec2 fastSwitched"

Command Edit 4

Command Name: Channel Up

HEX String Enable: ● String   ○ HEX

Command: channel up UHDdec2

End Flag: ● \r\n   ○ \r   ○ \n   ○ None

✓ Save   × Cancel

The example above with the name "Channel Up" is for the API command "channel up UHDdec2"

Be sure to **Save** any commands that you create. The **Remove** button can be used to delete any commands you have already created.

Command Settings - RS232 Commands

This is where you will create the RS232 hex or string commands that will eventually be assigned to the buttons.

Key Settings	Command Settings	Device Settings	Group Settings	Network Settings	System Settings

MCU Version : V1.0
Web Version : V1.03

Device Name	Command Name	Command	Edit	Remove
ZMP	Join None	join none UHDdec fastSwitched	Edit	Remove
	Join One	join UHDenc1 UHDdec fastSwitched	Edit	Remove
	Join Two	join UHDenc2 UHDdec fastSwitched	Edit	Remove
	Run preset 1	run preset Keypad	Edit	Remove
	Test RS232	Hello World 2	Edit	Remove
	Hex Test	68 65 6c 6c 6f 20 77 6f 72 6c 64 0d 0a	Edit	Remove
	–		Edit	Remove
	–		Edit	Remove
	–		Edit	Remove
	–		Edit	Remove
QSC	Test RS232	HelloWorld	Edit	Remove
	–		Edit	Remove
	–		Edit	Remove
	–		Edit	Remove
	–		Edit	Remove
	–		Edit	Remove

Device Name in the table below shows the QSC that was configured in the *Device Settings* section.

Command Edit 11

Command Name:	Test RS232
HEX String Enable:	● String ○ HEX
Command:	HelloWorld
End Flag:	● \r\n ○ \r ○ \n ○ None

✓ Save   ✕ Cancel

Click on any of the Edit buttons to create a command that will later be assigned to a button.
Note that RS232 communications can be either in Text String or HEX format.

When using HEX the bytes must be separated by a space character.

Line Feed is represented as **0a**
Carriage Return is represented as **0d**

Command Edit 6

Command Name:	Hex Test
HEX String Enable:	○ String ● HEX
Command:	6f 20 77 6f 72 6c 64 0d 0a

✓ Save   ✕ Cancel

Key Settings

After the **Command Settings** is configured successfully, click on **Key Settings** to configured commands for each keypad button. Each button can be assigned with up to 6 commands that would execute sequentially. (Not needed with ZMP as the Preset command can be used to create an unlimited series of commands if desired.)


Click on the bottom right corner of the desired button. Red box in image above for Key1.

Now click on the Edit button for the top line in the table. This will bring up the Device List shown below. Click the ZMP or other controller button. (Created earlier)

Key Edit 1

Key alias edit:

KEY1   Save

Command:

Device Name				Remove
ZMP				Remove
				Remove
				Remove
				Remove
				Remove
				Remove
				Save

Device List

ZMP	QSC
–	–
–	–
–	–
–	–

× Cancel

× Cancel

This will bring up the Command Destination box to allow you to select any of the commands you previously created be used when the button is pushed.

