geratech®

EGE-CS4

Control System

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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.

REVISION HISTORY

VERSION NO.	DATE (DD/MM/YY)	SUMMARY OF CHANGE
VR1	20/07/15	Preliminary release
VR2	17/02/16	RS-232 Command Case-insensitive
VR3	13/04/16	Add UART Setting in WebGUI
VS4	17/02/17	Updated text/diagrams

CONTENTS

1. INTRODUCTION

As we enter a new era of smart devices, the dream of controlling everything with one finger is finally upon us. This Control System Center allows those dreams to come true by not only providing direct but also indirect control interfaces for all of your devices. Direct control methods such as IR (with IR learning), RS-232, relay, and DC triggers allow users to maintain traditional styles of control over devices while indirect device control is possible using telnet allowing users to control newer, more complicated devices. With this product you can pre-program and recall up to 16 distinct macros (8 can be directly activated via external triggers or IR remote) providing for complete control over your audio and video environment.

2. APPLICATIONS

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

3. PACKAGE CONTENTS

- 1×Control System Center
- 1×Remote Control (CR-157)
- 1×IR Learner Cable
- 4×IR Extender Cables
- 4×IR Blaster Cables
- 4×Terminal Block Connectors
- 1×5V/2.6A Power Adaptor
- 1×Rack Mount Ears (Set of 2)
- 1×Operation Manual

4. SYSTEM REQUIREMENTS

- Trigger input source equipment such as motion detection cameras, TVs, power switches, etc.
- An active internet connection from a switch or router for control of Ethernet devices.

5. FEATURES

- Supports 1 IR Learning input, 8 IR Blaster outputs, 8 Trigger inputs, 8 Relay outputs, 2 COM ports, and 4 Ethernet ports
- Supports an IR learning function which captures the IR signal broadcast by your remote when you press a button for retransmission as a part of a macro
- Supports trigger inputs with a voltage range of 0~15V (triggers at 5V)
- Supports Baud rates from 4800bps to 115200bps
- Supports 10/100 Ethernet network connections

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel
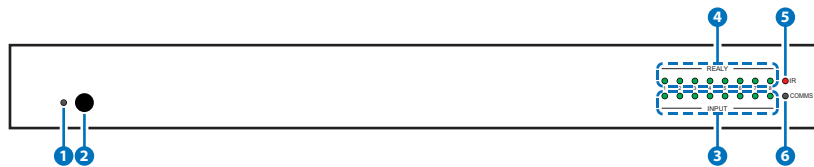
❶ **POWER LED:** This LED will illuminate when the device is switched on.

❷ **IR WINDOW:** Receives IR signals from the remote control to activate macros 1~8.

❸ **INPUT LED:** These LEDs will illuminate when the associated input trigger detects a voltage high enough to trigger it (DC voltage of 5~15V).

❹ **RELAY LED:** These LEDs represent the output relay circuit status (green=closed, off=open).

❺ **IR LED:** This LED will illuminate when the device is receiving or sending an IR signal. The LED will also illuminate when learning IR commands.

❻ **COMMS LED:** This LED will blink when the COM ports are sending/receiving data. It will also blink when macros are executed (1 flash for each command within the macro).

6.2 Rear Panel
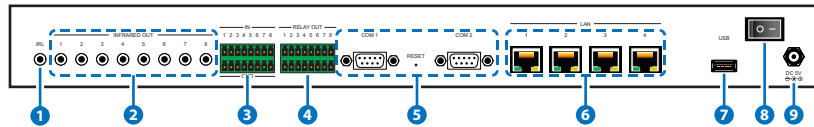
1 IRL: Connect to the IR Learning Receiver included in the package. This is used to capture the IR signal broadcast by your remote when you press a button for retransmission as a part of a macro. The IR data will be captured and stored in a text format within the WebGUI. For IR Learning instructions please refer to section 6.8.3.

2 IR OUT 1~8: Connect to the provided IR Blasters to transmit IR signals to devices within direct line-of-sight of the IR Blaster.

3 TRIGGER IN 1~8: Connect to any device with trigger or switch functionality such as window security alarms, motion detectors, door switches, etc. Each of the 8 trigger inputs will activate the associated macro when triggered.

The upper row of contacts should be connected to the positive pins of your sources and the lower row of contacts should be connected to the negative pins. If the polarity is incorrectly aligned then the trigger won't activate. A minimum of 5V DC is required to activate the trigger.

