UNISON ECHO

IECC 2018
Application Guide

ETC

About ETC

ETC is a global leader in the manufacture of award-winning lighting-control systems, backed by our renowned 24/7/365 support. ETC offers complete solutions for any indoor or outdoor application, including office buildings, houses of worship, retail spaces, hospitality, and more. Our products lines include all the equipment necessary to meet stringent environmental codes, including occupancy and vacancy sensors, dual tech sensors, astronomical time clocks, centralized and distributed systems, wired and wireless controls, LED fixtures, power-control systems, and emergency lighting.

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About IECC

The International Energy Conservation Code (IECC) emphasizes energy conservation and is a model code for residential and non-residential buildings. It is a "model" code because while the International Code Council develops the code, they leave it up to individual jurisdictions to adopt it. IECC 2018 establishes minimum regulations for lighting efficiency using prescriptive and performance-related provisions. To comply with the code designers need to incorporate the use of advanced lighting controls like daylight and occupancy/vacancy sensors as well as multi-level control demand response capability. IECC is updated every three years.

About this guide

ETC developed this guide as a way to help designers quickly and easily create systems that fulfill all the requirements of IECC. Its illustrations are meant to be a useful reference guide to standard ETC installations that designers can use as templates to help their project reach compliance. Designers, engineers and contractors can also take advantage of ETC's world-renowned customer service to receive help and guidance no matter what stage the product is in: design, submittal, or installation. To find out more, please contact your local ETC representative.

About Echo

The Unison Echo® control system offers flexible, scalable, and environmentally-friendly control – simply. Echo's intelligent daylight and occupancy/vacancy sensors easily control lighting output while its topology free, two-wire infrastructure means it's easy to install anywhere and adhere to your budget. Simple and powerful, Unison Echo ensures you get the most from a system with the least amount of hassle.

	Control Requirement	Code Provision	Code Summary	Space Type							
				Private Office	Open Office	Conference, Meeting, Multiuse Room	Classroom, Lecture Hall, Training Room	Lobby	Corridor	Restroom	Non-Exit Stairwell
On-Off Control	Manual-On or AutoOn ≤ 50%	C405.2.1.1.2	Automatically controlled spaces must be controlled to automatically turn the lighting on to not more than 50% power	✓	✓	✓	✓				
	Full Automatic On	C405.2.1.1.2	Automatically controlled spaces are allowed to turn on to full					✓	✓	✓	✓
	Auto-Off ≤ 50%	C405.2.1.2	Occupancy sensors shall automatically reduce lighting in warehouse aisle-ways and open areas by ≤ 50%								
	Full Auto-Off via Occupancy Sensor	C405.2.1.1.1	Fixtures must automatically turn off within 30 minutes of all occupants leaving the space	✓	✓ (or)	✓	✓	✓ (or)	✓ (or)	✓	✓ (or)
	Time-Switch Controls (via System Controller)	C405.2.2.1	Each area of the building not provided with occupant sensor controls shall be provided with time switch controls. These areas must also be provided with a manual override switch		✓			✓	✓		✓
	Light Reduction Controls	C405.2.2.2	Spaces shall have a manual control that allows the occupant to reduce the connected lighting load uniformly by at least 50%		✓ (or)						✓ (or)
	Manual Control (Local Switch)	C405.2.2.3	Areas shall incorporate a manual control to allow occupants to turn fixtures off	✓	✓	✓	✓	✓	✓	✓	✓
Daylight Control	Daylight Reponsive Controls	C405.2.3.1/2	Daylight-responsive controls shall be provided within each space with sidelight and toplight daylight zones totaling > 150W	✓	✓	✓	✓	✓	✓	✓	✓

PRIVATE OFFICE: No Windows, 0-10V Dimming Fixtures

SUPPORTS THE FOLLOWING REQUIREMENTS:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1.1)
- Manual Control (Local Switch) (C405.2.2.3)
- Lighting Reduction (C405.2.2.2)

SEQUENCE OF OPERATION:

Fixtures:
- All fixtures are dimmable
- All fixtures are controlled together
- Maximum level can be task tuned to any percentage during startup

Occupancy Control:
- Fixtures must be turned on manually (or optionally can be configured to come on automatically to 50%)
- Fixtures automatically turn off when room becomes vacant

Daylight Control:
- Not required for offices without windows or that have loads <150W in sidelight zone
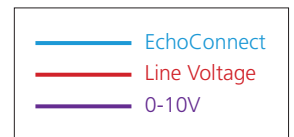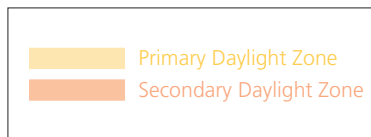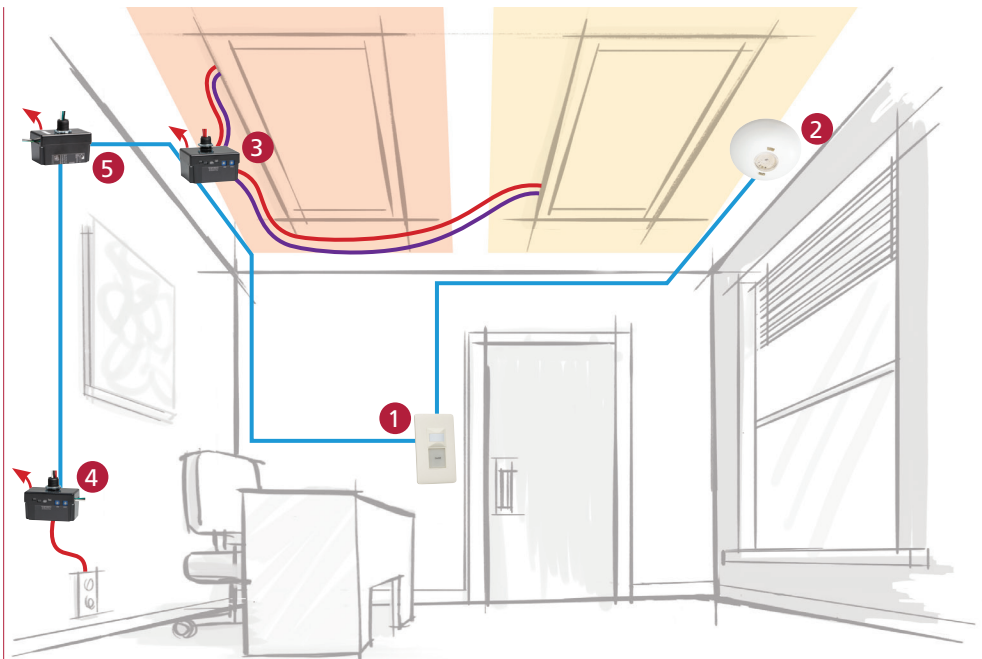
Manual Control:
- On/off & raise/lower control of fixtures