Command Destination

Delay(ms)   0

Interface   Telnet ▾

Command: Join None Z4K ▾

✓ Save   × Cancel

Set **Delay** to 0ms, Set **Interface** to Telnet or RS232. Click the box next to **Command** and select any of your preconfigured commands.
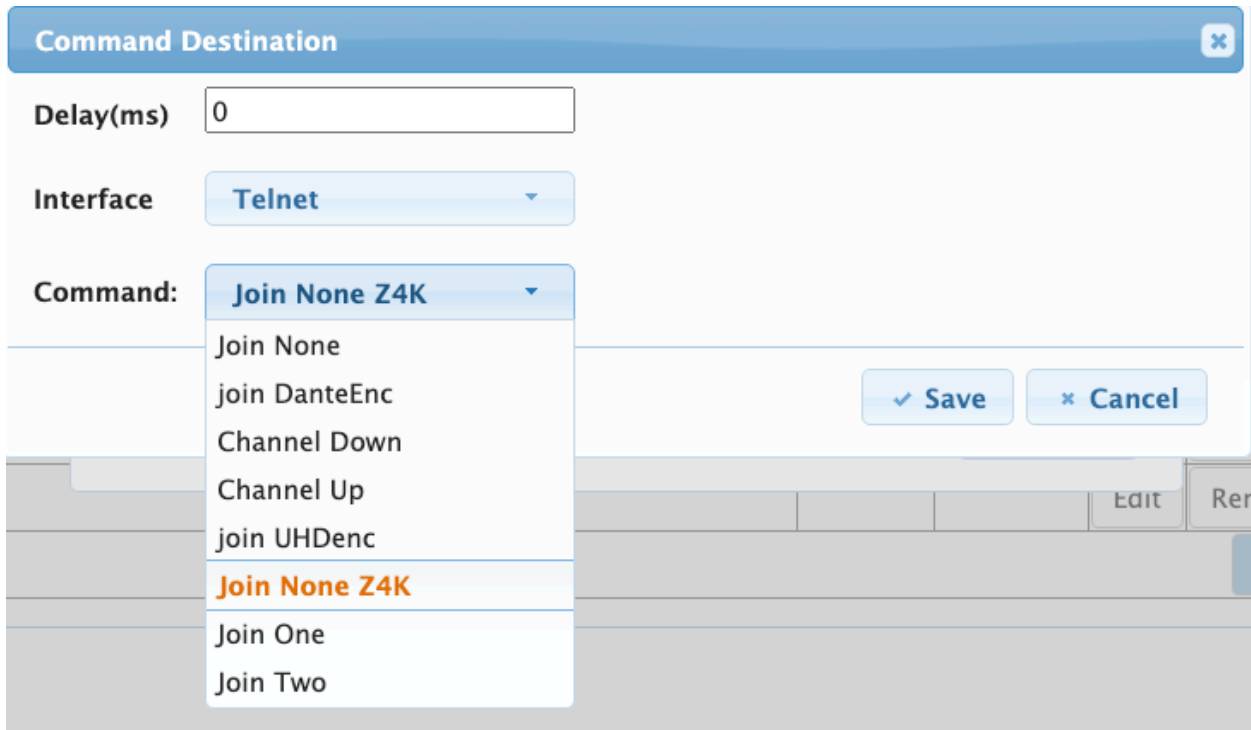
Repeat the process for all desired buttons. Note that not all buttons need to be programmed. Also multiple buttons can be programmed with the same commands.
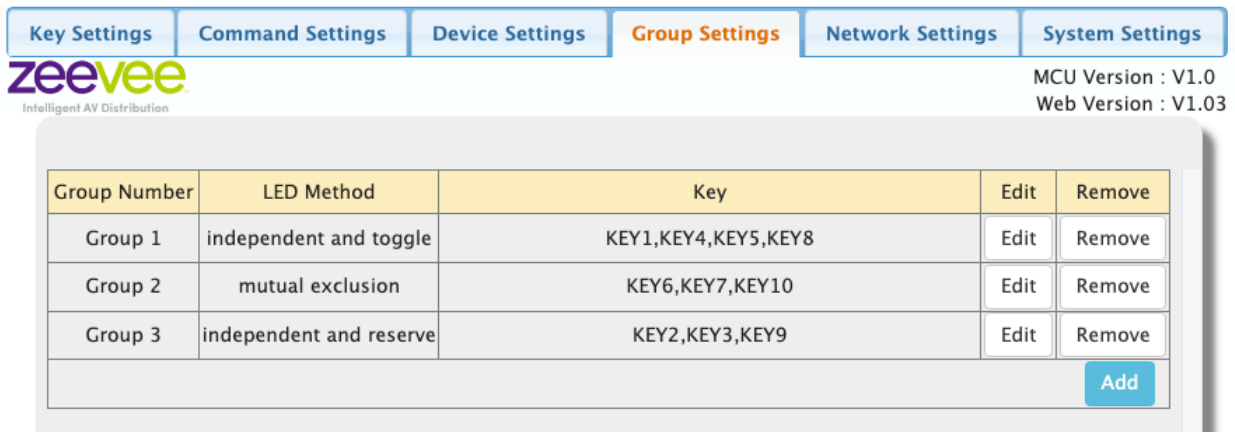
Group Settings
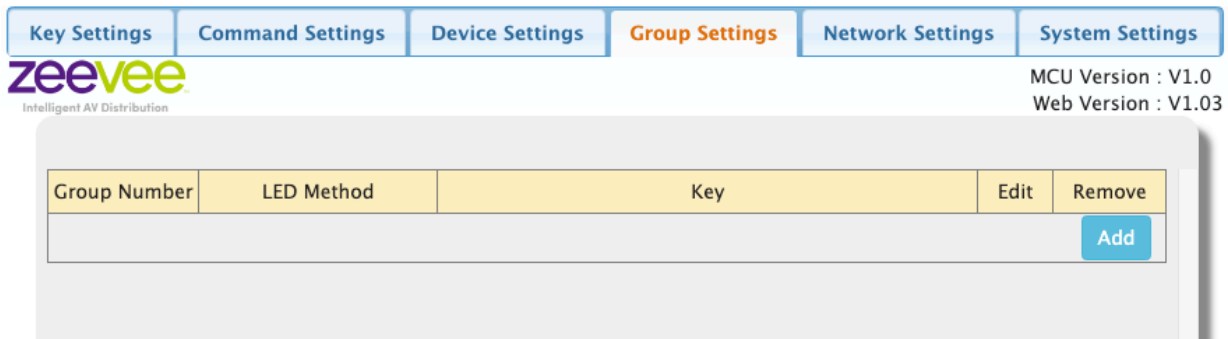
Group Settings is available to group the buttons according to the relationship and functions of commands configured to the buttons. Basically controls how the buttons light up when pressed.

