SECTION 26 09 23

ARCHITECTURAL LIGHTING CONTROLS

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\*\* NOTE TO SPECIFIER \*\* ETC Inc.; lighting and rigging products.  
This section is based on the products of ETC Inc., which is located at:  
3031 Pleasant View Rd. P. O. Box 620979  
Middleton, WI 53562-0979  
Phone: 608-831-4116  
Email: [mail@etcconnect.com](mailto:mail@etcconnect.com)  
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[ [Click Here](https://www.arcat.com/company/etc-inc-43555) ] for additional information.  
Christmas Eve 2020 marked ETC's 45th anniversary, and there's no denying we've come a long way. Now a global leader in the manufacturing of lighting and rigging technology, ETC employs over 1,200 people in 16 corporate offices around the world. ETC is proud of its industry reputation for unmatched technical and customer service, 24/7/365. And with a family of over 300 authorized service centers throughout the world, staffed by hundreds of certified technicians, customers are never far from an ETC resource with a face and a name.  
We develop professional tools and make them accessible to everyone. Our products can be found in small and large venues worldwide, such as theatres, churches, restaurants, hotels, schools, television studios, casinos, theme parks, and opera houses.

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Architectural controls.
       1. Echo.
       2. Paradigm.
       3. Mosaic.
       4. Foundry.
       5. Sohrana
       6. Emergency Control Products.
       7. Networking.
       8. Response.
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 26 27 16 - Electrical Cabinets and Enclosures.
    2. Section 26 09 43 - Network Lighting Controls.
    3. Section 41 67 19 - Plant Safety Equipment. Building integrator shall provide integration of the lighting control system with Building Automation Systems.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00.
     2. Product Data:
        1. Manufacturer's data sheets on each product to be used.
        2. Preparation instructions and recommendations.
        3. Storage and handling requirements and recommendations.
        4. Typical installation methods.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each type, size, pattern, and color.
    2. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.
  1. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
     2. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
     3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.
  2. PRE-INSTALLATION CONFERENCE
     1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
  3. DELIVERY, STORAGE, AND HANDLING
     1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
     2. Protect from damage due to weather, excessive temperature, and construction operations.
  4. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
  5. WARRANTY
     1. Manufacturer's standard limited warranty unless indicated otherwise.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: ETC, which is located at: 3031 Pleasant View Rd., P. O. Box 620979; Middleton, WI 53562-0979; Phone: 608-831-4116; Email: [mail@etcconnect.com](mailto:mail@etcconnect.com); Web: [www.etcconnect.com](https://www.etcconnect.com).

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. ARCHITECTURAL CONTROLS - ECHO
     1. Distributed Power Controllers:

\*\* NOTE TO SPECIFIER \*\* Delete product and model options not required. Multiple products and models may be specified.

* + - 1. Product: Unison Echo 0-10V Controller. Fully-rated 20 A relays with 0-10 V dimming for direct control of compatible LED drivers and fluorescent dimming ballasts. Mounts to fixtures and electrical junction boxes.
         1. Model: ELD-G2 Echo Single-zone 0-10V Controller.
         2. Model: EDLD-G2 Echo Dual-zone 0-10V Controller.
      2. Product: Unison Echo SmartSpace Controllers. Fully-rated 20-amp relays with 0-10 V dimming for direct control of compatible LED drivers and fluorescent dimming ballasts. Can also power an auxiliary device such as an occupancy sensor through its 24 V supply. Receives dry contact input to initiate control events across the system. Mounts to fixtures and electrical junction boxes.
         1. Model: Echo Single-zone SmartSpace Controller.
         2. Model: Echo Dual-zone SmartSpace Controller.
      3. Product: Unison Echo Relay Controllers. Fully-rated 20-amp relays to switch lighting loads on and off. Mounts to fixtures and electrical junction boxes.
         1. Model: ERC-G2 Echo Single-Zone Relay Controller.
         2. Model: EDRC-G2 Echo Dual-Zone Relay Controller.
      4. Product: Unison Echo 600 W Dimmer. Provides line dimming of various load types. Such as Electronic Low Voltage (ELV), Incandescent, and Fluorescent loads. Forward Phase dimmer is suited for Magnetic Low Voltage (MLV) loads. Mounts to electrical junction box.
         1. Model: ELVD-G2 600-Watt Phase Adaptive Dimmer (120 V).
         2. Model: ELVD-277-G2 600-Watt Phase Adaptive Dimmer (277 V).
         3. Model: ELVD-G2-MLV 600-Watt Forward Phase Dimmer (120 V).
         4. Model: ELVD-277-G2-MLV 600-Watt Forward Phase Dimmer (277 V).
      5. Standards Compliance: cULus Listed, Rated for plenum use. Supports Demand Response via EchoConnect. Conforms to UL 508 and UL 2043.
      6. Features:

\*\* NOTE TO SPECIFIER \*\* Does not apply to Echo 600 W Dimmer. Delete if not required.

* + - * 1. Zones: Single or dual.

\*\* NOTE TO SPECIFIER \*\* Applies to Unison Echo 600 W Dimmer only. Delete if not required.

* + - * 1. Phase Dimming: Forward or reverse.
        2. 20 A fully-rated relay for use with general purpose, tungsten, fluorescent and LED loads

\*\* NOTE TO SPECIFIER \*\* The following paragraph applies to the Unison Echo 0-10V and SmartSpace Dimmers only. Delete if not required.

* + - * 1. Fully isolated 0- 10 V dimming for direct connection to dimming ballasts and LED drivers

\*\* NOTE TO SPECIFIER \*\* The following two paragraphs apply to Unison Echo SmartSpace Dimmer only. Delete if not required.

* + - * 1. 24 VDC for occupancy sensor power.
        2. Accepts contact closure trigger for occupancy/photo status.
        3. Plug and Play: ready to go out of the box, no software or external programming required.
        4. Supports Unison Echo control stations and responsive controls.
        5. Supports EchoConnect, a two-wire topology-free system to provide station connectivity.
      1. Functional:
         1. Provides control of one or two control zones, including relay, 0-10V, or line dimmed.
         2. Plug and Play: ready to go out of the box, no software or external programming required.
         3. Interacts with Unison Echo control stations and responsive controls.

\*\* NOTE TO SPECIFIER \*\* The following two paragraphs apply to Echo SmartSpace Controllers. Delete if not required.

* + - * 1. 24 VDC occupancy sensor power and contact input.
        2. Occupancy-sensor status may be shared to the entire Echo Control System.
      1. Mechanical:
         1. Constructed of injection-molded ABS plastic.
         2. Button interface and LED indicator per zone for configuration.
         3. Rotary dials for selection of space and zone number.
         4. Half-inch conduit knockout mounted.
         5. MicroSD for field software upgrades.
      2. Electrical:

\*\* NOTE TO SPECIFIER \*\* The following 2 paragraphs do not apply to Echo 600 W Dimmer. Delete if not required.

* + - * 1. 120- 277 V, 60 Hz power input.
        2. Normally Open (NO) 20 A fully-rated relay.

\*\* NOTE TO SPECIFIER \*\* The following 4 paragraphs apply to Echo 600 W Dimmer only. Delete if not required.

* + - * 1. 120 V or 277 VAC, 50/60 Hz power input.
        2. Phase-adaptive dimming variant, default reverse phase, auto-switches to forward phase depending on load type.
        3. Forward phase dimming variant for Magnetic loads dims in forward phase only
        4. 600W load capacity.

\*\* NOTE TO SPECIFIER \*\* Applies to Echo 0-10 V SmartSpace Controllers. Delete if not required.

* + - * 1. 0- 10 VDC ballast control (sink) rated for 100 mA maximum, fully isolated from ground.

\*\* NOTE TO SPECIFIER \*\* The following 2 paragraphs apply to Echo SmartSpace Controllers. Delete if not required.

* + - * 1. 24 VDC power output rated for 50 mA maximum.
        2. Dry contact input for Sensor status.
        3. EchoConnect Class 2 control network.

Topology-free wiring using Belden 8471 or equivalent and one No. 18 ESD drain wire.

Wiring may be bus, loop, homerun, or any combination of these.

\*\* NOTE TO SPECIFIER \*\* The Cat5/5e wiring is optional. Delete if not required.

* + - * 1. Cat5/5e wiring using Belden 1583A or equivalent.

Requires optional Cat5 termination accessories.

* + - 1. Operational Room Temperature: 14 to 113 degrees F (Minus 10 to 45 degrees C).
      2. Relative Humidity, Non-Condensing: 5 to 95 percent.
      3. Accessories: Model E4VB. 4 inch Box with voltage barrier.
      4. Presets Supported: 16.

\*\* NOTE TO SPECIFIER \*\* Delete product if not required or delete models not required. Multiple products and models may be specified.

* + 1. Product: Digital Room Controllers for lighting and pluggable loads: to be the UnisonEcho Room Controller by ETC, Inc.
       1. Model ERMC4-G2: Echo 4-zone Room Controller with four relays and four 0- 10 V dimming outputs.
       2. Model ERMCT4-G2: Echo 4-zone Room Controller with four relays, four 0- 10 V dimming outputs and TimeClock.
       3. Model ERMC8-G2: Echo 8-zone Room Controller with eight relays and eight 0- 10 V dimming outputs.
       4. Model ERMCT8-G2: Echo 8-zone Room Controller with eight relays, eight 0- 10 V dimming outputs and TimeClock.
       5. Mechanical:
          1. Finish: Fine-textured, black powder coat.
          2. Mounting: Wall, Flush-mount. Rated for installation in plenum air space.
          3. Mounting: Wall, Surface-mount. Rated for installation in plenum air space.
          4. Onboard configuration without use of software.

Rotary Switch: 16 position, assigns a starting zone number of the room controller. Additional zones will be assigned sequentially thereafter.

Contact input for use in UL 924 Emergency Systems.

* + - * 1. MicroSD for software upgrades.
        2. LED indicators:

UL924 Active: Red.

Demand Response Active: Green.

Contact Input Active: Green.

Station Power Supply Active: Green.

* + - 1. Electrical:
         1. Power Input: 120-277 Volts AC 47-63Hz for control electronics and each independent zone. Daisy Chain of an input to multiple control zones to be supported.

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + - * 1. UL924 Emergency Lighting Control Bypass: 20 A single-phase normal sense feed input.

\*\* NOTE TO SPECIFIER \*\* Voltage barrier is optional. Delete if not required.

* + - * 1. Voltage Barrier: To separate normal and emergency circuits or lighting and plug loads when combined in a single controller.
        2. Latching Relay for Each Output: 20A, fully rated.
        3. A 0-10V dimming output per zone supports 0-10V sink control rated for 100 mA per output.

0-10V wiring to be fully isolated from ground within Room Controller.

* + - * 1. EchoConnect control communications using Class 2 wiring:

Control network to utilize unshielded twisted pair, Belden 8471, or equivalent wire, plus one No. 14 ESD drain wire when not installed in grounded metal conduit. Use of Category 5, or better, control network wiring is also be supported when utilizing appropriate termination kits available from the manufacturer.

Topology free supporting wiring in bus, loop, star, or any combination of these.

* + - * 1. Zone Controllers support communication with 16 EchoConnect control products and 15 additional Echo output products.
        2. Room Controllers: UL and cUL Listed. Conform to UL 508 and UL 2043 Plenum rated standards.
      1. Functional:
         1. Automatic configuration to most energy-efficient control scheme based on other devices installed in same room or space.

Support operation in Auto-on/Auto-off, Manual-on/Auto-off and Manual-on/Manual-off modes based on the connected control devices without need for manual configuration.