ADDITIONAL OPTIONS

- Echo Dual Tech sensors are available in wall-, ceiling-, and switch-mount options
- Unison Echo supports seamless connection to Paradigm control systems for facility-wide control and monitoring (Enhanced Digital Lighting Controls, C406.4)
- Time-based control to meet section C405.2.2.1 – Time-Switch Controls, available via TimeClock. (See pg. 15 for more info.)
- A complete range of UL924 and UL1008 emergency solutions are available

——	EchoConnect
——	Line Voltage
——	0-10V
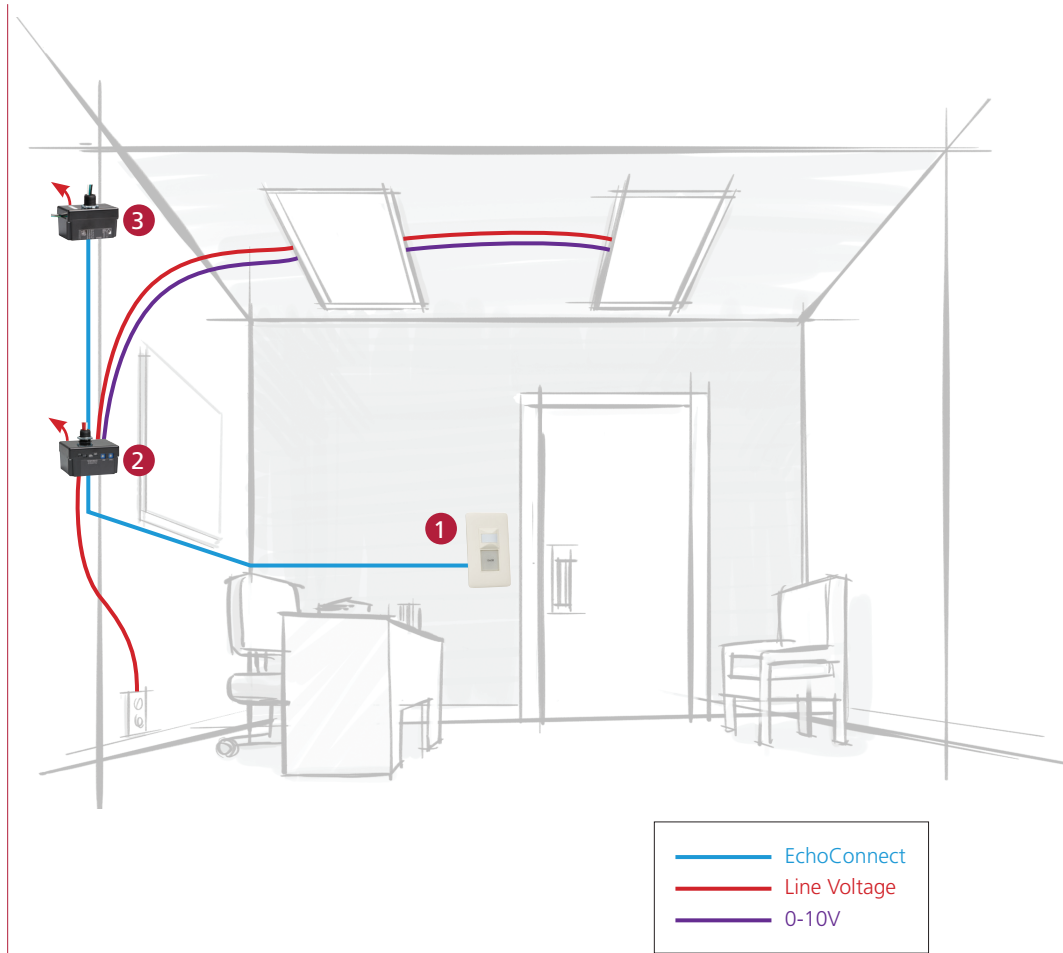
BILL OF MATERIALS

PRODUCT	QTY	MODEL NUMBER	DESCRIPTION
1	1	E-DOC-SM_	Echo Dual Tech Switch-Mount Sensor
2	1	EDLD	Echo Dual-Channel 0-10V Controller
3	1	E-SPS	Echo Station Power Supply

SUPPORTS THE FOLLOWING REQUIREMENTS:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1.1)
- Manual Control (Local Switch) (C405.2.2.3)
- Lighting Reduction (C405.2.2.2)
- Sidelight Daylight Zone (C405.2.3.2)

SEQUENCE OF OPERATION:

Fixtures:
- All fixtures are dimmable
- All fixtures can be controlled together
- Maximum level can be task tuned to any percentage during startup

Occupancy Control:
- Fixtures must be turned on manually (or optionally can be configured to come on automatically to 50%)
- Fixtures automatically turn off when room becomes vacant

Daylight Control:
- Smooth continuous dimming
- Not required for offices without windows or that have loads <150W in sidelight zones

Manual Control:
- On/off & raise/lower control of fixtures

ADDITIONAL OPTIONS

- Echo Dual Tech sensors are available in wall-, ceiling-, and switch-mount options
- Unison Echo supports seamless connection to Paradigm control systems for facility-wide control and monitoring (Enhanced Digital Lighting Controls, C406.4)
- Time-based control to meet section C405.2.2.1 – Time-Switch Controls, available via TimeClock
- A complete range of UL924 and UL1008 emergency solutions are available

▢ Primary Daylight Zone	— EchoConnect
▢ Secondary Daylight Zone	— Line Voltage
	— 0-10V

BILL OF MATERIALS

PRODUCT	QTY	MODEL NUMBER	DESCRIPTION
❶	1	E-DOC-SM_	Echo Dual Tech Switch-Mount Sensor
❷	1	ELS	Echo Ceiling-Mount Light Sensor
❸	1	EDLD	Echo Dual-Channel 0-10V Controller
❹	1	ERC	Echo Single-Zone Relay Controller
❺	1	E-SPS	Echo Station Power Supply

