

CR-CS4

Hardware System Control I/O Centre

OPERATION MANUAL

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Version 1.1

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SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply. Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.
- Please completely disconnect the power when the unit is not in use to avoid wasting electricity.

VERSION HISTORY

| REV. | DATE | SUMMARY OF CHANGE |
|--------------|------------|---------------------|
| V1.00 | 26/08/2021 | Preliminary release |

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1. INTRODUCTION

This System Control Center is ideal for any user who has a wide variety of devices that need to be controlled. It comes with 16 external trigger connections which can be activated using the traditional twin-wire short method, or using our specially designed Trigger Buttons (sold separately). Each trigger directly activates 1 of 16 associated user defined macro events (out of 32 total) stored within the unit. All 32 macros are able to be activated via the WebGUI, or Telnet. Those user defined macros can control remote devices via Ethernet, IR, serial port (RS-232/422/485), relay, or direct voltage allowing for the control of a large array of devices at the push of a button. A battery backed-up clock allows for detailed event scheduling based on a repeating daily/weekly schedule, or single events. An integrated IR code learning function is also available, allowing the user to store and re-transmit the IR codes sent by nearly any standard IR remote.

Last but not least, this unit supports being powered via PoE from a standard PoE+ (802.3at Type 2) network switch, without the need for an external power adapter, allowing for incredible installation flexibility. The case is designed to be installed within our 6U Rack Chassis or it can be mounted directly onto any flat surface. The unit can be controlled via WebGUI, Telnet, and external triggers.

2. APPLICATIONS

- /// Smart Home Control
- /// Control Center
- /// Function Room
- /// Product Showroom
- /// Ballroom

3. PACKAGE CONTENTS

- /// 1× System Control Center
- /// 1× 24V/1A DC Power Adapter
- /// 4× IR Blaster Cable (4x2-pin Terminal Block)
- /// 1× IR Extender Cable

- /// 2× 6-pin Terminal Block
- /// 4× 2-pin Terminal Block
- /// 1× Shockproof Feet (Set of 4)
- /// 1× Operation Manual

4. SYSTEM REQUIREMENTS

- /// Equipment which can be controlled via Telnet, serial, IR remote or relay.
- /// An active internet connection from a switch or router for control of Ethernet devices.

5. FEATURES

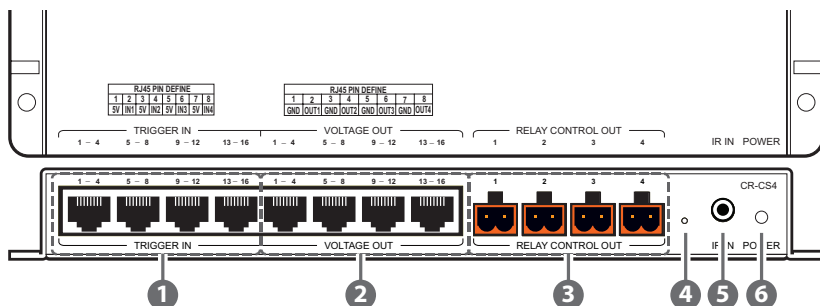
- /// 16 trigger inputs linked directly to 16 user macros allowing for instant control activation
- /// 16 additional macros (32 total) that can be activated via Ethernet, or on a defined schedule
- /// 4 power relays to control devices such as projector screens, lighting, etc.
- /// 4 IR outputs to control devices such as TVs, media players, etc.
- /// Integrated IR input for IR code learning functionality
- /// 2 serial ports for controlling RS-232/422/485 devices
- /// 16 variable voltage outputs for controlling low power devices (20mA total) or activating external triggers

Note: Trigger Buttons and Voltage Out ports cannot be used at the same time.

- /// Battery backed up clock for scheduling events
- /// Can optionally be powered via PoE (802.3at Type 2)
- /// Case is designed to be installed within our 6U Rack Chassis or it can be mounted directly onto any flat surface
- /// Controllable via WebGUI, Telnet, and external triggers

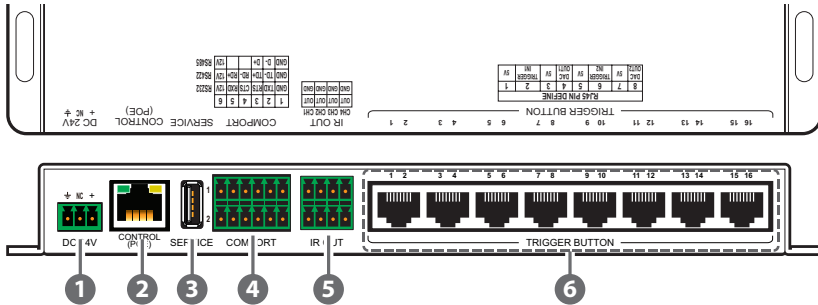
6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel



- 1 TRIGGER IN 1~16 Ports:** Connect to any device with trigger or switch functionality such as window security alarms, motion detectors, door switches, etc. Each of the 16 trigger inputs will activate the associated macro when triggered. A minimum of 5V DC is required to activate the trigger.
- 2 VOLTAGE OUT 1~16 Ports:** Connect to devices with trigger controls, or modest power requirements (up to 20mA is available across all Voltage Out ports). The voltage of each port can be set between 0~10V.
Note: Trigger Buttons and Voltage Out ports cannot be used at the same time.
- 3 RELAY CONTROL OUT 1~4 2-pin Terminal Blocks:** Connect to devices that are compatible with being controlled via power relay to control them via macro commands.
Note: Each relay circuit supports 0~30VDC/10A or 0~250VAC/10A
- 4 Reset Pinhole:** Use a paperclip to press and hold this recessed button for 10 seconds to reset the IP configuration to the factory defaults.
Note: The unit's default IP address is set via DHCP.
- 5 IR IN Port:** Connect to the provided IR Extender to support learning IR commands. Ensure that the remote being used is within direct line-of-sight of the IR Extender.
Note: For IR learning details please refer to section 6.6.3.
- 6 POWER LED:** This LED will illuminate to indicate the unit is on and receiving power.