* + - * 1. Available in 4 or 8 zone configurations with a 20A, fully- rated, relay output and 0-10V dimming output per zone.
        2. Support patching of relay and 0-10V dimming outputs to spaces and zones via the EchoAccess mobile app.
        3. UL924 Listed for emergency lighting circuits and activate only selected outputs. Excluded loads shall be shed and not produce output during emergency conditions.
        4. Activate a designated Echo control function upon receiving a contact closure on the Contact Input. Contact Input: Support normally open (NO) maintained, normally closed (NC) maintained or momentary toggle functionality.
        5. Support Demand Response input via contact closure. Upon input controller reduces maximum output to 70 percent of peak usage. 0-10V outputs support Demand Response maximum level threshold adjustment using a rotary fader and are assignable per circuit while measuring usage.

Support triggering Demand Response of external Echo Power Controllers over EchoConnect bus.

* + - * 1. Support commissioning without use of software or specialty configuration tools.

\*\* NOTE TO SPECIFIER \*\* Delete product if not required.

* + 1. Product: Unison Echo Architectural Control Processor by ETC, Inc. Works with Unison DRds to provide flexibility of a modular power-control rack to any installation. Supports control stations, DMX input, and Ethernet.
       1. Model E-ACP Echo Architectural Control Processor.
       2. Standards Compliance: cULus Listed. CE compliant.
       3. Features:
          1. For use with any EchoConnect-enabled station, sensor, or power controller.
          2. Snapshot: Connect a DMX input or set levels locally and then save to a Preset with the touch of a button.
          3. Plug and Play: No software or external programming required.
          4. Secure-It User Access: Multiple levels of secure user access at the interface.
          5. EchoConnect: Two-wire, topology-free system.
          6. Presets: 64 and 16 spaces.
       4. Mechanical:
          1. Designed for use in Unison DRd enclosures.
          2. Microprocessor-based, solid-state technology to provide multi-scene lighting.
          3. Fully-contained plug-in assembly with no discrete wire connections.
          4. Front-panel user interface with backlit LCD.
          5. Support for Secure Digital (SD) and Universal Serial Bus (USB) media on the front panel.
       5. Control Zone Capacity: 512.
          1. One physical DMX port for data input.
          2. One DMX thru port for DMX data through to other devices.
          3. sACN data input for level control. Four universes and six simultaneous sources.
       6. Configuration Data: Stored in non-volatile flash memory.
          1. Load to and from removable media (SD and USB).
       7. Local User Interface: Access to Dimming setup and status.
          1. Control for channels, presets, and sequence.
       8. Stations and Sensors:
          1. Connects to Echo Processors via topology-free EchoConnect control network.
          2. Supports 16 Echo control products, including stations and sensors.
          3. Supports 15 Echo output products, including distributed relays and dimmers.
       9. Operation:
          1. Support for 16-bit DMX attributes.
          2. Activate/Deactivate presets.
          3. Preset fade up, fade down, and hold times up to 60 minutes and 59 seconds.
       10. Electrical:
           1. No discrete wiring connections required.
           2. One ESTA DMX512A input and thru port.
           3. Supports ANSI E1.31; streaming CAN.
           4. System configuration and programming information stored in non-volatile flash memory.
       11. Operating Temperature Range: 32 to 104 degrees F (0 to 40 degrees C).
           1. Relative Humidity, Non-Condensing: 10 to 90 percent. non-condensing.

\*\* NOTE TO SPECIFIER \*\* Delete interfaces if not required or delete product and model options not required. Multiple products and models may be specified.

* + 1. Interfaces:
       1. Product: Unison Echo Expansion Bridge.
          1. Model: EEB Echo Expansion Bridge.
          2. Combines four Echo segments to create larger Echo control systems.
          3. Integrate Echo control systems into Unison Paradigm Systems allowing for Paradigm control and status indication.
          4. Allows for connection to EchoAccess Mobile App via a wireless access point.
       2. Product: Unison Echo BACnet Interface.
          1. Model: EBI Echo BACnet Interface.
          2. Reports real-time Echo system status to BACnet system.
          3. Reporting of all Echo control points are supported.
          4. Integrates Echo lighting system into building-wide monitoring and management systems.
          5. Accepts standard BACnet control commands.
       3. Product: Unison Echo Integration Interface.
          1. Model: EII Echo Integration Interface.
          2. Reports real-time Echo system status to the third-party system.
          3. Accepts predefined UDP commands.
          4. Compatible with all Echo products.
          5. Definable subscription addresses for security.
       4. Product: Unison Echo Contact Interfaces.
          1. Model: ECII Echo Contact Input Interface.
          2. Model: EDRI Echo Demand Response Interface.
          3. Model: ECOI Echo Contact Output Interface.
          4. Available with 4 inputs, Demand Response, or 4-outputs.
          5. Input and Demand Response interface support wet or dry contacts.
          6. Inputs a support momentary or maintained closures (per input).
          7. Demand Response supports maintained closures.
          8. Outputs provides triggers for third-party systems.
          9. Outputs support normally open or normally closed operation per output.
          10. Programmable through EchoAccess mobile app.
          11. DIN rail mounted for simple installation.
       5. Product: Unison Echo DMX Scene Controller.
          1. Model: EDMXC Echo DMX Scene Controller.
          2. DMX input for snapshot capture of lighting scenes.
          3. 32 presets of 512 DMX addresses.
          4. Sequence playback of presets.
          5. Echo control of 16 patched DMX Zones.
          6. Works with EchoAccess and Inspire Four-Button with Fader Station for live control of intensity, hue and saturation or color temperature of Echo zones.
          7. Basic and custom-use modes.
          8. Configurable Power On Behavior, DMX Loss Action, and DMX Active Action.
          9. Demand Response integration.
       6. Product: Unison Echo-Echoflex Interface.
          1. Model: EEI Echo-Echoflex Interface.
          2. Four Echoflex product inputs to trigger Echo Presets.
          3. Four Echo zone outputs to control Echoflex power products.
          4. Onboard configuration and testing tools.
          5. Input and output status indicators.

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + - * 1. External antenna.
      1. Product: Unison Echo EchoAccess Interface.
         1. Model: EACC EchoAccess Interface.
         2. Communication from EchoAccess mobile app to devices on EchoConnect system bus via Bluetooth Smart.
         3. Mobile app available for Android and iOS.
         4. Preset, zone and color control for Echo products.
         5. Advanced feature configuration of Echo products.
      2. Standards Compliance: UL and cUL Listed. CE Compliant.
         1. California Title 24 compliant.

\*\* NOTE TO SPECIFIER \*\* The following two paragraphs apply to Echo BACnet and Integration Interfaces. Delete if not required.

* + - * 1. RoHS compliance.
        2. WEEE.

\*\* NOTE TO SPECIFIER \*\* Delete functional paragraphs not required.

* + - 1. Functional: Unison Echo Expansion Bridge.
         1. Combines four Echo Control Segments to create a single larger Echo control system with the following maximums:

4 Power Supplies. As needed based on system size.

64 Control Products: Stations, Sensors, and Interfaces.

64 Output Products: Zone Controllers, Panel Power Products, DMX Scene Controller, EEI.

Zones per space: 16.

Spaces per bridge: 16.

* + - * 1. Connects to a wireless access point to allow the EchoAccess Mobile App to connect to the Echo system via Wi-Fi.
        2. Allows Paradigm systems to control and display status of the following:

Echo Presets.

Echo Zones.

Echo Space Combine.

Echo Space Lockout.

* + - * 1. Paradigm supports a maximum of 16 Expansion Bridges per Paradigm Control Processor and a maximum of 128 Bridges per Paradigm Project.
      1. Functional: Unison Echo BACnet Interface:
         1. Integrates with any BACnet IP system.
         2. Uses default BACnet commands.
         3. Reports the status of the following to a BACnet system:

Zones, Presets, Space Occupancy, Space Lockout, Timed Event Hold, and Demand Response.

* + - * 1. Allows a BACnet system to control the following:

Zones, Presets, Space Lockout, Timed Event Hold, and Demand Response.

* + - 1. Functional: Unison Echo Integration Interface.
         1. Integrates with any system that supports User Datagram Protocol (UDP) strings
         2. Reports the status of the following to an external system: Zones, Presets, and Sequences.
         3. Allows an External System to Control the Following: Zones, Presets, and Sequences.
      2. Functional: Unison Echo Contact Interfaces.
         1. Integrates with all Echo System products.
         2. Input Interface provides four contacts in to trigger Echo presets, zones, space combine, etc.
         3. One input per contact input interface can be used to trigger space occupancy.
         4. Demand Response Interface provides trigger of Demand Response in Echo Spaces, one space per input.
         5. Output Interface opens and closes relays based on zone, preset, occupancy, or other control status.
      3. Functional: Unison Echo DMX Scene Controller.
         1. Direct control or Recall prerecorded scenes for playback using DMX.
         2. DMX input for snapshot recording up to 32 presets.
         3. DMX output for up to 512 addresses.
         4. Sequence playback of presets.
         5. Use any Unison Echo station for preset or sequence playback.
         6. Supports DMX pass-through for real-time output of incoming level when recording snapshots.
         7. Meets USITT DMX-512A specifications.
         8. EchoAccess configurable Power On Behavior, DMX Loss Action, and DMX Active Action.
         9. Demand Response integration options.
      4. Functional: Unison Echo EchoAccess Interface.
         1. Remote control of preset activation/deactivation, record, raise, lower, zone on/off control and room combine.
         2. Control of Zone Intensity, Color, Tint, and Color Temperature.
         3. Configuration of all Echo Control and Output Products.
         4. Configurable security levels for both connection and configuration.
      5. Functional: Unison Echo-Echoflex Interface.
         1. Receives wireless trigger from Echoflex system and translates it into an Echo preset trigger.
         2. Receives zone level from Echo system and translates it into a wireless Echoflex command.
         3. Compatible with Echo stations, sensors, interfaces, and power controllers.
         4. Compatible with Echoflex station, sensors, and a power controllers.
      6. Mechanical:

\*\* NOTE TO SPECIFIER \*\* Does not apply to Unison EchoAccess Interface. Delete if not required.

* + - * 1. Din-rail mounting complies with DIN43880 (35/7.5 rail).

\*\* NOTE TO SPECIFIER \*\* The following paragraph applies only to the EchoAccess Interface. Delete if not required.

* + - * 1. Flush-mount in industry standard backbox, RACO 690 or equivalent Constructed of injection-molded, ABS plastic.

\*\* NOTE TO SPECIFIER \*\* Applies to Unison Echo Expansion Bridge, BACnet Interface and Integration Interface. Delete if not required.

* + - * 1. Intuitive four-button interface and onboard display for identification, status, and configuration.

\*\* NOTE TO SPECIFIER \*\* The following three paragraphs apply to Unison Echo Contact Interfaces. Delete if not required.

* + - * 1. Four integrated contact input terminals or four integrated contact output terminals.
        2. Toggle switch for Basic and Custom and Config Mode.
        3. Contact Status and power indicators:

Green status indicator.

Blue power indicator.

\*\* NOTE TO SPECIFIER \*\* The following three paragraphs apply to Unison Echo DMX Scene Controllers. Delete if not required.

* + - * 1. One integrated DMX-input and one integrated DMX-output port.
        2. Toggle switches for DMX-Termination and Config Mode.
        3. DMX-In, DMX-Out and power indicators.

Blue power indicator.

Bi-color DMX activity indicator.

\*\* NOTE TO SPECIFIER \*\* The following 3 paragraphs apply to Unison Echo EchoAccess Interfaces only. Delete if not required.

* + - * 1. Gangable for custom applications.
        2. Enclosed electronics assembly and faceplate included.
        3. Power and Bluetooth activity indicators.

Blue power status indicator.

Amber Bluetooth activity indicator.

\*\* NOTE TO SPECIFIER \*\* The following paragraph applies to Unison Echo Echoflex Interfaces only. Delete if not required.

* + - * 1. Buttons and LED indicators for wireless inputs and wired output configuration and status.
      1. Electrical:
         1. MicroSD card slot for firmware maintenance.
         2. Connects to two-wire EchoConnect control networks through low-voltage Class 2 wiring.