SUPPORTS THE FOLLOWING REQUIREMENTS:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1.1)
- Manual Control (Local Switch) (C405.2.2.3)
- Lighting Reduction (C405.2.2.2)
- Sidelight Daylight Zone (C405.2.3.2)

SEQUENCE OF OPERATION:

Fixtures:
- All fixtures are dimmable
- Each row controlled independently
- Maximum level can be task tuned to any percentage during startup

Occupancy Control:
- Fixtures must be turned on manually (or optionally can be configured to come on automatically to 50%)
- Fixtures automatically turn off when room becomes vacant

Daylight Control:
- Smooth continuous dimming
- Daylight zones defined by rows
- Not required for offices without windows or that have loads <150W in sidelight zones

Manual Control:
- Master on/off & raise/ lower control of fixtures
- Optional individual row or fixture control

ADDITIONAL OPTIONS

- Echo Dual Tech sensors are available in wall-, ceiling-, and switch-mount options
- Unison Echo supports seamless connection to Paradigm control systems for facility-wide control and monitoring (Enhanced Digital Lighting Controls, C406.4)
- Time-based control to meet section C405.2.2.1 – Time-Switch Controls, available via TimeClock. (See pg. 15 for more info.)
- A complete range of UL924 and UL1008 emergency solutions are available

Primary Daylight Zone	
Secondary Daylight Zone	
General Lighting	

EchoConnect	
Line Voltage	
0-10V	
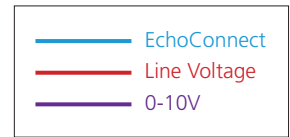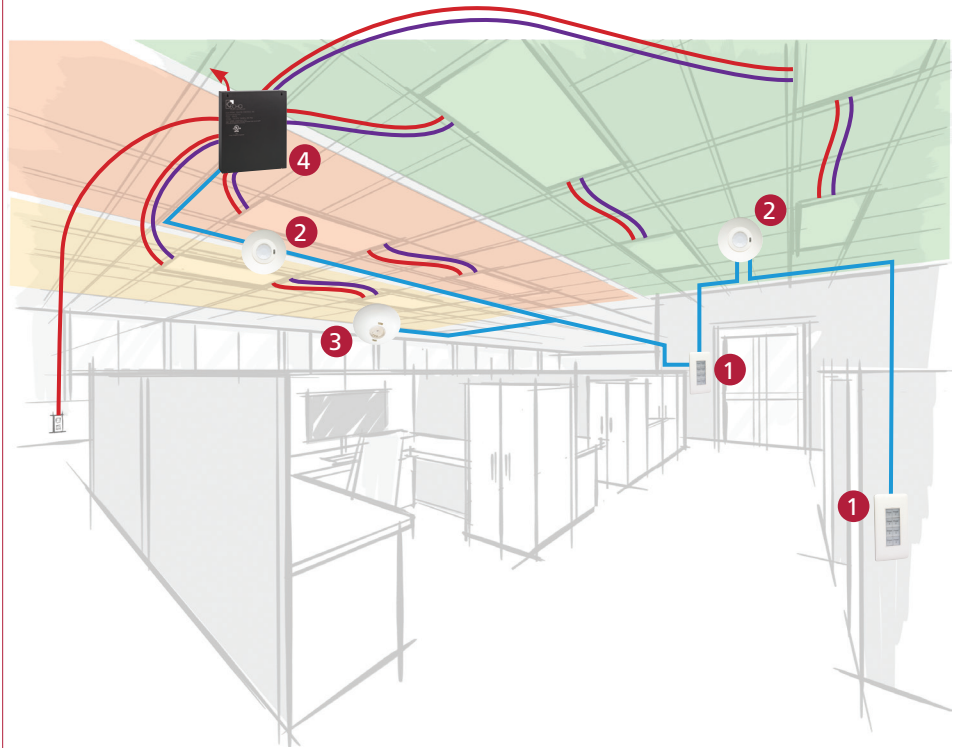
BILL OF MATERIALS

PRODUCT	QTY	MODEL NUMBER	DESCRIPTION
1	2	E100_	Echo Inspire Button Control Station
2	2	E-DVAC-C	Echo Dual Tech Ceiling-Mount Vacancy Sensor
3	1	ELS	Echo Ceiling-Mount Light Sensor
4	1	ERMC8	Echo Room Controller

SUPPORTS THE FOLLOWING REQUIREMENTS:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1.1)
- Manual Control (Local Switch) (C405.2.2.3)
- Lighting Reduction (C405.2.2.2)
- Sidelight Daylight Zone (C405.2.3.2)

SEQUENCE OF OPERATION:

Fixtures:
- All fixtures are dimmable
- Each row controlled independently
- Maximum level can be task tuned to any percentage during startup

Occupancy Control:
- Fixtures must be turned on manually (or optionally can be configured to come on automatically to 50%)
- Fixtures automatically turn off when room becomes vacant
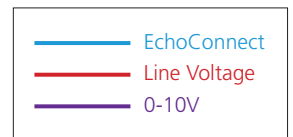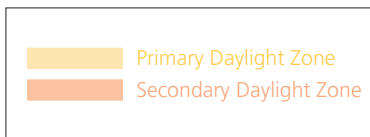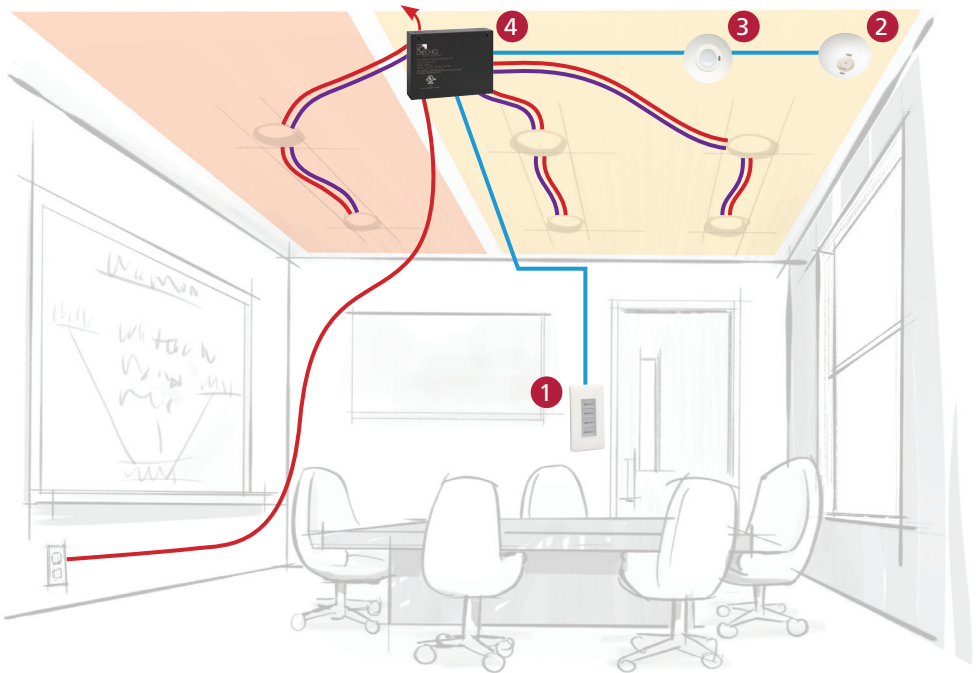
Daylight Control:
- Smooth continuous dimming
- Daylight zones defined by rows
- Not required for areas without windows or that have loads <150W in sidelight zones