The buttons have 3 different options for how the LEDs will function.

A. ***Independent and Reserve***. Each button assigned this function is independent and the LED of the buttons in this group will blink and then extinguish after pressing them.

B. ***Independent and Toggle***. Each button assigned to this function is independent and the LED of the buttons in this group will blink and toggle when pressed. For example, if the button LED is off currently, pressing the button will cause the LED to flash and the stay lit up.   Pressing again will cause the button to flash and then stay off.

C. ***Mutual and Exclusion***: Each button assigned to this function becomes a member of a group. Within the group only one LED of a button can be lit up. For example: Keys 1-4 are configured for Mutual and Exclusion group and Key 1 LED is on. Press any other button in the group. The new pressed button's LED will be lit up and Key 1 LED will be extinguished.

Key Settings	Command Settings	Device Settings	Group Settings	Network Settings	System Settings

MCU Version : V1.0
Web Version : V1.03

Group Number	LED Method	Key	Edit	Remove
Group 1	independent and toggle	KEY1,KEY4,KEY5,KEY8	Edit	Remove
Group 2	mutual exclusion	KEY6,KEY7,KEY10	Edit	Remove
Group 3	independent and reserve	KEY2,KEY3,KEY9	Edit	Remove
				Add

Buttons cannot be configured for multiple groups.

Independent and Reserve is the default setting for all buttons. Any button not assigned to a group will automatically have *Independent and Reserve* functionality.

Network Settings

Network Settings is used to configure the ZyPerPad network information.

By default the **IP Mode** is configured as Static.
IP Address default is 192.168.0.101
Netmask default is 255.255.255.0
Gateway default is 192.168.0.1

IP Mode can be set to DHCP or Static. Just make appropriate changes and click the Save button. The unit will need to reboot for changes to take effect.

Note that you will also need to change the pointer in your browser to the new updated IP Address. DHCP should be reserved for advanced users that will know how to find the ZyPerPad unit after it is assigned a new IP address by the DHCP server.

