



UI-IP8-DP

Programmable 8-button IP Keypad Wall plate with PoE

Control of IP enabled devices on your LAN using
a single-gang Decora® Style Wall plate

UMA1261 Rev A

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INFORMATION**

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1.0 Introduction

1.1 General

The **UI-IP8-DP** is a programmable 8-button IP keypad capable of sending user programmed TCP/Telnet commands to other IP enabled equipment on the same network.

It provides one Relay contact output that can be opened or closed based on the user programming.

Commands are triggered by pressing keypad buttons, by accessing the embedded webpage or by the user programming of day/time schedules.

You can program and recall up to 16 individual macros to send TCP/Telnet messages or commands to many IP enabled and IoT systems such as AV distribution, factory automation, security, keypad access.

Each button has two (2) color LEDs where the on/off state, color and brightness are programmable.

The UI-IP8-DP includes a power supply or power can come from the compatible LAN network using PoE (Power over Ethernet).

The UI-IP8-DP includes integrated battery-backed clock/calendar allowing the user to send commands based on specific day/time schedules. For example, each evening the UI-IP8-DP powers off and each morning powers on the devices it controls on the network.

1.2 Features

- Single gang decora wall plate with 8 programmable buttons
- Convenient for wall plate control AV systems in conference rooms, classrooms, factory floors, and machine control.
- Supports IEEE802.3af PoE
- Rugged and durable housing design perfect for easy installation
- Sends TCP/Telnet commands, controls a relay contact, and has an internal webpage GUI
- Adjustable LED brightness and color for each button
- Up to 16 macros for controlling devices
- Up to 128 commands for use across all macros (up to 16 per macro)
- Time and date scheduling with customizable daylight-saving time
- Up to 48 hours of power-loss backup for maintaining internal clock calendar
- Firmware can be updated via WebGUI or USB Flash memory

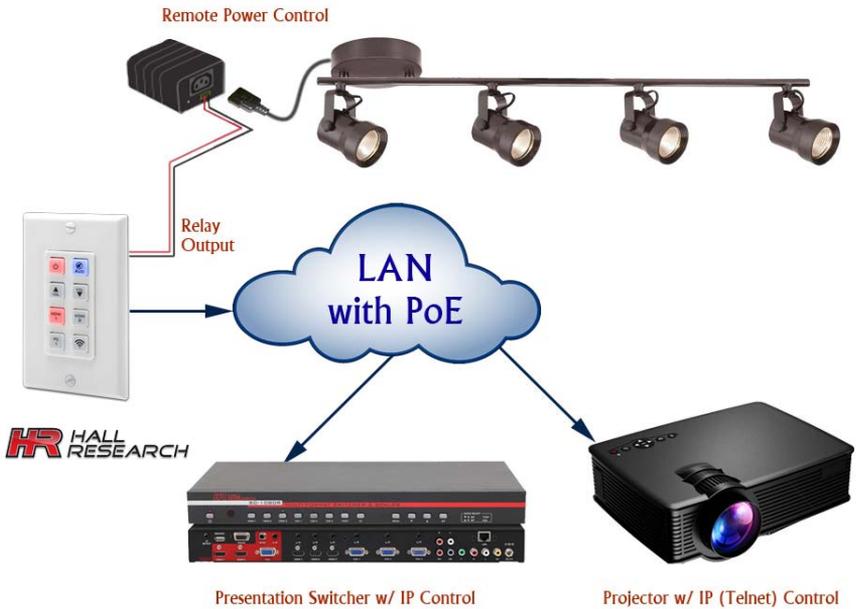
2.0 Package Contents

- (1) Model UI-IP8-DP Keypad
- (1) 5VDC, 2.6A Universal Power Supply
- (1) USB Type A to Mini USB OTG connector
- (1) Pre-printed button labels (28 labels)
- (1) Blank button labels (28 labels)
- (1) User's Manual



3.0 Configuration and Operation

3.1 Installation Example: AV System & Room Control



Connection Diagram for typical AV System and Room Control

3.2 Installation Example: Controlling Devices with RS-232

The UI-IP8-DP does not have any RS-232 ports, so if the device you want to control does not have IP connection but it has RS-232 control port, you can still use the keypad to trigger an additional device (Model CNT-IP-2 sold separately) to send the desired RS-232 Serial commands.