Topology-Free Wiring: Belden 8471 and No. 14 ESD drain wire.

Two No. 16 AWG wires for 24 VDC auxiliary power when required.

\*\* NOTE TO SPECIFIER \*\* Optional Control wiring. Delete if not required.

Belden 1583A or equivalent Ethernet control wire when used with Cat5 termination accessories.

\*\* NOTE TO SPECIFIER \*\* The following 2 paragraphs apply to Unison Echo Expansion Bridge, BACnet Interface, Integration Interface only. Delete if not required.

* + - * 1. Supports PoE or 24VDC.
        2. Compliant with IEEE 802.3i for 10BASE-T, 802.3u for 100BASE-TX and 802.3af for Power over Ethernet.

\*\* NOTE TO SPECIFIER \*\* The following paragraph applies to the Unison Echo Contact Interfaces, DMX Scene Controller, and Echoflex Interface. Delete if not required.

* + - * 1. Supports 24 VDC.

\*\* NOTE TO SPECIFIER \*\* The next 2 paragraphs apply to Unison Echo-Echoflex Interfaces. Delete if not required.

* + - * 1. 902 MHz wireless radio.
        2. 80 ft (24 m) open-air transmission range.
      1. Operational Room Temperature: 32 to 122 degrees F (0 to 50 degrees C).
      2. Relative Humidity Non-Condensing: 5 to 95 percent.

\*\* NOTE TO SPECIFIER \*\* Applies to Unison Echo Contact Interfaces. Delete if not required.

* + - 1. Contact and Demand Response Inputs:
         1. Four pairs of terminal connectors support In and V-Out per input.
         2. Wet or dry contact closure per input.
         3. Momentary or Maintained input supported per contact.
         4. Each input supports up to 2000 feet of 18 AWG wire; 1000 ft to a switch, 1000 ft back to device, when device is fed with 24 VDC input.

\*\* NOTE TO SPECIFIER \*\* Applies to Unison Echo Contact Interfaces. Delete if not required.

* + - 1. Contact Outputs:
         1. Four sets of terminal connectors for relay outputs.
         2. LED status indicator per input indicates current output state.

\*\* NOTE TO SPECIFIER \*\* Applies to Unison Echo DMX Scene Controller. Delete if not required.

* + - 1. DMX Ports:
         1. Eight-position removable pluggable connectors for in and out ports.

Connectors designed for use with Belden 9729.

Optional headers available for use with Belden 1583A.

* + - * 1. Input is fully optically isolated from controller electronics.
        2. Withstands fault voltages up to 250 VAC.
        3. Integrated DMX termination.

\*\* NOTE TO SPECIFIER \*\* Applies to Unison Echo DMX Scene Controller. Delete if not required.

* + - 1. EchoAccess Configuration Option:
         1. DMX Output Refresh Rate.
         2. Preset Timings.
         3. Definable Power On, DMX Loss, and DMX Active behavior.

\*\* NOTE TO SPECIFIER \*\* Delete sensors if not required or delete product and model options not required. Multiple products and models may be specified.

* + 1. Sensors:

\*\* NOTE TO SPECIFIER \*\* Delete product and model options not required.

* + - 1. Product: Unison Echo Light Sensor.
         1. Model ELS: Echo Light Sensor with Controller.
         2. Model ELSC: Echo Light Sensor Controller Only.
         3. Model ELSH: Echo Light Sensor Head Only.
      2. Product: Unison Echo Dual Tech Occupancy and Vacancy Sensors.
         1. Model E-DOC-C: Dual Tech Ceiling Occupancy Sensor.
         2. Model E-DVAC-C: Dual Tech Ceiling Vacancy Sensor.
      3. Product: Unison Echo Dual Tech Switch Mount Sensors.
         1. Model E-DOC-SM1: 1-Button Switch Mount Dual Tech Sensor.
         2. Model E-DOC-SM2: 2-Button Switch Mount Dual Tech Sensor.
      4. Product: Unison Echo PIR: Occupancy and Vacancy Sensors.
         1. Model EOCC: PIR Ceiling Occupancy Sensor.
         2. Model EVAC: PIR Ceiling Vacancy Sensor.
      5. Standards Compliance: cULus Listed. CE compliant.

\*\* NOTE TO SPECIFIER \*\* The following paragraph applies to Unison Echo Light Sensor. Delete if not required.

* + - 1. Functional:
         1. Configurable on and off set points.
         2. Preforms space raise and lower for controllers configured to the same space.
         3. Configurable delay/offset.
         4. Light Sensor can be mounted within controller housing or remotely; filler included for remote head applications.
         5. Support for up to two sensors with averaging of light levels.
         6. Single Light Sensor for indoor, outdoor and atrium use.

\*\* NOTE TO SPECIFIER \*\* Applies to Unison Echo Dual Tech Occupancy and Vacancy Sensors. Delete if not required.

* + - 1. Functional:
         1. Occupancy sensors support configurable auto-on/auto-off functionality (occupancy sensing) functions.
         2. Vacancy sensors support configurable manual-on/auto-off (vacancy sensing) functions.
         3. Ceiling Sensor:

360-degree coverage pattern.

Includes configurable coverage masks.

Small Room, Large Room, and High Ceiling Coverage Patterns.

* + - * 1. Wall Sensors:

Wide and Narrow coverage patterns.

* + - * 1. Supports walk-thru mode for verifying coverage area.

Sensor lens illuminates for walk-thru and test mode.

* + - * 1. Sensor coverage tested to NEMA WD 7-2000.

\*\* NOTE TO SPECIFIER \*\* Applies to Unison Echo Dual Tech Switch Mount Sensors. Delete if not required.

* + - 1. Functional:
         1. Zone or preset control from any station.
         2. Blue button illumination for active status.
         3. Amber or no button illumination for inactive status.
         4. Supports configurable auto-on/auto-off functionality (occupancy sensing) functions.
         5. Supports walk-thru mode for verifying coverage area.

Sensor lens illuminates for walk-thru and test mode.

* + - * 1. Sensor coverage tested to NEMA WD 7-2000.

\*\* NOTE TO SPECIFIER \*\* Applies to Unison Echo PIR Occupancy and Vacancy Sensors. Delete if not required.

* + - 1. Functional:
         1. Occupancy sensors supports configurable auto-on/auto-off functionality (occupancy sensing) functions.
         2. Vacancy sensors supports configurable manual-on/auto-off (vacancy sensing) functions.
         3. 360 degree coverage pattern: Includes configurable coverage masks.
         4. Connects to EchoConnect, no additional power pack required.
         5. Supports walk-thru mode for verifying coverage area.

Sensor lens illuminates for walk-thru and test mode operation.

* + - * 1. Small Room, Large Room, and High Ceiling Coverage Patterns.
        2. Sensor coverage tested to NEMA WD 7-2000.
      1. Mechanical:
         1. No visible means of attachment.
         2. Constructed of injection-molded, ABS plastic.

\*\* NOTE TO SPECIFIER \*\* Applies to Unison Echo Light Sensor, PIR Occupancy and Vacancy Sensors, and Dual Tech Occupancy and Vacancy Sensors. Delete if not required.

* + - * 1. Ceiling Mount - Surface or box mountable using included mounting plate.

Supports drywall, plaster, wood, and concrete mounting.

Mounts to any standard ceiling electrical box (supplied by others).

Mounts to compressed-fiber ceilings using wire-form adapter.

\*\* NOTE TO SPECIFIER \*\* The following paragraph applies to Dual Tech Occupancy and Vacancy Wall-mount Sensors. Delete if not required.

* + - * 1. Wall Mount: Flush-mount to industry standard backbox, RACO 690 or equivalent.

\*\* NOTE TO SPECIFIER \*\* The following 2 paragraphs apply to Unison Echo Light Sensor. Delete if not required.

* + - * 1. Supports internal or remote mounting of light sensor.

Remote light head mounts to any 1/2 or 3/4 inch knockout.

* + - * 1. Remote Heads use conformal-coated circuit boards resistant to corrosion from moisture.

IP65 rated when used with a weather-tight backbox.

\*\* NOTE TO SPECIFIER \*\* The following 7 paragraphs apply to Unison Echo Dual Tech Switch Mount Sensors. Delete if not required.

* + - * 1. Standard configurations with 1 or 2 buttons.
        2. Gangable with Inspire Control Stations for custom applications.
        3. Cantilevered switch arrays with removable button caps.
        4. Flush-mount in industry standard backbox, RACO 690 or equivalent.
        5. Surface-mount backboxes available from ETC upon request.
        6. User configurable legends on each button or use standard legends that come with each station. Field configurable without the use of tools.
        7. Color matched faceplate included.
      1. Electrical:
         1. Connects via EchoConnect control network. Low-voltage Class 2 wiring.

Topology-free and polarity-independent wiring over Belden 8471 and one No. 14 ESD drain wire.

Wiring: Bus, loop, homerun, or any combination of these.

* + - * 1. Control Wiring per System: Up to 1640 ft (500 m).

\*\* NOTE TO SPECIFIER \*\* Applies to Unison Echo Dual Tech Switch Mount Sensors. Delete if not required.

* + - * 1. Station terminations utilize removable connectors.

\*\* NOTE TO SPECIFIER \*\* Applies to Unison Echo Light Sensors. Delete if not required.

* + - 1. Environmental:
         1. Light Sensor Controller:

Operating Temperature Range: 32 to 158 degrees F (0 to 70 degrees C).

Relative Humidity Non-Condensing: 10 to 100 percent.

* + - * 1. Light Sensor Remote Head: Installed indoors or on an outdoor weatherproof enclosure.

Operating Temperature Range: Minus 13 to 158 degrees F (Minus 25 to 70 degrees C).

Relative humidity Non-Condensing: 10 to 100 percent.

\*\* NOTE TO SPECIFIER \*\* Delete if specifying Unison Echo Light Sensors.

* + - 1. Environmental:
         1. Operating Temperature Range: 32 to 104 degrees F (0 to 40 degrees C).
         2. Relevant Humidity Non-Condensing: 30 to 90 percent maximum.

\*\* NOTE TO SPECIFIER \*\* Delete time clock paragraph if not required.

* + 1. Time Clock:
       1. Product: Unison Echo TimeClock.
          1. Model E-ATC: Echo TimeClock Station.
       2. Functional:
          1. Home screen displays time, date, and any active tasks.
          2. Ability to hold current preset for timed-event override (up to two hours).
          3. Supports up to 16 presets.
          4. Supports every day, weekday, weekends, and day of week recurrence.
          5. Supports Time-of-day, sunrise with offset, and sunset with offset events.
          6. Supports 50 events.
          7. Supports up to 16 control spaces.
       3. Mechanical:
          1. Mounts in flush-mount, industry-standard, two-gang backboxes.
          2. Surface-mount backboxes available from ETC.
          3. High-contrast, backlit graphical LCD.
          4. Six-button menu-navigation keypad.
          5. Locking cover available.
          6. Fully enclosed electronics assembly.
       4. Electrical:
          1. Connects via EchoConnect control network. Low-voltage Class 2 wiring.

Topology-free and polarity-independent wiring over Belden 8471 and one No. 14 ESD drain wire.

Wiring: Bus, loop, homerun, or any combination of these.

* + - * 1. Control Wiring per System: Up to 1640 ft (500 m).

\*\* NOTE TO SPECIFIER \*\* Delete stations if not required or delete product and model options not required. Multiple products and models may be specified.