6.2 Rear Panel



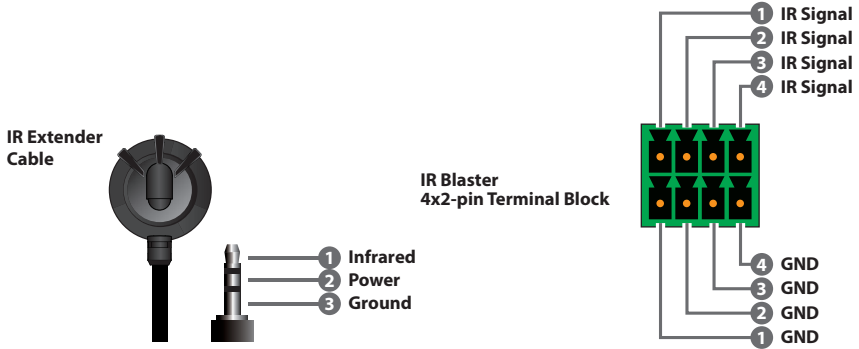
- 1 DC 24V 3-pin Terminal Block:** Plug the 24V DC power adapter into the unit and connect it to an AC wall outlet for power.

Note: Not required if the unit is being powered via PoE.
- 2 CONTROL (PoE):** Connect directly, or through a network switch, to your PC/laptop to control the unit via Telnet/WebGUI and to control external devices via Telnet.

Note: If the unit is connected to a network switch that provides PoE+ (802.3at Type 2) then no power adapter is required to power the unit.
- 3 SERVICE Port:** This slot is reserved for firmware update use only.
- 4 COM PORT 1~2 6-pin Terminal Blocks:** Connect to the devices you wish to control via 3 (or 5)-pin adapter cables to send RS-232/422/485 commands from the unit.
- 5 IR OUT 4x2-pin Terminal Block:** Connect to the provided IR Blasters to transmit IR signals to devices within direct line-of-sight of the IR Blaster.
- 6 TRIGGER BUTTON 1~16 Ports:** Connect to dedicated Trigger Buttons (CBL-MPBCAT-10, sold separately) to use the buttons to activate the associated macro. The 8 ports provide for the connection of up to 16 buttons (2 per port when using the CDPS-TG102 1x2 splitter, sold separately).

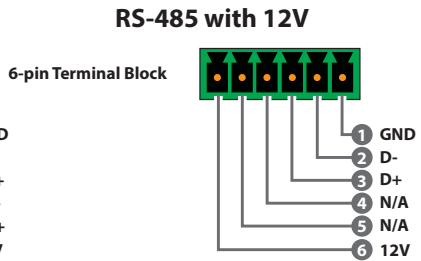
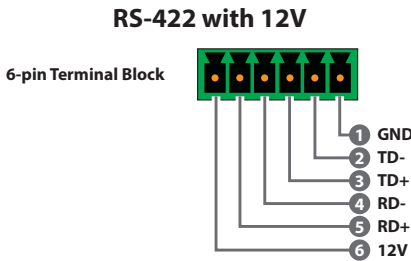
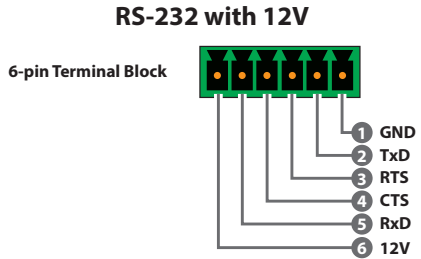
Note: Trigger Buttons and Voltage Out ports cannot be used at the same time.

6.3 IR Cable Pinouts



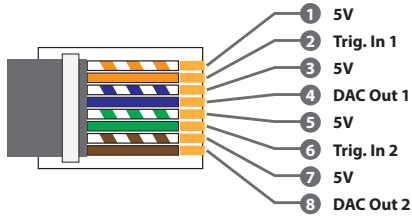
6.4 Serial Pinout and Defaults

| Serial Port Default Settings | |
|------------------------------|-------|
| Baud Rate | 19200 |
| Data Bits | 8 |
| Parity Bits | None |
| Stop Bits | 1 |
| Flow Control | None |

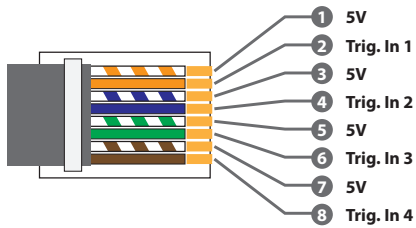


6.5 RJ-45 Pinouts

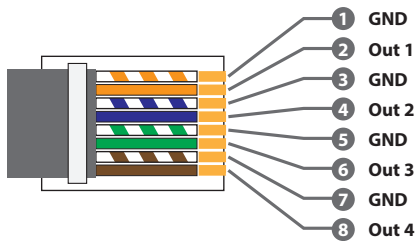
Trigger Buttons



Trigger Inputs



Voltage Out



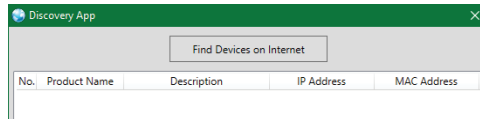
6.6 WebGUI Control

Device Discovery

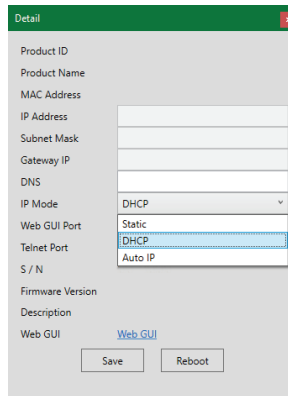
Please obtain the “Device Discovery” software from your authorised dealer and save it in a directory where you can easily find it.

Connect the unit and your PC/Laptop to the same active network and execute the “Device Discovery” software. Click on “Find Devices on Internet” and a list of devices connected to the local network will show up indicating their current IP address.

Note: This unit defaults to DHCP mode. The current IP address can only be verified using the Device Discovery software.