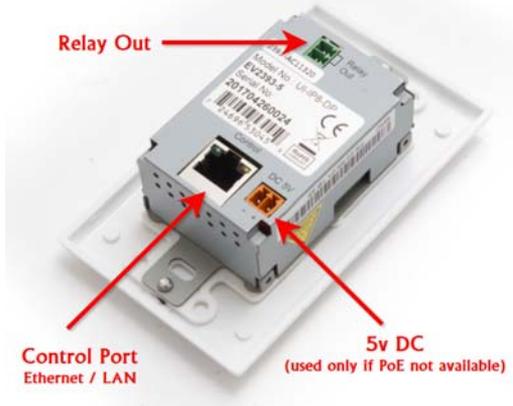


Use UI-IP8-DP with add-on CNT-IP-2 for control of RS-232 Devices

In the above example, the control webpage shown on the tablet belongs to CNT-IP-2.

You can create a control page with buttons and actions. Then you can control the RS-232 devices by clicking on them.

The buttons on UI-IP8-DP are programmed to send TCP/Telnet commands to CNT-IP-2 to simulate button presses.



Rear Panel Connections

DC 5V: Connect to the supplied 5V DC power supply if no PoE power is available from the network switch / router.

Control: Connect to a compatible LAN network switch or router using a CAT5e/6 cable. Power over Ethernet (PoE) is supported; this enables the unit to be powered directly from the 48V network switch / router without the need for the 5V DC power supply to be connected.

Relay Out: Connect to a device that supports DC 0-30V/5A relay trigger.

NOTE There is a mini-USB connector accessed from the front by removing the Decora cover. This port is only for updating the firmware.

4.0 Configuration and Control via Web GUI

4.1 Install the Hall Research Device Finder (HRDF) Software Tool

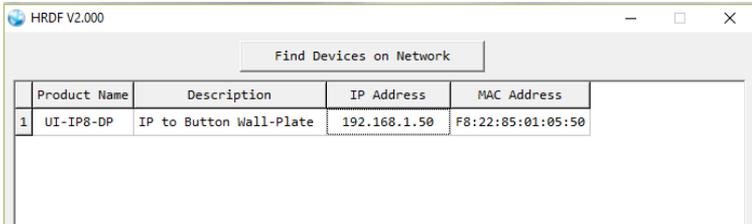
The default STATIC IP address as shipped from the factory (or after factory default reset) is 192.168.1.50.

If multiple keypads connected to your network, or you are unsure of the IP addresses assigned to each keypad; free HRDF Windows® software is available for download on the product webpage. The user can scan the compatible network and find all the attached UI-IP8-DP keypads. Note that HRDF software may discover other Hall Research devices on the network if present.

The HRDF software can change the STATIC IP address or set the system for DHCP addressing.

Finding the UI-IP8-DP on the LAN

- Download the HRDF software from Hall Research website on a PC
- Installation is not necessary, click on the executable file to run it. The PC may ask the user to grant permission for the application to access the connected network.
- Click the “Find Devices on Network” button. The software will list all of the UI-IP8-DP devices found. Other Hall Research devices may also appear if connected to the same network as the UI-IP8-DP.



Hall Research Device Finder (HRDF)

- Double click on any device to view or modify its parameters.
- Click the “Save” and then “Reboot” buttons after making changes.
- Allow up to 60 seconds for the keypad to fully bootup after rebooting.
- For example, you can assign a new Static IP address or set it to DHCP if you want the compatible LAN network to assign the address.
- A hyperlink to the attached UI-IP8-DP is available to launch the webGUI in a compatible browser.



