

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 via contact input, DMX and Ethernet connectivity, and optional 0–10 V dimming or DALI output, Echo Relay Panels easily integrate into a broad range of systems and applications.

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 300 W 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
 - Single-pole relay kits fed by 20 A branch breakers are suitable for plug load control
- 14 inch width and 4 inch depth allows the cabinet to be flush- or surface-mounted in standard stud-width construction
- DMX and Ethernet (sACN) control of preset and sequence playback
- Local user interface provides:
 - Panel configuration
 - Preset and sequence programming and playback
 - Individual channel control
- Built-in Ethernet port
 - Advanced control of relays over streaming ACN (sACN)
 - Web UI for configuration
- Available 0–10 V, contact input, and DALI control cards
- UL924 Listed emergency control bypass with load shedding



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 5

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-100A-3P 10kA MCB	Unison Echo Relay Panel main circuit breaker option kit; 120/208 V 3 pole 100 A breaker with 10 kA SCCR rating
ERP-200A-3P 10kA MCB	Unison Echo Relay Panel main circuit breaker option kit; 120/208 V 3 pole 200 A breaker with 10 kA SCCR rating
ERP-200A-3P 22kA MCB	Unison Echo Relay Panel main circuit breaker option kit; 120/208 V 3 pole 200 A breaker with 22 kA SCCR rating
ERP-200A-3P 42kA MCB	Unison Echo Relay Panel main circuit breaker option kit; 120/208 V 3 pole 200 A breaker with 42 kA SCCR rating
ERP-100A-2P 22kA MCB	Unison Echo Relay Panel main circuit breaker option kit; 120/240 V 2 pole 100 A breaker with 22 kA SCCR rating
ERP-200A-2P 22kA MCB	Unison Echo Relay Panel main circuit breaker option kit; 120/240 V 2 pole 200 A breaker with 22 kA SCCR rating

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	RideThru Option

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	10 kA, 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.

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

- Onboard web UI for simple configuration and management
- Graphical display with LED backlight
- Button interface with:
 - 0–9 number buttons
 - Up, down, back and enter navigation buttons
 - Test shortcut for local activation of preset, sequence and set level overrides
- USB interface for upload of setup and software updates

MECHANICAL

- Enclosure constructed of 16-gauge steel finished in black, fine-textured, scratch-resistant powder coat paint
- Door options available for surface- or recess-mount applications.
 - Flush-mount door extends 1 inch 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

ENVIRONMENTAL

- Thermal: 0°C to 40°C (32°F to 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

SPECIFICATIONS

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

CONTROL ELECTRONICS

- Input: 120–277 V (+/-15%), 50/60 Hz, <16 A
- Multi-tap transformer terminals accept up to 12 AWG wire
- Control wiring terminations:
 - Control terminals accept maximum of 12 AWG wire
 - Control wiring exiting the panel are Class 2
 - All control terminations utilize removable connectors

FUNCTIONAL

- **System-Wide control**
 - DMX or sACN input
 - Per-circuit patching
 - Per-circuit threshold
 - 0-200 prioritization
 - Configurable data loss behavior:
 - Play preset; Hold last look; Wait and fade
 - UL 924 emergency lighting with load shedding
- **Application/Space segmented Control**
 - Space segmenting: up to 16 spaces per panel
 - Power Sequencing: one 16-step sequence per space
 - Presets: up to 64 per space configurable via local UI
 - Zone control: up to 16 zones per space
- **Monitoring Per Circuit:**
 - Breaker-trip notification
 - Relay state
 - Current draw, phase voltage, and energy usage
- **Monitoring Per Space:**
 - Active sequences, presets, and clock events
 - Zone levels

ACCESSORIES

0-10 Dimming Option

- 24 outputs of 0–10 V sink dimming control rated for 100 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

