echoflex
an ETC Company

Elaho Room Controller–Gen 2

Installation and User Operation Manual

Version 1.0

Part Number: 8187M1210-1.0.0 Rev.B

Released: 2019-02

To view a list of Echoflex trademarks and patents, go to etcconnect.com/ip. All other trademarks, both marked and not marked, are the property of their respective owners.

Echoflex intends this document, whether printed or electronic, to be provided in its entirety.

Table of Contents

Introduction 1

Features and Specifications 2

Codes and Standards 2

Important Safeguards 2

Document Conventions 3

Help from Technical Services 4

Prepare for Installation 5

Inspect the Shipment 5

Main Circuit Breaker Protection 5

Installation Environment 5

Tools and Supplies 6

Conduit Access 6

Electrical Input Wiring Requirements 7

Control Wiring Requirements 8

Installation 9

Mount the Controller 9

Rough-In and Terminate Cable 10

High-Voltage Wiring 10
Low-Voltage Wiring 14

Configure the Room Controller 17

Set the Space and Zone Switches 17
Set the Contact Input Configuration Switch 17
Set the Station Power Switch 18
Set the Sense Enable Switch 18
Set the the Emergency UL 924 Configuration Switch 19
Set the Emergency UL 924 Load Shed Switch 19
Set the Emergency UL 924 Inclusion Switches 19

Set the Demand Response Levels 20

Power Up and Configure 21

Before Applying Power to the Room Controller 21

Power Up and Check Features 22

Preset and Zone Configuration 23

Preset Defaults 23

Contact Input Preset 23

Custom Configuration Options 24

TimeClock Configuration 24

Demand Response 24

Troubleshooting 24

Reboot the Room Controller 24

Restore Factory Defaults 24

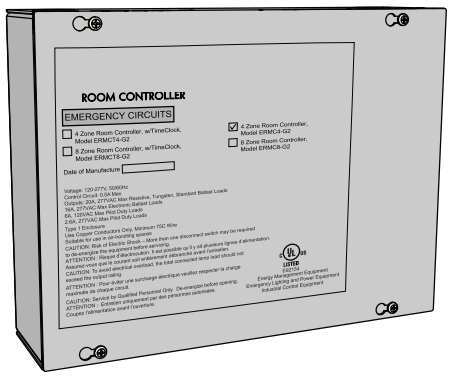
Update Firmware 25

Introduction

Welcome to the installation and user operation manual for the Elaho Room Controller–Gen 2. This manual contains the procedures for safe and efficient installation of the Room Controller.

The Room Controller is designed for 120–277 VAC, 47–63 Hz installations and provides switching of four or eight zones with integrated, fully isolated 0–10V dimming control per output, all in a compact, surface-mount enclosure.

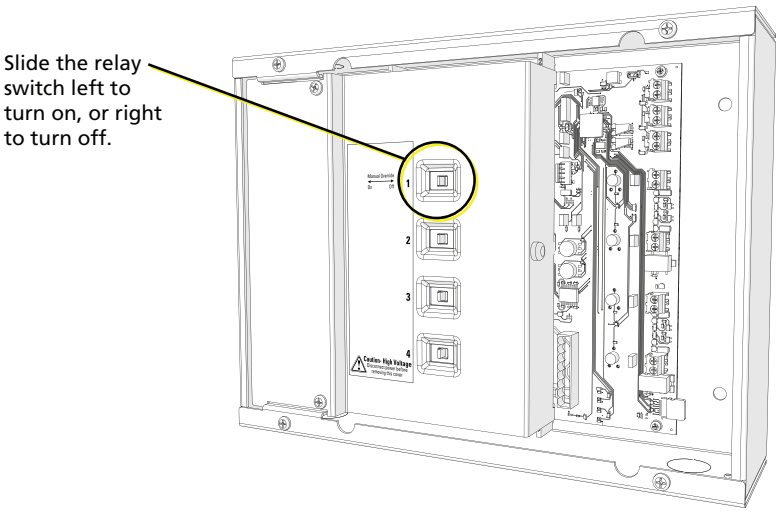




Four models are available:

- 4 relays
- 4 relays with integrated Elaho TimeClock
- 8 relays
- 8 relays with integrated Elaho TimeClock

You can manually override each relay on or off.



Features and Specifications

The Room Controller is designed for indoor use only!

The Elaho Room Controller includes the following features:

- Either 4 or 8 mechanically latching relays. Relays are rated for the following load types:
  - 100,000 cycles of 20A resistive load
  - 30,000 cycles of 20A tungsten load at 277 VAC
  - 30,000 cycles of standard ballast at 20A, 120 or 277 VAC
  - 30,000 cycles of electronic ballast at 16A, 120 or 277 VAC
- Either four or eight 0–10V outputs with current sink of 100 mA
- Elaho TimeClock with front access to the menu for configuration (optional)
- Integrated power supply, which can be enabled to supply EchoConnect bus power for up to six Elaho devices (stations and sensors) and six power controllers over the EchoConnect station bus
- Integrated 24 VDC output power to power the Elaho TimeClock (optional)
- Supports storage of up to 16 presets and supports 1 zone per relay
- Dry contact closures for input control of Demand Response, UL 924, and Contact Input

Codes and Standards

The Elaho Room Controller meets or exceeds the following regulatory standards:

- UL 508 for industrial control equipment
- UL 916 for emergency management equipment
- UL 924 for emergency lighting and power equipment
- UL 2043 for installation in air-handling (plenum) spaces

Important Safeguards

READ AND FOLLOW ALL SAFETY INSTRUCTIONS.

When using electrical equipment, basic safety precautions should always be followed including the following:

- Do not use outdoors.
- Do not mount near gas or electric heaters.
- Equipment should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.
- The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition.
- Do not use this equipment for anything other than its intended use.
- Operation and servicing by qualified personnel only!

SAVE THESE INSTRUCTIONS

Document Conventions

This document uses the following conventions to draw your attention to important information.



Note: *Notes are helpful hints and information that is supplemental to the main text.*



CAUTION: *A Caution statement indicates situations where there may be undefined or unwanted consequences of an action, potential for data loss or an equipment problem.*



WARNING: A Warning statement indicates situations where damage may occur, people may be harmed, or there are serious or dangerous consequences of an action



WARNING: RISK OF ELECTRIC SHOCK! This warning statement indicates situations where there is a risk of electric shock.

All Echoflex documents are available for free download from our website: echoflexsolutions.com.

Help from Technical Services

If you are having difficulties, your most convenient resources are the references given in this document. To search more widely, try the Echoflex website at echoflexsolutions.com. If none of these resources are sufficient, contact Echoflex Technical Services directly at one of the offices identified below.

When calling for help, take these steps first:

- Prepare a detailed description of the problem
- Go near the equipment for troubleshooting
- Find your notification number if you have called in previously

Please have the following information handy:

- Product model and serial number (located on the product label)
- List of connected load types
- Connected stations, if any

Echoflex

38924 Queensway Unit #1
Squamish, British Columbia
Canada, V8B 0K8
888-324-6359 (toll-free)
+1-778 733-0111
info@echoflexsolutions.com

Chapter 1

Prepare for Installation

Inspect the Shipment

Before you begin installation, check your shipment and confirm that it arrived complete and undamaged.

1. Check the shipping box for physical damage.
   - If you find damage, document it to help with a claim against your shipper.
2. Inspect the order for completeness.
   - Check the box contents received against the packing list to ensure your order received is complete.
   - If you discover a problem with the contents of the shipment, contact Echoflex Technical Services. See *Help from Technical Services on page 4*.

Main Circuit Breaker Protection

Before beginning installation of your Room Controller, make sure you have installed a main circuit breaker cabinet or other readily accessible input power disconnect device.

When more than one power source is supplying the Room Controller, a voltage barrier may be required by local code. This voltage divider is an accessory option, sold separately, and available for use when local code requires. Order Echoflex part number 7187A4021.



WARNING: Circuits that are installed without an accessible power disconnect device cannot be serviced or operated safely.

AVERTISSEMENT: Il est imprudent d'utiliser ou de réparer les circuits installés sans qu'un dispositif de déconnexion de l'alimentation ne soit accessible.

Installation Environment

Follow these guidelines for the installation environment:

- Intended for surface wall or flush mounting. The installation location and the mounting hardware must support at least 20 lb (9 kg).
- Install the enclosure in a location where it will not be subject to tampering or vandalism.
- For indoor use only! Operates at ambient temperature between 0C–40C (32°F–104°F), dry room 5–90% non-condensing relative humidity.