* + 1. Stations:
       1. Product: Unison Echo Inspire Control Stations. Initiate preset, zone, and space controls for entire system. Communicates with dimmers, relays, and power control panels.
          1. Model E1001: Inspire 1-Button Control Station.
          2. Model E1002: Inspire 2-Button Control Station.
          3. Model E1004: Inspire 4-Button Control Station.
          4. Model E1006: Inspire 6-Button Control Station.
          5. Model E1008: Inspire 8-Button Control Station.
          6. Model E1104: Inspire 4-Button with Fader Control Station.
       2. Product: Unison Echo Keyswitch Station. Enables security for stations within an Echo Space. While lockout station is active all stations are disabled to prevent unwanted control activation.
          1. Model EPSKS: Echo Key switch Station.
       3. Product: Unison Echo Preset Stations. Allow recall of presets in ETC power control products that support EchoConnect.
          1. Model EPS05: Five-Button Preset Station.
          2. Model EPS10: F 10-Button Preset Station.
       4. Standards Compliance: cULus Listed. CE Certified.

\*\* NOTE TO SPECIFIER \*\* Applies to Unison Echo Inspire Control Stations. Delete if not required.

* + - 1. Functional:
         1. Button and Fader Functions: preset activation/ deactivation, record, raise, lower, zone on/off control and room combine.
         2. Blue button illumination for active status.
         3. Amber or no button illumination for inactive status.
         4. Fader halo-illumination displays actual output level.
         5. Zone or preset control from any station with real-time user toggle.

\*\* NOTE TO SPECIFIER \*\* Applies to Unison Echo Keyswitch Stations. Delete if not required.

* + - 1. Functional:
         1. Rotary switch assigns space to be locked out.
         2. Activating lockout causes the system to ignore all button actuations within the assigned space.

\*\* NOTE TO SPECIFIER \*\* Applies to Unison Echo Preset Stations. Delete if not required.

* + - 1. Functional:
         1. Button functions: preset activation/ deactivation, record, raise, lower, zone on/off control and room combine.
      2. Mechanical:
         1. Enclosed electronics assembly and faceplate included.
         2. No visible means of attachment.
         3. Flush-mount in industry-standard backbox, RACO 690 or equivalent.
         4. Surface-mount backboxes available from manufacturer.
         5. Constructed of injection-molded, ABS plastic.
         6. Cantilevered switch arrays with removable button caps.

\*\* NOTE TO SPECIFIER \*\* The next two paragraphs apply to Unison Echo Inspire Control Stations. Delete if not required. Configurations with 1, 2, 4, 6 and 8 buttons or 4 buttons and rotary fader.

* + - * 1. User configurable legends on each button or use standard legends that come with each station. Field configurable without the use of tools.
        2. Integral LED response indicator for each button with indication of active(blue) and inactive(amber or off) state.

\*\* NOTE TO SPECIFIER \*\* Applies to Unison Echo Keyswitch Stations. Delete if not required.

* + - * 1. Integral red LED indicator shows lockout state.

\*\* NOTE TO SPECIFIER \*\* The next two paragraphs apply to Unison Echo Keyswitch and Preset Stations. Delete if not required.

* + - * 1. Indelibly marked legends in a contrasting color.
        2. Integral LED response-indicator for each button configurable per station in 16 standard colors.
      1. Electrical:
         1. Connect via EchoConnect control network. Low-voltage Class 2 wiring.
         2. Topology-free wiring over Belden 8471 and one No. 14 ESD drain wire.

Control Wiring: 1640 ft (500 m).

* + - * 1. Belden 1583A or equivalent Ethernet control wire when used with Cat5 termination accessories.

Control Wiring: 1000 ft (300 m)using CAT5.

* + - * 1. Wiring: Bus, loop, homerun, or any combination of these.
        2. Station Terminations: Removable connectors.
      1. Operating Temperature Range: 32-122 degrees F (0-50 degrees C).
      2. Relevant Humidity Non-Condensing: 5-95 percent maximum.
    1. Power Modules:
       1. Product: Unison EchoConnect Station Power Supply by ETC Inc.
          1. Model E-SPS-DIN Mk2: DIN Rail Mount Station Power Supply with 24 V Aux.
          2. Model E-SPM-A: DRd Station Power Module with 24 V Aux.
          3. Model E-SPS: Echo Station Power Supply, Knockout Mount.
          4. Model E-APS2: 24 V Aux Power Supply, Knockout Mount.
          5. Model E-SPS-DIN Mk2 KIT: E-SPS-DIN Mk2 in a DIN8 Enclosure.
       2. Convert Input Power into Class II Low-Voltage Power with data line. Energize control stations, zone controllers, time clock, and devices for multi-scene lighting control.
       3. Electrical:
          1. Utilize line-voltage power supplied by contractor, terminated inside dimming enclosure, or power supply.
          2. EchoConnect Communications with Remote Devices: Control stations, zone controllers, time clock stations and other devices.
          3. EchoConnect Network: Low-voltage Class II twisted pair wiring, type Belden 8471 (unshielded) or Belden 8719 (shielded). And one No 14 AWG drain wire for system not using grounded metal conduit.

Topology Free Network: Bus, loop, home run, star, or any combination.

Control Bus Wiring: Permit total wire runs of 1640 ft (500 m)

Wiring Between Stations: Not to exceed 1313 ft (400 m).

CAT5 Wiring: For systems not requiring topology free infrastructure or EchoConnect bus lengths not more than 1000 ft (305 m).

* + - 1. Capacity: Power for up to 16 control stations, zone controllers, time clock stations and other devices, and/or provide 24 V Auxiliary Power to devices that require it.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Touchscreen Control Stations to be Unison Echo EchoTouch Controller Mk2 by ETC, Inc. Controls 512 DMX addresses on up to 80 control zones.
       1. Standards Compliance: cULus Listed and CE Compliant. FCC Compliant.
       2. Operation: Graphic buttons, faders, and images on at least 7 user programmable default and fully graphical control pages.
       3. Touchscreen: Integrated with ETC Unison Echo Controls.
          1. Seven-inch, backlit liquid crystal display. Resolution: 800 by 400 pixels minimum, with capacitive multi-touch interface.
          2. Bezels: Cast aluminum. Finish: Fine texture powder coat.

Four colors: Cream, Gray, Black, or Signal White.

No visible means of attachment.

* + - * 1. Supports Surface, Flush and Rack Mounting.

Flush-mount: To industry standard 3 gang back box.

Surface Back Box Dimensions (WxHxD): 7.35 x 4.88 x 3.5 inches 187 x 124 x 3.5 89 mm) available from Manufacturer.

Rack Mounting: Fit in standard 19 inch (483 mm) racks, no taller than 3 EIA rack units.

* + - 1. Electrical:
         1. RJ45 Ethernet Port: Connection to lighting system and Power over Ethernet.
         2. Control Wiring: EchoConnect Connection terminals.

Low-voltage, Class II unshielded twisted pair, type Belden 8471 and one No. 14 ESD drain wire; when not installed in grounded metal conduit.

Topology free. Point-to-point, bus, loop, home run or any combination.

* + - * 1. Power Input, Non-PoE: Two, No. 16 AWG stranded wires for 24 VDC.
        2. Typical Power Draw: 400 mA.
        3. Firmware Maintenance: USB type A connector.
        4. Network:

Network Cabling: Category 5 or better. Conform to TIA-568A/B. Installed by qualified network installers.

* + - * 1. Functional System:

Presets: 64. Contained in non-volatile electronic memory.

Internal sequences: 4. Record user-selected zone levels.

Touchscreen: Equipped with on-board help system.

Software upgrades: Via USB drive only.

USB Port: Show data to be saved for archival or transfer to other consoles or a personal computer.

* + - * 1. Patching: Facilities for dimmers and multi-parameter devices via built in library of fixture definitions.

Fixture Library: Updated via software based updates. Create custom fixture definitions using offline application.

Touchscreen: Support patching, address setting, and mode changes using Remote Device Management (RDM) on local DMX/RDM port.

* + - * 1. Playback Control: Customizable zone display. Rearrange graphical representations for control channels to mimic fixture positions in installation.

Seven user customizable interactive pages.

Color and white pickers.

Touch-based parameter controls with reference-based palettes.

Virtual level wheel.

* + - * 1. Layout and Configuration: View and modify layout of user pages.

Add, remove, or edit the following items: Preset buttons. Off buttons. Sequence buttons. Zone and space modifier buttons. Space combine buttons. Zone fader.

Three Options for Inactivity: Dim screen to level. Turn screen off. Display user chosen inactivity image.

Multiple Configurations: May be stored within an LCD Station.

* + - 1. Time Clock: Touchscreen built-in astronomical and real time event engine allowing presets and sequences activation.
         1. Support 80 Events: Astronomical, real-time, and manual control events in 16 control spaces.
         2. Timed Events: Programmable via Touchscreen.

Assigned to day types.

Day Types: everyday, weekday, weekend, and day of week.

Activation: Based on sunrise, sunset, time of day, opened and closed events and configurable state based engine.

Compensate for regions using daylight saving time.

Assignment to events via time clock user interface.

Resumes automatically after power loss.

* + - * 1. Support timed event hold. Timed Event Hold: Meet CA Title 24 requirements.
      1. External Control: Control of lighting system through built-in UDP integration.
         1. Supports full control of lighting system using UDP strings.

Security settings to limit incoming control strings to subscribers-only.

* + - * 1. Supports up to two subscribers for receiving status messages.
        2. Control and status integrations from 3rd party systems include:

Zones.

Channels.

Presets.

Spaces.

Sequences.

Lockout.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. ARCHITECTURAL CONTROLS - PARADIGM

\*\* NOTE TO SPECIFIER \*\* Delete paragraphs not required. Delete Product and model options not required. Multiple products and models may be specified.

* + 1. Touchscreens:
       1. Product: Unison Paradigm 18 inch Touchscreen Control Station by ETC, Inc. High-resolution interface, Configurable graphic interface with controls and information displays required for managing lighting systems.
          1. Model P-TS-18: Paradigm 18 inch Table Top Touchscreen.
       2. Product: Unison Paradigm Handheld Touchscreen by ETC, Inc.
          1. Model P-TS7-H: Handheld Touchscreen Station.
       3. Product: Unison Paradigm Portable Touchscreen by ETC, Inc.
          1. Model P-TS7-P: 7 in Portable Touchscreen (LinkConnect).
          2. Model P-TS7-PE: 7 in Portable Touchscreen (NetConnect/Ethernet).
       4. Product: Unison Paradigm 7 inches Touchscreen by ETC, Inc.
          1. Model P-TS7-E-X: Paradigm 7 inch Touchscreen.
       5. Standards Compliance: UL and cUL LISTED. CE Compliant.
       6. Functional:
          1. Built-in setup interface, separate from user configured pages.
          2. Configuration Upload from the Following Sources:

LightDesigner software.

USB Flash Drive, via built in USB port.

SD media.

* + - * 1. Ability to store multiple configurations and to select which configuration is active from an on-screen menu.
        2. Allows at least 30 separate control pages.
        3. Control Functions:

Individual zone control.

Preset record and selection.

Room Combine Controls.

Preset, color, sequence, macro, and custom function activation.

Change, initiate, or override timed events.

Multi-level electronic lockout.

* + - * 1. Custom controls configured from LightDesigner software.
        2. Custom graphics configured from ControlDesigner software.

\*\* NOTE TO SPECIFIER \*\* Delete the next two paragraphs if not specifying Unison Paradigm Touchscreen Interface.

* + - * 1. Supports Windows 7 and newer HID compliant Touchscreen Displays.
        2. Software controlled lock-out and control visibility using up to 5 unique passcodes.

\*\* NOTE TO SPECIFIER \*\* Applies to 18 inch Touchscreen Control Station. Delete if not required.

* + - 1. Mechanical:
         1. Adjustable brightness and contrast for low light conditions.
         2. Backlit, color 18.5 inch LCD display with capacitive touchscreen interface.

Resolution: 1366x768 WXGA TFT resolution.

Pixel Pitch: 300 vertical and horizontal.

Luminance: 250 candles per sq m.

Response Time: 5 ms.

Viewing Angle: 170 degrees vertical, 160 degrees horizontal.

* + - * 1. 100mm x 100mm VESA mountable.
        2. Fanless operation.
        3. Mounting: Table stand, Wall-mount, or Rack-mount.