By clicking on one of the listed devices you will be presented with the network details of that particular device.

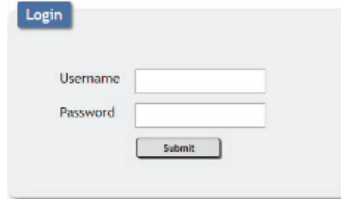


- 1) **IP Mode:** If you choose, you can alter the static IP network settings for the device, or switch the unit into DHCP mode to automatically obtain proper network settings from a local DHCP server. To switch to DHCP mode, please select DHCP from the IP mode drop-down, then click “Save” followed by “Reboot”.
- 2) **WebGUI Hotkey:** Once you are satisfied with the network settings, you may use them to connect via Telnet or WebGUI. The network information window provides a convenient link to launch the WebGUI directly.

WebGUI Overview

After connecting to the WebGUI's address in a web browser, the login screen will appear. Please enter the appropriate user name and password then click "Submit" to log in.

Note: The default user name and password is "admin".



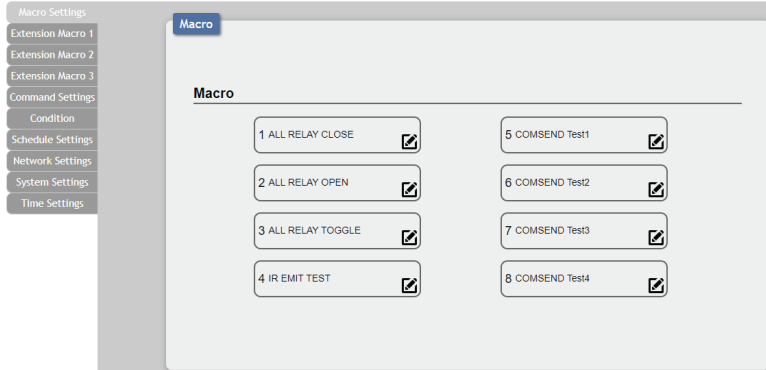
A login form with a blue "Login" button at the top left. Below it are two input fields: "Username" and "Password". At the bottom center is a "Submit" button.

On the left side of the browser you will see the following menu tabs where all primary functions of the unit are controllable via the built in WebGUI. The individual functions will be introduced in the following sections.

- Macro Settings
- Extension Macro 1
- Extension Macro 2
- Extension Macro 3
- Command Settings
- Condition
- Schedule Settings
- Network Settings
- System Settings
- Time Settings

6.6.1 Macro Settings Tab

This tab provides a way to execute/edit the settings for the unit's first 8 macro buttons. These macros can be executed by activating triggers 1~8 (via the Trigger or Trigger Button ports) as well as via the WebGUI or Telnet.

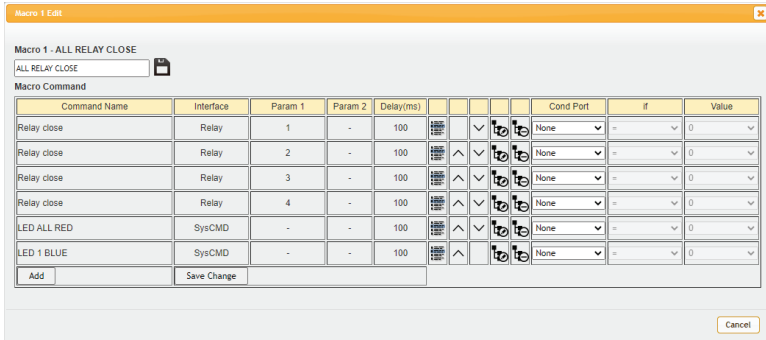


- 1) **Macro Buttons:** Press any of these buttons to activate the macro currently stored within it. Hovering the mouse over a button will list its current macro contents. Click on the edit icon (✎) to edit each button's macro.

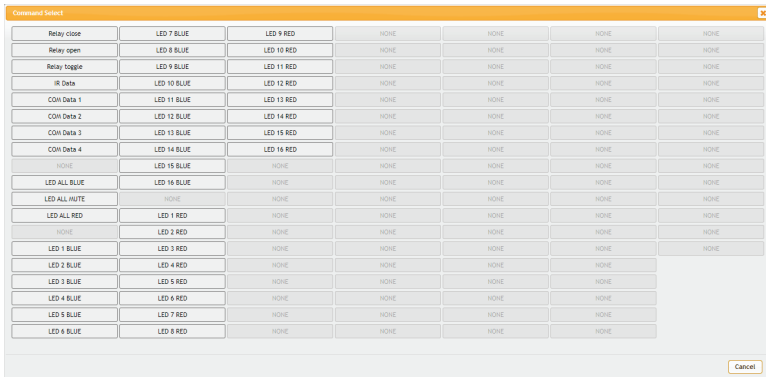
There are 8 macros defined by default for testing the System Control Center's functionality. Click on macros 1~8 to demonstrate various functions. The presets functions are:

- **Macro 1:** Sequentially close relays 1 through 4 with a 100ms delay.
- **Macro 2:** Sequentially open relays 1 through 4 with a 100ms delay.
- **Macro 3:** Sequentially toggle the state of Relays 1 through 4 with a 100ms delay.
- **Macro 4:** Sequentially send IR signals from emitters 1 through 4 with a 100ms delay.
- **Macros 5~8:** Send a sample text string over the COM port with a 100ms delay afterwards.

- 2) **Macro Edit:** Click on any button's edit icon (✎) to edit that button's macro. The Macro Edit window displays the full contents of the macro including its name as well as each command's communication interface to use with its associated parameters, delay time before executing the next command, and conditional execution requirements. The order of command execution is from top to bottom. When you have finished editing the macro click on "Save Change".



- **Edit Name:** At the top of the Macro Edit window is a text field where you can edit the name of the macro. Type your new macro name into the box and then click the disc icon (💾) to save it.
- **Add Command:** Click on the command icon (⚙️) to insert a new command before the current one or click on the “Add” button to add a command to the end of the list. Select one of the pre-defined commands from the provided “Command Select” list.