Note: *Always follow applicable building and local electrical code requirements when installing this equipment.*

Tools and Supplies

The following tools and supplies are required for installation but are not included with the Room Controller.

- Mounting hardware: four mounting bolts or screws

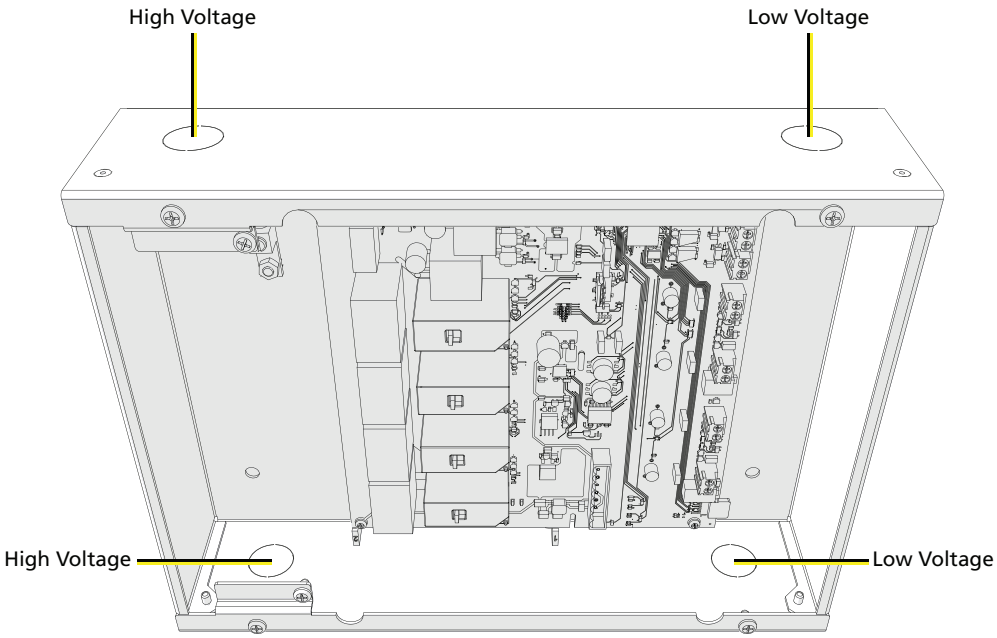
Note: *Both the installation location and the mounting hardware must support a fully installed unit (including conduit and cable), which weighs approximately 20 lb (9 kg).*

- Set of screwdrivers, including both flat-blade and Phillips-head types
- Conduit and supporting hardware
- Insulation stripping tool
- Appropriately sized wire nuts or WAGO® style installation connectors.
- Small 4–6 in (10–15 cm) cable ties

Conduit Access

Take care to separate high-voltage power from low-voltage (Class 2) control wiring. Use the knockouts on the top and bottom of the enclosure for conduit access into the unit. You can create additional conduit access using a knockout punch as needed.

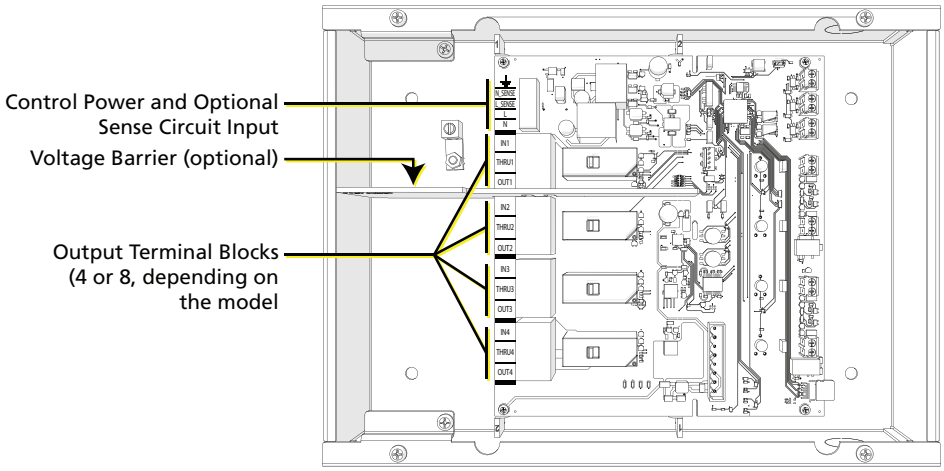
- High-voltage wires: Left side (top or bottom) of the enclosure
- Low-voltage wires: Right side (top or bottom) of the enclosure



Note: *All low-voltage (Class 2) control cables must run in separate conduit from high-voltage power wires. To maintain the integrity of the voltage separation, use the provided voltage barrier inside the enclosure to separate all low-voltage components from the high-voltage power.*

Electrical Input Wiring Requirements

Remove the main cover and the high-voltage cover to access the high-voltage electrical inputs, including input power and relay outputs, which are located on the left side of the enclosure.



Note: *Always follow applicable US National Electrical Code (NEC) and local electrical code requirements when installing and powering this equipment.*

CAUTION: *For your own safety, do not supply power to the enclosure until all installation is complete, connected circuits have been tested and found free of electrical shorts, and covers have been replaced. Follow appropriate Lockout/Tagout procedures as described in National Fire Protection Association (NFPA) Standard 70E.*

ATTENTION: *Pour votre sécurité, n'alimentez pas le boîtier avant que toute installation soit complète, que les circuits connectés aient été testés sans signe de court-circuit, et le couvercle ait été remis en place. Suivez les procédures de Consignation/Déconsignation appropriées prescrites par la norme NFPA 70E.*

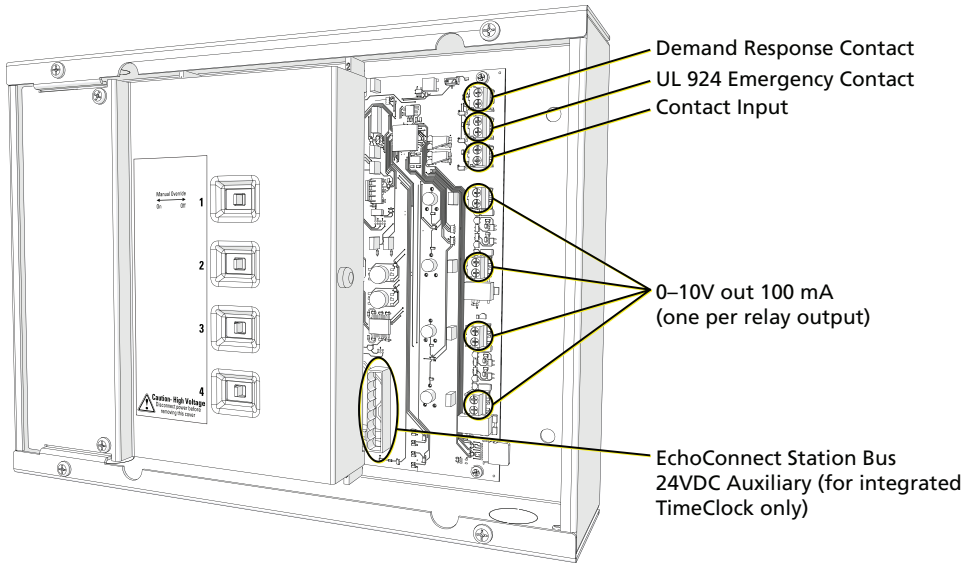
Electrical Terminations

Purpose	Terminal Accepts	Type	Notes
Control Power and Optional Sense Circuit	12–20 AWG (4–0.5 mm^2)	Control power input: • Minimum = .5A • Maximum = 20A Sense circuit: • Maximum = 20A	• 20A maximum, 120–277 VAC, 47–63 Hz • Control power feed can be bridged from a relay THRU feed • Sense circuit does not power either the controller or a load
Relay IN, THRU, and OUT	6–20 AWG (16–0.5 mm^2)	Each relay supports a maximum current of 20A in discrete feed configuration.	• Relays may be discretely fed with separate hot connections • A single hot feed may be bridged to multiple relay outputs

Note: *When bridging input power (hot) across relays in the enclosure, the total loading of all bridged relays is limited to 20A.*

Control Wiring Requirements

All control wires are terminated to the low-voltage (right) side of the enclosure, accessible with the main cover removed.