4 RELAY OUT 1~8: Connect to devices that support DC 0~24V/5A relay trigger functionality to power or activate them via macro commands.

5 COM 1~2: Connect to RS-232 controllable devices to send commands to those devices via macros. It is also possible to send commands directly to your RS-232 connected devices via the Ethernet connection.

To do this, connect to the Control System using a Telnet client via port 7501 (to send to COM 1) or port 7502 (to send to COM 2). Once connected, any typed commands will be sent directly to the appropriate COM port.

RESET: To reset the IP settings back to factory default, press and hold the button with a pin for 10 seconds. Both IR and COMMS LEDs will illuminate to indicate you have successfully reset it.

6 LAN 1~4: Connect any one port to an active Ethernet network to allow it to control other devices on the network and to be accessed via Telnet/WebGUI. The remaining 3 ports can be connected directly to other local devices you wish to control.

7 USB: This slot is reserved for factory firmware update only.

8 POWER: Flip this switch to power the unit on or off.

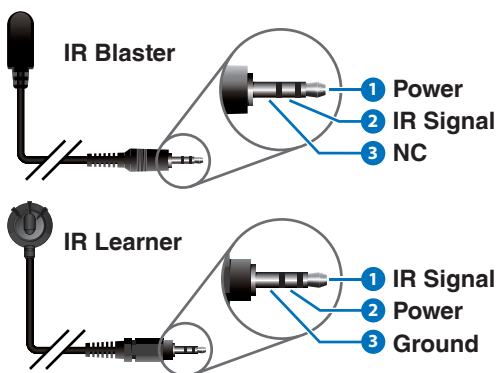**9 DC 5V:** Plug the 5V DC power adapter into this port and connect it to an AC wall outlet for power.

6.3 Remote Control

① **1~8:** Press any of these buttons to activate the corresponding Control System macro.

CR-157
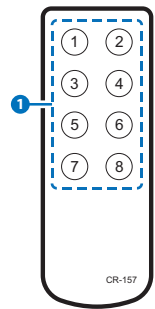
6.4 IR Cable Pin Assignment

IR Blaster

① Power
② IR Signal
③ NC

IR Learner

① IR Signal
② Power
③ Ground

6.5 RS-232 Protocol

DATA TERMINAL EQUIPMENT	
Pin	**Assignment**
1	NC
2	RxD
3	TxD
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

Baud Rate: 4800~115200bps
Data Bits: 7~8
Parity: None, Odd, Even
Flow Control: None
Stop Bits: 1

6.6 Telnet Commands

COMMAND	DESCRIPTION
IPCONFIG	Display the current IP configuration.
SIPADDR X.X.X.X	Set Ethernet IP address. X=0~255
SNETMASK X.X.X.X	Set Ethernet netmask. X=0~255
SGATEWAY X.X.X.X	Set Ethernet gateway. X=0~255
SIPMODE N	Set Ethernet IP mode. N=STATIC, DHCP
VER	Show unit's firmware version.
REBOOT	System reboot.
FADEFAULT	Set all configurations to factory default.
ETH_FADEFAULT	Set all Ethernet settings to factory default.
HELP	Show command list.
?	Show command list.
HELP N	Show description of command. N={Command Name}
? N	Show description of command. N={Command Name}
RELAY N N1	Set relay N's state. N=1~8 N1=OPEN, CLOSE, TOGGLE
IREMIT IR N N1 N2	Send IR content. N=1~8 (IR Port) N1=0 (Format) N2={IR Data String}
IRLEARN N	Capture and then display the IR code from an IR remote button press. N=0 (Format)
COMSEND COM N N1	Send command to COM port. N=1~2 (COM Port) N1={Command Data} (Up to 512 ASCII characters)

| COMMAND	DESCRIPTION
COMCONF COM N N1 N2 N3 N4	Set the RS-232 COM port configuration. N=1~2 (COM Port) N1=4800, 9600, 19200, 38400, 57600, 115200 (Baud Rate) N2= 7, 8 (Data Bits) N3=NONE, ODD, EVEN (Parity) N4=1 (Stop Bits)
MACRO STOP N	Stop macro. N=1~16 (Port)
MACRO RUN N	Run macro. N=1~16 (Port)
TRIGGER STATUS	Show current status of all triggers.
TRIGGER INFO	Show settings for all triggers.
TRIGGER INFO N	Show settings for specified trigger. N=1~8 (Trigger Port)
TRIGGER ACTIVE N N1	Enable or disable trigger N. N1=1~8 N2=ENABLE, DISABLE
TRIGGER MODE N N1	Set trigger N's activation method. N1=1~8 N2=RAISING, FALLING, CHANGE