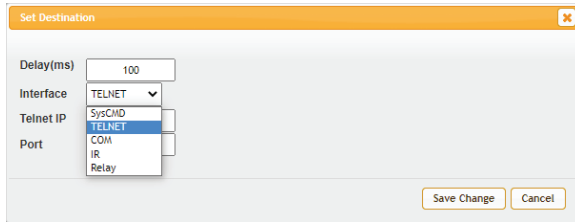


After selecting a command the “Set Destination” window will open to allow the selection of the delay and target interface details for the command.

Note: Details on how to create these pre-defined commands are provided in section 6.6.3.

- **Reorder Commands:** Within the edit window the up/down arrows will move the associated command’s position and change the command execution order.

- Set Destination:** Clicking on the edit icon (✎) allows you to edit the post-execution delay value as well as set the interface and all associated settings for that command.



- Delay(ms):** This setting is the length of time to wait before sending the next command and is set in milliseconds.
- Interface:** The interface for sending commands can be set to the unit itself (SysCMD), to a specified IP address (TELNET), to a specified serial port (COM), to a specified IR port (IR) or to trigger a relay port (Relay). Sending commands to devices on the local network, or across the internet requires entering the IP address and network port of the destination device. Once the destination information is complete please click on the “Save Change” button.

Note: It is strongly suggested to not set a delay time less than 100ms for system, serial, IR, and relay commands or less than 500ms for Telnet commands to ensure that the command is properly received and executed before the next command is sent.

- Delete Command:** Clicking on the delete command icon (✖) will remove the associated command from the execution list.
- Execution Condition:** Use the dropdowns to set a specific condition for each step in the macro to execute or not. If an execution condition tests as “false” when it is time to execute that command, then that step of the macro will be skipped. Selecting “None” means the macro command will always be executed.

| Cond Port | if | Value |
|-----------|----|-------|
| 1 | = | 42 |
| None | > | 0 |
| None | >= | 0 |
| None | < | 0 |
| None | <= | 0 |
| None | != | 0 |

To configure a condition test, select the Condition Port to read a value from, select a logical comparison expression, and then select a static value to use for the comparison.

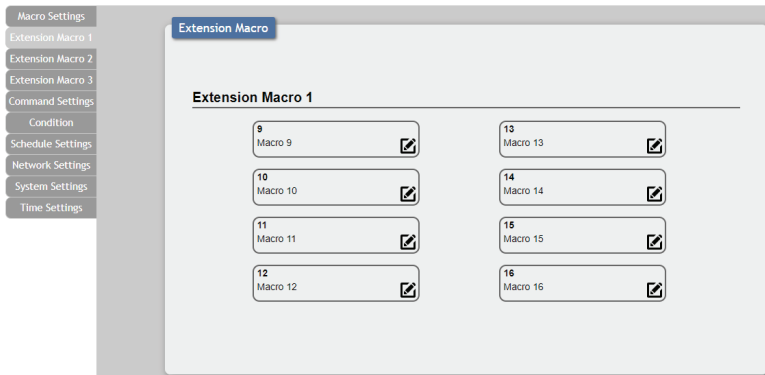
For example, if the following choices are made:

Cond Port [1], If [=], Value [42]

Then the unit will check the value of Condition Port #1 and if the value stored there equals “42” then the test will return “true” and the macro step will execute. If the stored value is any other number, it will return “false” and the macro step will be skipped.

6.6.2 Extension Macro 1~3 Tabs

Click on any of the three “Extension Macro” tabs to execute/edit the 24 additional software-only macro buttons. These macros can only be activated via the WebGUI or Telnet. Extension Macro editing is identical to editing macros 1 through 8, please refer to section 6.5.1 for more details.



6.6.3 Command Settings Tab

This tab provides a way to create, edit or delete the commands used by macros. Each command is composed of standard ASCII or hex data and represents either a system command, relay command, IR code, or telnet/serial command.

| Command | | | | |
|--------------|--------------------------------------------------------------------------------------|------|--------|--|
| Command Name | Command | Edit | Delete | |
| Relay close | CLOSE | Edit | Remove | |
| Relay open | DPEN | Edit | Remove | |
| Relay toggle | TOGGLE | Edit | Remove | |
| IR Data | B333,1-156.A9,18,15,15,40,16,5E1,156,55,15,75C-011111112222222112211112211222213-45- | Edit | Remove | |
| COM Data 1 | COM Test String 1x0b0x0a | Edit | Remove | |
| COM Data 2 | COM Test String 2x0b0x0a | Edit | Remove | |
| COM Data 3 | COM Test String 3x0b0x0a | Edit | Remove | |
| COM Data 4 | COM Test String 4x0b0x0a | Edit | Remove | |
| LED ALL BLUE | set dac all 100x0b0x0a | Edit | Remove | |
| LED ALL MUTE | set dac all 45x0b0x0a | Edit | Remove | |
| LED ALL RED | set dac all 0x0b0x0a | Edit | Remove | |
| LED 1 BLUE | set dac 1 100x0b0x0a | Edit | Remove | |
| LED 2 BLUE | set dac 2 100x0b0x0a | Edit | Remove | |
| LED 3 BLUE | set dac 3 100x0b0x0a | Edit | Remove | |

Note: The number of commands that can be stored in the unit is limited by memory and it is generally recommended that commands be under 128 characters long (including spaces). However, if longer commands are needed there is limited support for commands up to 512 characters long. In this case the number of (up to) 512 character commands is limited to 32 and the remaining 96 commands must be under 128 characters.

- Edit Command:** Clicking on the “Edit” button will open up the “Command Edit” window which provides a way to define the contents of each individual command. Once all changes are satisfactory, click on the “Save Change” button to save them into the unit.

Command 5 Edit

Command Label

Command
 STD
 RAW HEX

- **Command Label:** Assign a name for the command by entering the text into this field. All commands must have a label.