Control Terminations

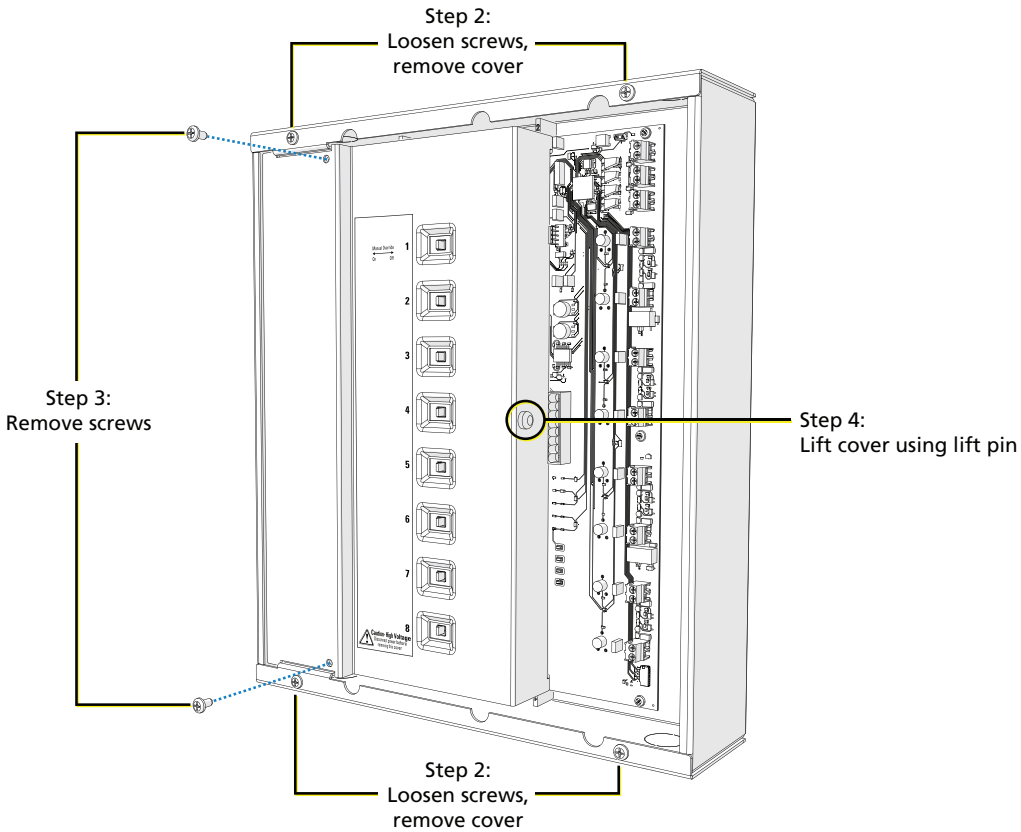
Purpose	Terminals Accept	Type	Notes
Demand Response Contact Input	16–22 AWG (1.5–0.5 mm^2)	Dry: Maintained Closure	Limits the maximum level of each output to the configured level set at the configuration potentiometers. See *About Contact Inputs on page 14*.
Emergency (UL 924) Contact Input	16–22 AWG (1.5–0.5 mm^2)	Dry: Normally Open (default) or Normally Closed Closure	Activates an emergency state, driving configured loads On, and others Off. See *About Contact Inputs on page 14*.
Contact Input	16–22 AWG (1.5–0.5 mm^2)	Dry: Momentary (default) or Maintained Closure	Triggers a configurable Elaho preset. See *About Contact Inputs on page 14*.
0–10V Outputs	16–22 AWG (1.5–0.5 mm^2)	Capable of sinking 100 mA of current	Allows for 0–10V dimming control of connected compatible loads. See *Terminate 0–10V Outputs on page 15*.
EchoConnect Station Bus	Belden 8471 (or equivalent) Class 2 wire 14–26 AWG (2.5–0.2 mm^2)	Configurable to supply power for up to 6 Elaho control products and 5 additional Elaho output products	The total combined length of an EchoConnect wire run (using Belden 8471, or equivalent) may not exceed 1,640 ft (500 m). See *Terminate the EchoConnect Bus on page 16*.
Auxiliary 24 VDC	14–26 AWG (2.5–0.2 mm^2)	Configurable to supply power for Elaho TimeClock	Provides 24 VDC power out for an Elaho TimeClock. (For Elaho products other than the Elaho TimeClock, order an external Elaho Power Supply with 24 VDC auxiliary power. Request part number 7186A1212 8186A1212.) See *Terminate 24 VDC Power on page 17*.

Chapter 2

Installation

Mount the Controller

1. Determine where your controller will be installed using the details outlined in *Installation Environment on page 5*.
2. Remove the front cover from the controller.
   a. Loosen, *but do not remove*, the four screws securing the front cover.
   b. Slide the cover sideways, aligning the keyholes with screws, then lift the cover off the enclosure.
3. Remove the two screws securing the high-voltage cover.
4. Lift the high-voltage cover off the enclosure using the provided lift pin.



5. Align the enclosure in the installation location and mark the mounting holes.
6. Remove the enclosure from the installation location and pre-drill the mounting holes.
7. Remove conduit knockouts or use knockout punch as required to accommodate control wiring. See *Conduit Access on page 6*.
8. Re-align the enclosure in the mounting location and install the mounting hardware. Tighten the mounting hardware securely.
9. Attach and tighten the conduit fittings to the enclosure.

Rough-In and Terminate Cable

All terminations are accessible from the front of the enclosure with the covers removed. The left side of the enclosure provides conduit entry for high-voltage wires and the right side provides conduit entry for low-voltage wires.

Note: *Low-voltage control cables must run in separate conduit from input power wires. To maintain the integrity of the voltage separation inside the enclosure, a cover over the high-voltage terminations serves as a mechanical voltage barrier, separating the low-voltage power wiring from the high-voltage power inside the enclosure.*

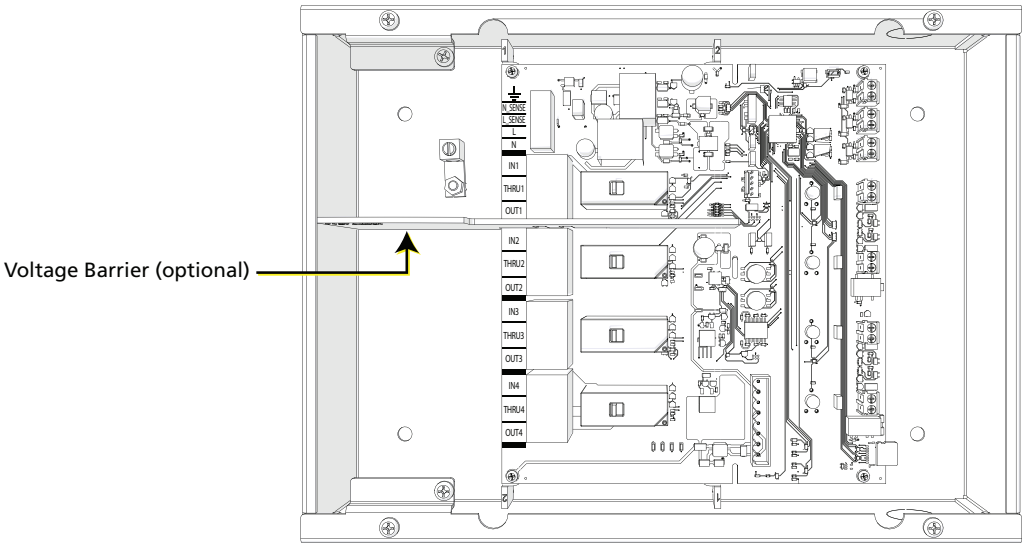
WARNING: RISK OF DEATH BY ELECTRIC SHOCK! Before installing input power, make sure the upstream source of power is off or isolated. Follow appropriate Lockout/Tagout procedures as described in NFPA Standard 70E.

AVERTISSEMENT: RISQUE DE MORT PAR ÉLECTROCUTION! Avant d'installer l'alimentation d'entrée, assurez-vous que la source d'alimentation en amont est éteinte ou isolée. Suivez les procédures de Consignation/Déconsignation appropriées prescrites par la norme NFPA 70E.