Note:

• *All commands must be followed by a carriage return. Commands are not case-sensitive.*

• *Some COMSEND commands may require carriage returns or other normally "illegal" characters within the sent Command Data. To send those characters the ASCII hex value can be used when preceded by "\x". For example, "\x0D" would be transmitted as a standard carriage return. Because "\" will interpreted as a special escape character, please type "\\" if a "\" needs to be sent within the command.*

6.7 Telnet Control

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

To access Telnet in Windows 7, click on the "Start" menu and type "cmd" in the search field, then press "Enter". Under Windows XP go to the "Start" menu, click on "Run", type "cmd" then press "Enter". Under Mac OS X, go to "Go→Applications→Utilities→Terminal". See below for reference.
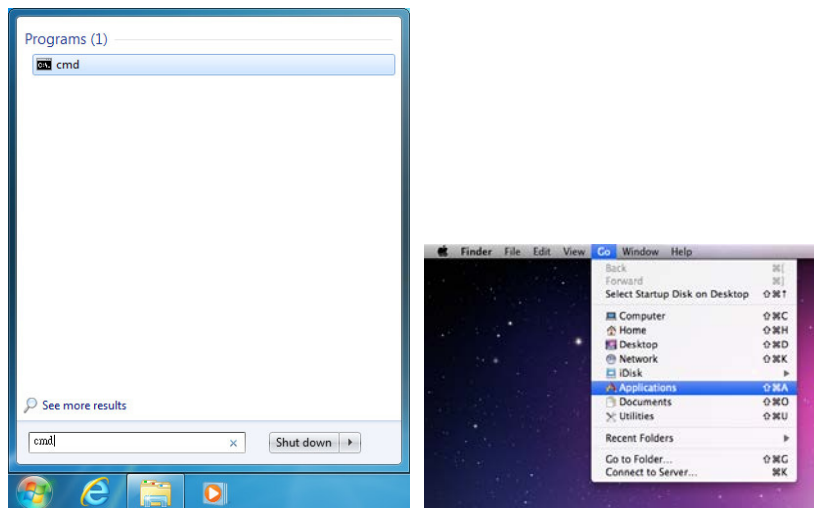
Once in the CLI (Command Line Interface) type "telnet" followed by the IP address of the unit and "23", then hit "Enter".

This will connect us to the unit we wish to control. Type "help" to list the available commands.

```
HELP            : SHOW DESCRIPT OF COMMAND
                  USE <HELP N, N=COMMAND NAME> TO SHOW DESCRIPT OF COMMAND
?               : SHOW DESCRIPT OF COMMAND
                  USE <? N, N=COMMAND NAME> TO SHOW DESCRIPT OF COMMAND
IPCONFIG        : DISPLAY THE CURRENT IPCONFIG
SIPADDR         : SET ETHERNET IP ADDRESS
SNETMASK        : SET ETHERNET NETMASK
SGATEWAY        : SET ETHERNET GATEWAY
SIPMODE         : SET ETHERNET IP MODE
VER             : SHOW UNIT FIRMWARE VERSION
FADEFAULT       : ALL CONFIGURE SET TO FACTORY DEFAULT
ETH_FADEFAULT   : ALL ETHERNET CONFIGURE SET TO FACTORY DEFAULT
REBOOT          : SYSTEM REBOOT
IREMIT          : SEND IR CONTENET
IRLEARN         : LEARNING IR CODE
TRIGGER         : TRIGGER SETTING
RELAY           : RELAY CONTROL
COMCONF         : DRIVER RS232 CONFIG
COMSEND         : SEND DATA VIA COM PORT
MACRO           : MACRO CONTROL
```
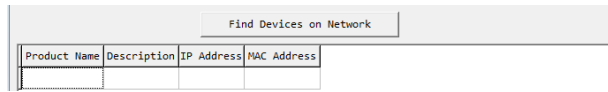
Note:

-      *Commands will not be executed unless followed by a carriage return. Commands are not case-sensitive.*
-      *If the IP address is changed then the IP address required for telnet access will also change accordingly.*

6.8 WebGUI Control

• **Install the Device Discovery Tool**

Please obtain the Device Discovery software from your authorized 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 Network" and a list of devices connected to the local network will show up indicating their current IP address.