Factory Reset will default the IP Address to above settings.

System Settings

MCU Version : V1.5
Web Version : V1.05

System Setting

Username	Username
Old Password	Old Password
New Password	New Password
Confirm Password	Confirm Password

Save

Web Login Timeout(Minutes)

10 min ▾

Download Current Configuration

Download

Restore Configuration

Select a File   Restore

Reset to Default

Reset

Reboot the Unit

Reboot

Web Upgrade

Select a File   Upgrade

MCU Upgrade

Select a File   Upgrade

The System Settings tab allows to perform such functions as settings a new admin password, selecting preferred language, settings a web UI timeout, save the current configuration to a binary file, restore a saved configuration, reset the unit to factory defaults, reboot the unit and perform web UI and MCU upgrades.

1. Passwords must be between 4 and 16 characters. Must start with a letter or number.

2. Web Login Timeout default is 10 minutes

3. Download Current Configuration creates a text file that **should not** be edited. Editing the file may make restoring not possible.

    a. The saved file will be *config.ini*

    b. The user can change the name of the file as long as it begins with "config"   Example: config_bar.ini, config_lobby.ini

4. Restore Configuration allows you to select previously saved text file.

    a. **Note:** Restoring configuration will cause the ZyPerPad to reboot.

5. Reset to Default will factory reset the unit.

6. Reboot the Unit will reboot the unit. (Note: All 10 buttons on the ZyPerPad will flash 3 times during a reboot)

7. Web Upgrade is used to the the Web GUI.

8. MCU Upgrade is used to update the firmware on the ZyPerPad itself.

Using the Programmed Keypad

Once the ZyPerPad unit is programmed; the user can execute commands either by pressing the button on the unit or by clicking on the button in the *Key Settings* screen.

Important Note: The very first button press after a power-on or reboot initializes the unit. This initialization will not execute the programmed command. All button presses after the very first one will execute the command as expected.

The ZyPerPad can be left powered on indefinitely.

Specifications

Feature	Specification
Ports and Buttons	Front Panel: 10 x Button Rear Panel: 1 x LAN (RJ45, PoE) 1 x RS232, 1 x DC 12V Power In
Operating Temperature	0°C to 45°C (32°F to 113°F)
Storage Temperature	-20°C to 70°C (-4°F to 158°F)
Humidity	10% to 90%, non-condensing
ESD Protection	Human-body model: +/- 8kV (Air-gap discharge) +/- 4kV (Contact discharge)
Power Supply	DC 12V 0.5A (Power adapter is not included in the package)
Power Consumption (Max)	1.3W
Dimensions	45mm x 105.6mm x 36mm 1.77in x 4.16in x 1.42in
Weight	0.18kg / 0.40lb
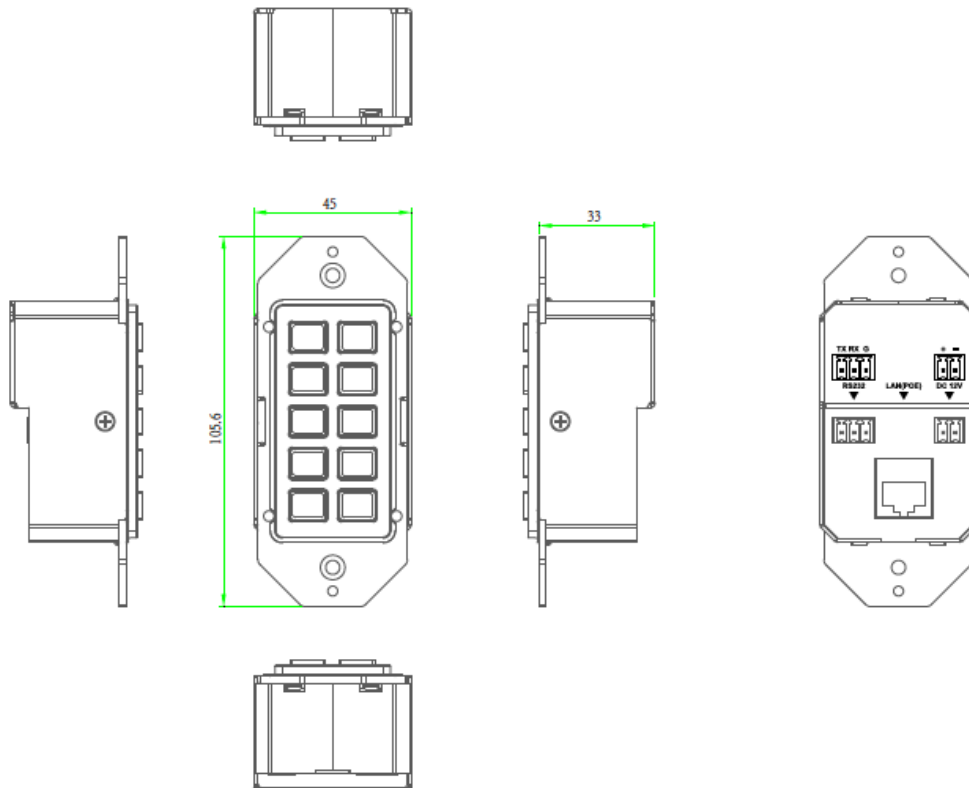
Label Specifications

