# ETC

# Unison Echo Relay Panel Mains Feed

## Echo Power Control Series

| | |
|---|---|
| Type(s) | |
| Project | |
| Date | |
| Notes | |

## GENERAL INFORMATION

The Unison Echo Relay Panel is a control-oriented power center built with today and tomorrow's lighting loads in mind. It supports up to 24-relays or dimmers with integral branch breakers, power-usage reporting and sophisticated control inputs. With built-in station and sensor support, DMX and TimeClock controls, Ethernet connectivity, optional 0-10 V dimming, DALI output and contact inputs, the Echo Relay Panel integration opportunities are limitless.

**APPLICATIONS**

- Theaters
- Schools
- Houses of worship
- Conference centers
- Retail shops and restaurants

**FEATURES**

- Main Feed Relay panel with feed options for:
  - Three-phase 120/208 V four-wire plus ground
  - Single-phase 120/240 V three-wire plus ground
- 24-position relay panel with support for 1-, 2-, or 3-pole relays and support for 300W phase-adaptive or forward-phase dimmers
- 30-position breaker subpanel with support for 1-, 2-, or 3-pole breakers, including 1- and 2-pole 120 V GFCI
- 14 in. width and 4 in. depth allows the cabinet to be flush- or surface-mounted in standard stud-width construction
- Echo, sACN, DMX-512, TimeClock, or stand-alone control
- Built-in EchoConnect power supply for up to 6 Echo control products and 5 output products
- Built-in network interface provides:
  - Advanced control of relays over streaming ACN (sACN)
  - Measured energy usage reporting per branch circuit
  - Web UI for configuration
- Local control with astronomical timeclock and manual override per circuit
- UL924 Listed emergency control bypass contact input

## ORDERING INFORMATION

| MODEL | DESCRIPTION |
|---|---|
| ERP-24R1-24B1-ML1P | Echo Relay Panel with 24 1-pole relays, 24 1-pole breakers, 120/240 V 1P 3W+G main lug input |
| ERP-24R1-24B1-ML3P | Echo Relay Panel with 24 1-pole relays, 24 1-pole breakers, 120/208 V 3P 4W+G main lug input |
| ERP-24R1-29B1-ML3P | Echo Relay Panel with 24 1-pole relays, 29 1-pole breakers, 120/208 V 3P 4W+G main lug input |
| ERP-12R1-12B1-ML3P | Echo Relay Panel with 12 1-pole relays, 12 1-pole breakers, 120/208 V 3P 4W+G main lug input |
| ERP-12R2-12B2-ML3P | Echo Relay Panel with 12 2-pole relays, 12 2-pole breakers, 120/208 V 3P 4W+G main lug input |

Note: For non-standard model numbering see page 6

### Door Options

| | |
|---|---|
| ERP-FMD | Flush-mount door for 120 V Echo Relay Panel |
| ERP-SMD | Surface-mount door for 120 V Echo Relay Panel |

### Main Breaker Options

| | |
|---|---|
| ERP-MB100A22K1P | Main Breaker; 120 V Single-phase; 100 A; 22 kA SCCR |
| ERP-MB200A22K1P | Main Breaker; 120 V Single-phase; 200 A; 22 kA SCCR |
| ERP-MB100A10K | Main Breaker; 120 V Three-phase; 100 A; 10 kA SCCR |
| ERP-MB200A10K | Main Breaker; 120 V Three-phase; 200 A; 10 kA SCCR |
| ERP-MB200A22K | Main Breaker; 120 V Three-phase; 200 A; 22 kA SCCR |
| ERP-MB200A42K | Main Breaker; 120 V Three-phase; 200 A; 42 kA SCCR |

### Accessories

| | |
|---|---|
| ERP-DIM | 300 W Phase-Adaptive Dimmer (DA) |
| ERP-DIM-MLV | 300 W Forward-Phase Dimmer (DM) |
| ERP-LVD | 0–10 V Dimming Control Option Card |
| ERP-DALI | DALI Control Option Card (broadcast only) |
| ERP-CI | Contact Input Option Card |
| ERP-RTO | Ride-Thru Option |

### Echo Power Requirements

| | |
|---|---|
| EchoConnect: | 1 Unit of Output Power |
| Auxiliary Power: | Not Required |

### Built-in EchoConnect Power Supply

| | |
|---|---|
| EchoConnect: | Provides 6 U of control power and an additional 5 U of Output Power* |
| Auxiliary Power: | Not Provided |

*Note: Built in power supply can be disabled.