CAUTION: *Connecting to and configuring the Room Controller requires contact with the printed circuit board inside the enclosure, which has electrostatic discharge (ESD) sensitive components on it. To avoid risk of damage to the equipment, ensure body static is discharged first by touching a grounded surface or wearing suitable ESD grounding equipment while terminating cables.*

High-Voltage Wiring

High-voltage wire terminations are located on the left side of the enclosure, separated from the low-voltage terminations with a high-voltage cover. An additional voltage barrier (part number 7187A4021) is available for use to separate normal power and emergency power circuits or varying power inputs within the high-voltage wiring in the enclosure (as needed).

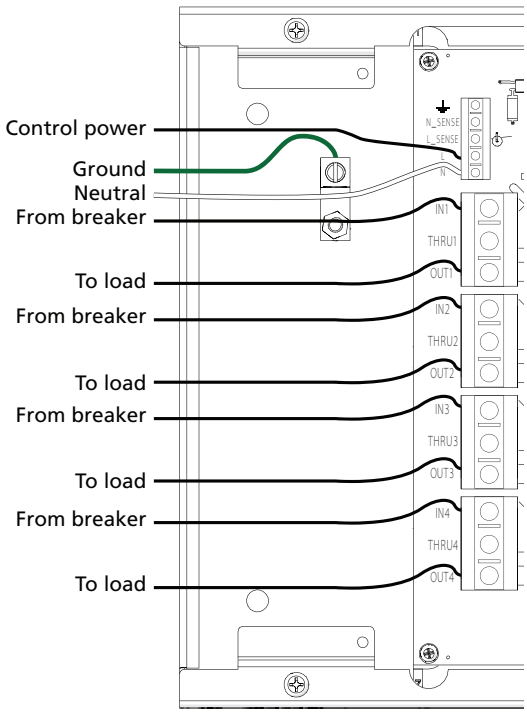


The recommended cable for each termination is limited to the termination connectors provided in the Room Controller. See *Electrical Input Wiring Requirements on page 7*.

Sample Power Input and Relay Output Terminations

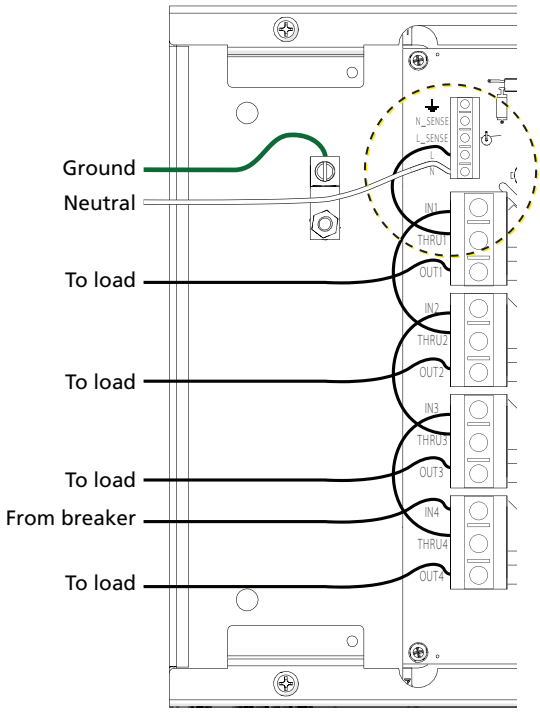
The following are sample termination scenarios for Room Controller installations. Use these scenarios only as a reference, and refer to your electrician and wiring plans for your specific installation requirements.

Note: *The In and Thru terminals are electrically connected on the circuit board.*



Discrete Power for each Relay Output

In this typical installation scenario, power input would be provided from an upstream breaker panel, with one breaker for each relay plus one for the control power feed.

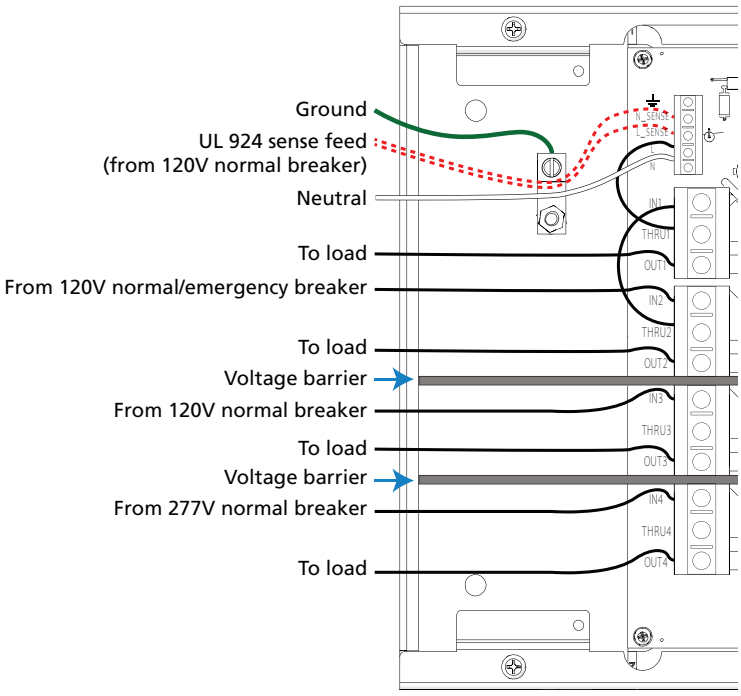


Bridging a Single Input Power Connection Across Relay Outputs

In this installation scenario, a single input power connection (line, neutral, and ground) is bridged between the power input and all relays. Partial bridging, where multiple input power connections feed multiple output relays, is also acceptable.

When bridging the input power, the total load is limited to 20A across all connected relays.

The control power feed is also bridged off of the input power connection (see dotted circle at left).



Bridging Relays with Normal/Emergency Power and Discrete Fed Breakers

In this installation scenario, a single Normal/Emergency input power connection (line, neutral, and ground) is bridged between the control input (L) and one or more relay inputs (IN1 and IN2, using THRU1 and THRU2). Additional relays can be discretely fed from circuit breakers that are fed by other panels (IN3 and IN4).

Because the input power is Normal/Emergency, a Normal sense circuit has been added to drive the Room Controller to its emergency control configuration on loss of normal power (N_SENSE and L_SENSE). This circuit does not feed a load from the Room Controller, nor does it provide power to the controller.

Voltage barriers (part number 7187A4021) are available and sold separately for separating between mixed voltage or normal and emergency loads.

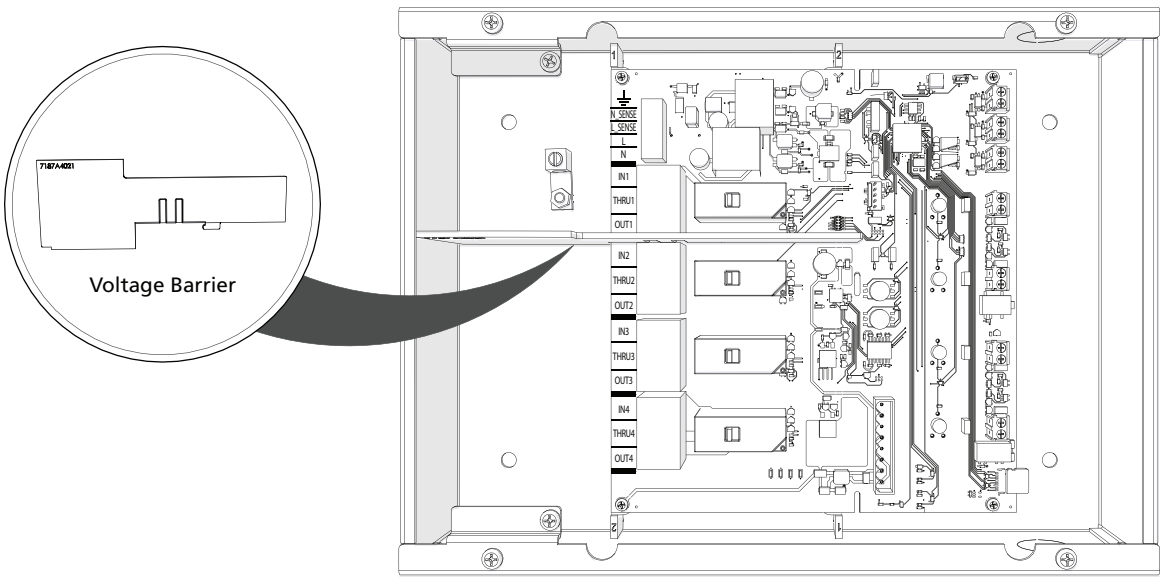
When bridging the input power, the total load is limited to 20A across all connected relays.