The ZyPerPad unit includes 1 sheet of pre-printed labels that can be applied to the individual buttons. Labels shown on right.

Label Dimensions:
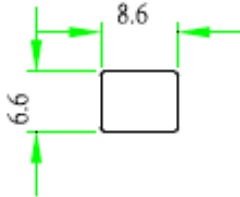
8.6mm horizontal
6.6mm vertical
0.4mm thick

Material: 3M 9448A Double Coated Tissue Tape

Certifications and Warranty

Standard	CE	Yes
	RoHS	Yes
	FCC	Yes, Class B
Warranty	3 years	

Part Number

Part Number	Short Description	Long Description
ZYPERPAD	10x Button Interface	10-button IP enabled keypad controller provide a simple means of sending commands to the ZyPer Management Platform (ZMP). With built-in PoE, it can receive power from an PoE enabled ethernet switch. It supports individual button configuration via a simple to use web user interface.

Frequently Asked Questions

Question: Can I just leave the ZyPerPad connected to power (PoE or 12V) indefinitely?

Answer: Yes you can

Question: Can multiple ZyPerPad units be connected to the same system?

Answer: Yes you can have as many ZyPerPad units as you want.

Question: What are the current firmware versions for ZyPerPad?

Answer: As of November 17, 2021 the latest MCU firmware version is 1.5 and the latest Web firmware version is 1.05

Question: What other non-ZMP IP devices has the ZyPerPad been tested with.

Answer: The ZyPerPad has been tested with the following non-ZMP IP products.

> AVPro Edge AC-MX9XHDL-HDBT Cloud 9 Matrix
> AVPro Edge MX1616-AUHD-HDBT
> ClearOne Converge Pro 2-48VTD (All Converge Pro 2 series should work)
> ClearOne Converge Huddle DSP
> Global Cache IP2SL and IP2SL-P
> Global Cache IP2CC and IP2CC-P

Appendix

The ZyPerPad unit can be used with IP devices other than the ZyPer Management Platform. (Note that functionality with devices other than the ZyPer Management Platform is not guaranteed.)

IP devices other than the ZMP may have different login requirements in terms of a Username and Password. Some systems will work by entering this information into the appropriate Username and Password fields of the Device Edit page. Other systems may not recognize the "Username" and "Password" terminology. In these cases, it is up to the user to know what exactly the system is expecting and use the ADVANCED button in the Device Edit page.

Advanced

To allow various telnet login credentials, the keypad allows to change "username" and "password" labels according to your server requirements.

Change username label to: [   ]

Change password label to: [   ]

× Cancel   ✓ Confirm

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