- **IR Learn:** To learn an IR command, first make sure the included IR Extender is connected to the unit's IR IN port, then press the "IR Learn" button. After doing this a notice will appear in the WebGUI to send the IR signal within 5 seconds. Point the remote control at the IR receiver and press the button that contains the command you wish to learn. A command string will appear in the text entry window containing the information captured from the IR remote.
- **Command Data:** The command data to send is entered in this text box. The types of commands available and the interface to use with them are detailed below.

Note: Except where explicitly mentioned, the "STD" format checkbox should always be checked.

- **System Commands (SysCMD Interface):** Commands to control functions of the unit directly using the Telnet functions detailed in section 6.8.

Note: Care must be taken when sending system commands, as they can impact the functionality of the unit itself.

- **Telnet or Serial Commands (Telnet & COM Interfaces):** Simply enter the plain ASCII text of the command in the space provided. Special control characters that can't normally be typed should be entered using their ASCII hex octet pair value preceded by the "\x" escape sequence. For example, a carriage return and linefeed would be entered as: "\x0d\x0a".
- **IR Commands (IR Interface):** Typically this data is automatically filled in by using the IR Learning function, however an IR code may also be manually entered if necessary.

Note: If the IR code is in "Pronto" format the "RAW HEX" checkbox must be checked.

- **Relay Commands (Relay Interface):** Commands to control the state of each relay port. The port to control is assigned during the creation of each individual macro.

CLOSE: Closes the circuit of the assigned relay port.

OPEN: Opens the circuit of the assigned relay port.

TOGGLE: Toggles the state of the assigned relay port.

- 2) **Delete Command:** To clear the contents of a command, click on the "Remove" button. The contents will be removed immediately.

Note: There is no "Undo" function! Please use caution when using the "Remove" button!

6.6.4 Condition Tab

This tab displays the current contents of all 64 Condition Ports and is for information display only.

| Condition Status | | | | | | | |
|------------------|---------|---------|---------|---------|---------|---------|---------|
| Port 1 | Port 2 | Port 3 | Port 4 | Port 5 | Port 6 | Port 7 | Port 8 |
| 42 | 69 | 255 | 4 | 0 | 0 | 0 | 0 |
| Port 9 | Port 10 | Port 11 | Port 12 | Port 13 | Port 14 | Port 15 | Port 16 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Port 17 | Port 18 | Port 19 | Port 20 | Port 21 | Port 22 | Port 23 | Port 24 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Port 25 | Port 26 | Port 27 | Port 28 | Port 29 | Port 30 | Port 31 | Port 32 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Port 33 | Port 34 | Port 35 | Port 36 | Port 37 | Port 38 | Port 39 | Port 40 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Port 41 | Port 42 | Port 43 | Port 44 | Port 45 | Port 46 | Port 47 | Port 48 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Port 49 | Port 50 | Port 51 | Port 52 | Port 53 | Port 54 | Port 55 | Port 56 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Port 57 | Port 58 | Port 59 | Port 60 | Port 61 | Port 62 | Port 63 | Port 64 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

6.6.5 Schedule Settings Tab

This tab provides multiple ways to automate and schedule the execution of any of the macros defined in this unit. Scheduled events can be individually disabled without deleting the event from the master list. The system can store up to 32 repeating events and up to 8 one-time events.

| Schedule | | | | | | | | |
|----------|-------------------------|------|--------|--------|-----------------|---------------|--------|--------|
| Repeat | | | | | | | | |
| Active | Weekly | Hour | Minute | Second | Macro | Edit | Delete | |
| v | Mon, Tue, Wed, Thu, Fri | 10 | 00 | 00 | ALL RELAY CLOSE | Edit | Remove | |
| v | Mon, Tue, Wed, Thu, Fri | 11 | 00 | 00 | ALL RELAY OPEN | Edit | Remove | |
| | | 00 | 00 | 00 | | Edit | Remove | |
| | | 00 | 00 | 00 | | Edit | Remove | |
| | | 00 | 00 | 00 | | Edit | Remove | |
| | | 00 | 00 | 00 | | Edit | Remove | |
| Once | | | | | | | | |
| Active | Month | Date | Hour | Minute | Second | Macro | Edit | Delete |
| v | 06 | 25 | 16 | 06 | 20 | COMSEND Test1 | Edit | Remove |
| | 00 | 00 | 00 | 00 | 00 | | Edit | Remove |
| | 00 | 00 | 00 | 00 | 00 | | Edit | Remove |
| | 00 | 00 | 00 | 00 | 00 | | Edit | Remove |
| | 00 | 00 | 00 | 00 | 00 | | Edit | Remove |
| | 00 | 00 | 00 | 00 | 00 | | Edit | Remove |

- Event Scheduling:** Events can be scheduled to automatically activate at a single set time, or on a repeating schedule.

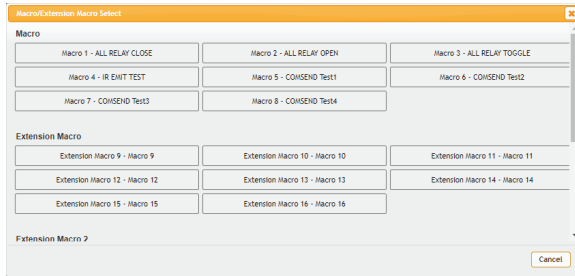
Note: Each scheduled item must be set as "Active" for it to activate at the scheduled time.

- **Repeat:** Items in this section will execute at their set times on the selected days (Sunday through Saturday) every week as long as they are marked as “Active”.
 - **Once:** Items in this section are scheduled to occur a single time at the specified time and date. Each item will automatically change to “None Active” after they have been executed once.
- 2) **Schedule Edit:** To edit an existing scheduled event, or configure a new one, click on the “Edit” button. To delete a scheduled event, click on the “Remove” button.

Note: The available options are slightly different between Repeat and Once events.