\*\* NOTE TO SPECIFIER \*\* Applies to Handheld and Portable Touchscreen. Delete if not required.

* + - 1. Mechanical:
         1. LED-backlit, color LCD display with touchscreen interface.
         2. Aluminum enclosure in black anodized finish.
         3. Adjustable brightness and contrast for low light conditions.
         4. 7 inch WVGA display (800x480) with 24-bit color.

\*\* NOTE TO SPECIFIER \*\* Delete remaining paragraphs if specifying Handheld Touchscreen.

* + - * 1. LCD touchscreen covered by lid when in closed position.
        2. 15 ft attached cable (LinkConnect model only).
        3. 10 ft removable cable (NetConnect model only).

\*\* NOTE TO SPECIFIER \*\* Optional accessory. Delete if not required.

* + - * 1. 1U 19 inch Rackmount kit.

\*\* NOTE TO SPECIFIER \*\* Applies to Paradigm 7 inch Touchscreen. Delete if not required.

* + - 1. Mechanical:
         1. Color LCD display with projected capacitive touchscreen interface with LED backlight.
         2. 178 degree horizontal and vertical viewing angle.
         3. Low-profile aluminum bezel finished in a fine-texture powder coat paint.
         4. No visible means of attachment.
         5. Manufacturer provided back boxes for surface and flush mount applications.
         6. Adjustable brightness and contrast for low light conditions.
         7. 7 inch WVGA, display (800x480).

\*\* NOTE TO SPECIFIER \*\* Applies to 18 inch Touchscreen Control Station. Delete if not required.

* + - 1. Electrical:
         1. 120-240 VAC power Input to included 12 VDC power supply.
         2. Built in over current and surge protection.
         3. RJ-45 Socket for wiring over CAT 5/ 5e/ 6 standard Ethernet cable to the control system.
         4. USB connectors for configuration and software upload.

\*\* NOTE TO SPECIFIER \*\* Applies to Handheld Touchscreen. Delete if not required.

* + - 1. Electrical:
         1. Connect using MeshConnect or a docking station.
         2. MeshConnect control network.

Wireless communication using IEEE 802.15.4 ZigBee.

Requires Paradigm Wireless Access or Docking Station.

Recharges when docked in a Docking Station, or using a standard mini-USB charger (not provided).

* + - * 1. Touchscreen Powered by integral Lithium-Ion battery:

Minimum six hours continuous use.

Minimum ten hours standby time.

* + - * 1. Ethernet connection when used with optional Docking Station.

\*\* NOTE TO SPECIFIER \*\* Applies to Portable Touchscreen. Delete if not required.

* + - 1. Electrical:
         1. Connection to Unison Paradigm control system using Unison Heritage portable plug-in stations (UH1RS) or Ethernet Stations (UH-NET).
         2. Linkconnect Network uses Topology free and polarity independent Class 2 control network over Belden 8471 plus two No. 16 for 24 VDC AuxPower and one No. 14 ESD drain wire.

Wiring may be buss, loop, home-run, or any combination of these.

* + - * 1. NetConnect wiring uses standard Ethernet Infrastructure over twisted pair ethernet.

Star topology using standard PoE Ethernet Switches.

PoE Class 2 Device (6 W).

\*\* NOTE TO SPECIFIER \*\* Applies to Paradigm 7 inch Touchscreen. Delete if not required.

* + - 1. Electrical:
         1. Connection to Paradigm Control System utilizes standard Ethernet (CAT5/ 5e).

Powered by Power over Ethernet, PoE Class 2 (6-watts).

Requires ground wire.

* + - 1. Operating Temperature Range: 32 to 104 degrees F (0 to 40 degrees C).

\*\* NOTE TO SPECIFIER \*\* Delete if specifying Unison Paradigm Touchscreen.

* + - 1. Relevant Humidity Non-Condensing: 10 to 95 percent.

\*\* NOTE TO SPECIFIER \*\* Delete if not specifying Unison Paradigm Touchscreen.

* + - 1. Relevant Humidity Non-Condensing: 0 to 90 percent.
    1. Wireless Touchscreen Docking Stations:
       1. Product: Unison Paradigm Handheld Touchscreen Docking Station by ETC, Inc.
          1. Model P-LCD-DOCK: Handheld Touchscreen Docking Station.
       2. Standards Compliance:
          1. UL and cUL Listed. CE Compliant.
          2. Meets or exceeds EN60950-1, N55103-1, EN55103-2, and IEC1000-4-2.
       3. General:
          1. Wireless connection between Wireless Touchscreens and control system.
          2. Wired connection of a docked Wireless Touchscreen to control system.
          3. Charging of a docked Wireless Touchscreen to control system.
          4. Location awareness to automatically load a specific configuration to any connected touchscreen station.
          5. Configured using LightDesigner configuration software.
          6. Use on table tops and podiums without modification.
       4. Mechanical:
          1. Black anodized extruded aluminum base.
          2. Clear anodized extruded aluminum docking cradle.
          3. Articulating docking cradle supports tilting from 15 degrees to 75 degrees.
          4. Magnetic retention of docked touchscreen station.
          5. Secure cable attachment using a standard Kensington locking cable.
          6. Ten-pin docking connector for high-speed data connection between docked handheld station and control system.
          7. Low-profile wireless antenna.
          8. Six-foot Cat5, RJ-45 cable included.
          9. Rear panel wiring connections for Ethernet and power.

Ethernet Connections: Standard RJ45 connection.

Power Connections: 3mm barrel plug connector.

* + - * 1. Non-slip, non-marking, rubber feet mounted on bottom of dock to prevent slipping on angled and flat surfaces.
      1. Electrical:
         1. 12 Vdc power supply (included) or PoE power input.
         2. Connects to lighting control system using NetConnect.

Standard Ethernet networking with Power over Ethernet.

Compliant with IEEE 802.3i for 10BASE-T networks.

Compliant with IEEE 802.3u for 100BASE-TX networks.

Compliant with IEEE 802.3af for Power over Ethernet.

* + - * 1. MeshConnect communication with Handheld Touchscreen uses IEEE 802.15 low-power ZigBee communication.
        2. Charging Capabilities for Handheld Touchscreen:

Full charge in six hours using Power over Ethernet.

Full charge in four hours using 12 Vdc power supply.

* + - * 1. Status indicators for Power, Ethernet Connectivity, and wireless Transmit and Receive.
      1. Operating Temperature Range: 32 to 104 degrees F (0 to 40 degrees C).
      2. Relevant Humidity Non-Condensing: 10 to 95 percent.
    1. Unison Control Series:
       1. Product: Paradigm Architectural Control Processor by ETC, Inc.
          1. Model P-ACP: Unison Paradigm Architectural Control Processor.
          2. Standards Compliance: cULus Listed. CE Compliant.
          3. Functional:

Capacity:

Channels of Control: 1,024.

Stations: 128.

System:

Net3 system interoperability including sACN.

Network Time Protocol for real-time clock synchronization supporting real and astronomical events.

Two physical DMX ports, each configurable as an input or output.

Configuration of DRd dimming operations.

12 control processors per system.

Addition of processors to a system proportionately increases the overall capacities.

Serial Input/Output:

Eight-bit word length, parity selection and one or two stop bits.

Fully customizable input and output messages.

Bi-directional.

Configuration Data:

Remote upload from a connected PC running LightDesigner or another connected Paradigm ACP.

Stored in removable solid-state memory for easy transfer to another Paradigm ACP.

Local User Interface:

Control functionality for control channels, zones, fixtures, groups, presets, macros, walls, and sequences.

Ability to schedule timed events (add/edit/delete).

Transfer of configuration using removable media.

Transfer of configuration to and from touchscreen stations using removable media.

User Access Controls: Two user accounts: Administrator and User. Local to each processor.

Web User Interface:

Internal web server accessible via Ethernet port.

Activate and deactivate presets.

Schedule timed events (add/edit/delete).

Displays status information and log files.

Configuration of processor settings.

Supports configurable user login security options.

Diagnostics: Standard and Critical Event logging.

Stations:

Connected to a Paradigm processor via topology-free LinkConnect, or star-topology NetConnect.

Discovery and binding accomplished from the local user interface or LightDesigner.

Operation:

Configurable DMX output refresh rate.

Support for 16-bit DMX attributes.

User configurable arbitration for multiple internal and external source data.

* + - * 1. Mechanical:

For use in Unison DRd Rack Enclosure Series and Unison ERn Control Enclosure Series.

Microprocessor-based, solid-state technology provides multi-scene lighting and building controls.

Fully-contained plug-in module with no discrete wire connections.

Tool-free installation.

Front-panel user interface with backlit LCD and alphanumeric button panel.

RJ-45 Ethernet, Secure Digital (SD) and Universal Serial Bus (USB) media on front panel.

* + - * 1. Electrical:

No discrete wiring connections required for use in a dimming or control enclosure.

Echelon LinkPower communications with remote devices, including button stations, button/fader stations, touchscreen stations, sensors, and third party LonMARK compliant products.

Hot swappable.

System configuration and programming stored in flash memory.

Support of ESTA BSR E1.17 Advanced Control Networks (ACN) and ESTA BSR E1.31 (sACN) Protocols.

EIA-RS232 serial protocol for bi-directional command and communication with third-party equipment.

Two discrete ESTA DMX512A ports, configurable as input or output ports.

User Datagram Protocol (UDP) messaging input and output for control of Paradigm or external systems.

Four dry-contact closure inputs.

Four contact-closure outputs rated 1 A at 30 VDC.

* + - * 1. Operating Temperature Range: 32-104 degrees F (0-40 degrees C).
        2. Relevant Humidity Non-Condensing: 10 to 90 percent.
      1. Product: Unison Paradigm Central Control Server by ETC, Inc.
         1. Model P-CCS: Unison Paradigm Central Control Server.
         2. Standards Compliance: ETL and cETL Listed. CE Compliant. California Title 20/24 Compliant.
         3. Functional:

Supports up to 64 Paradigm Architectural Control Processors.

System:

Multi-user LiveControl and LiveEdit.

Network Time Protocol for real-time clock synchronization supporting real and astronomical events.

Addition of processors to a system proportionately increases the overall capacities.

Failure of a single Paradigm ACP does not prevent continuous operation of the remaining connected systems.

Logging of system error messages using Syslog format.

Support for ANSI / ASHRAE 135.1 BACnet IP protocol with up to 1000 each analog inputs, binary inputs, analog outputs, and binary outputs.

Diagnostics:

Event logs are stored in persistent memory using Syslog format.

Standard log shall store a history of recent activity.

Configuration Data:

Remote upload from a connected PC running.

LightDesigner or another connected Paradigm ACP.

Stored in persistent memory.

Remote retrieval from a connected PC running LightDesigner.

Scalability:

Supports up to 12 Paradigm ACPs in a single project (pcf).

Control Server project (spcf).

Supports network time service for synchronization of time and timed events.

Supports multiple Paradigm projects on the same Ethernet network with logical limits between systems.

Allows for timed event configuration from an external source using BACnet IP.

Provides remote use of up to 32 individually customized Virtual Touchscreen application s(VTS).

Web User Interface:

Internal web server accessible via the primary Ethernet port.

Activate and deactivate presets.

Schedule global timed events (add/edit/delete).

Displays status information and log files.

* + - * 1. Energy Management:

Supports measured energy usage for compatible products using Net3 networking. Contact ETC for compatible products.

Supports calculated energy usage of all zones/channels controlled by connected Paradigm Architectural Control Processors.

Displays Energy Usage and Trends on User Interfaces Including:

7 inch Touchscreen (P-TS7).

18 inch Touchscreen (P-TS18).

Touchscreen Interface (P-TSI).

Virtual Touchscreen (P-VTS).

P-CCS web interface.

Historical data is stored for up to ten years with data granularity based on the age of the data.

Energy usage is recorded in 5 minute intervals.