### Echo Presets

| |
|---|
| Supports 64 Echo Presets per space; up to 16 Echo spaces |

For more information, download the Echo Quick Guide.

## SPECIFICATIONS

**REGULATORY AND COMPLIANCE**

- cULus Listed
- UL508 Listed
- UL67 Listed
- UL924 Listed
- Complies with ANSI E1.11 DMX512-A standard
- Complies with ANSI E1.31 streaming ACN standard

**USER INTERFACE**

- Graphical display with LED backlight
- Button interface with:
  - 0-9 number buttons
  - Up, down, back and enter navigation buttons
  - "Light bulb" test button for local activation of preset, sequence and set level overrides
- USB interface for upload of setup and software updates
- Onboard Web UI for simple configuration and management

**MECHANICAL**

- Enclosure constructed of 16-gauge steel finished in black, fine-textured, scratch-resistant powder coat pain
- Door options available for surface- or recess-mount applications.
  - Flush-mount door extends 1in. beyond all panel edges to hide wall cutout
- Removable outer panel includes integral locking door to limit access to electronics, breakers and local relay overrides
- Full front access with no side clearance required
- Removable covers for access to Class 1 and Class 2 wiring

**ELECTRICAL**

- Main feed power input available to support:
  - 120/240 V single-phase three-wire plus ground
  - 120/208 V three-phase four-wire plus ground
- Separate wiring chambers for Class 1 and Class 2 terminations
- Max input current: 200 A
- Main circuit breaker options: 100 A and 200 A
- Branch breaker panel supports three-phase and single-phase subfeed of a second panel up to 100 A
- Short-circuit rating: 10,000-42,000 amps symmetrical
- 10 A, 15 A and 20 A, 1-, 2-, or 3-pole branch circuit breakers; 80% rated
  - 15 A or 20 A, 1- or 2-pole 120 V GFCI breakers available upon request
- Inrush-pulse tolerance: 8-10.5 times rated current for half-cycle at 60 Hz

**CONTROL ELECTRONICS**

- Relay modes: Normal (priority/HTP), latch-lock or last-action
- Configurable DMX on/off threshold
- Status feedback for breaker state, relay state, current draw per circuit, phase voltage and energy usage per circuit
- Built-in Echo control supports:
  - Up to sixteen spaces with 64 presets per space configurable via local UI or Echo Inspire control stations
    - Presets 1-16 can be configured remotely via Echo Access or integrated Web UI
  - 16 zones per space
  - One 16-step sequence per space
  - Time-of-day and astronomical timeclock with flick-warn and holiday overrides
- Configurable data-loss behavior supports:
  - Play preset; Hold last look; Wait and fade

## SPECIFICATIONS

**ENVIRONMENTAL**

- Thermal: 0°–40° C (32°–104° F) operating temperature
  - Relays (all) - 52.38 BTU/hr
  - Dimmers (all) - 11.78 BTU/hr
  - Humidity 5-95% non-condensing

**RELAY RATINGS**

- 20 A Ballast (HID)
- 16 A Electronic Ballast
- 20 A Tungsten
- 20 A Motor Load
- Isolation: 4000 V RMS
- State: Latching; mechanically held
- Life:
  - 100,000 cycles at full resistive load
  - 30,000 cycles motor, inductive or tungsten
- Current-reporting accuracy: +/- 5% of connected load