Example screen for the selected keypad

4.2 Login to WebGUI

Open a web browser with the device's IP address into the browser's address bar. The login screen will appear and prompts the user for a user name and password.

NOTE Be patient as the webpage could take several seconds to load



NOTE

The default username is **admin**
The default password is **admin**

After correctly logging into the UI-IP8-DP, the webpage will have a series of tabs described below to view and control the systems functions.

4.3 Macro Settings Tab



NOTE

As shipped from factory (and after a factory reset), six (6) buttons have preprogrammed macros as examples. These macros can be deleted or changed, as needed.

The Macro Settings tab allows the user to edit the macro sequences assigned to each of the eight physical buttons.

Click on macros 1-6 to see various LED light command examples preprogrammed by factory default.

Macro 1: Sequentially light, all buttons RED @ 100% on the keypad.

Macro 2: Sequentially light, all buttons Blue @ 100% on the keypad.

Macro 3: Turn off all the red LEDs (set brightness to 0%).

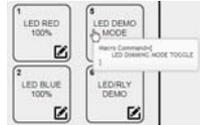
Macro 4: Turn off all the blue LEDs (set brightness to 0%).

Macro 5: Toggle LED demo mode (used to turn on and off Demo Mode).

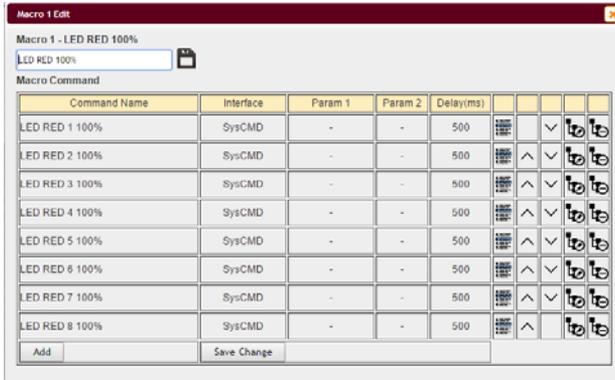
Macro 6: First, set all LEDs blue with 10% brightness. Then set all LEDs blue to 0% brightness. Then close the relay contact. Then open the relay with a delay of 1 second between commands.

The "**Background Light**" slider adjusts the maximum brightness settings for **ALL** the LEDs. For example if the slider is midway, a command that sets brightness to 100% will shine at 50%.

When the mouse hovers over a button, a tooltip displays with the assigned macro command.



Click on  symbol on the button to edit the currently assigned macro.



Macro edit window for the selected button

The text field at the top window there allows the user to edit the macro name.

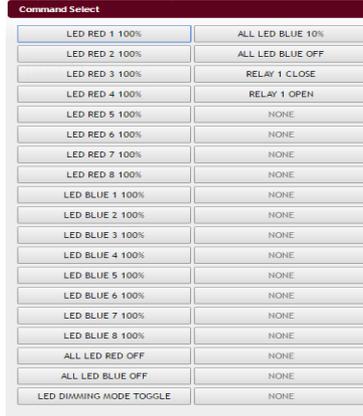
The  up/down arrows buttons allow the user to change the commands order of execution.

The  icon allows you to edit the delay time and the command interface type.

The  icon will **DELETE** the command. Use with caution.

The  icon both inserts and adds a new command ABOVE the current row. To add a command at the end of the list, click the add button .