Note: The unit's default static IP address is 192.168.1.50
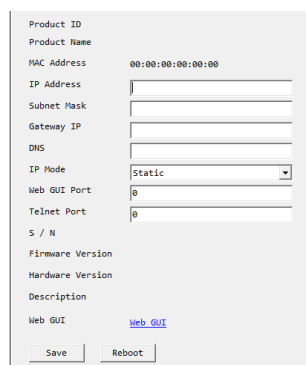
By clicking on one of the listed devices you will be presented with the network details of that particular device. If you choose, you can alter the static IP network settings for the device, or switch the unit into DHCP mode to automatically obtain proper network settings from a local DHCP server. To switch to DHCP mode, please select DHCP from the IP mode drop-down, then click "Save" followed by "Reboot".

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.

- **Login to the WebGUI**

Open a web browser on a PC/Laptop that is connected to an active network and type the unit's IP address into the web address entry bar. The login screen will appear and ask for a Username and Password. The default username and password is "admin". Please enter the information and then click "Submit" to log in.

Note: The unit's default IP address is 192.168.1.50

On the left side of the browser you will see the following menu tabs: Macro Settings, Extension Macro, Command Settings, UART Settings, Network Settings, and System Settings to allow for user configuration of the unit.

6.8.1 Macro Settings
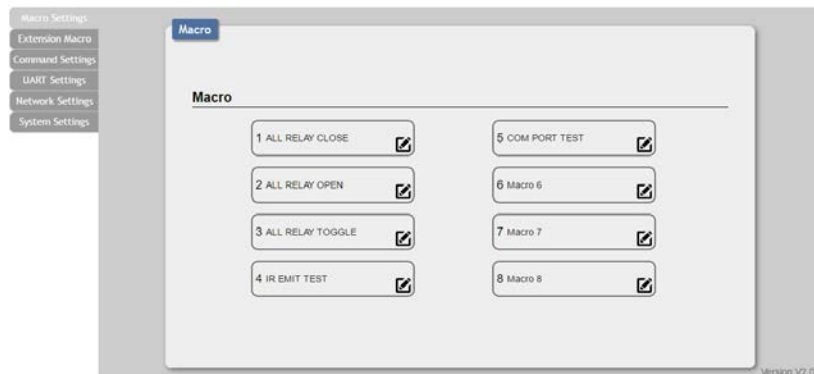
Click on the "Macro Settings" tab to execute/edit the 8 primary macros. These macros can be executed by activating the 8 input triggers on the back of the unit as well as via WebGUI, Telnet, or IR remote. Each macro can contain up to 16 individual commands.

Macros 1~8 align with Trigger IN 1~8. When a trigger signal is detected the unit will execute the associated macro command.

There are 5 macros defined by default for testing the Control System's functionality. Click on macros 1~5 to demonstrate various testing functions:

(1)Macro 1: Sequentially close relays 1 through 8 with a 100ms delay

(2)Macro 2: Sequentially open relays 1 through 8 with a 100ms delay

(3)Macro 3: Sequentially toggle the state of relays 1 through 8 with a 100ms delay

(4)Macro 4: Sequentially send IR signals from emitters 1 through 8 with a 100ms delay. The IR LED will flash on the front panel.

(5)Macro 5: Send the command "Hello World" over COM ports 1 and 2 with a 100ms delay between commands.
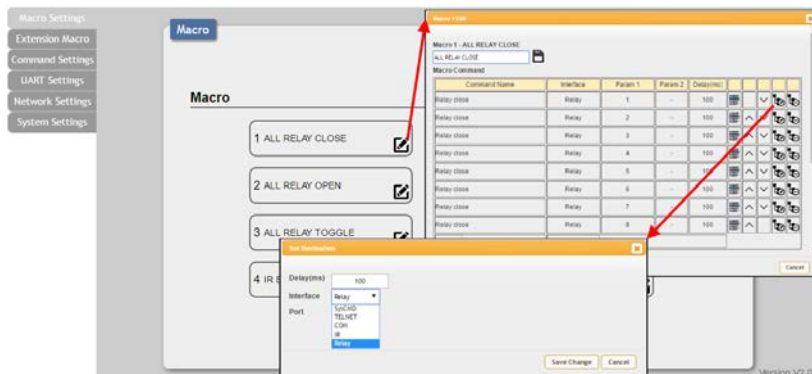
Click on the "Edit" icon (✎) to edit each button's macro. At the top of the Macro edit window is a text field where you can edit the name of the macro. Type your new macro name into the box and then click the "Save" icon (💾) to save it.