**DIMMER RATINGS**

- Phase-adaptive (DA), default reverse phase
  - 300 W resistive or electronic load capacity
- Forward-phase (DM)
  - 300 W magnetic or resistive load capacity
- Panel supports up to (24) fully loaded dimmers

### SHORT-CIRCUIT CURRENT RATING AND LUG SIZING

| OPERATING VOLTAGE | MCB OPTION | SCCR RATING | LUG WIRE SIZE |
|---|---|---|---|
| All | Main Lug only | 10 kA | 4 AWG-300 kcmil |
| 120/240 V | 100 A,200 A | 22 kA | 1 AWG-300 kcmil |
| 120/208 V | 100 A | 10 kA | 8 AWG-3/0 |
| | 200 A | 10kA, 22 kA, 42 kA | 3/0-300 kcmil |
| GND/Neutral | NA | NA | 4 AWG-300 kcmil |
| Rel/Dim Out | NA | NA | 20-6 AWG |
| Load GND/ Neutral | NA | NA | 14-4 AWG |

Note: Main feed lugs accept copper or aluminum wire; load terminals accept copper wire only.

**ACCESSORIES**

**0-10 Dimming Option**

- 24 outputs of 0-10 V sink dimming control rated for 400 mA per output

**Contact Input Option**

- 24 dry contact inputs which can be used to:
- trigger presets and sequences, which will play at the priority configured for architectural sources, or;
- directly control one or more outputs.

**DALI Control Option**

- 24 control loops of broadcast DALI control
- Each loop supports up to 64 ballasts
- External DALI power supply required

**Ride Thru Option**

- Short-term power backup of control electronics
- Automatically engages when power is lost
- Recharges during normal power operation

**Tamper-proof Hardware Kit**

- Special screw heads prevent access to panel interior

## ECHO FAMILY OF PRODUCTS

### EchoConnect Power Supplies

| MODEL | DESCRIPTION |
|---|---|
| E-SPS | 6 U Room Station Power Supply, Knockout Mount |
| E-SPS-DIN | 16 U DIN rail Station Power Supply with 24 V Aux |
| E-SPM-A | 16 U DRd Station Power Module with 24 V Aux |
| E-APS | 24 V Aux Power Supply, Knockout Mount |

### EchoTouch

| MODEL | DESCRIPTION |
|---|---|
| ETS | EchoTouch Controller Mk2 |

### Echo Stations

| MODEL | DESCRIPTION |
|---|---|
| E1001 | Inspire One Button Station |
| E1002 | Inspire Two Button Station |
| E1004 | Inspire Four Button Station |
| E1006 | Inspire Six Button Station |
| E1008 | Inspire Eight Button Station |
| E1104 | Inspire Four Button with Fader Station |
| EPS05 | Echo Preset Station - 5 Button |
| EPS10 | Echo Preset Station - 10 Button |
| EPSKS | Echo Keyswitch Station |
| E-ATC | Echo TimeClock |

### Echo Responsive Controls

| MODEL | DESCRIPTION |
|---|---|
| ELS | Light Sensor |
| EOCC | Ceiling-Mount PIR Occupancy Sensor |
| EVAC | Ceiling-Mount PIR Vacancy Sensor |
| E-DOC-C | Ceiling-Mount Dual Tech Occupancy Sensor |
| E-DVAC-C | Ceiling-Mount Dual Tech Vacancy Sensor |
| E-DOC-W | Wall-Mount Dual Tech Occupancy Sensor |
| E-DVAC-W | Wall-Mount Dual Tech Vacancy Sensor |
| E-DOC-SM1 | Switch-Mount Dual Tech Sensor - One Button |
| E-DOC-SM2 | Switch-Mount Dual Tech Sensor - Two Button |