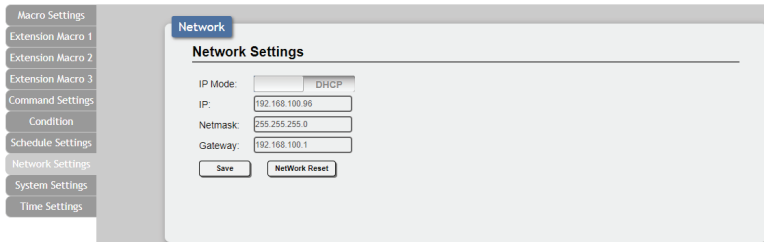
- **Active:** Click this to toggle if the scheduled event is enabled or disabled.
- **Weekly (Repeat Schedule Only):** When editing a repeating event schedule, click the checkboxes next to the days of the week for the event to occur on.
- **Time/Date & Time:** Click within the time/date box to open up the time/date selection window. Use the available controls to set the activation time (and date, if applicable) for the current event schedule.

- Macro/Extension Macro:** Click on this button to open a window displaying all currently defined macros. Select the macro to be executed by the currently selected event schedule.



6.6.6 Network Settings Tab

This tab provides controls to change the network settings for the unit. You can manually set the IP address, netmask and gateway address in “Static IP” mode, or you can obtain an IP address automatically by enabling DHCP.



- Network Settings:** IP mode may be switched between Static IP or DHCP. In Static IP mode the IP, netmask and gateway addresses may be manually set. When in DHCP mode, the unit will attempt to connect to a local DHCP server and obtain IP, netmask and gateway addresses automatically. Please press “Save” after making any changes to the IP configuration or mode. To return all network settings to their defaults, press the “Network Reset” button.

Note: If the IP address is changed then the IP address required for WebGUI/ Telnet access will also change accordingly.

6.6.7 System Settings Tab

This tab provides a way to change various system settings, including changing the WebGUI login password and timeout settings. You may also save the full system configuration, including all macros, to your connected PC/Laptop or restore them from a previously saved configuration. Finally, this tab provides buttons to reset the unit to factory defaults, reboot the unit, or perform a firmware update.

- 1) **Web User Setting:** This section allows for the login password to be changed. The default username is “admin” and cannot be changed. The default password is “admin”.
- 2) **Web Login Timeout:** Set the length of time, in minutes, to wait before logging the user out of the WebGUI due to inactivity. This can be set from 5 to 60 minutes.
- 3) **Download Current Configuration:** The current system configuration may be saved as an XML file to a PC. Click the “Download” button to save the current system configuration to your local PC. This file will also include all macros, commands, and scheduled events.
- 4) **Restore Configuration:** Previously saved system configurations may be restored from a saved XML file. Click the “Choose File” button to locate the saved XML file, then click the “Restore” button.
- 5) **Reset to Default:** Press the “ALL Reset” button to reset the unit to its factory default state. After the reset is complete, the unit will reboot automatically.

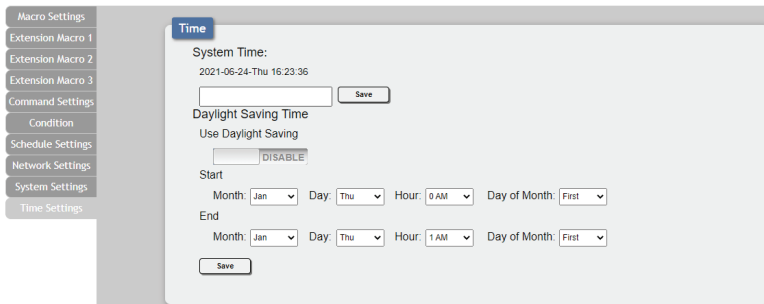
Note: All customised macros, commands, and scheduled events will also be reset to their factory defaults.
- 6) **Reboot the Unit:** Click this button to force the unit to reboot.

- 7) **Firmware Upgrade:** To update the unit’s firmware, click the “Choose File” button to open the file selection window and then select the firmware update file (*.bin format) located on your local PC. After selecting the file, click the “Upgrade” button to begin the firmware update process. After the upgrade is complete, the unit will reboot automatically.

6.6.8 Time Settings Tab

This tab provides a way to set the system’s time, date, and time zone. After setting the system time, the unit will maintain the correct time, even when powered off, due to a battery backed up clock. If your country uses DST (Daylight Saving Time) you can enable or disable it here and configure the start and end times/dates so that your scheduled events will always occur at the correct times throughout the year.

Note: This unit has 48 hours of backup power for the internal clock to protect against power loss and blackouts. After the backup power is exhausted the system time will reset back to 2015/01/01 00:00:00.



- 1) **System Time:** The unit’s time and date can be manually configured here. Click on the empty box to open the time and date configuration screen and select the preferred values. After entering a new time and date, click the “Save” button to store it in the unit and start the clock running.
- 2) **Daylight Saving Time:** Enable or disable the use of DST adjustments for the unit’s time.

Note: Enabling Daylight Saving Time while outside the configured DST range will result in no change to the current time.

- **Start:** Set the month, week, day and time for the start of DST in the current time zone.

- **End:** Set the month, week, day and time for the end of DST in the current time zone.

6.7 Telnet Control

Before attempting to use Telnet control, please ensure that both the unit and the PC are connected to the same active networks.

Start your preferred Telnet/Console client, or use the built in client provided by most modern computer operating systems. After starting the client, connect by using the current IP address of the unit and port 23 (if the communication port number used by the unit has not been changed previously). This will connect us to the unit we wish to control and commands may now be entered directly.

Note 1: If the IP address of the unit is changed then the IP address required for Telnet access will also change accordingly.

Note 2: This unit defaults to DHCP mode. The current IP address can only be verified using the Device Discovery software. The default communication port is 23.