Within the Macro edit window the up/down arrows will change the command execution order. The (⟳) icon allows you to edit the delay and interface for the command. The (⟳) icon will delete the command.

Click on the (☰) icon to insert a new command before the current one. Select one of the pre-defined commands from the list. (Details on how to create these pre-defined commands are later in this section.) After selecting a command, you will need to choose the delay and interface for the command.

(1)Delay(ms): This setting is the length of time to wait before sending the next command and is set in milliseconds.

(2)Interface: The interface for sending commands can be set to the unit itself (SysCMD), to a specified IP address (TELNET), to a specified RS-232 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 the IP address and network port number 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, RS-232, 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.

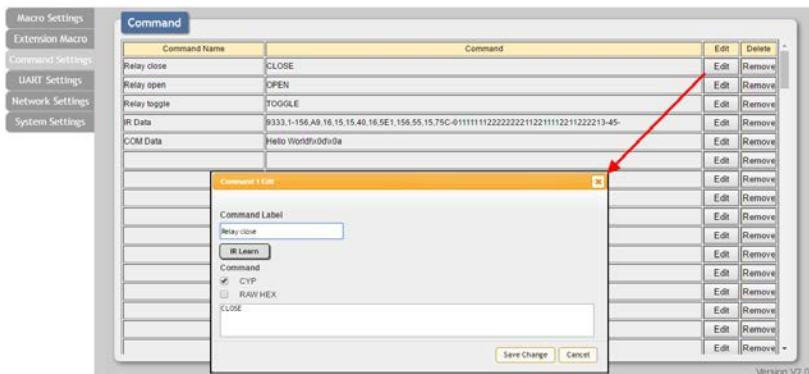When you have finished editing the macro click on "Save Change".

6.8.2 Extension Macro
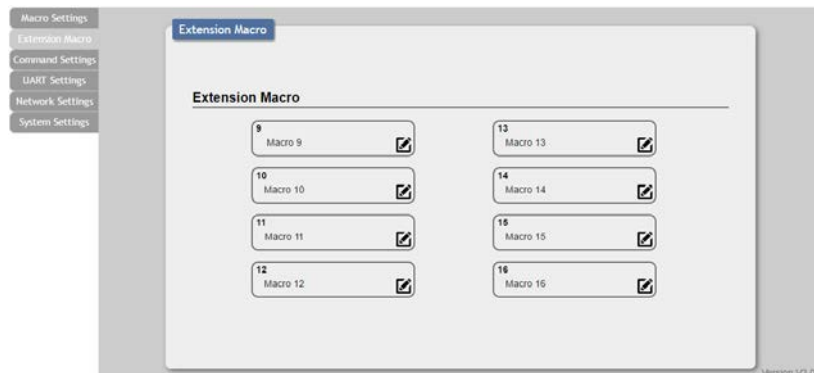
Click on the "Extension Macro" tab to execute/edit the additional software-only macro buttons. These macros can only be executed via the WebGUI or Telnet. Macro editing in this tab is identical to editing the prior tab's macros.

6.8.3 Command Settings

Click on the "Command Settings" tab to create, edit or delete commands. The number of commands that can be stored in the unit is limited by memory. 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.

(1) **Renaming Command:** You may rename the command, if you wish, by changing the text in the "Command Label" field.

(2) **Learning IR Command:** To learn an IR command, first make sure the included IR Learner is connected to the unit's IRL port, then press "IR Learn" within the command edit window. After doing this a notice will appear in the WebGUI to send the IR signal within 5 seconds. When you see this, point your remote control at the IR receiver and press the button that contains the command you wish to learn. A command string will then appear in the text entry window containing the information captured from the IR remote.

(3)Entering Text Command: For plain text commands, simply enter the text command into the entry window.

Once the command setting is complete please click on the "Save Change" button to save the new command.

Note: Some commands may require a carriage return (e.g. \r or \x0D) at the end to be accepted by the destination device.