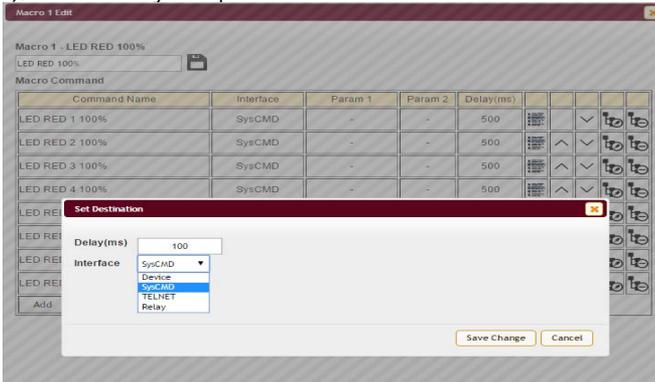
Clicking the **ADD** button will display a list of up to 128 commands.



UI-IP8-DP – Default command list

Click on any of the available commands listed to change the delay time or interface type.

- Commands are strings that are sent to different targets or “interfaces”.
- After selecting a command, you can select the desired “interface” (where it will be sent), and the delay time prior to the next command in the macro.



UI-IP8-DP – Command Interface

The “Delay (ms)” field is the time to wait before proceeding to the next command (if any). The interface (target) to which the commands are sent may be one of the following:

- Device works like TELNET but you can select based on the Device Name.
- SysCMD is the keypad itself. Like control of the LED lights or relay state.
- TELNET is a specific IP address and port the command is sent.
- Relay contacts (The relay contacts can also be controlled using SysCMD)

When you use **Relay** as command target, the command text must be **CLOSE** or **OPEN**.

You can also control the relay using SysCMD, but the command text must be as stated in Section 5 (e.g. **RELAY 1 CLOSE!x0d!x0a**).

Controlling the relay from SysCMD allows the user easily to toggle the state, so if the relay contact is closed, then it will open and vice versa.

NOTE We recommend a minimum delay time of **100ms** for **SysCMD commands** and **500ms** for **TELNET commands** for proper command execution.

Click on **“Save Change”**  icon when you are finished editing the macro. After the window closes, click the **Save Change** button shown at the bottom of the list.

4.4 Extension Macro Tab

Click on the **“Extension Macro”** tab to execute/edit an additional eight-(8) macro buttons that are accessible via Web GUI only. Settings in this tab are similar to the above section.

NOTE If you wish to make a button act as **TOGGLE** (e.g. to alternate sending two commands like ON and OFF), then **you must use** Extension Macro for the same button position to define the alternate command and in Key Settings tab set the button mode to **“Toggle”**.

4.5 Command Settings Tab



Command Name	Command	Edit	Delete
LED RED 1 100%	LEDRED 1 100!x0d!x0a	Edit	Remove
LED RED 2 100%	LEDRED 2 100!x0d!x0a	Edit	Remove
LED RED 3 100%	LEDRED 3 100!x0d!x0a	Edit	Remove
LED RED 4 100%	LEDRED 4 100!x0d!x0a	Edit	Remove
LED RED 5 100%	LEDRED 5 100!x0d!x0a	Edit	Remove
LED RED 6 100%	LEDRED 6 100!x0d!x0a	Edit	Remove
LED RED 7 100%	LEDRED 7 100!x0d!x0a	Edit	Remove
LED RED 8 100%	LEDRED 8 100!x0d!x0a	Edit	Remove
LED BLUE 1 100%	LEDBLUE 1 100!x0d!x0a	Edit	Remove
LED BLUE 2 100%	LEDBLUE 2 100!x0d!x0a	Edit	Remove
LED BLUE 3 100%	LEDBLUE 3 100!x0d!x0a	Edit	Remove
LED BLUE 4 100%	LEDBLUE 4 100!x0d!x0a	Edit	Remove
LED BLUE 5 100%	LEDBLUE 5 100!x0d!x0a	Edit	Remove
LED BLUE 6 100%	LEDBLUE 6 100!x0d!x0a	Edit	Remove
LED BLUE 7 100%	LEDBLUE 7 100!x0d!x0a	Edit	Remove
LED BLUE 8 100%	LEDBLUE 8 100!x0d!x0a	Edit	Remove

UI-IP8-DP – Command List

Click the **“Command Settings”** tab to create, edit or delete command strings.