Note: *If any emergency circuits are fed or controlled from this panel, the panel must be located electrically where fed from a UPS, generator, or other guaranteed source of power during emergency and power outage situations.*

Note: *Voltage barriers between normal circuits with different voltage inputs are only required if the wiring used for 120V circuits is not rated for 277V.*

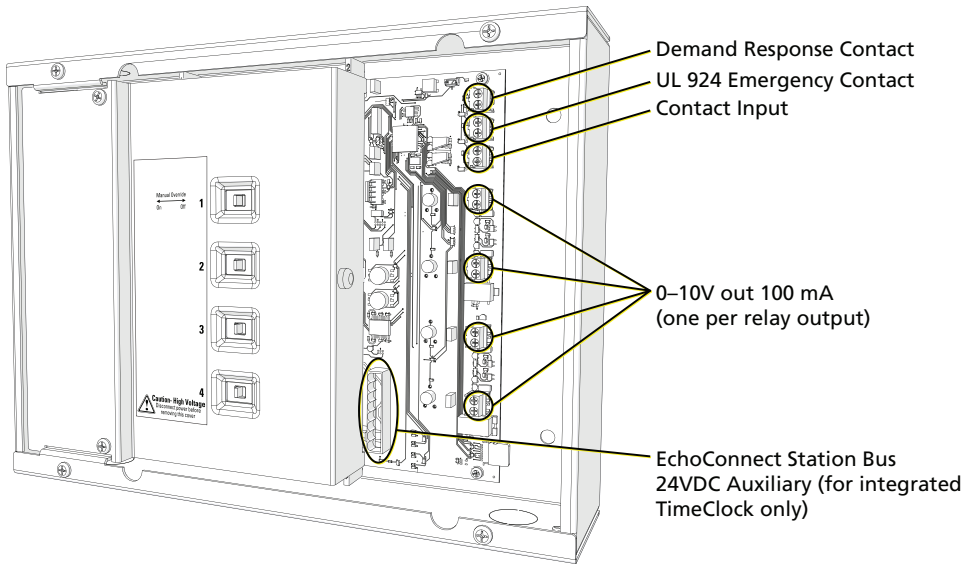
Terminate Input Power and Relay Outputs

1. Terminate control input power (as shown in *Discrete Power for each Relay Output on page 11*) or control input power and sense circuit, if used (as shown in *Bridging Relays with Normal/Emergency Power and Discrete Fed Breakers on the previous page*).
   a. Pull input power (2 wires plus ground) to the left side of the enclosure.
   b. Strip 1/2 in (12 mm) of insulation from each wire.
   c. Insert the ground wire into the ground terminal (labeled with a ground symbol), and torque the terminal to 1.3 foot-pounds (1.76 N·m).
   d. Insert the line (hot) wire into the L terminal and torque the terminal to 1.3 foot-pounds (1.76 N·m).
   e. Insert the neutral wire into the N terminal and torque the terminal to 1.3 foot-pounds (1.76 N·m).
   f. Insert the optional sense circuit line and neutral wires into the N_SENSE and L_SENSE terminals, and torque the terminals to 1.3 foot-pounds (1.76 N·m).
   g. If bridging control input power to a relay, insert a wire between the L terminal and the IN* (IN1, IN2, etc.) of the desired relay. See step 2d (below) to bridge subsequent relays to control input power.
2. Terminate relay outputs (4 or 8 relays).
   a. Pull relay output wires (2 to 3 wires for each relay depending on the installation requirements) to the left side of the enclosure.
   b. Strip 1/2 in (12 mm) of insulation from each wire.
   c. Insert the line (hot) wire to the terminal marked IN* (IN2, IN3, etc.) and torque the terminal to 1.3 foot-pounds (1.76 N·m).
   d. When bridging relay outputs, insert a wire between the THRU* terminal and the next relay IN* terminal. If you are not bridging outputs, do not terminate to the THRU terminal.
   e. Connect the load wire to the terminal marked OUT* (OUT2, OUT3, etc.) and torque the terminal to 1.3 foot-pounds (1.76 N·m).
3. Install a relay voltage barrier between any normal power relays and emergency power relays in the enclosure, or between relays with different voltage inputs. Relay voltage barriers are available for purchase from Echoflex. Order part number 7187A4021.



Low-Voltage Wiring

Low-voltage wire terminations are located on the right side of the enclosure, visible with the front cover removed.



About Contact Inputs

Contact inputs are available for:

- Demand Response Input: Accepts a remote trigger that allows the controller to reduce lighting levels, thereby reducing power consumption.
- UL 924 Input: Used to trigger emergency lighting control bypass from a system such as a fire alarm.
- Contact Input: Used to trigger a preset, sequence, or other event from an external system, such as an AV control system.

The contact inputs can be configured as follows:

- Demand Response input requires a normally open dry contact closure.
- UL 924 input is configurable to be a normally open or normally closed contact, and requires a maintained dry contact closure.
- Contact Input is configurable to be a momentary (default) or maintained contact, and requires a normally open dry contact closure.

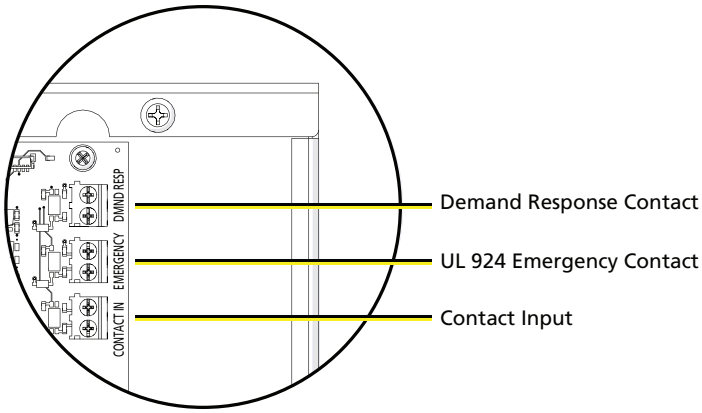
Configuration switches are available for the Emergency (UL 924) Input and Contact Input to further define normally closed (maintained) configuration as needed. Demand Response contacts are always normally open and are not provided with additional configuration options.

Note: *Each Elaho Space can have only one assigned Demand Response input.*

Terminate Contact Inputs

Dry contact input terminations are the same regardless of function.

1. Pull 2 wires to the right side of the enclosure.
2. Strip 1/4 in (6 mm) of insulation from each wire.
3. Insert one wire into each terminal for the contact input, and torque the terminal to 4.4 inch-pounds (0.5 N·m).



Terminate 0–10V Outputs

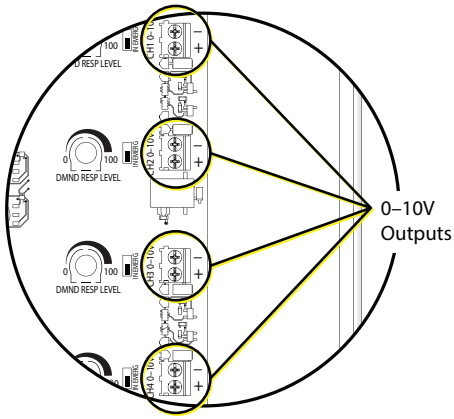
WARNING: RISK OF DEATH OR INJURY BY ELECTRIC SHOCK! 0–10V wiring may not be fully isolated from high-voltage AC power. Do not assume that 0–10V wiring is safe to touch, even when run as an NEC Class 2 signal. Test for AC voltage to ground before terminating any 0–10V control wiring to the device.

AVERTISSEMENT: RISQUE DE MORT OU DE BLESSURE PAR ÉLECTROCUTION! Le câblage 0–10V peut ne pas être complètement isolé du courant alternatif haute tension. Ne supposez jamais que le câblage 0–10V peut être touché en toute sécurité, même s'il est utilisé avec un signal NEC de Classe 2. Testez la tension alternative par rapport à la terre avant de raccorder tout câblage de commande 0–10V à l'appareil.

CAUTION: *Only ballasts and drivers with isolating transformers are recommended for use with the Room Controller.*

The Room Controller offers fully isolated 0–10V output control for each zone, allowing direct connection to dimming ballasts and LED drivers. The 0-10V outputs are capable of sinking a current of up to 100 mA.