6.8.4 UART Settings
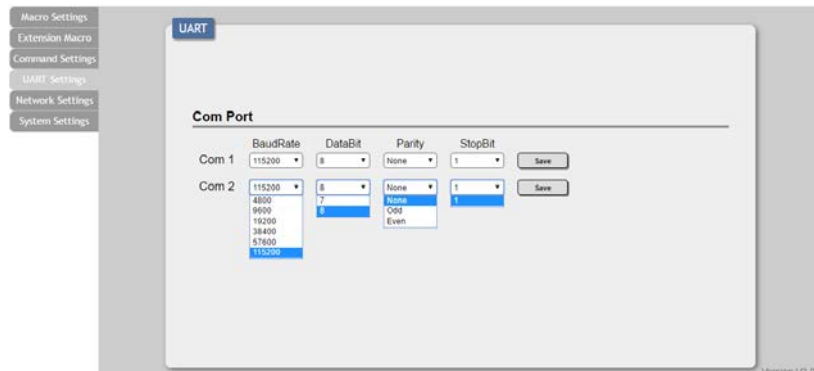
Click on the "UART Settings" tab to configure each COM port's Baud Rate, Data Bit, Parity, and Stop Bit. Values that can't be directly selected here may be set via Telnet or RS-232. After changing a COM port's settings please click on the "Save" button to store the new settings.

6.8.5 Network Settings
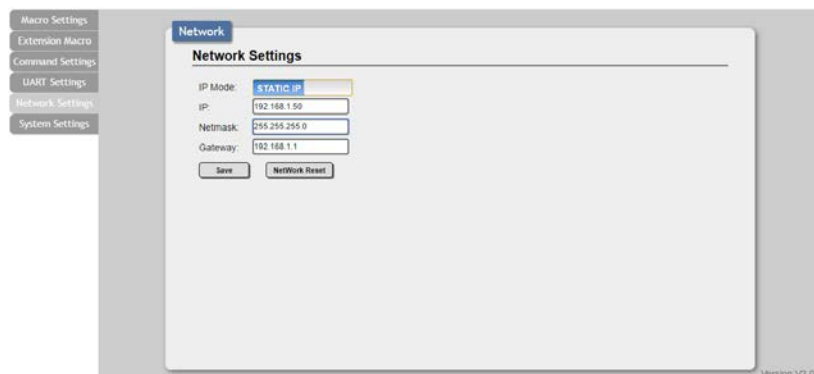
Click on the "Network Settings" tab to change the network settings for the unit. You can manually set the IP address, netmask, and gateway address in "Static IP" mode, or you can obtain an IP address automatically by enabling DHCP.
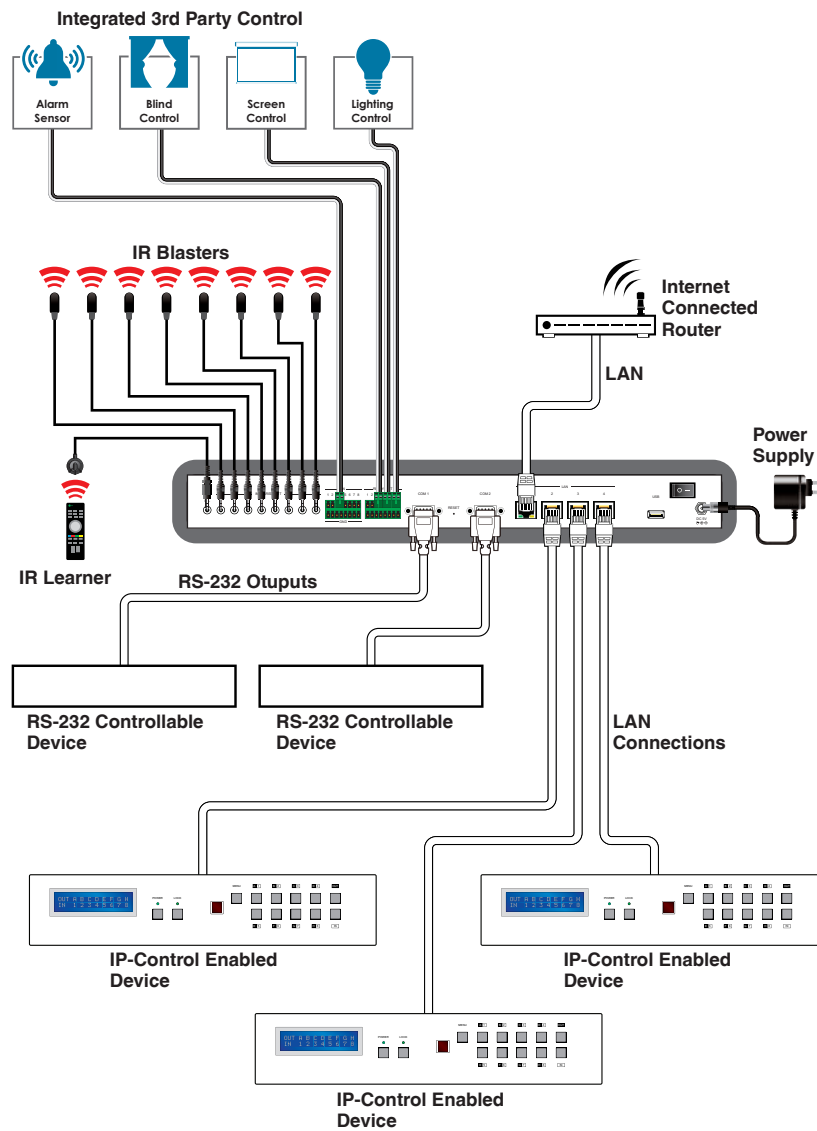
6.8.6 System Settings
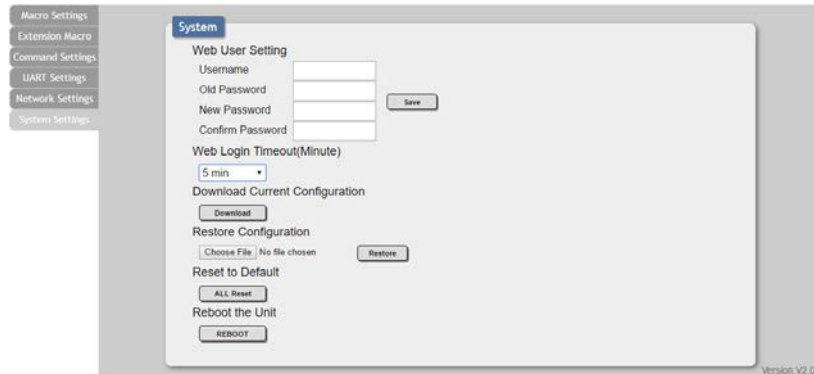
Click on the "System Settings" tab to make changes to various system settings. From this tab you can change the WebGUI login password and login timeout settings. You may also save the full system configuration, including all macros, to your connected PC/Laptop or restore them from a previously saved configuration. Finally, this tab provides buttons to reset the unit to factory defaults and to reboot the unit.