* + - * 1. Mechanical:

Designed for use in Unison Paradigm Architectural Control Systems.

Self-contained electronics assembly.

Enclosure made from 16 gauge formed steel and finished in a black, fine-texture powder coat paint.

1U, 19 inch equipment rack mountable.

Backlit power switch with blue LED status indicator.

Standard connections for the following interfaces:

Front panel USB connection.

RJ45 Ethernet connection for Lighting Network.

RJ45 Ethernet connection for Building Lighting Network (BACnet and VTS).

Four Rear panel USB connections.

One RS232 Serial port (diagnostics only).

Internal hard drive for storage of configuration data.

* + - * 1. Electrical:

100-240VAC, 50/60 Hz power input.

Microprocessor-based technology to provide system wide, multi-project lighting and building controls.

Two IEEE802.3u-compliant Ethernet connections.

Primary port for connection to lighting systems for Virtual Touchscreen Interfaces.

Secondary port for connection to BACnet systems and Virtual Touchscreen Interfaces.

Automatic restoration to previous power state when returning from power loss.

System configuration and programming information stored in persistent memory.

Support of ESTA ANSI E1.17 Advanced Control Networks.

* + - * 1. Operating Temperature Range: 32 to 104 degrees F (0 to 40 degrees C).
        2. Relevant Humidity Non-Condensing: 5 to 90 percent.
      1. Product: Unison Paradigm Network Station Power Supply by ETC, Inc. Provides station bus power and data for 63 stations with a network connection to a Paradigm Processor. Add stations to system outside the distance limit of the LinkConnect bus is simple by adding a P-NSPS-D to a network port. Each Control Processor (P-ACP) can support five Power Supplies and 128 total stations and sensors.
         1. Model P-NSPS-D: Network Station Power Supply.
         2. Model P-NSPS-D-KIT Network Station Power Supply with DIN8 enclosure.
         3. Standards Compliance: cULus Listed. CE Compliant.
         4. Functional:

LinkConnect: Provides Echelon LonTalk with LinkPower for up to 63 stations.

Provides 500 m (1,640 ft) of station bus power.

Communicates with Paradigm ACP over lighting network.

* + - * 1. Mechanical:

DIN rail mounting.

Aluminum Construction: 0.060 inches (1.5 mm).

Fine-textured, scratch-resistant, powder coat paint.

Convection cooled.

Front-panel LCD and LED status indicators.

* + - * 1. Electrical:

48 VDC input from included power supply.

RJ45 socket with data LED supporting 10/100Base-TX Ethernet supporting static IPv4 addressing.

Echelon LinkPower communications with remote devices, including button stations, button/fader stations, touchscreen stations, and sensors.

* + - * 1. Operating Temperature Range: 32 to 122 degrees F (0 to 50 degrees C).
        2. Relevant Humidity Non-Condensing: 0 to 95 percent.
      1. Product: Unison Paradigm Station Power Module Mk2 by ETC, Inc. For use with Unison DRd and ERn enclosures with Paradigm control. Addition of Station Power Module offers support for button, fader, and touchscreen stations.
         1. Model P-SPM-E: Unison Paradigm Station Power Module Mk2.
         2. Standards Compliance: cULus Listed. CE Compliant.
         3. Functional:

Provides Echelon LonTalk with LinkPower for up to 63 stations.

Provides 24 V auxiliary power for interface and touchscreen stations.

Provides 1,640 ft (500 m) of station bus from the ERn or DRd enclosure.

* + - * 1. Mechanical:

Designed for use in Unison Dimming (DRd) and Control (ERn) Series Enclosures.

18-gauge formed steel construction.

Fine-textured, scratch-resistant, epoxy paint.

Wall-mount and 19 in rack-mount variants available.

Convection cooled.

Fully contained plug in module with no discrete wire connections.

Tool-free installation.

Front-panel status indicators.

* + - * 1. Electrical:

No discrete wiring connections required for use in a DRd dimming or ERn control enclosure.

Echelon LinkPower communications with remote devices, including button stations, button/fader stations, touchscreen stations, sensors, and third-party LonMARK-compliant products.

24 V Auxiliary power for interface and touchscreen stations.

* + - * 1. Operating Temperature Range: 32 to 104 degrees F (0 to 50 degrees C).
        2. Relevant Humidity Non-Condensing: 10 to 90 percent.
      1. Product: Unison ERn External Control Enclosure by ETC, Inc.
         1. Model ERn2-W-\_\_ Single Processor Control Enclosure-Wall Mount.
         2. Model ERn2-RM-\_\_ Single Processor Control Enclosure-Rack Mount.
         3. Model ERn4-W-\_\_ Dual Processor Control Enclosure-Wall Mount.
         4. Model ERn4-RMRM: Dual Processor Enclosure-Rack Mount.
         5. Standards Compliance: cULus Listed, CE Compliant.
         6. General:

External Processing Enclosure designed for one or two control processors plus options and accessories.

* + - * 1. Mechanical:

18-gauge formed steel construction.

Fine-texture, scratch-resistant epoxy paint.

Wall-mount and 19 in rack-mount variants.

Rack-mount enclosure sizes: ERn2: 5U and ERn4: 8U.

Rack mount offers connectorized rear panel for all wiring connections.

Convection-cooled.

Hinged, Locking door with limited access to control processor. Integral electrostatic air filter.

Tool-free module removal and installation.

19 in equipment-rack mount offers connectorized rear panel for all wiring connections.

Wall-mount offers front access wiring terminations.

Top, bottom, and side knockouts for conduit entry.

* + - * 1. Electrical:

External control enclosure rated for 100 V, 120 V, 230 V CE or 240 V UL single phase configurations, 3.5 A maximum draw at 120 V.

AC (single phase).

\*\* NOTE TO SPECIFIER \*\* The next two paragraphs apply to ERn External Control Enclosure. Delete if not required.

24 VDC (2-16 AWG).

LinkConnect.

Two configurable DMX512A ports.

RS232 Bi-directional serial.

Cat5/5e UTP Ethernet.

Contact I/O, 4in/4out (14 to 26 AWG).

Contact output rated 1 A at 30 VDC.

Contractor-supplied input and control wiring.

Factory-provided connectors for wiring terminations.

* + - * 1. Operating Temperature Range: 32 to 104 degrees F (0 to 50 degrees C).
        2. Relevant Humidity Non-Condensing: 10 to 90 percent.

\*\* NOTE TO SPECIFIER \*\* Delete optional modules not required.

* + - * 1. Optional Modules:

Ethernet Switch (ERn-NET):

Five-port Ethernet switch with four ports supplying Power over Ethernet (PoE).

100BaseTX 802.3af PSE compliant.

For use in wall-mount ERn only.

Not compatible with ERn4-W-\_\_-S.

Redundant Power Supply (ERn-RPS):

Seamless power for control processors upon failure or removal of the primary power supply.

Front-panel indicator for RPS status.

\*\* NOTE TO SPECIFIER \*\* Delete accessories not required.

* + - * 1. Accessories:

Unison RideThru Option (URTO):

Short-term power backup of control electronics for at least 10 seconds during short power outages.

Automatically engages when power is lost.

Recharges during normal power operation.

Unison Battery Pack Option (UBPO):

Long-term power backup of control electronics for at least 90 minutes.

Automatically engages when power is lost.

Recharges during normal power operation.

* + 1. Paradigm Responsive Controls Series:
       1. Product: Unison Paradigm Light Sensor.
          1. Model P-LS: Paradigm Light Sensor with Controller.
          2. Model P-LSC: Paradigm Light Sensor Controller Only.
          3. Model P-LSH: Paradigm Light Sensor Head Only.
          4. Standards Compliance: UL and cUL Listed, CE compliant.

Compliant with California Title 24 when properly installed and configured.

* + - * 1. Functional:

On and Off set-points configured using LightDesigner software.

Programmable control for any circuit, zone, group, or space.

Configurable delay/offset.

Light Sensor can be mounted within the controller housing or remotely; a filler plate is included for remote head applications.

Support for up to two sensors with averaging of light levels.

Light Sensor can be used for indoor, outdoor, and atrium applications.

* + - * 1. Mechanical:

Constructed of injection-molded, ABS plastic.

Electronics assembly and mounting plate included.

Two cantilevered configuration buttons.

No visible means of attachment.

Surface or backbox mountable using included mounting plate.

Supports drywall, plaster, wood, and concrete.

Mounts to any standard electrical box (supplied by other manufacturers).

Mounts to compressed-fiber ceilings using wire-form adapter.

Supports internal or remote mounting of light sensor.

Remote Light Head mounts to any half-inch or three-quarter knockout.

Remote Heads use conformal-coated circuit boards resistant to corrosion from moisture.

IP65 rated when used with a weather-tight backbox.

* + - * 1. Electrical:

Controller connects via LinkConnect control network utilizing low-voltage Class 2 wiring.

Topology-free and polarity-independent wiring over Belden 8471 or equivalent and one No. 14 AWG ESD drain wire.

Wiring may be bus, loop, home-run, or any combination of these

Light Sensors, when remoted, connect using two No. 16 AWG wires up to 1,000 ft (304 m) away from controller.

* + - * 1. Sensor Head Temperature Range: Minus 13-149 degrees F (Minus 25-465 degrees C).
        2. Sensor Controller Temperature Range: 32-149 degrees F (0-65 degrees C).
        3. Relevant Humidity Non-Condensing: 90 percent.
      1. Product: Unison Paradigm Dual Tech Occupancy/Vacancy Sensors.
         1. Model P-DOC-C-SR: Dual Tech Occupancy Sensor with several coverage options.
      2. Product: Unison Paradigm Occupancy/Vacancy Sensors.
         1. Model P-OCC: Paradigm Occupancy/Vacancy Sensor with several coverage options.
      3. Standards Compliance: UL and cUL Listed, CE Compliant.
      4. Functional:
         1. Supports software-configured Auto-On/Auto-Off functionality (occupancy sensing) or Manual-On/Auto-Off (vacancy sensing) functions.
         2. Ceiling Sensor:

360 degree coverage pattern.

Includes configurable coverage masks.

Small Room: 450 sq. ft. at 8 ft ceiling, 800 sq. ft. at 12 ft ceiling.

Large Room: 1800 sq. ft. at 8 ft ceiling, 3000 sq. ft. at 12 ft ceiling.

High Ceiling: 300 sq. ft. at 10 ft ceiling, 7000 sq. ft. at 40 ft ceiling.

* + - * 1. Wall Sensors:

Wide: 60 ft coverage at 7-10 ft mounting height. 140 degree field of detection.

Narrow: 16 by 75 ft coverage pattern at mounting height of 7-10 ft. 40 degree field of detection.

* + - * 1. Supports walk-thru mode for verifying coverage area.

Sensor lens illuminates for walk-thru and test mode operation.

* + - * 1. Sensor coverage tested to NEMA WD 7-2000.
      1. Mechanical:
         1. Constructed of injection-molded, ABS plastic.
         2. Electronics assembly and mounting accessories included.
         3. Accessible configuration buttons.
         4. No visible means of attachment.
         5. Ceiling Mount:

Surface- or box-mountable.

Supports drywall, plaster, wood, and concrete mounting.

Mounts to standard electrical box (supplied by others).

Mounts to compressed fiber ceilings with included wire mounting option.

\*\* NOTE TO SPECIFIER \*\* Applies to Dual Tech Occupancy/Vacancy Wall Sensors. Delete if not required.

* + - * 1. Wall Mount: Flush-mount to industry standard backbox, RACO 690 or equivalent.

\*\* NOTE TO SPECIFIER \*\* Applies to Occupancy/Vacancy Sensors. Delete if not required.

* + - * 1. Field-installed lens mask allow customized occupancy detection fields.
      1. Electrical:
         1. Connect via LinkConnect two-wire control network utilizing low-voltage Class 2 wiring.

Topology-free and polarity-independent wiring over Belden 8471 or equivalent and one No. 14 ESD drain wire.