Manual Control:
- On/off & raise/lower control of each row

ADDITIONAL OPTIONS

- Echo Dual Tech sensors are available in wall-, ceiling-, and switch-mount options
- Unison Echo supports seamless connection to Paradigm control systems for facility-wide control and monitoring (Enhanced Digital Lighting Controls, C406.4)
- Time-based control to meet section C405.2.2.1 – Time-Switch Controls, available via TimeClock. (See pg. 15 for more info.)
- A complete range of UL924 and UL1008 emergency solutions are available

| Primary Daylight Zone |
| Secondary Daylight Zone |

	EchoConnect
	Line Voltage
	0-10V

BILL OF MATERIALS

PRODUCT	QTY	MODEL NUMBER	DESCRIPTION
1	1	E1004	Echo Inspire 4-Button Control Station
2	1	ELS	Echo Ceiling-Mount Light Sensor
3	1	E-DVAC-C	Echo Dual Tech Ceiling-Mount Vacancy Sensor
4	1	ERMC4	Echo Room Controller

SUPPORTS THE FOLLOWING REQUIREMENTS:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1.1)
- Manual Control (Local Switch) (C405.2.2.3)
- Lighting Reduction (C405.2.2.2)
- Sidelight Daylight Zone (C405.2.3.2)

SEQUENCE OF OPERATION:

Fixtures:
- All fixtures are dimmable
- Each row controlled independently
- Maximum level can be task tuned to any percentage during startup

Occupancy Control:
- Fixtures must be turned on manually (or optionally can be configured to come on automatically to 50%)
- Fixtures automatically turn off when room becomes vacant

Daylight Control:
- Smooth continuous dimming
- Custom grouping of fixtures into separate daylight zones (max number zones = number of fixtures)
- Not required for areas without windows or that have loads <150W in sidelight zones

Manual Control:
- Master on/off & raise/ lower control of entire room
- Optional scene control

ADDITIONAL OPTIONS

- Echo Dual Tech sensors are available in wall-, ceiling-, and switch-mount options
- Unison Echo supports seamless connection to Paradigm control systems for facility-wide control and monitoring (Enhanced Digital Lighting Controls, C406.4)
- Time-based control to meet section C405.2.2.1 – Time-Switch Controls, available via TimeClock. (See pg. 15 for more info.)
- A complete range of UL924 and UL1008 emergency solutions are available

	Primary Daylight Zone
	Secondary Daylight Zone
	General Lighting

	EchoConnect
	Line Voltage
	0-10V
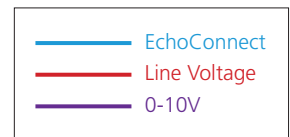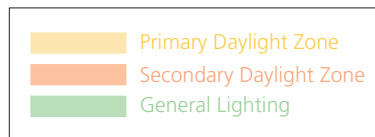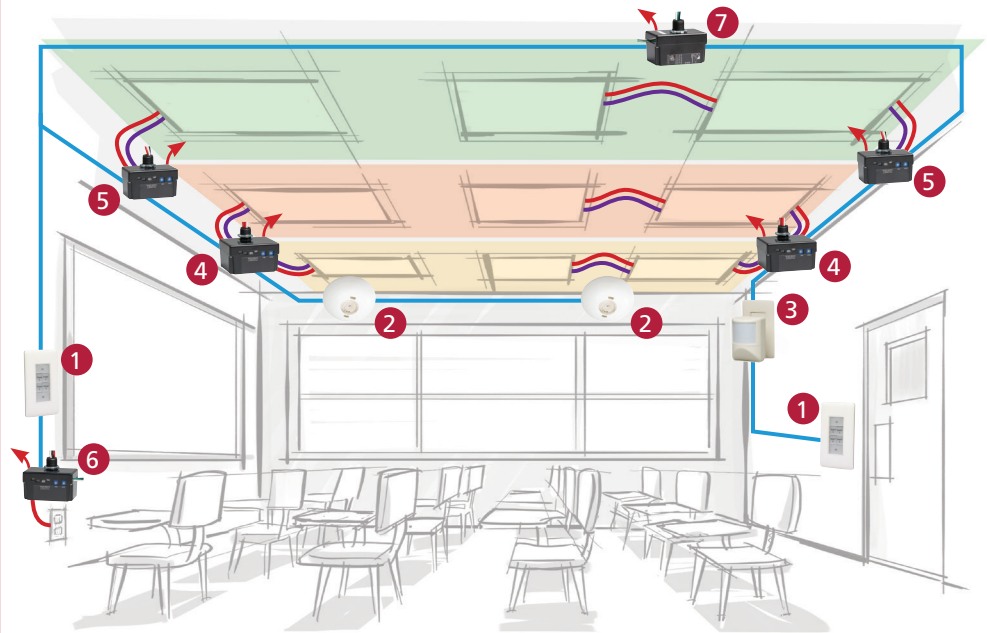
BILL OF MATERIALS

PRODUCT	QTY	MODEL NUMBER	DESCRIPTION
1	2	E1006	Echo Inspire 6-Button Control Station
2	2	ELS	Echo Ceiling-Mount Light Sensor
3	1	E-DVAC-W	Echo Dual Tech Wall-Mount Vacancy Sensor
4	2	EDLD	Echo Dual-Channel 0-10V Controller
5	2	ELD	Echo Single-Channel 0-10V Controller
6	1	ERC	Echo Single-Zone Relay Controller
7	1	E-SPS	Echo Station Power Supply