Create up to 128 different commands with up to 512 characters long (including spaces).

The total storage space is 16384 characters. There is insufficient space for **ALL** commands to have 512 characters long.

We recommend you limit commands to 128 characters if you are going to use all 128 locations.

To send hex bytes such as some ASCII characters like carriage return or linefeed, use “\x” (that’s back slash and little ‘x’) followed by the desired two digit ASCII hex byte.

FOR EXAMPLE:

- To send the string “PWR ON<cr><lf>”, enter the command like this:
- **PWR ON\x0d\x0a**
- Click on the “**Save Change**” button to save the command.

4.5 Device Settings Tab

The UI-IP8-DP lets the user enter a maximum of 16 devices with their specific IP addresses and port numbers. The name of each device can also be customized (**no spaces are allowed in the name**).

Defining devices is advantageous because individual devices can be **disabled** in macros.

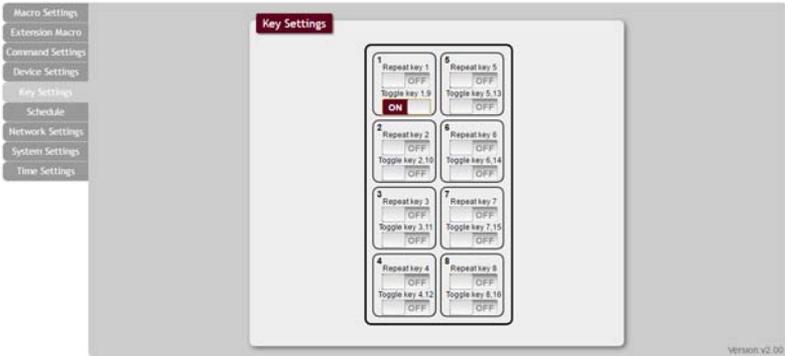
For example, if the keypad is controlling several devices and one is a video wall in the boss’s office, the device can be disabled if the boss is in a meeting and they do not want to accidentally change the settings of video wall from the UI-IP8-DP.



Device Settings tab showing Enable/Disable

4.6 Key Settings Tab

Click on the “Key Settings” tab to select if a button “repeats” when held or it “toggles” between two (2) modes when pressed.



UI-IP8-DP – Key Settings

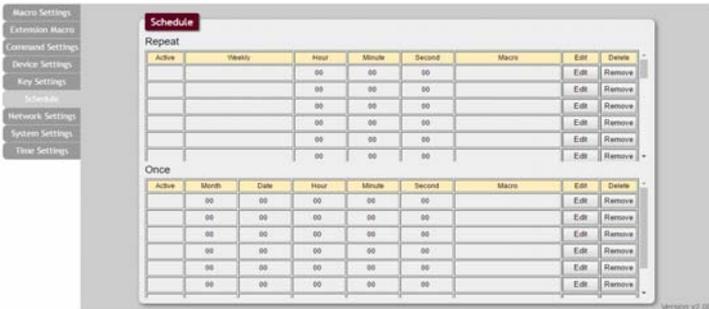
Repeat Key - Causes the button macro to be executed repeatedly as long as the button is being held down. Repeat only works with the physical keypad not in the webGUI.

Toggle Key – Causes the button to toggle between the two listed macros (regular and extension) for the same button position) for each press.

4.7 Schedule Tab

Click the “Schedule Tab” to customize the clock/calendar scheduling features. The user can set macro events to repeat on a **daily**, **weekly** schedule or as single one-time event. Edit or delete events from the ‘Macro Settings’ or ‘Extension Macro’ tabs.

The system can store up to 32 repeating events and up to 8 one-time events.