6.8 Telnet Commands

| COMMAND |
|---------------------------------------------------------------------------------------------|
| Description and Parameters |
| help ↵ Show the full command list |
| help N1 ↵ Show details about the specified command. N1 = {Command Name} |
| ? ↵ Show the full command list |

| COMMAND | | | | | |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-------------|---|--------|
| Description and Parameters | | | | | |
| ? N1 ↵ | <p>Show details about the specified command.</p> <p>N1 = {Command Name}</p> | | | | |
| get fw ver ↵ | <p>Show the unit's current firmware version.</p> | | | | |
| get mac addr ↵ | <p>Show the unit's MAC address.</p> | | | | |
| get user config ↵ | <p>List the unit's current configuration information.</p> | | | | |
| set system reboot ↵ | <p>Reboot the unit.</p> | | | | |
| set ip mode N1 ↵ | <p>Set the IP address assignment mode.</p> <p>Available values for N1:</p> <table border="0"> <tr> <td>0</td> <td>[Static IP]</td> </tr> <tr> <td>1</td> <td>[DHCP]</td> </tr> </table> | 0 | [Static IP] | 1 | [DHCP] |
| 0 | [Static IP] | | | | |
| 1 | [DHCP] | | | | |
| get ip mode ↵ | <p>Show the current IP address assignment mode.</p> | | | | |
| get ipconfig ↵ | <p>Show the unit's current IP configuration information</p> | | | | |
| get ipaddr ↵ | <p>Show the unit's current IP address.</p> | | | | |

| COMMAND | |
|---------------------------------------------------------------------|-------------------------------------|
| Description and Parameters | |
| set static ipaddr N1 ← | |
| Set the unit's static IP address. | |
| N1 = X.X.X.X | [X = 0~255, Static IP address] |
| get static ipaddr ← | |
| Show the unit's current static IP address. | |
| set static netmask N1 ← | |
| Set the unit's static netmask. | |
| N1 = X.X.X.X | [X = 0~255, Static netmask] |
| get static netmask ← | |
| Show the unit's current static netmask. | |
| set static gateway N1 ← | |
| Set the unit's static gateway address. | |
| N1 = X.X.X.X | [X = 0~255, Static gateway address] |
| get static gateway ← | |
| Show the unit's current static gateway address. | |
| set uart N1 command N2 ← | |
| Transmit the specified command data over the specified serial port. | |
| Available values for N1 : | |
| 1 | [Serial port 1] |
| 2 | [Serial port 2] |
| N2 = {Command} | [Comma delimited hex pairs] |

| COMMAND | |
|----------------------------------------------------------|-----------------|
| Description and Parameters | |
| set uart N1 baudrate N2 ↵ | |
| Set the baud rate of the specified serial port. | |
| Available values for N1 : | |
| 1 | [Serial port 1] |
| 2 | [Serial port 2] |
| Available values for N2 : | |
| 4800 | [4800 baud] |
| 9600 | [9600 baud] |
| 19200 | [19200 baud] |
| 38400 | [38400 baud] |
| 57600 | [57600 baud] |
| 115200 | [115200 baud] |
| get uart N1 baudrate ↵ | |
| Show the current baud rate of the specified serial port. | |
| Available values for N1 : | |
| 1 | [Serial port 1] |
| 2 | [Serial port 2] |
| set uart N1 data bit N2 ↵ | |
| Set the data bits for the specified serial port. | |
| Available values for N1 : | |
| 1 | [Serial port 1] |
| 2 | [Serial port 2] |
| Available values for N2 : | |
| 5 | [5 data bits] |
| 6 | [6 data bits] |
| 7 | [7 data bits] |
| 8 | [8 data bits] |

COMMAND**Description and Parameters****get uart N1 data bit**↵

Show the current number of data bits of the specified serial port.

Available values for **N1**:

- | | |
|---|-----------------|
| 1 | [Serial port 1] |
| 2 | [Serial port 2] |

set uart N1 parity N2↵

Set the parity of the specified serial port.

Available values for **N1**:

- | | |
|---|-----------------|
| 1 | [Serial port 1] |
| 2 | [Serial port 2] |

Available values for **N2**:

- | | |
|---|--------|
| 0 | [None] |
| 1 | [Odd] |
| 2 | [Even] |

get uart N1 parity↵

Show the current parity setting of the specified serial port.

Available values for **N1**:

- | | |
|---|-----------------|
| 1 | [Serial port 1] |
| 2 | [Serial port 2] |

set uart N1 stop bit N2↵

Set the number of stop bits for the specified serial port.

Available values for **N1**:

- | | |
|---|-----------------|
| 1 | [Serial port 1] |
| 2 | [Serial port 2] |

Available values for **N2**:

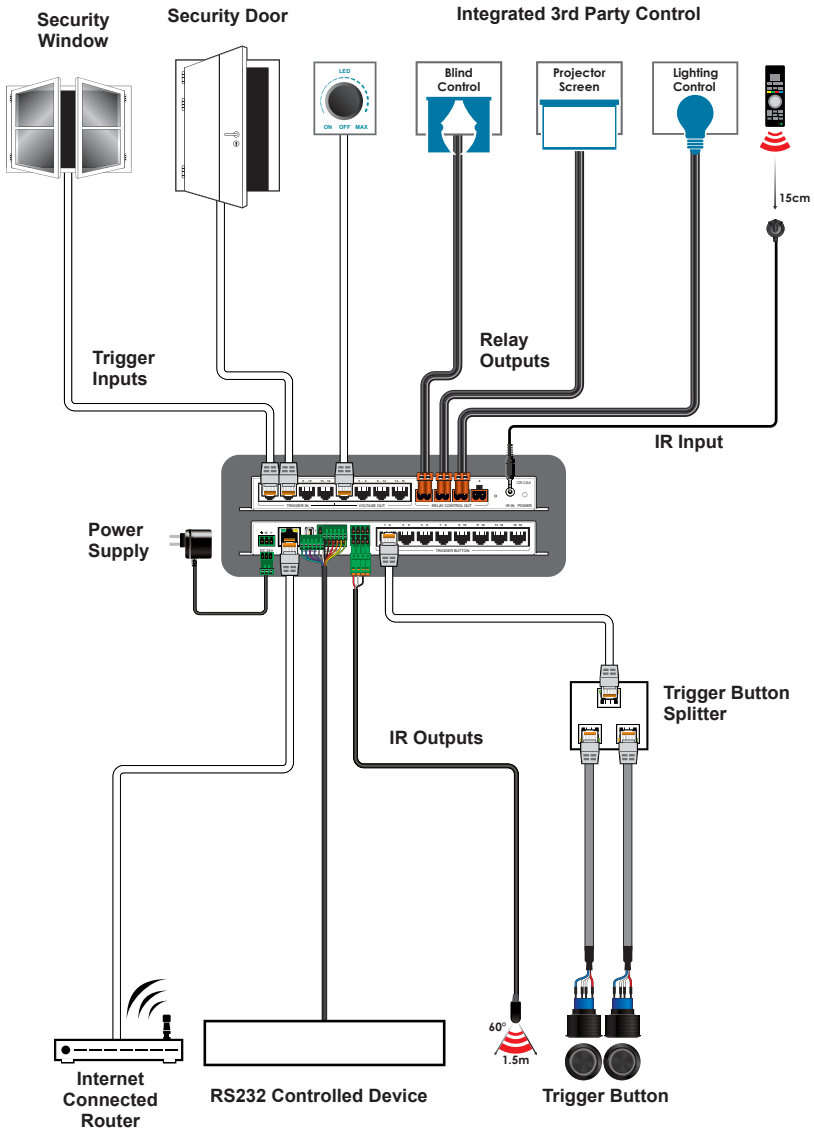
- | | |
|---|---------------|
| 1 | [1 stop bit] |
| 2 | [2 stop bits] |