SUPPORTS THE FOLLOWING REQUIREMENTS:

• Full Auto-Off via Occupancy Sensor (C405.2.1.1.1)
• Manual Control (Local Switch) (C405.2.2.3)

SEQUENCE OF OPERATION:

Fixtures:
• All fixtures are dimmable
• Maximum level can be task tuned to any percentage during startup

Occupancy Control:
• Fixtures automatically go to full bright when occupied
• Fixtures automatically turn off or optionally can be configured to drop to low dim setting when space becomes vacant

ADDITIONAL OPTIONS

• Echo Dual Tech sensors are available in wall-, ceiling-, and switch-mount options
• Unison Echo supports seamless connection to Paradigm control systems for facility-wide control and monitoring (Enhanced Digital Lighting Controls, C406.4)
• Time-based control to meet section C405.2.2.1 – Time-Switch Controls, available via TimeClock. (See pg. 15 for more info.)
• For sidelight/toplight daylight zones with a load >150W, add Echo Light Sensors for daylight control (C405.2.3.1/2)
• A complete range of UL924 and UL1008 emergency solutions are available

To additional floors

--- EchoConnect
--- Line Voltage
--- 0-10V
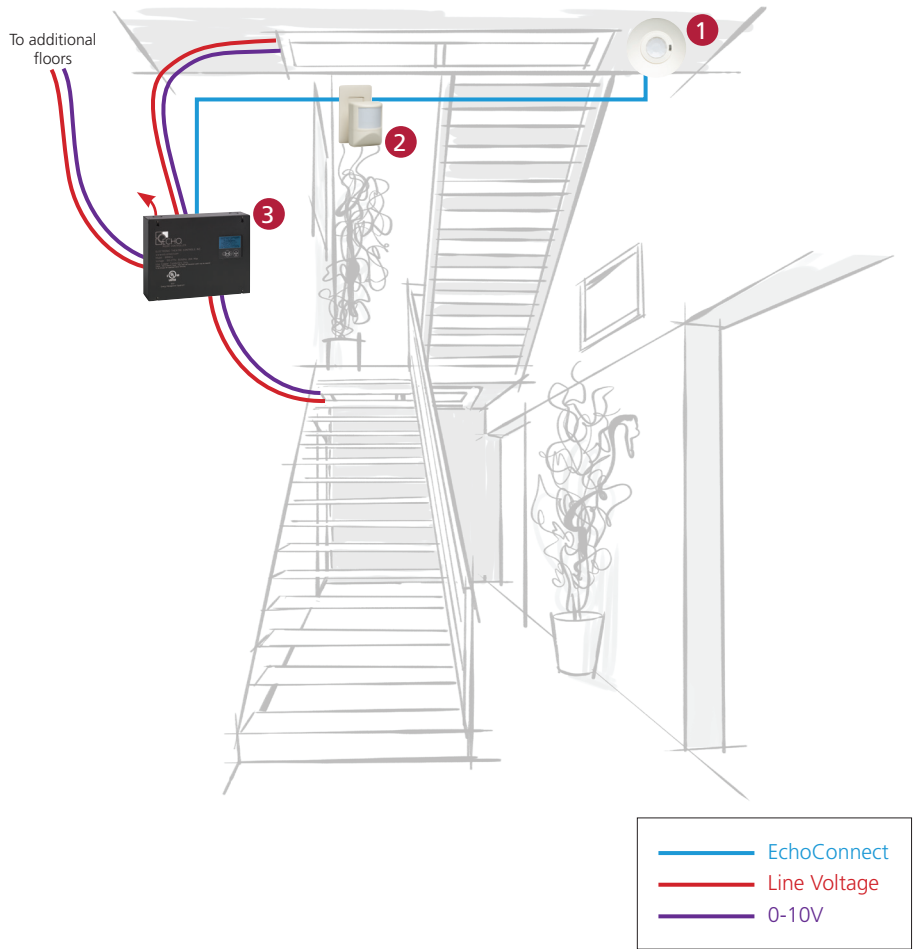
BILL OF MATERIALS

PRODUCT	QTY	MODEL NUMBER	DESCRIPTION
1	1	E-DVAC-C	Echo Dual Tech Ceiling-Mount Vacancy Sensor
2	1	E-DVAC-W	Echo Dual Tech Wall-Mount Vacancy Sensor
3	1	ERMC4-TC	Echo Room Controller with TimeClock

SUPPORTS THE FOLLOWING REQUIREMENTS:

- Full Auto-Off via Occupancy Sensor (C405.2.1.1.1)
- Sidelight Daylight Zone (C405.2.3.2)

SEQUENCE OF OPERATION:

Fixtures:
- All fixtures are dimmable
- Controller can be configured to put fixtures into two zones
- Maximum level can be task tuned to any percentage during startup

Occupancy Control:
- Fixtures automatically go to full bright when occupied
- Fixtures automatically turn off or optionally can be configured to drop to low dim setting when space becomes vacant

Daylight Control:
- Smooth continuous dimming
- Not required for spaces without windows or that have loads <150W in sidelight zones

ADDITIONAL OPTIONS

- Echo Dual Tech sensors are available in wall-, ceiling-, and switch-mount options
- Unison Echo supports seamless connection to Paradigm control systems for facility-wide control and monitoring (Enhanced Digital Lighting Controls, C406.4)
- Time-based control to meet section C405.2.2.1 – Time-Switch Controls, available via TimeClock. (See pg. 15 for more info)
- A complete range of UL924 and UL1008 emergency solutions are available

	EchoConnect
	Line Voltage
	0-10V

BILL OF MATERIALS

PRODUCT	QTY	MODEL NUMBER	DESCRIPTION
1	1	E1004	Echo Inspire 4-Button Control Station
2	1	ELS	Echo Ceiling-Mount Light Sensor
3	1	E-DOC-C	Echo Dual Tech Ceiling-Mount Occupancy Sensor
4	1	EDLD	Echo Dual-Channel 0-10V Controller
5	1	E-SPS	Echo Station Power Supply

SUPPORTS THE FOLLOWING REQUIREMENTS:

• Full Auto-Off via Occupancy Sensor (C405.2.1.1.1)

SEQUENCE OF OPERATION:

Fixtures:
• All fixtures are dimmable
• All fixtures are controlled together
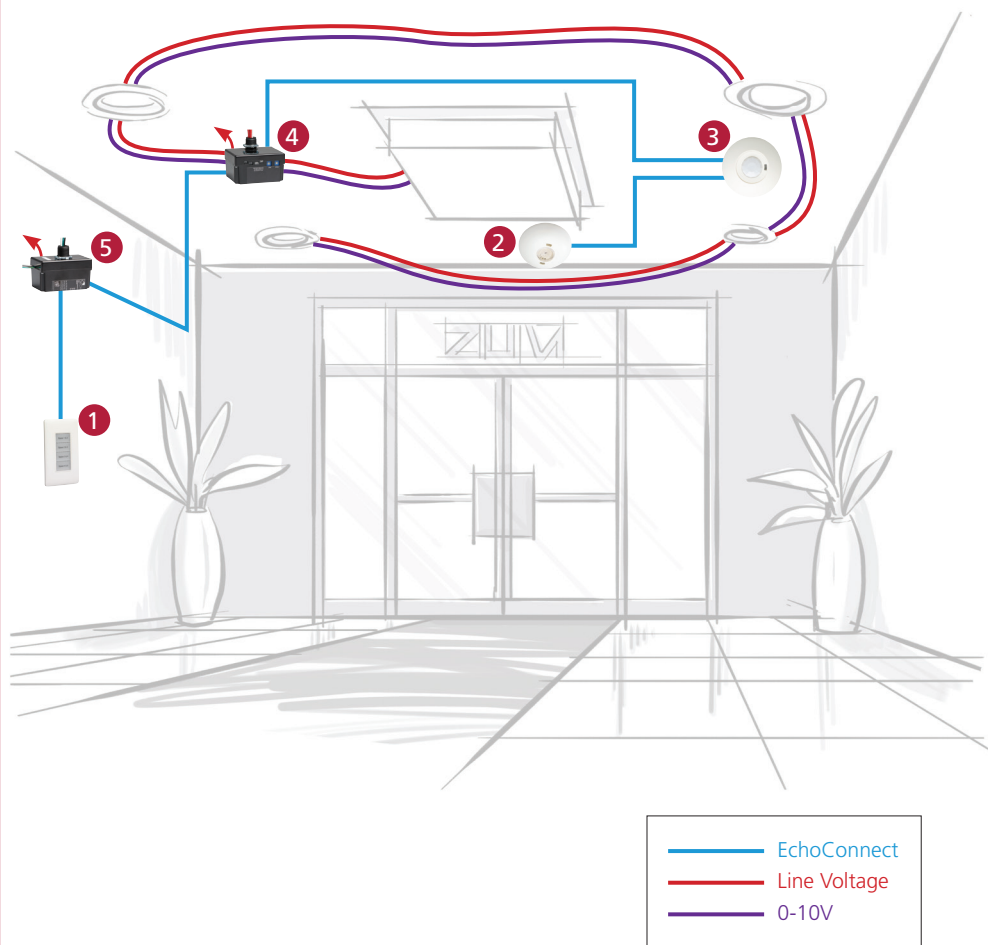• Maximum level can be task tuned to any percentage during startup

Occupancy Control:
• Fixtures automatically go to full bright when occupied
• Fixtures automatically turn off or optionally can be configured to drop to low dim setting when space becomes vacant

ADDITIONAL OPTIONS

• Echo Dual Tech sensors are available in wall-, ceiling-, and switch-mount options
• Unison Echo supports seamless connection to Paradigm control systems for facility-wide control and monitoring (Enhanced Digital Lighting Controls, C406.4)
• Time-based control to meet section C405.2.2.1 – Time-Switch Controls, available via TimeClock. (See pg. 15 for more info)
• For primary sidelight/toplight daylight zones with a load >150W, add Echo Light Sensors for daylight control (section 9.4.1.1[e/f])
• A complete range of UL924 and UL1008 emergency solutions are available

To station

— EchoConnect
— Line Voltage
— 0-10V
— EMG Power
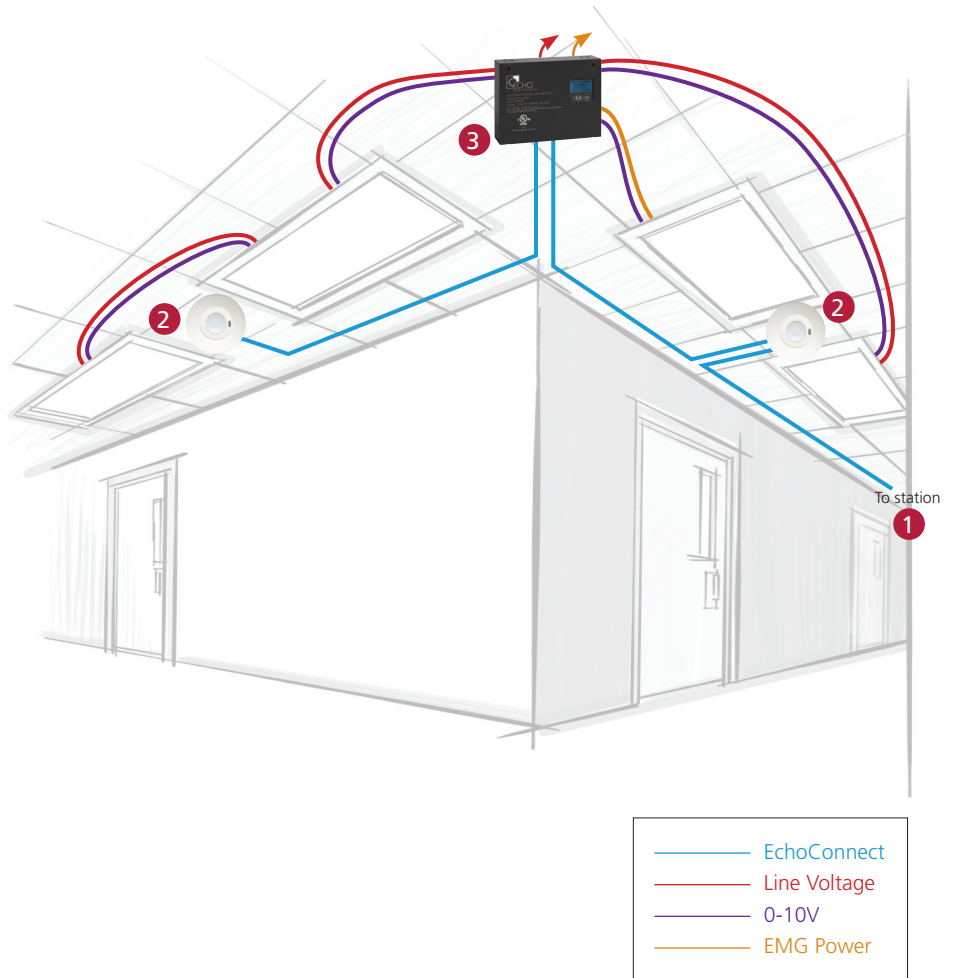
BILL OF MATERIALS