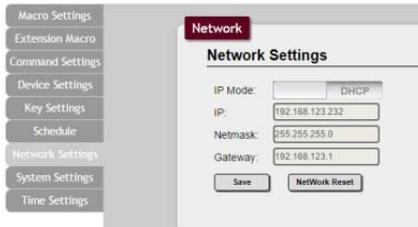
Schedule Settings

Setup scheduled macros by clicking on “Edit” button either in the **Repeat** section or the **Once** section, specify the macro to be run and add the time and day info.

The event can be set as “Active” or “Not Active”.
Click on “**Save Change**” to save the changes to the event.

4.8 Network Settings Tab

As shipped from the factory (or after restoring factory defaults), the UI-IP8-DP IP address is set for static IP address 192.168.1.50.



Network Settings

If changes are made, make sure to hit the **Save** button and then go to **System Settings** tab and reboot the system for the new IP parameters to take effect.

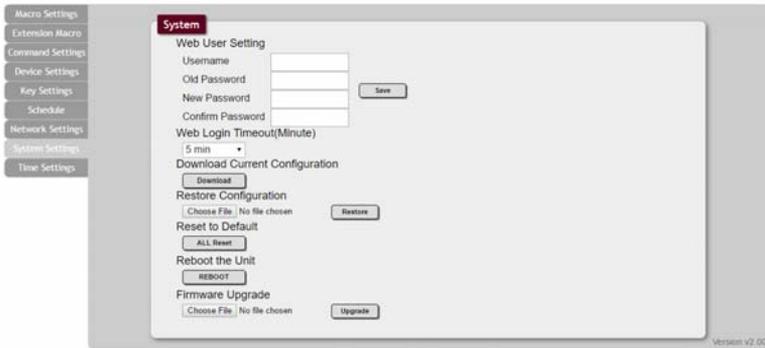
Note that IP changes can also be made from the HRDF PC GUI.

Clicking **NetWork Reset** button sets the IP address to a static 192.168.1.50 and reboots the unit.

4.9 System Settings Tab

Use this tab to change the following items:

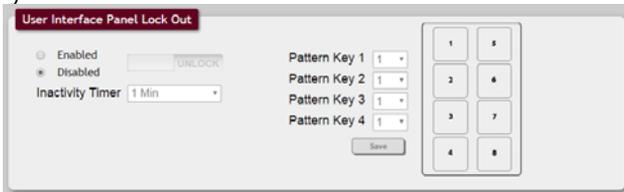
- **Web User Setting** – Used to change the password for the **admin** user.
- **Web Login Timeout** – Used to change the inactivity timeout before automatically logging out.
- **Download Current Configuration** – Used to download the current system configuration.
- **Restore Configuration** – Used to upload a previously save configuration file.
- **Reset to Default** – Used to reset the UI-IP8-DP to factory defaults. Reboot after clicking the “ALL RESET” button.
- **Reboot the Unit** – Used to reboot the UI-IP8-DP without removing power
- **Firmware Upgrade** – Used to update the firmware in the UI-IP8-DP.



UI-IP8-DP – System Settings

The system can automatically lock the keypad if there is no keyboard activity for a specific period of time (1 minute to 30 minutes) to prevent unauthorized changes. Telnet commands still work even if keypad is in the locked state.

- Click the **'Enabled'** radio button to enable the panel lock out feature.
- The default 'keyboard' password is the pressing key #1 four (4) times. Use the “**Pattern Key**” controls to change the 'keyboard' password.
- When the correct 'keyboard' password is used, the keyboard LEDs flash and the activity timer will restart.



UI-IP8-DP – User Interface Panel Lock Out Settings

4.10 Time Settings Tab

Click on the “Time Settings” tab to set the system time and to enable or disable the Daylight Saving Time (DST) functionality.

Since the Daylight Savings start and end times vary around the world, you can specify the desired time and day of month.



For example, in the USA, Daylight Savings Time (DST) in most States; start on the 2nd Sunday in March and end on the 1st Sunday in November.