Wiring may be bus, loop, homerun, or any combination of these/

* + - 1. Operating Temperature Range: 32 to 104 degrees F (0 to 40 degrees C).
      2. Relevant Humidity Non-Condensing: 10 to 90 percent.
    1. Paradigm Controls Series:
       1. Product: Unison Paradigm Dual Tech Switch Mount Sensors.
          1. Model P-DOC-SM1: 1-Button Switch Mount Dual Tech Sensor.
          2. Model P-DOC-SM2: 2-Button Switch Mount Dual Tech Sensor.
       2. Product: Unison Paradigm Inspire Control Stations.
          1. Model PI1001: Inspire 1-Button Control Station.
          2. Model PI1002: Inspire 2-Button Control Station.
          3. Model PI1004: Inspire 4-Button Control Station.
          4. Model PI1006: Inspire 6-Button Control Station.
          5. Model PI1008: Inspire 8-Button Control Station.
          6. Model PI1104: Inspire 4-Button with Fader Control Station.
       3. Standards Compliance: UL and cUL Listed, CE compliant.
       4. Functional:
          1. Zone or preset control from any station.
          2. RGB button illumination for activity status.
          3. Button functions: preset selection, record mode activation, station lockout, raise, lower, macro activation, zone on/off control, timed-event override, and wall open/close or toggle.
          4. Custom button functionality programmable via LightDesigner configuration software.
          5. Programmable Electronic Lockout Levels:

Allows for programming of individual lockout levels.

* + - * 1. Fader Functions: Zone or group intensity, color control, variable white control.

\*\* NOTE TO SPECIFIER \*\* Remaining paragraphs apply to Dual Tech Switch Mount Sensors. Delete if not required.

* + - * 1. Supports walk thru test mode for verification of coverage:

Sensor lens illuminates for wall thru and test mode.

Red illumination for PIR detection.

Green illumination for Acoustic detection.

* + - * 1. Sensor coverage tested to NEMA WD 7-2000.
      1. Mechanical:

\*\* NOTE TO SPECIFIER \*\* The following paragraph applies to Dual Tech Switch Mount Sensors. Delete if not required.

* + - * 1. Configurations with 1 or 2 buttons.

\*\* NOTE TO SPECIFIER \*\* The following paragraph applies to Inspire Control Stations. Delete if not required.

* + - * 1. Configurations with 1, 2, 4, 6 and 8 buttons or 4 buttons with rotary fader.
        2. Gangable with Inspire stations for custom applications.
        3. Enclosed electronics assembly.
        4. Cantilevered switch arrays with removable button caps.
        5. No visible means of attachment.
        6. Flush-mount in industry standard backbox, RACO 690 or equivalent.
        7. Surface-mount backboxes available from ETC upon request.
        8. Constructed of injection-molded, ABS plastic in four RAL standard colors.
        9. Unison Heritage Locking Cover.
      1. Electrical:
         1. Connect via LinkConnect two-wire control network utilizing low-voltage Class 2 wiring.

Topology-free and polarity-independent wiring over Belden 8471 and one No. 14 ESD drain wire.

Wiring may be bus, loop, homerun, or any combination of these.

* + - * 1. All station terminations utilize removable connectors.
      1. Operating Temperature Range: 32 to 104 degrees F (0 to 50 degrees C).
      2. Relevant Humidity Non-Condensing: 10 to 90 percent.
    1. Unison Heritage Control Series:
       1. Product: Unison Heritage Button Station by ETC, Inc.
          1. Model UH10001: 1-gang, 1-button.
          2. Model UH10002: 1-gang, 2-button.
          3. Model UH10005: 1-gang, 5-button.
          4. Model UH10007: 1-gang, 7-button.
          5. Model UH10010: 1-gang, 10-button.
          6. Model UH11K00: 1-gang, 1-keyswitch (maintained).
          7. Model UH11K01: 1 gang, 1-keyswitch (maintained), 1-button.
          8. Model UH12K01: 1 gang, 1-keyswitch (momentary), 1-button.
          9. Model UH11K02: 1-gang, 1-keyswitch (maintained), 2-button.
          10. Model UH12K02: 1-gang, 1-keyswitch (momentary), 2-button.
          11. Model UH11K05: 1-gang, 1-keyswitch (maintained), 5-button.
          12. Model UH12K05: 1-gang, 1-keyswitch (momentary), 5-button.
          13. Standards Compliance: cULus Listed. CE Compliant.
          14. Mounting: Flush, Surface.
          15. Functional:

Button and keyswitch functions: preset selection, record mode activation, station lockout, raise, lower, macro activation, zone on/off control, timed-event override, and wall open/close or toggle.

Custom button functionality programmable via LightDesigner configuration software.

Programmable electronic lockout levels.

Allows for programming of individual lockout levels.

* + - * 1. Mechanical:

Gangable for custom applications.

Enclosed electronics assembly and faceplate included.

Cantilevered switch arrays with removable caps.

No visible means of attachment.

Flush-mount in industry standard back box, RACO 690 or equivalent.

Surface-mount backboxes available from manufacturer.

Constructed of injection-molded, ABS plastic.

Indelibly marked legends in a contrasting color.

Integral RGB LED response indicator for each button.

Integrated IR receiver.

Unison Heritage Locking Cover.

* + - * 1. Electrical:

Connect via Echelon LinkPower control network utilizing low-voltage Class II wiring.

Topology-free and polarity-independent wiring over Belden 8471 and one No. 14 ESD drain wire.

Wiring may be bus, loop, home-run, or any combination of these.

All station terminations are connectorized.

* + - * 1. Operating temperature Range: 32 to 104 degrees F (0 to 40 degrees C).
        2. Relative Humidity, Non-Condensing: 30 to 90 percent.
      1. Product: Unison Heritage Consolette Station by ETC, Inc. Local control from a podium, table, or other temporary position.
         1. Model UH30407-1P: 4 fader, 7 button.
         2. Model UH30412-1P: 4 fader, 12 button.
         3. Model UH40707-1P: 7 fader, 7 button.
         4. Model UH40712-1P: 7 fader, 12 button.
         5. Model UH51007-1P: 10 fader, 7 button.
         6. Model UH51012-1P: 10 fader, 12 button.
         7. Model UH61307-1P: 13 fader, 7 button.
         8. Model UH61312-1P: 13 fader, 12 button.
         9. Model UH71607-1P: 16 fader, 7 button.
         10. Model UH71612-1P: 16 fader, 12 button.
         11. Standards Compliance: cULus Listed. CE Compliant.
         12. Functional:

Button functions: preset selection, record mode activation, station lockout, raise, lower, macro activation, zone on/off control, event override and wall open/close or toggle.

Fader functions include master, zone, fade rate, or preset.

Custom button and fader functionality programmable via LightDesigner configuration software.

Programmable electronic lockout levels.

Allows for programming of individual lockout levels.

* + - * 1. Mechanical:

Cantilevered switch arrays with removable caps.

Faceplates Constructed of injection molded ABS plastic.

Color matched extruded center section with injection molded ABS plastic endcaps.

Attached cable with rugged connector: 15 ft.

Indelibly marked legends in a contrasting color.

Integral RGB LED response indicator for each button and fader.

Integrated IR receiver.

* + - * 1. Electrical:

Connect to Unison receptacle stations using the LinkConnect control network over included ultra-flexible, 6 conductor cable.

* + - * 1. Operating temperature Range: 32 to 104 degrees F (0 to 40 degrees C).
        2. Relative Humidity, Non-Condensing: 30 to 90 percent.
      1. Product: Unison Heritage Control Plug-in Stations.
         1. Model UH-DMX-F: 1-gang DMX input plug-in station.
         2. Model UH-NET-F: 1-gang NET plug-in station.
         3. Model UH-DMXo-F: 1-gang DMX output plug-in station.
         4. Model UH-DMX/DMX-F: 2-gang Dual DMX input plug-in station.
         5. Model UH-NET/NET-F: 2-gang Dual NET plug-in station.
         6. Model UH-DMX/NET-F: 2-gang DMX input and NET plug-in station.
         7. Model UH-DMXo/DMXo-F: 2-gang Dual DMX output plug-in station.
         8. Standards Compliance: cULus Listed. CE Compliant.
         9. Functional:

Available with DMX input or output connectors, Ethernet connectors or combinations.

* + - * 1. Mechanical:

Standard configurations with one or two data connections mounted in a one or two gang faceplate, respectively.

Gangable for custom applications.

Custom plug-in stations available, with one to seven low voltage connectors, one gang per connector.

Electronics assembly and faceplate.

No visible means of attachment.

Flush mount in industry standard back box, provided by others.

Surface mount back boxes available from Manufacturer.

Constructed of injection molded, ABS plastic.

\*\* NOTE TO SPECIFIER \*\* Custom legends are available. Contact Manufacturer for more information.

Indelibly marked legends in a contrasting color are standard.

* + - * 1. Electrical:

Low voltage class 2 wiring.

Wiring for use with DMX:

Belden 9729 (or Approved Equal).

Daisy-chain topology.

Up to 500 meters total run length.

Terminals provided for all DMX wiring connections.

Wiring for use with NET:

Belden 1583A or approved equal.

Star topology (homerun).

Up to 100 meter total run length.

* + - * 1. Operating temperature Range: 32 to 104 degrees F (0 to 40 degrees C).
        2. Relative Humidity, Non-Condensing: 30 to 90 percent.
      1. Product: Unison Heritage Fader Interface.
         1. Model: UHFI Unison Heritage Fader Interface.
         2. Standards Compliance: cULus Listed. CE Compliant.
         3. Functional:

Operate standard system functions for faders from other devices.

Fader functions include master, zone, fade rate, or preset.

Functionality programmable via LightDesigner configuration software.

* + - * 1. Mechanical:

Enclosure and cover are constructed of 16 gauge (.08) steel and are finished in black fine texture powder coat paint.

Two piece removable cover allows independent access to electronics assembly and wiring terminations.

* + - * 1. Electrical:

Connect via Echelon LinkPower control network utilizing low voltage Class II wiring.

Topology free and polarity independent wiring over Belden 8471 or equivalent, and one No. 14 ESD drain wiring.

Wiring may be bus, loop, home-run, or any combination of these.

Link Power network wiring may not exceed 1640 ft (500m) without the use of a repeater module (P-REP or P-DREP).

Two No. 16 AWG wires for 24 VDC auxiliary power.

Terminals provided for all wiring connections.

Ratings:

Variable input, 0-3.3 VDC sourced by the interface.

Lamp Driver Output: 100 mA at 24 VDC functionally coupled to the fader input.

Supports 1000 ft of 16 AWG wiring between lamp supply and return.

* + - * 1. Operating temperature Range: 32 to 104 degrees F (0 to 40 degrees C).
        2. Relative Humidity, Non-Condensing: 30 to 90 percent.
      1. Product: Unison Heritage Fader Stations.
         1. Model UH10100: 1 gang, 1 fader.
         2. Model UH10102: 1 gang, 1 fader, 2 buttons.
         3. Model UH10105: 1 gang, 1 fader, 5 buttons
         4. Model UH30407: 3 gang, 4 fader, 7 buttons.
         5. Model UH30412: 3 gang, 4 fader, 12 buttons.
         6. Model UH40707: 4 gang, 7 fader, 7 buttons.
         7. Model UH40712: 4 gang, 7 fader, 12 buttons.
         8. Model UH51007: 5 gang, 10 fader, 7 buttons.
         9. Model UH51012: 5 gang, 10 fader, 12 buttons.
         10. Model UH61307: 6 gang, 13 fader, 7 buttons.
         11. Model UH61312: 6 gang, 13 fader, 12 buttons.
         12. Model UH71607: 7 gang, 16 fader, 7 buttons.
         13. Model UH71612: 7 gang, 16 fader, 12 buttons.
         14. Standards Compliance: cULus Listed. CE Compliant.
         15. Functional:

Operate default or custom system functions, including preset selection, manual mode activation, record mode activation, station lockout, raise, lower, sequence control, zone on/off, room combine, macro activation and timed-event override.