PRODUCT	QTY	MODEL NUMBER	DESCRIPTION
1	1	E1001	Echo Inspire 1-Button Control Station
2	2	E-DOC-C	Echo Dual Tech Ceiling-Mount Occupancy Sensor
3	1	ERMC4-TC	Echo Room Controller with TimeClock

SUPPORTS THE FOLLOWING REQUIREMENTS:

• Full Auto-Off via Occupancy Sensor (C405.2.1.1.1)

• Manual Control (Local Switch) (C405.2.2.3)

• Lighting Reduction (C405.2.2.2)

SEQUENCE OF OPERATION:

Fixtures:

• All fixtures are dimmable

• All fixtures are controlled together (per room)

• Maximum level can be task tuned to any percentage during startup

Occupancy Control:

• Fixtures automatically go to full bright when occupied

• Fixtures automatically turn off when room becomes vacant

Manual Control:

• On/off & raise/lower control of fixtures (per room)

• If switch poses safety concerns, optionally can be programmed for "on only"

ADDITIONAL OPTIONS

• Echo Dual Tech sensors are available in wall-, ceiling-, and switch-mount options

• Unison Echo supports seamless connection to Paradigm control systems for facility-wide control and monitoring (Enhanced Digital Lighting Controls, C406.4)

• Time-based control to meet section C405.2.2.1 – Time-Switch Controls, available via TimeClock. (See pg. 15 for more info.)

• A complete range of UL924 and UL1008 emergency solutions are available

——	EchoConnect
——	Line Voltage
——	0-10V
——	EMG Power
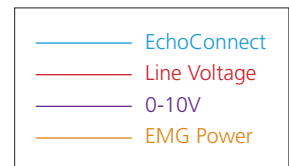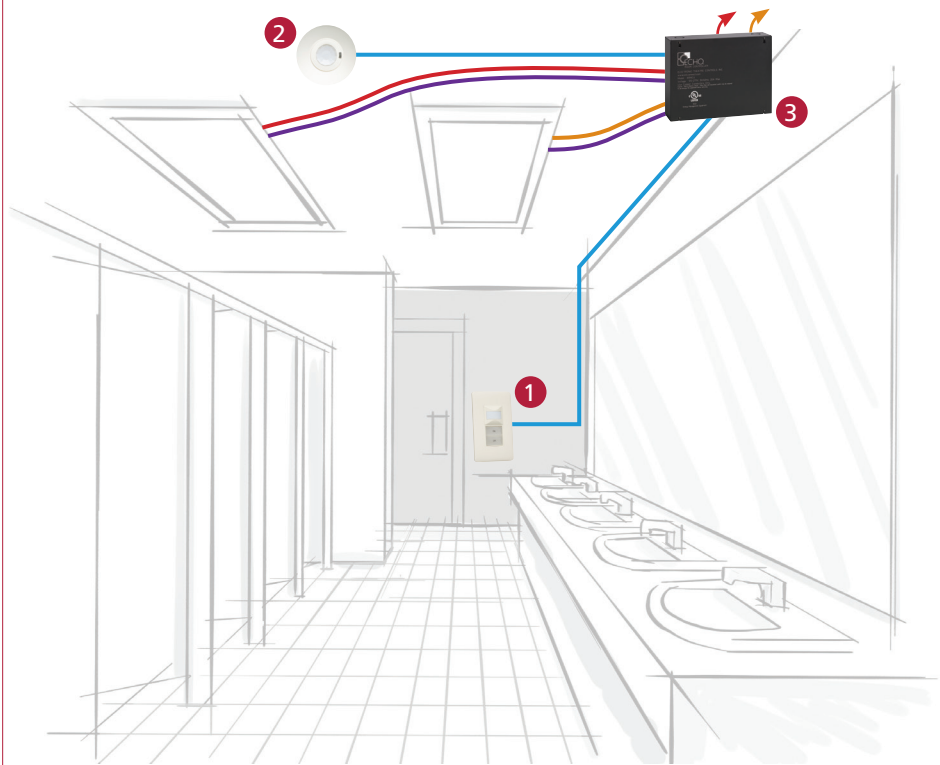
BILL OF MATERIALS

PRODUCT	QTY	MODEL NUMBER	DESCRIPTION
1	1	E-DOC-SM2	Echo Dual Tech Switch-Mount Sensor
2	1	E-DVAC-C	Echo Dual Tech Ceiling-Mount Vacancy Sensor
3	1	ERMC4	Echo Room Controller

PROGRAMMABLE TIMECLOCK CONTROL

Although not included in each of the room design risers, every Echo Zone can be controlled with a TimeClock, assuring your system meets the IECC Time-Switch Controls provision (C405.2.2.1), and also qualifies for the Enhanced Digital Lighting Controls provision (C406.4). The Echo TimeClock offers time-of-day and astronomical control as well as manual control via hold, override and event-recurrence modes, like "everyday," "weekday," "weekend," and "daily," as well as fully-configurable Daylight Saving Time, holiday schedules and special-event override.

ECHOACCESS™ APP

EchoAccess releases the full potential of your Echo system, offering custom control and configuration from an iOS or Android™ smartphone. The app connects to your Echo network via a Bluetooth connection with the EchoAccess interface.

In the app, users can set lighting levels, combine spaces, and control zones directly – as well as record, activate and deactivate presets, plus much more. Add an Echo DMX Scene Controller to your system, and the EchoAccess app can adjust DMX-controlled luminaires' hue, saturation, and intensity.

EchoAccess connects to any Echo system via the simple, two-wire Echo bus, and melds neatly in your design using the same stylish Inspire® faceplates.