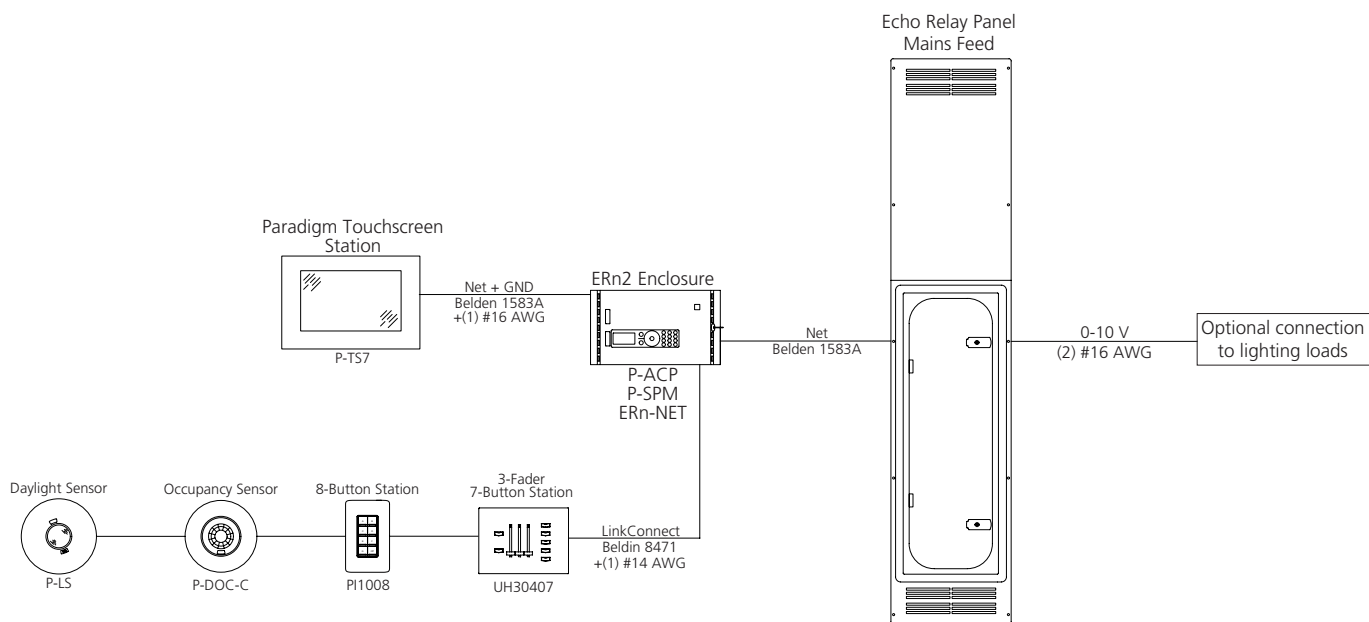
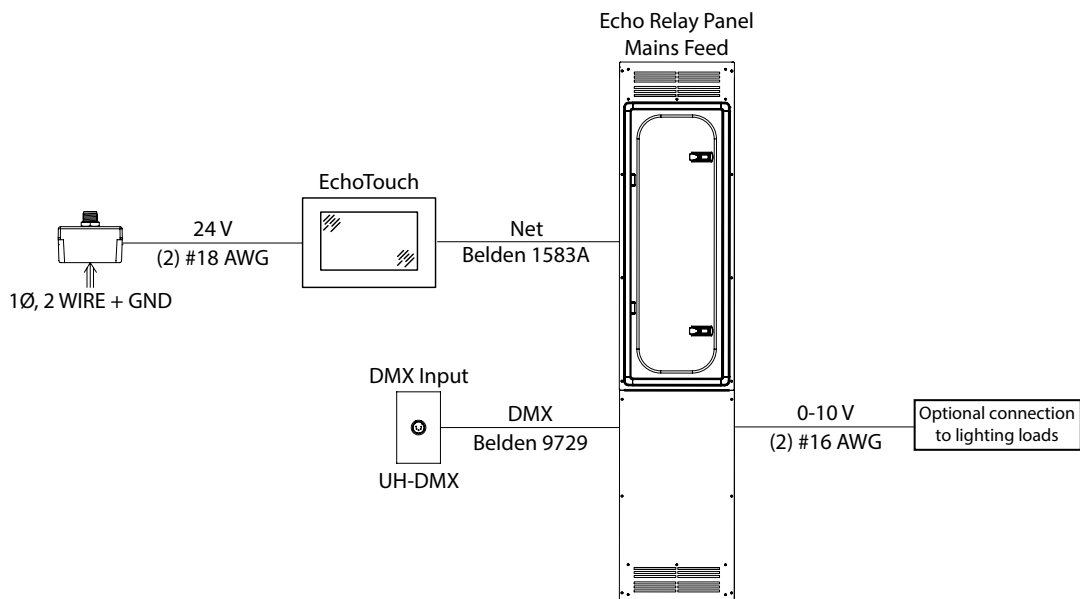
RideThru Option

- 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

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	RIDETHRU OPTION
MODEL #	-ML (default), -MCBX/Y/	3P (default), 1P	-LVD, -DALI	-CI	-RTO
NOTES	X - MCB amp rating Y - MCB SCCR	3P - 120/208 4W+G 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, 22 kA 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, 42 kA 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 RideThru Option



Main Circuit Breaker (optional)

Branch circuit breakers:

- 29 available positions per panel
 - 30-position panel with one position 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:

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
- RideThru 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	-

PHYSICAL

Echo Relay Panel Dimensions

MODEL	HEIGHT		WIDTH		DEPTH	
	mm	in	mm	in	mm	in
ERP	1,715	67.5	365	14.4	109	4.3

*Note: Depth is 105 mm (4.1 in) without door attached

Echo Relay Panel Weights

MODEL	WEIGHT		SHIPPING WEIGHT	
	kg	lb	kg	lb
ERP - no relays or breakers	25	55	28	60
ERP - w/ relays & breakers	37	80	39	85