### Echo Interfaces

| MODEL | DESCRIPTION |
|---|---|
| EACC | EchoAccess Interface |
| EEB | Echo Expansion Bridge |
| EDMXC | Echo DMX Scene Controller |
| EEI | Echo-Echoflex Interface |
| ECII | Echo Contact Input Interface |
| ECOI | Echo Contact Output Interface |
| EDRI | Echo Demand Response Interface |
| EBI | Echo BACnet Interface |
| EII | Echo Integration Interface |

### Zone Controllers

| MODEL | DESCRIPTION |
|---|---|
| ERC-G2 | One Zone Relay Controller |
| EDRC-G2 | Two Zone Relay Controller |
| ELD-G2 | One Zone 0–10 V Controller |
| EDLD-G2 | Two Zone 0–10 V Controller |
| ESSC-G2 | One Zone SmartSpace Controller |
| EDSSC-G2 | Two Zone SmartSpace Controller |
| ELVD-G2 | 600-Watt Phase Adaptive Dimmer (120 V) |
| ELVD-277-G2 | 600-Watt Phase Adaptive Dimmer (277 V) |
| ELVD-G2-MLV | 600-Watt Forward Phase Dimmer (120 V) |
| ELVD-277-G2-MLV | 600-Watt Forward Phase Dimmer (277 V) |