OCCUPANCY AND VACANCY SENSORS

CEILING- AND WALL-MOUNT DUAL TECH OCCUPANCY/VACANCY SENSOR

• Passive Infrared and Acoustic Detection technologies

• Occupancy and Vacancy detection options

• Ceiling-mount, small-room, large-room, and high-ceiling options available. Wall-mount wide and narrow coverage available

• Thirty-second grace timer

• Walk test function for PIR and acoustic coverage

• Supports small motion detection up to 45ft

• Up to 2,000-square-foot coverage

• Available in Black and White finishes

CEILING-MOUNT PIR OCCUPANCY AND VACANCY SENSOR

• Occupancy and Vacancy sensor options

• Small-room, large-room, and high-ceiling options available

• Passive Infrared (PIR) detection

• Thirty-second grace timer

• Walk test function

• Available in Black or White

SWITCH-MOUNT DUAL TECH OCCUPANCY SENSOR

• Passive Infrared and Acoustic Detection technologies

• One- and two-button options available

• Thirty-second grace timer

• Walk test function for PIR and acoustic coverage

• Supports small motion detection up to 45ft

• Cream, Gray, Black or White finish

ECHO RELAY PANEL MAINS FEED

The Echo Relay Panel Mains Feed features relay and line dimming control, switching with integral breakers, and options for low-voltage control. Its built-in power supply supports up to six stations and power controllers.

• Supports 10A, 15A, or 20A breakers

• 28 circuit panel with support for 24 relays/ dimmers and 4 hot circuits

• 20A mechanically-held air-gap relays

• Optional 300-watt dimmer available per circuit

• Optional 0-10V or DALI output

• Optional network interface

• Astronomical and Real-time clock

ECHO RELAY PANEL FEEDTHROUGH

The Echo Relay Panel Feedthrough offers creative power distribution for all load types with relay switching for multiple voltages in a single panel. Its built-in power supply supports up to six stations and power controllers.

• 120V and 277V power control

• Up to 48 relay outputs

• Optional 0-10V or DALI output

• Astronomical and Real-time clock

SENSOR IQ INTELLIGENT BREAKER PANEL

The Sensor IQ Intelligent Breaker Panel is a 120V mains-fed power panel that provides switching, 0-10V dimming, and DALI control for stage and houselight systems.

• Relay control for one-, two-, and three-pole circuits

• Supports 15- and 30-amp breakers

• 12, 24, or 48 circuits panel options

• Direct connection for up to six Zone and Room Controllers and six Inspire Stations or Responsive Controls

• 120V or 277V options available

• Astronomical and Real-time clock

	Control Requirement	Code Provision	Code Summary	Recommendations for Compliance
On-Off Control	Automatic Full-Off via Sensor	C405.2.1.1.1	Spaces vacant for more than 30 minutes (maximum) require automatic shut off of lighting via occupancy or vacancy sensor.	Use vacancy sensors in all spaces.
	Automatic Partial-Off via Sensor	C405.2.1.1.2	Spaces vacant for more than 30 minutes (maximum) require automatic reduction of power consumption by at least 50%.	Use sensors in all designs and sensors in all applications with configuration to set dimmed fixtures to 50% on vacancy.
	Programmable Timeclock	C405.2.2.1	Areas of a building that do not utilize vacancy sensing require time-based controls and a minimum of one override switch.	TimeClocks maximize energy efficiency by supporting astronomical, real-time and manual control events across multiple spaces from a single device.
	Local Control	C405.2.2.3	All areas require a minimum on one manual control station that allows occupants to turn lighting off.	Include manual control stations in all enclosed spaces.
Light Level Control	Light Reduction Controls	C405.2.2.2	Spaces require manual controls allowing an occupant to reduce lighting loads uniformly by a minimum of 50%.	Include continuously dimmable LED fixtures and manual dimming controls.
	Daylight Responsive Controls	C405.2.3.1/2	Daylight controls are required in all spaces with sidelight and top light daylight zones.	Use light sensors and continuously dimmable fixtures in all daylight spaces.

ETC Product Solutions	
Echo PIR Vacancy Sensors	Dual Tech Vacancy Sensors
Vacancy Sensors use passive infrared detection to ensure lights automatically turn off when a space is empty, in areas up to 2,000 square feet.	Dual Tech Sensors couple passive infrared (PIR) detection with acoustic detection to insure a space is empty before turning off lights. Dual Tech Sensors offer ceiling-, wall-, or switch-mount installation.
TimeClock	
Echo TimeClock features an intuitive six-button interface and large backlit display that allow for simple set-it-and-forget-it operation. In addition to time based events, manual control via hold, override and event-recurrence modes, like "everyday," "weekday," "weekend," and "daily," as well as fully-configurable Daylight Saving Time, holiday schedules, and special-event override make the TimeClock station adaptable to any application.	
Inspire Control Stations	Preset Stations
Inspire stations can be easily programmed for preset lighting looks and offer the capability of setting zone- and space-combine functions. They can be installed anywhere they're needed throughout a space, for maximum convenience.	Unison Echo Preset Stations - available in two sizes and a variety of colors - provide easy access to lighting scenes with just the simple touch of a button.
Phase-Adaptive Dimmer	Relay Controller w/ 0-10V dimming
The Echo Phase-Adaptive Dimmer provides reverse- or forward-phase dimming for loads up to 600 watts. It is compatible with all Echo control products, including daylight and occupancy sensors and manual control stations, providing flexibility and energy savings.	Unison Echo 0-10V Dimming Controllers offer fully-rated 20-amp relays coupled with 0-10V dimming for direct control of compatible LED drivers and fluorescent dimming ballasts. Controllers are available for single- or dual-zone configurations, allowing for added flexibility in your installation.
Unison Echo Light Sensor	Unison Echo Light Sensor - Remote Head
Unison Echo Light Sensors are able to detect and measure the amount of natural light in an area, and raise or lower the output of lighting fixtures accordingly, to maintain a consistent lighting level. Echo Light Sensors have a single head option for interior, exterior, and atrium use. They also support two-sensor averaging, so if you have a large space, you can locate sensors in different locations to light the entire area evenly. The head of the Sensors can be detached and located apart from the controller, allowing you the most flexibility for your venue.	

ADDITIONAL RESOURCES

IECC

http://www.iccsafe.org

Use the following sections of the IESS 2018 code as reference:
Section C405.2.1.1.1 – Full Auto-Off via Occupancy Sensor
Section C405.2.1.1.2 – Manual-On or Partial-On
Section C405.2.1.1.2 – Full Automatic On
Section C405.2.1.3 – Local Switch
Section C405.2.2.1 – Programmable Timeclock
Section C405.2.2.2 – Manual Lighting Reduction
Section C405.2.3.1/2 – Daylight-Responsive Controls
Section C406.4 – Enhanced Digital Lighting Controls