1. Pull 0–10V wiring, typically a gray and violet wire pair, to the right side of the enclosure.
2. Strip 1/4 in (6 mm) of insulation from each wire.
3. Insert the positive wire (typically violet) into the terminal labeled "+" and torque the terminal to 4.4 inch-pounds (0.5 N·m).
4. Insert the negative wire (typically gray) into the terminal labeled "-" and torque the terminal to 4.4 inch-pounds (0.5 N·m).



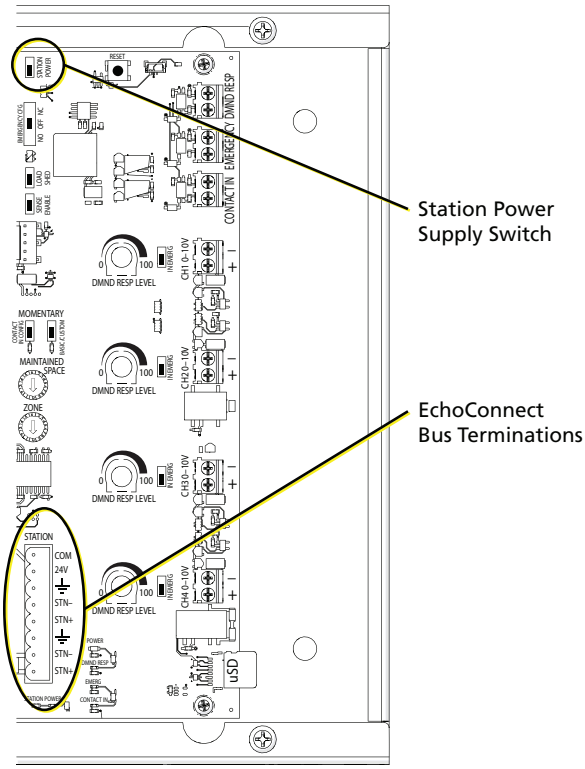
Terminate the EchoConnect Bus

The Room Controller connects to the EchoConnect station communication bus, and provides data and power for up to six Echo control products (stations and sensors) and up to five additional Elaho output products when the related Station Power Supply Switch is enabled.

EchoConnect is a bidirectional protocol that uses one pair of wires (station + and station -) for both data and power. Because EchoConnect is topology free, you can install the wires in any combination of bus, star, loop, or home-run.

Use Belden 8471 (or equivalent) Class 2 wire to terminate the EchoConnect bus. Termination for EchoConnect and the 24 VDC output power (for Elaho TimeClock) is a shared connector on the low-voltage side of the enclosure.

For Room Controller models that include a built-in Elaho TimeClock, a pigtail wire harness is installed to the EchoConnect bus connector, and provides pluggable connectors to the TimeClock interface for both EchoConnect and 24 VDC.



Note: *By factory default, the Station Power Supply switch is disabled. Only one power supply per EchoConnect station bus should be enabled. If more than one power supply is enabled, Elaho devices will not function correctly.*

Note: *All control wiring should be installed and terminated by a qualified installer and should follow standard wiring installation practices.*

Leave approximately 8" (20 cm) of wiring in the back box for connection and to allow slack for future service needs.

Note: *Echoflex requires that all Elaho stations and devices be grounded for ESD protection. Pull an additional 14 AWG (2.5 mm²) wire for grounding when control wires are not installed in grounded metal conduit.*

1. Pull the required wiring (station +, station -, and ESD ground wire) to the right side of the enclosure.
2. Terminate the incoming ground wire to the terminal labeled with a ground symbol (⏚) and torque the terminal to 4.4 inch-pounds (0.5 N·m).
3. Terminate the station + wire (typically white) to the terminal labeled STN+ and torque the terminal to 4.4 inch-pounds (0.5 N·m).
4. Terminate the station - wire (typically black) to the terminal labeled STN- and torque the terminal to 4.4 inch-pounds (0.5 N·m).

Terminate 24 VDC Power

The Room Controller provides 24 VDC power out for an Elaho TimeClock (optional). This termination point is shared with the EchoConnect bus connector, located on the low-voltage side of the enclosure (see image on *page 16*).

Note: *The Room Controller provides 24 VDC auxiliary power only for an Elaho TimeClock. For Elaho products other than the Elaho TimeClock, order an external Elaho Power Supply with 24 VDC auxiliary power. Request part number 8186A1212.*

For Room Controller models that include a built-in Elaho TimeClock, a pigtail wire harness is installed to the EchoConnect bus connector and provides pluggable connectors to the TimeClock interface for both EchoConnect and 24 VDC.

If you are using an Elaho TimeClock as an external device, Echoflex recommends the use of 16 AWG (1.5 mm^2) wires, typically black-and-red wire pair, to terminate between the TimeClock and the Room Controller 24 VDC terminals.

1. Pull the required wiring (+ and -) to the right side of the enclosure.
2. Terminate the negative (typically black) wire to the terminal labeled COM and torque the terminal to 4.4 inch-pounds (0.5 N·m).
3. Terminate the positive (typically red) wire to the terminal labeled 24V and torque the terminal to 4.4 inch-pounds (0.5 N·m).

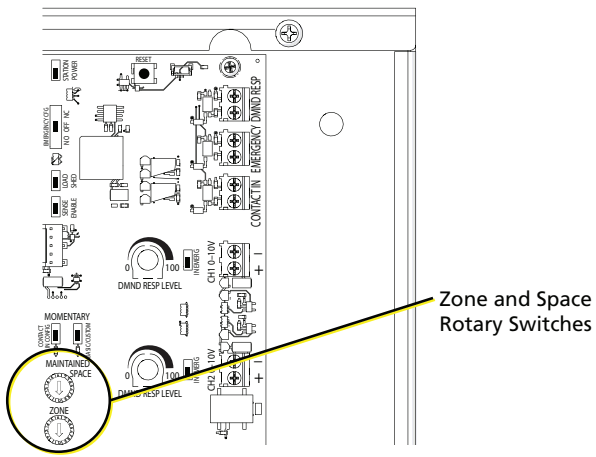
Configure the Room Controller

Set the Space and Zone Switches

Assign Space and Zone addresses using the two rotary switches, which are located on the low-voltage side of the controller. By default, these switches are set to Space 1, Zone 1.

When you select the Space, all control inputs from the connected stations, sensors, and other controls are shared by all devices within the selected space.

The Zone switch sets the zone for the first output in the controller, and automatically assigns the next consecutive zone numbers to the remaining outputs in the controller. For example, if you set the Zone switch to 12 on a 4-relay controller, the controlled zones are 12, 13, 14, and 15.

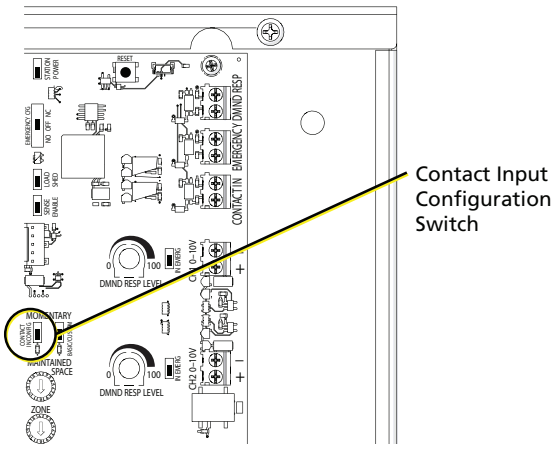


Note: *When setting the first Zone address, be careful to allow sufficient range for all outputs in the controller. For example, if you set the first Zone address in an 8-relay controller to 10, the last two outputs in the controller will be assigned to and controlled by 16.*

---

1. Set the Space rotary switch to the desired Space for this controller.
2. Set the Zone rotary switch to the desired Zone for this controller.

Set the Contact Input Configuration Switch



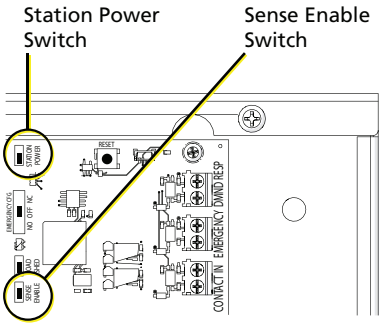
The Contact Input configuration switch provides selection of the contact input configuration, either Momentary (default) or Maintained, for the contact input.