5.0 Telnet Commands (Port 23)

The UI-IP8-DP is controllable by Telnet on port 23 of the devices IP address.

- The UI-IP8-DP responds with “Welcome to Telnet.<CR><LF>” when the user connects to the Telnet port.
- Commands are in ASCII format.
- Commands are not case sensitive. Both uppercase and lowercase characters are acceptable.
- A single <CR> character terminates each command.
- One or more <CR><LF> characters terminate each response.
- Unknown commands respond with “Command FAILED<CR><LF>”.
- Command syntax errors respond with “Wrong command format!!<CR><LF>”

Command	Response	Description
IPCONFIG	ETHERNET MAC : xx-xx-xx-xx-xx-xx <cr><lf> Address Type : DHCP or STATIC<cr><lf> IP : xxx.xxx.xxx.xxx<cr><lf> SN : xxx.xxx.xxx.xxx<cr><lf> GW : xxx.xxx.xxx.xxx<cr><lf> HTTP PORT : 80<cr><lf> Telnet PORT : 23<cr><lf>	Shows the current network IP configuration
SETIP N,N1,N2 Where N=x.x.x.x (IP Address) N1=x.x.x.x (Subnet) N2=x.x.x.x (Gateway)	If a valid command is used, most likely there will be no response unless there was a command formatting error.	Set the static IP address, subnet mask and gateway simultaneously. There should be no 'spaces' between "N", "N1" and "N2" values or a "Wrong command format!!" message will occur.
SIPADDR X.X.X.X		Set the devices IP address
SNETMASK X.X.X.X		Set the devices subnet mask
SGATEWAY X.X.X.X		Set the devices gateway address
SIPMODE N		Set DHCP or Static IP addressing

Programmable 8-button IP Keypad Wall Plate

Command	Response	Description
VER	<SPACE>-----> vx.xx <-----<CR><LF> (There is a leading space)	Show installed firmware version. Note there is a single leading space character in the response.
FADEFAULT		Set the device to factory defaults
ETH_FADEFAULT		Set IP settings to factory default
REBOOT	If a valid command is used, most likely there will be no response unless there was a command formatting error.	Reboot the device
HELP		Show the list of available commands
HELP N where N=command		Show description of command specified
RELAY N N1 where N=1 N1= OPEN, CLOSE, TOGGLE	RELAY N N1<CR><LF>	Relay control
LEDBLUE N N1 where N=1-8 N1=0-100%	LEDBLUE N N1<CR><LF>	Individual button blue LED brightness control
LEDRED N N1 where N=1-8 N1=0-100%	LEDRED N N1<CR><LF>	Individual button red LED brightness control
LEDBLUES N where N=0-100%	LEDBLUES N<CR><LF>	Set the brightness of all blue LEDs
LEDREDS N where N=0-100%	LEDREDS N<CR><LF>	Set the brightness of all red LEDs
LEDSHOW N where N=ON/OFF/TOGGLE	LEDSHOW N<CR><LF>	LED demo mode
BACKLIGHT N where N=0-100%	BACKLIGHT N<CR><LF>	Set the max brightness of all LEDs
KEY_PRESS N RELEASE	KEY_PRESS N RELEASE<CR><LF>	Set the key press trigger type to "Release".
KEY_PRESS N HOLD	KEY_PRESS N HOLD<CR><LF>	Set the key press trigger type to "Hold".
MACRO RUN N	RUN MACRO[N] EVENT.<CR><LF> x x where x = the macro commands	Run the specified macro (button). The response also occurs if a button is pressed.
MACRO STOP	MACRO STOP<CR><LF>	Stop all the running macros
MACRO STOP N N=1-32	MACRO STOP N<CR><LF>	Stop the specified macro.
DEVICE ADD N N1 N2 N3 where N=1-16 (Device slot) N1=X.X.X.X (IP Address) N2=0-65535 (Port Number) N3={Name} (Up to 24 characters)		Add TCP/TELNET device in Slot N The name may not contain any spaces.
DEVICE DELETE N where N=1-16 (Device Slot)		Delete the TCP/TELNET device in Slot N
DEVICE N N1 where N=ENABLE, DISABLE N1=1-16 (Device Slot)		Enable or Disable TCP/TELNET device in Slot N

6.0 Firmware Upgrade

Upgrade the firmware on UI-IP8-DP by using the webGUI (the preferred method) or using a PC or USB memory stick with the supplied Mini-USB cable.