Note: Please ensure that all commands and settings have been backed up before performing an "All Reset" as the procedure will return all settings back to the factory default.

7. CONNECTION DIAGRAM

Integrated 3rd Party Control

Alarm Sensor · Blind Control · Screen Control · Lighting Control

IR Blasters

Internet Connected Router

LAN

Power Supply

IR Learner

RS-232 Otuputs

RS-232 Controllable Device

RS-232 Controllable Device

LAN Connections

IP-Control Enabled Device

IP-Control Enabled Device

IP-Control Enabled Device

8. SPECIFICATIONS

Input Ports	1×IR Learner (3.5mm), 8×Trigger (2-pin Terminal Block)
Output Ports	8×IR Blaster (3.5mm), 8×Relay (2-pin Terminal Block), 2×COM (9-pin D-sub), 4×LAN (RJ45)
IR Frequency	30 - 50kHz (30 - 60kHz under ideal conditions)
Baud Rate	Up to 115200bps
Power Supply	5V/2.6A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection	Human Body Model: ±12kV (Air Discharge) ±8kV (Contact Discharge)
Dimensions	432mm×44mm×174mm (W×H×D) [Case Only] 432mm×49mm×181mm (W×H×D) [All Inclusive]
Weight	2,186g
Chassis Material	Metal
Silkscreen Color	Black
Operating Temperature	0˚C - 40˚C/32˚F - 104˚F
Storage Temperature	–20˚C - 60˚C/–4˚F - 140˚F
Relative Humidity	20 - 90% RH (No-condensing)
Power Consumption	7.7W

9. ACRONYMS

ACRONYM	COMPLETE TERM
CLI	Command Line Interface
GUI	Graphical User Interface
HTTP	HyperText Transfer Protocol
IR	Infrared
LAN	Local Area Network
PC	Personal Computer
USB	Universal Serial Bus