- In Momentary mode, closure of the contact toggles the configured Preset.
  - If the Preset is inactive and the contact is closed, it activates the Preset.
  - If the Preset is active and the contact is closed, it deactivates the Preset.
- In Maintained mode, closure of the contact activates the Preset or plays the Off action configured for contact closure. Opening of the closure activates the Preset or Off action configured for the contact opening.

Note: *Default settings for Contact Input configuration:*

- *Maintained mode: Play Preset 1 (opened), Preset 4 (closed)*
- *Momentary mode: Toggle Preset 4 on and off*

Set the Station Power Switch



A system of Elaho products can consist of up to 16 Elaho power controllers and 16 Elaho devices (stations and sensors). The Room Controller is considered a power controller. A Room Controllerr with a built-in Elaho TimeClock is considered both a power controller and a station.

The Room Controller can provide EchoConnect bus power supporting an Elaho system with up to 6 Elaho devices (stations and sensors), and up to 6 power controllers when the Station Power switch is enabled (set to On). By factory default, the Station Power switch is disabled. An external power supply is required to support a full system maximum of 16 Elaho devices.

To enable the EchoConnect bus power supply from the Room Controller, slide the Station Power switch to the "On" position.

Note: *Enable only one EchoConnect power supply per station bus. If more than one power supply is present, Elaho devices will not function correctly.*

Set the Sense Enable Switch

Set the Sense Enable switch to On if your installation uses the optional sense circuit (see image above). The default setting is Off.

When Sense Enable is set to On, the Room Controller will trigger the UL 924 emergency lighting control bypass when power to the normal sense is absent. See *Electrical Input Wiring Requirements on page 7* and *Bridging Relays with Normal/Emergency Power and Discrete Fed Breakers on page 12*.

Set the the Emergency UL 924 Configuration Switch

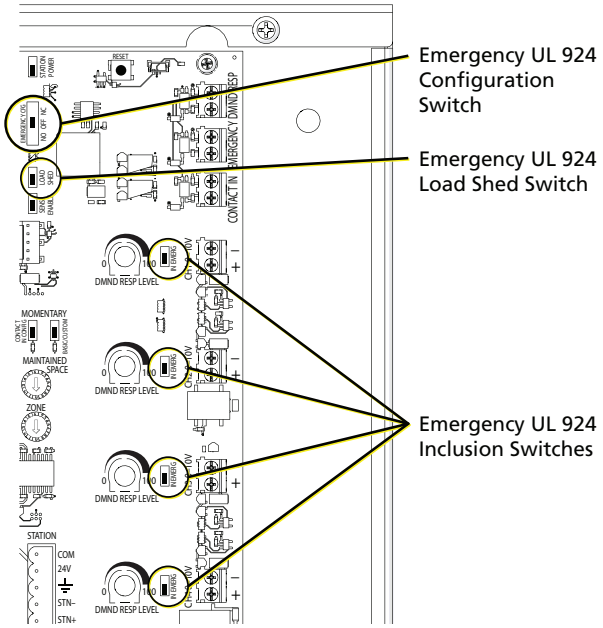
To configure the UL 924 contact input, set the Emergency UL 924 Configuration switch to one of the following options:

- NO (normally open [default])
- NC (normally closed)
- Off (disabled)

Set the Emergency UL 924 Load Shed Switch

The Emergency UL 924 Load Shed switch provides configuration to enable or disable load shedding when an emergency contact input is activated (opened or closed depending on the state of the Emergency UL 924 Configuration switch). By factory default, this switch is set to On (enabled).

Load shedding functions in conjunction with the Emergency UL 924 Inclusion switch for each output (see *Set the Emergency UL 924 Inclusion Switches below*). The table below describes what occurs when the emergency contact input is activated.



UL 924 Load Shedding

Output Included in Emergency?	Load Shed Switch State	Result
Yes	On or Off	Relay will close and the 0–10V output will be driven to its maximum output level.
No	On	Load and its connected 0–10V output will be turned off.
No	Off	Load remains at its current level.

Set the Emergency UL 924 Inclusion Switches

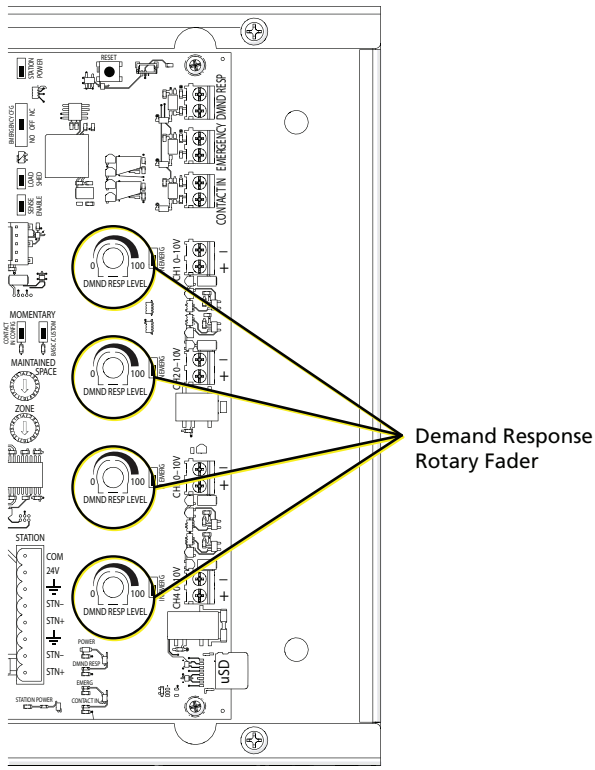
Each output in the Room Controller has an Emergency UL 924 Inclusion Switch that configures the circuit to be included or excluded from the Emergency UL 924 configuration. By factory default, all outputs are set to On (included) in Emergency.

- An output that is included in Emergency (switch is set to On) will turn the load on to full when the Emergency contact input is activated.
- An output that is excluded from Emergency (switch is set to Off) will behave according to the UL 924 Load Shed configuration switch. See *Set the Emergency UL 924 Load Shed Switch above*.

Set the Demand Response Levels

When closed, the Demand Response contact input limits the maximum 0–10V level of each zone (output) to the configured level that was set using the Demand Response rotary fader corresponding to each zone.

Use a precision screwdriver to change the rotary fader level to any value between 0–100%. A Demand Response rotary fader setting of 0 turns the relay off when Demand Response is triggered. The Demand Response rotary faders are set to 50% as a default.



Chapter 3

Power Up and Configure

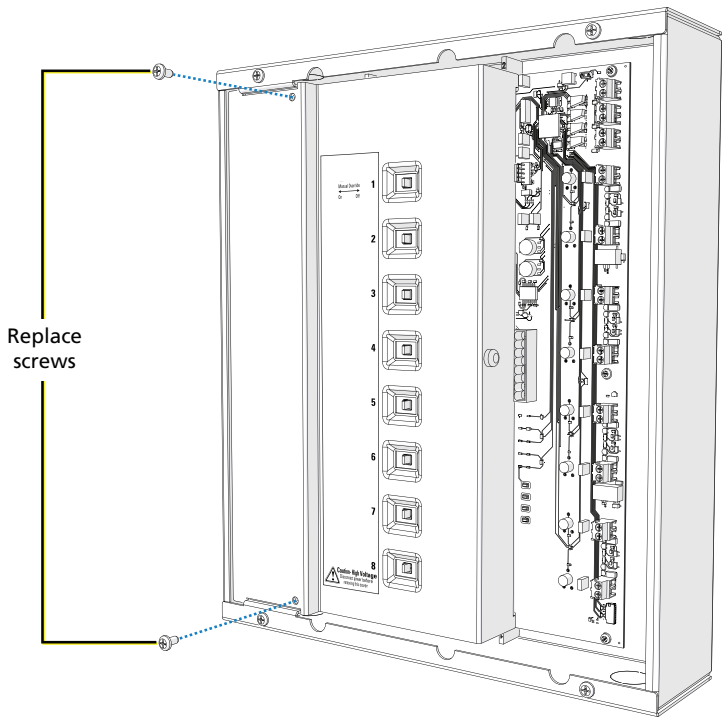
Before Applying Power to the Room Controller

WARNING: RISK OF ELECTRIC SHOCK! Power must be off when you perform this procedure.

AVERTISSEMENT: RISQUE DE DÉCHARGE ÉLÉCTRIQUE! L'alimentation doit étre éteinte avant d'exécuter cette procédure.