6.1 Firmware Upgrade Using the WebGUI

- On the "System Settings" web GUI tab, under the "Firmware Upgrade" item, click the "Choose File" button.
- Select the "UI-IP8-DP.bin" file and click the "Upgrade" button.
- The system will display the prompt "Warning! This operation will overwrite current firmware. Do you really want to continue".
- The user must click the OK button to proceed with the firmware upgrade.
- The upgrade takes approximately 60 seconds to complete and the system will reboot.

Always save the system configuration before making changes to prevent loss of data.

6.2 Firmware Upgrade with the USB Cable

Firmware upgrade is possible with or without a computer.

- Power the UI-IP8-DP while holding button #1.
- Button #1 will blink twice when ready to update firmware.

With an external computer

- Connect the external computer to the Mini-USB port on the UI-IP8-DP.
- The computer will detect the UI-IP8-DP as an external drive and allow the user to open a file explorer window.
- Copy the "UI-IP8-DP.BIN" file to the external drive and the firmware will upgrade.
- The upgrade takes approximately 60 seconds to complete and the system will reboot.
- Remove the Mini-USB cable and power cycle the UI-IP8-DP.

Without an external computer

- Place the "UI-IP8-DP.BIN" file in the root directory of a blank USB drive.
- Connect the USB drive on the OTG cable to the Mini-USB port on the keypad.
- The UI-IP8-DP will automatically upload the new firmware.
- The upgrade takes approximately 60 seconds to complete and the system will reboot.
- Remove the Mini-USB cable and power cycle the UI-IP8-DP.

7.0 Troubleshooting

There are no user serviceable parts or circuits in the device.

If you think the device is malfunctioning (or you have no connectivity), please try to use the following methods for troubleshooting.

- Cycle the power to reboot the device.
- Perform a factory default by using the “Reset to Default” option on the “System Settings” web GUI tab.
- Use the Hall Research Device Finder software to find the UI-IP8-DP on the local network.

7.1 Contacting Hall Research

If you determine that your UI-IP8-DP is malfunctioning, do not attempt to repair the unit instead, contact Hall Research Technical Support at 714-641-6607. To return the unit to Hall Research you must first get a Return Authorization (RMA) number. Package the unit carefully, if returning. We recommend that you use the original container.

8.0 Specifications

Input Ports	1ea RJ45 (accepts PoE), 1ea Optional 5v Power
Output Ports	1ea Relay (2-pin terminal block) Relay contacts are rated for up to 5A current and 30 vDC
USB	1ea Mini USB (for updating firmware)
Control	Keypad Panel (8 buttons / Telnet / WebGUI)
ESD Protection	Human body model - ±12kV [air-gap discharge] & ±8kV
Operating Temp	32 to 122F (0 to 50 °C) 20 to 90%, non-condensing
Storing Temp	-20 to 60 degC [-4 to 140 degF]
Power Supply	5V 2.6A DC (US/EU standards/ CE/FCC/UL certified)
Power consumption	3.3 W
Enclosure Material	Housing: Metal Bezel: Plastic
Dimensions Model Shipping	2.75"(70mm) W x 1.40"(36mm) D x 4.5"(114mm) H (case) 10"(254mm) x 8"(203mm) x 4"(102mm)
Weight	Device: 500g (1.1 lbs.) Shipping: 770g (1.7 lbs.)



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