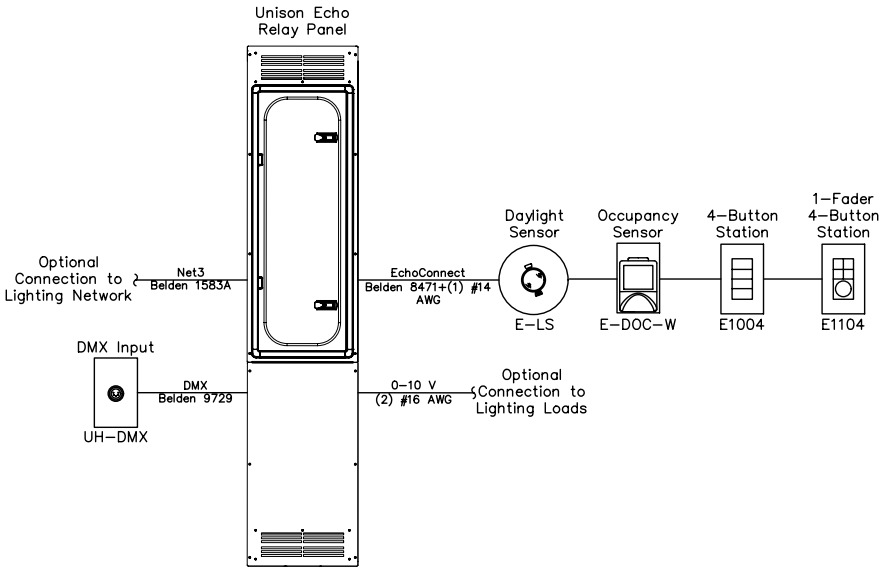
### Room Controllers

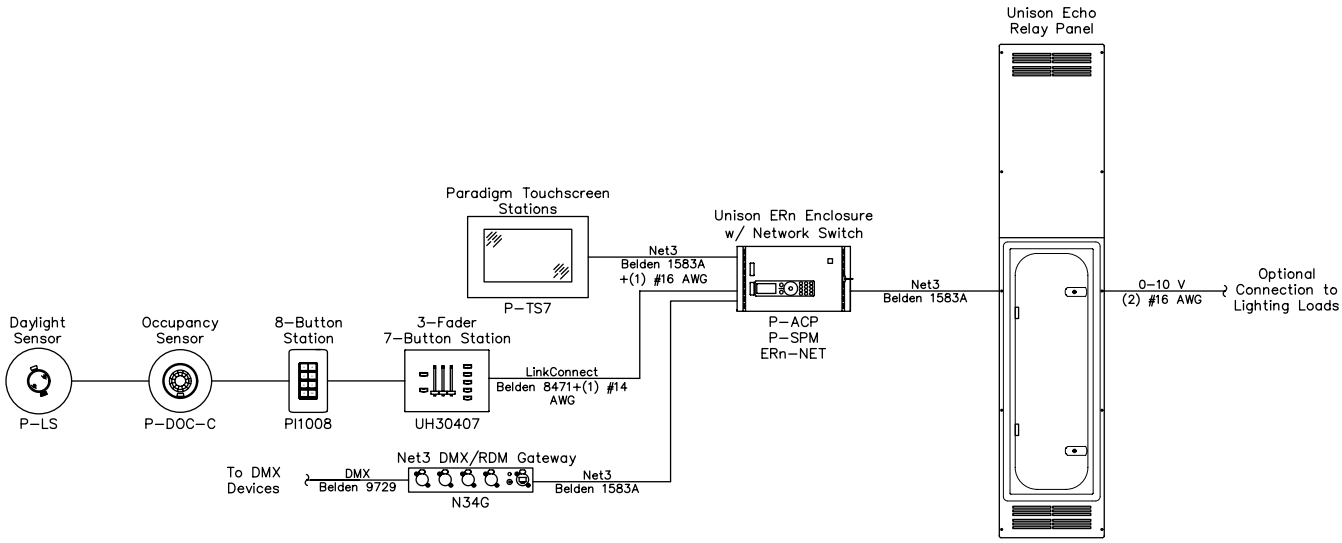
| MODEL | DESCRIPTION |
|---|---|
| ERMC4-G2 | Four Zone Room Controller |
| ERMCT4-G2 | Four Zone Room Controller with TimeClock |
| ERMC8-G2 | Eight Zone Room Controller |
| ERMCT8-G2 | Eight Zone Room Controller with TimeClock |

### Panel Products

| MODEL | DESCRIPTION |
|---|---|
| ERP | Echo Relay Panel Mains Feed |
| ERP-FT | Echo Relay Panel Feed Through |
| IQ | Sensor IQ Intelligent Breaker System |
| SR3 | Sensor3 Power Control System |
| DRd | Unison DRd with Echo Control |

## SAMPLE RISER DIAGRAMS



## ORDERING INFORMATION

### Non-Standard Model Numbering

| | BASE MODEL | 300 W P-A DIMMERS | 300 W MLV DIMMERS | 1-POLE RELAY | 2-POLE RELAYS | 3-POLE RELAYS | 1-POLE BREAKER | 2-POLE BREAKERS | 3-POLE BREAKERS |
|---|---|---|---|---|---|---|---|---|---|
| **MODEL #** | ERP- | #DA/ | #DM/ | #R1/ | #R2/ | #R3 | -#B1/ | #B2/ | #B3 |
| **MAX QTY** | 1 | 24 | 24 | 24 | 12 | 8 | 29 | 14 | 9 |

Note: If GFCI breakers are required, substitute "-#GB1"or "-#GB2 (3-pole GFCI breakers are not supported). GFCI breakers cannot be used to feed dimmers.

### Power and Control Options

| | FEED TYPE | PHASE | LOW VOLTAGE DIMMING | CONTACT INPUT | RIDE-THRU OPTION |
|---|---|---|---|---|---|
| **MODEL #** | -ML (default), -MCBX/Y/ | 3P (default), 1P | -LVD, -DALI | -CI | -RTO |
| **NOTES** | X - MCB amp rating<br>Y - MCB SCCR | 3P - 120/208 4W+G<br>1P - 120/240 3W+G | 1 per panel, either -LVD or -DALI | 1 per panel | 1 per panel |

**EXAMPLES:**

*ERP-12R1/6R2-12B1/6B2-ML1P*

Single-phase 120/240 V panel with main lugs, twelve 20 A single-pole relays, six 20 A double-pole relays, twelve 20 A single-pole breakers, and six 20 A double-pole breakers

*ERP-10R2-10B2-MCB200/22/3P*

Three-phase 120/208 V panel with a 200 A, 22kA SCCR main circuit breaker, ten 20 A double-pole relays, and ten 20 A double-pole breakers