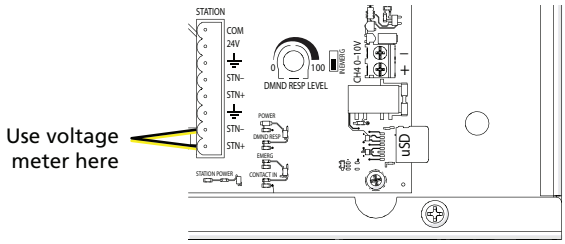
CAUTION: *Checking the Room Controller installation requires contact with the printed circuit board inside the enclosure, which has electrostatic discharge (ESD) sensitive components on it. To avoid risk of damage to the equipment, ensure that body static is discharged first by touching a grounded surface or wearing suitable ESD grounding equipment while terminating cables.*

1. Clean out dust, metal scraps or other debris from the enclosure.
2. Check for loose connections, bare wires, or damaged insulation on both the low-voltage and high-voltage sides of the enclosure.
3. Replace the high-voltage cover to the unit and secure with screws.



4. Check that all configuration switches are set according to the installation requirement. See *Configure the Room Controller on page 17*.

5. Use a voltage meter to check power between the STN- and STN+ terminals on the EchoConnect station connector. If any voltage is present, disable or leave the Station Power Supply Switch in the Off position. See *Set the Station Power Switch on page 18*.



Note: *Only one power supply per EchoConnect station bus should be enabled. If more than one power supply is enabled, Echo devices will not function correctly.*

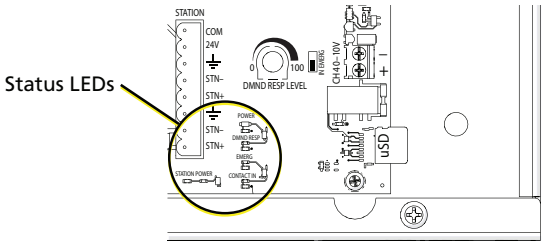
Power Up and Check Features

1. Apply power at the breaker that supplies power to the electronics.

WARNING: RISK OF ELECTRIC SHOCK! Mains voltage is present inside the high-voltage compartment of the enclosure. Do not remove the high-voltage cover when power is applied.

AVERTISSEMENT: RISQUE DE DÉCHARGE ÉLÉCTRIQUE! La tension secteur est présente à l'intérieur du boîtier. N'ôtez pas le couvercle haute-tension quand l'alimentation est appliquée.

2. Locate the status LEDs on the low-voltage side of the enclosure.
   - POWER: Indicates blue when power is present.
   - DMND RESP: Indicates green when the Demand Response input is closed.
   - EMERG: Indicates red when the UL 924 contact input is closed or when the normal sense loses power.
   - CONTACT IN: Indicates green when contact input contact is closed.
   - STATION POWER: Indicates green when EchoConnect bus power is present and blinks with activity on the EchoConnect station bus.



3. Test each contact input to ensure that it functions as expected. With contact activity, the configured relays should respond and the status LEDs should indicate. See *Configure the Room Controller on page 17* as needed for further configuration.
4. For a Room Controller that includes a built-in TimeClock, install the connectors from the pigtail wire harness to the rear of the TimeClock. See *Terminate the EchoConnect Bus on page 16*.
5. Replace the main cover on the unit and secure the screws firmly.

Preset and Zone Configuration

The Room Controller supports either 4 or 8 zones, depending on the model, and up to 16 built-in presets.

Preset Defaults

Preset levels for all controllable outputs default to the following values:

Preset	Level
1	100%
2	75%
3	50%
4	25%
5	100%
6	75%
7	50%
8	25%
9	100%
10	75%
11	50%
12	25%
13	100%
14	75%
15	50%
16	25%

Fade time defaults are 2 seconds for 0–10V outputs and switched relay outputs. You can configure the fade time using the ElahoAccess Mobile App. See the ElahoAccess integrated help system for details about available configurable device parameters and actions.

Contact Input Preset

The Contact Input is configurable to be a momentary or maintained contact closure and requires a normally-open dry contact closure.

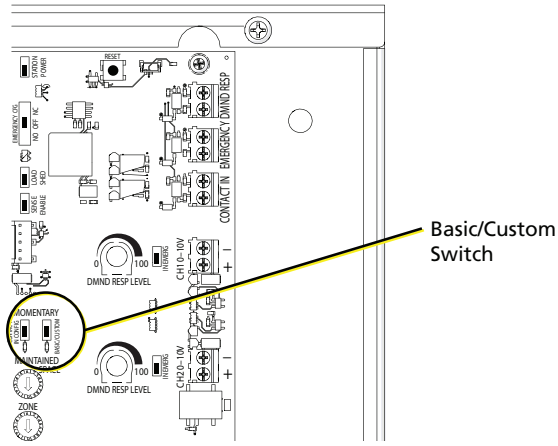


Note: *Default settings for Contact Input configuration:*

- *Maintained mode: Play Preset 1 (opened), Preset 4 (closed)*
- *Momentary mode: Toggle Preset 4 on and off*

Custom Configuration Options

Set the Basic/Custom switch to Custom to enable custom configuration options, and then set the options using the ElahoAccess Mobile App. For more information about the custom configuration options available using the ElahoAccess Mobile App, see the ElahoAccess integrated help system.



TimeClock Configuration

See the *Elaho Astronomical TimeClock Configuration Manual* for instructions on configuring the Elaho TimeClock.

Demand Response

When Demand Response is active, check that the outputs are at the expected level.

If the observed output level is different than expected, check the Demand Response LED for indication of activation. See *Power Up and Check Features on page 22* for LED indications.

The outputs generated with an active Demand Response will not exceed the level set by each of the corresponding Demand Response rotary faders. See *Set the Demand Response Levels on page 20*.

Troubleshooting

Reboot the Room Controller

As a first step in troubleshooting, you may want to reboot the Room Controller. Press and release the **[Reset]** button to reboot the Room Controller.

Restore Factory Defaults

1. With power applied to the unit, set both the Space and Zone rotary switches to 16.
2. Press and hold the **[Reset]** button for approximately 10 seconds:
   - The Room Controller erases all customer stored Preset data and restores to factory default values.
   - The DMND RESP, EMERG, CONTACT IN, and STATION POWER LEDs blink slowly to indicate that the defaults have been restored.
   - The Room Controller reboots.
3. To continue the configuration of your Room Controller, reset the Space and Zone rotary switches to the correct values before proceeding.

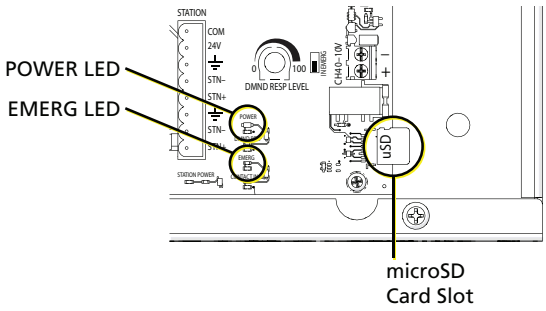
Update Firmware

If updated firmware is required, you can update the firmware on the Room Controller by using ETC Inc. UpdaterAtor software and a microSD card. You can download UpdaterAtor from the ETC website at etcconnect.com.

Note: *Plan to update firmware when troubleshooting any issues with the Room Controller.*

---

1. Get the firmware update file using UpdaterAtor.
2. Save the firmware update file to the root directory of a microSD card.
3. Insert the microSD card in the SD slot on the low-voltage side of the enclosure (see image at right).
4. Press the **[Reset]** button at the top of the low-voltage side of the enclosure.
   - The POWER LED at the bottom of the enclosure will illuminate blue in a three-blink pattern while the firmware is updating, and then will return to its previous state when the update is complete.
   - If the EMERG LED illuminates red in a two-blink pattern, an error has occurred. Ensure that the firmware file has not been renamed and is located at the root directory on the microSD card, and then attempt the firmware update again. If the LED continues the two-blink pattern, contact Echoflex Technical Services (see *Help from Technical Services on page 4*).
5. When the LED returns to its previous state, remove the microSD card.



echoflex
an ETC Company

Main Office Squamish, BC, Canada **Phone** +1 778 733 0111
Email info@echoflexsolutions.com **Web** echoflexsolutions.com
©2019 Echoflex Solutions, Inc. Trademark and patent info: etcconnect.com/ip
Product information and specifications subject to change.
Echoflex intends this document to be provided in its entirety.
8187M1210-1.0.0 Rev B Released 2019-02