| COMMAND | |
|----------------------------------------------------------------------------------------------------------|---------------------------------|
| Description and Parameters | |
| get uart N1 stop bit ↵ | |
| Show the current number of stop bits of the specified serial port. | |
| Available values for N1 : | |
| 1 | [Serial port 1] |
| 2 | [Serial port 2] |
| set relay N1 N2 ↵ | |
| Open or close the specified relay port's circuit. | |
| N1 = 1~4 | [Relay port] |
| Available values for N2 : | |
| CLOSE | [Close the relay] |
| OPEN | [Open the relay] |
| TOGGLE | [Toggle the relay's state] |
| get relay N1 ↵ | |
| Show the current state of the specified relay port. | |
| N1 = 1~4 | [Relay port] |
| set trigger in N1 state N2 ↵ | |
| Enable or disable the specified trigger input. When disabled, the associated macro will not be executed. | |
| N1 = 1~16 | [Trigger input] |
| Available values for N2 : | |
| ACTIVE | [Enable the specified trigger] |
| INACTIVE | [Disable the specified trigger] |
| <i>Note: This setting affects the behavior of both the Trigger In and Trigger Button ports.</i> | |
| get trigger in N1 state ↵ | |
| Show the current state of the specified trigger input. | |
| N1 = 1~16 | [Trigger input] |

| COMMAND | |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Description and Parameters | |
| set dac N1 N2 ↵ | |
| Set the voltage level of the specified voltage output. | |
| N1 = 1~16 | [Voltage output line] |
| N2 = 0~100 | [Voltage in 0.1V steps] |
| get dac N1 ↵ | |
| Show the current voltage level of the specified voltage output line. | |
| N1 = 1~16 | [Voltage output line] |
| set macro N1 N2 ↵ | |
| Run or stop the specified macro immediately. | |
| N1 = 1~32 | [Macro number] |
| Available values for N2 : | |
| RUN | [Run the macro] |
| ABORT | [Stop the macro] |
| set_cond N1 N2 ↵ | |
| Assign a value to the specified Condition port(s). | |
| N1 = 1~64 | [Condition port number] |
| N2 = 0~255 | [Condition value] |
| <i>Note: Multiple values may be entered for N1 or N2 by separating the values with commas. Both sets must have the same number of values.</i> | |

Note: Commands will not be executed unless followed by a carriage return. Commands are not case-sensitive.

7. CONNECTION DIAGRAM



8. SPECIFICATIONS

8.1 Technical Specifications

| | |
|------------------------------|--------------------------------------------------------------------------------------------------------|
| Input Ports | 1×IR Learner/Extender (3.5mm) |
| Output Ports | 16×Voltage Ports (4×RJ-45) 4×IR Blaster (4×2-pin Terminal Block) 2×Serial (6-pin Terminal Block) |
| Pass-through Ports | 4×Power Relay (2-pin Terminal Block) |
| Control Ports | 1×IP Control (RJ-45) 16×Triggers (4×RJ-45) 16×Trigger Buttons (8×RJ-45) |
| Service Port | 1×USB 2.0 (Type-A) |
| IR Frequency | 30 ~ 50kHz (30 ~ 60kHz under ideal conditions) |
| Baud Rate | Up to 115200 |
| Power Supply | 24V/1A DC (US/EU standards, CE/FCC/UL certified) or PoE+ (802.3at Type 2) |
| ESD Protection (HBM) | ±8kV (Air Discharge) ±4kV (Contact Discharge) |
| Dimensions (W×H×D) | 231.5mm×25mm×108mm [Case Only] 231.5mm×25mm×117mm [All Inclusive] |
| Weight | 250g |
| Chassis Material | Metal (Steel) |
| Chassis Colour | Black |
| Operating Temperature | 0°C – 50°C/32°F – 122°F |
| Storage Temperature | -20°C – 60°C/-4°F – 140°F |
| Relative Humidity | 20 – 90% RH (Non-condensing) |
| Power Consumption | 3.63W |

9. ACRONYMS

| ACRONYM | COMPLETE TERM |
|----------------|----------------------------------------------------|
| ASCII | American Standard Code for Information Interchange |
| Cat.5e | Enhanced Category 5 cable |
| Cat.6 | Category 6 cable |
| Cat.6A | Augmented Category 6 cable |
| Cat.7 | Category 7 cable |
| CLI | Command-Line Interface |
| COM | Communication |
| IEEE | Institute of Electrical and Electronics Engineers |
| IP | Internet Protocol |
| IR | Infrared |
| LAN | Local Area Network |
| LED | Light-Emitting Diode |
| MAC | Media Access Control |
| MHz | Megahertz |
| PD | Powered Device |
| PoE | Power over Ethernet |
| TCP | Transmission Control Protocol |
| USB | Universal Serial Bus |



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