*ERP-8DA/6DM/10R1-29B1-MCB200/42/3P-LVD-CI-RTO*

Three-phase 120/208 V panel with a 200 A, 42kA SCCR main circuit breaker, eight 300 W phase-adaptive dimmers, six 300 W MLV forward-phase dimmers, ten 20 A single-pole relays, twenty-nine single-pole breakers, a 0-10 V Control Option Card, a Contact Input Option Card, and a Ride-Thru Option

Main Circuit Breaker (optional)

Branch circuit breakers:

- Up to 29 positions per panel
  - 30-position panel with one positiond dedicated to control processor power
- Feed up to 24 total relays and dimmers
  - Multiple relays or dimmers can be fed from a single breaker
  - Dimmers require single-pole breakers
  - Relays require breakers with a matching quantity of poles
- 15 A or 20 A GFCI options for 1- or 2-pole relays
- Breaker positions may be used to provide hot power circuits up to 20 A
- Support for three-phase (4W+G) or single-phase (3W+G) subfeed of a secondary panel up to 100 A

Relays and Dimmers:

- Up to 24 per panel
  - Relays use one position per pole - e.g., a 3-pole relay uses three positions
  - Dimmers use one position each

Option Cards:

- Two slots for 0-10 V Dimming Control, DALI Control, and Contact Input Option Cards
  - Maximum two of the above Option Cards per panel
  - Each Option Card provides 24 control circuits
  - Each group of 24 control circuits may be assigned to a single low voltage dimming control option card (0-10 V or DALI) and/or to a Contact Input Option Card
- Ride-Thru Option mounts behind the control processor (one per panel)

### ERP Option Card Combinations

| | |
|---|---|
| 0-10 V CARD | - |
| 0-10 V CARD | CONTACT CARD |
| DALI CARD | - |
| DALI CARD | CONTACT CARD |
| CONTACT CARD | - |

# ETC Unison Echo Relay Panel Mains Feed

## Echo Power Control Series

PHYSICAL

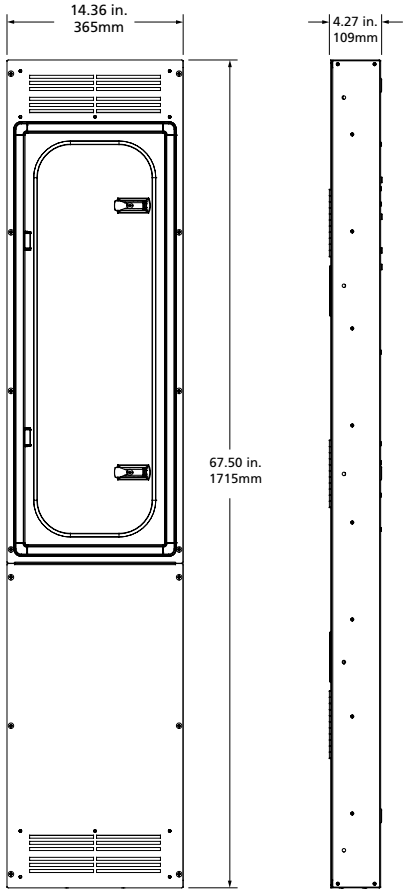
### Echo Relay Panel Dimensions

| MODEL | HEIGHT | | WIDTH | | DEPTH | |
|---|---|---|---|---|---|---|
| | in | mm | in | mm | in | mm |
| ERP | 68 | 1,727 | 14 | 355 | 4 | 102 |

*Note: Depth is 4.075 in. with door attached

### Echo Relay Panel Weights

| MODEL | WEIGHT | | SHIPPING WEIGHT | |
|---|---|---|---|---|
| | lb | kg | lb | kg |
| ERP - no relays or breakers | 55 | 24.9 | 60 | 27.2 |
| ERP - w/ relays & breakers | 80 | 36.3 | 85 | 38.6 |

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