Fader functions include master, zone, fade rate, or preset.

Custom button and fader functionality programmable via LightDesigner configuration software.

Programmable electronic lockout levels.

Buttons allow programming of individual lockout levels.

* + - * 1. Mechanical:

Enclosed electronics assembly.

Faceplate with no visible means of attachment.

45 mm slide potentiometer faders and cantilevered switch arrays with removable caps.

Flush-mount in industry-standard backboxes.

Surface mount back boxes available from manufacturer.

Constructed of injection-molded, ABS plastic.

Indelibly-marked legends in a contrasting color

Integral RGB LED response indicator for each button and fader.

Integrated IR receiver.

Unison Heritage Locking Cover.

* + - * 1. Electrical:

Connect via Echelon LinkPower control network utilizing low-voltage Class II wiring.

Topology-free and polarity-independent wiring over Belden 8471 or equivalent, and one No. 14 ESD drain wire.

Wiring may be bus, loop, homerun, or any combination of these.

All station terminations are connectorized.

* + - * 1. Operating Temperature Range: 32 to 104 degrees F (0 to 40 degrees C).
        2. Relative Humidity, Non-Condensing: 30 to 90 percent.
      1. Product: Unison Heritage IR Remote.
         1. Model UHIR-05: Unison 5 button IR Remote.
         2. Model UHIR-10: Unison 10 button IR Remote.
         3. General: Remote control of button functions for any Unison Heritage Control Station.
         4. Functional:

Recall preset or custom button functions.

Usable Range: 35 ft line of sight, up to 30 degrees off axis.

Button Functions: Preset selection, record mode activation, station lockout, raise, lower, macro activation, zone on/off control, timed event override and wall open/close or toggle.

Custom button functionality programmable via LightDesigner configuration software.

* + - * 1. Mechanical: Constructed of a black ABS plastic.
        2. Electrical: Requires two AAA batteries; included.
        3. Operating Temperature Range: 32 to 104 degrees F (0 to 40 degrees C).
        4. Relative Humidity, Non-Condensing: 30 to 90 percent.
      1. Product: Unison Portable Receptacle Station.
         1. Model UH1RS-1F: Unison Heritage Portable Receptacle Station.
         2. Standards Compliance: cULus Listed. CE Compliant.
         3. Functional:

Connect any Unison Heritage Consolette Station with up to 115 ft of cable.

Connect any Unison Paradigm Portable Touchscreen Station using a standard Unison Portable Cable assembly.

* + - * 1. Mechanical:

Standard configuration with one portable station connector.

Gangable for custom applications.

Enclosed electronics assembly and faceplate included.

No visible means of attachment.

Flush mount in industry standard back box, RACO 690 or equivalent.

Surface mount back-boxes available from manufacturer.

Constructed of injection molded, ABS plastic in five standard colors, matched to RAL standard colors.

Custom colors available with sample.

Indelibly marked legends in a contrasting color.

* + - * 1. Electrical:

Connect via Echelon LinkPower control network utilizing low voltage Class II wiring.

Topology free and polarity independent control wiring over Belden 8471 two No. 16 and one No.14 ESD drain wire.

Wiring may be bus, loop, home-run, or any combination of these.

All station terminations are connectorized.

* + - * 1. Operating Temperature Range: 32 to 104 degrees F (0 to 40 degrees C).
        2. Relative Humidity, Non-Condensing: 30 to 90 percent.
      1. Product: Unison Heritage Contact Interface.
         1. Model UHCI-RM: Unison Heritage Rack-mount Contact Interface.
         2. Model UHCI-WM: Unison Heritage Wall-Mount Contact Interface.
         3. Standards Compliance: cULus Listed. CE Compliant.
         4. Functional:

Operate standard system functions for "buttons" from other devices.

Functions: Preset selection, record mode activation, station lockout, raise, lower, macro activation, zone on/off control, timed event override and wall open/close or toggle.

Custom functionality programmable via LightDesigner configuration software.

\*\* NOTE TO SPECIFIER \*\* Applies to rack mount. Delete if not required.

* + - * 1. Mechanical: 19 inch rack-mount enclosure. Two E.I.A. rack units high.

Tray and front panel are constructed of 16 ga, 0.08 inch steel and finished in black fine texture powder coat paint.

\*\* NOTE TO SPECIFIER \*\* Applies to wall mount. Delete if not required.

* + - * 1. Mechanical: Enclosure and cover constructed of 16 ga, 0.08 inch steel and are finished in black fine texture powder coat paint.

Two Piece Cover: Access High and Low- Voltage wiring compartments.

* + - * 1. Electrical:

Connect via LinkConnect two-wire control network utilizing low-voltage Class 2 wiring.

Topology-free and polarity-independent wiring over Belden 8471, plus one No. 14 AWG ESD drain wire.

Wiring may be bus, loop, homerun, or any combination of these.

LinkConnect network wiring may not exceed 1640 ft (500 m) without the use of a repeater module.

Two No. 16 AWG wires for 24 VDC auxiliary power.

Terminals are provided for all wire terminations.

Ratings:

Up to 8 contact inputs and outputs are supported.

Wet and Dry contact inputs supported. Rated for 5 to 24 VDC at 1 mA.

Lamp Driver Outputs: 100 mA at 24 VDC and functionally coupled to input.

Relay Outputs; Normally-open 2 pole contact outputs. 1 A at 28 VDC or 0.5 A at 120 VAC.

Supports 1,000 ft of 1.5 sq mm, 16 AWG wiring between lamp supply and return.

* + - * 1. Operating Temperature Range: 32 to 104 degrees F (0 to 40 degrees C).
        2. Relative Humidity, Non-Condensing: 5 to 85 percent.
    1. Unison Software Series:
       1. Product: Unison Paradigm ControlDesigner. Software program by ETC, Inc. An application software package that facilitates off-line Unison Paradigm Touchscreen station configuration.
          1. Software setup includes Configuration and Design Wizards, to create a graphical representation of a control environment.
          2. Program is downloadable from manufacturer's website free of charge.
          3. Functions:

Provides functionality to create and modify pages for display on a specific type of Touchscreen Station.

Supports custom button and fader layouts for control of the lighting system.

Offers standard themes for quick designing touchscreens.

* + - 1. Product: Unison Paradigm LightDesigner. Software program by ETC, Inc. Application software package facilitating off-line Unison Paradigm control system configuration. Enables computers to be connected on-line with a Unison Paradigm lighting control system for real time preset selection, editing and recording.
         1. Setup: Includes Configuration and Space (Room) Wizards, Zone, Preset, Sequence, Station and Wall Properties, Touchscreen Station Setups, Time clock Events and Macros.
         2. Supplied with Operators Manual and software disk.
         3. Functions:

Configuration and Room Wizards:

Step-by-step wizards for configuration of rooms, channels, walls, and control stations.

Setup of system parameters including quantity of rooms, dimmers, zones, presets, and control stations. System limitations will be based on system's Unison processor.

Graphic display of individual rooms, showing zones, presets, control stations and moveable wall placement.

Programming and operation of multi-sectioned rooms with moveable partitions.

Programming of station and component electronic security.

Transfer of architectural system configurations to processors via Secure Digital (SD) Cards, USB Flash Drives, or Ethernet.

Zone, Preset, Station and Wall Properties:

Configurable zone properties: Zone name, input mode, dimmer to zone patch, and maximum and minimum zone levels.

Configurable preset properties: Preset name and fade time. Presets have a discrete fade time, programmable from zero to 86,400 seconds with one hundred milliseconds resolution.

Custom Programming of Control Station Buttons and Faders:

Button Function Assignments: Preset (last action, pile on, or toggle), Off, Manual, Zone, Record, Raise, Lower, Wall (toggle or direct) Lockout (toggle or direct), No Action, and Macro.

Button Properties: Lockout Level and Legend.

Fader Assignments: Zone, Preset, Master, and Fade time.

Fader Properties: Lockout Level and Legend.

Configuration of system wall names.

Time Clock Events and Macros:

Programming of Astronomical Time Clock (ATC) events for up to ten standard day types and up to 24 custom day types. ATC events include selection of presets or macros. ATC events to be triggered by sunrise, sunset, time of day and/or periodically.

Programming of multifunction macro sequences. Macros activated via buttons on Unison stations, or via Time Clock event.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. ARCHITECTURAL CONTROLS - MOSAIC

\*\* NOTE TO SPECIFIER \*\* Delete control series if not required or delete product and model options not required. Multiple products and models may be specified.

* + 1. Controller:
       1. Product: Unison Mosaic Atlas by ETC, Inc. Play video content across a pixel array, or incorporate a range of creative, generative effects.
          1. Model MALC: Mosaic Atlas Controller with 50 to 1,500 universes, sized appropriately for project requirements.
       2. Product: Unison Mosaic Atlas Pro by ETC, Inc. Play video content across multiple pixel arrays, or incorporate a range of creative, generative effects.
          1. Model MALCP: Mosaic Atlas Pro Controller with 1,000 to 3,000 universes of output, sized appropriately for project requirements.
       3. Product: Unison Mosaic Show Controller X by ETC, Inc. Supporting DMX512 and DMX-Over-Ethernet protocols to control color-mixing fixtures, conventional dimmable fixtures, and automated lights. Extensive range of external and onboard triggering interfaces, built-in time clock to trigger events, including astronomical and lunar.
          1. Model MSCX Mk3: Mosaic X Show Controller Mk3 with 10 to 100 universes of output, sized appropriately for project requirements.
          2. Model MSCX-B Mk3: Mosaic X Backup Controller.
       4. Product: Unison Mosaic Show Controller by ETC, Inc.
          1. Model: MSC Mosaic Show Controller with 1, 2, or 4 universes of output, sized appropriately for project requirements.
       5. Standards Compliance:
          1. cETLus Listed. Conforms to UL-60950-1. Certified to CAN/CSA-C22.2 No. 60950-1. CE Compliant. California Title 20/24 compliant.
       6. General:
          1. Battery-backed real-time, astronomical, and lunar time clock.
          2. Triggering and show-control integration using optional remote devices.

\*\* NOTE TO SPECIFIER \*\* Applies to Atlas. Delete if not required.

* + - * 1. Single, large pixel map of fixtures.

\*\* NOTE TO SPECIFIER \*\* Applies to Atlas Pro. Delete if not required.

* + - * 1. Two, large pixel map of fixtures.

Additional video layers for text, simple overlays, or lower resolution clips, subject to hardware performance limit.

Live manipulation of content position and rotation.

* + - * 1. Supports sACN, KiNet, Pathport, Art-Net and digital video.

Supports triggering from sACN and Artnet level input.

\*\* NOTE TO SPECIFIER \*\* Applies to Unison Mosaic Show Controller. Delete if not required.

Two physical DMX connections regardless of channel output.

* + - * 1. Simple integration with other Mosaic devices for large systems, including additional MSC X and Atlas controllers.
        2. Solid-state, high-reliability components.
      1. Functional:
         1. Scalable up to 40 Mosaic Controllers using standard Ethernet networking.
         2. Project data stored in non-volatile, solid-state memory.
         3. Resumes output automatically upon receiving power.
         4. Supports conditional logic and scripting for integration.
         5. Software and configuration upload using Ethernet.
         6. Integrated web server provides active monitoring and remote triggering using Ethernet.
         7. Ethernet integration with Mosaic RIO modules, Button Stations, and other Mosaic Show Controllers.

\*\* NOTE TO SPECIFIER \*\* Delete either of the following two paragraphs if not required. On the Show Controller X, the HDMI input is an optional upgrade and not standard.

* + - * 1. Atlas and Atlas Pro Controller: DVI video (HDMI compatible) input for live video at up to 1080p30 with support for all major formats including H.264/ MPEG-4 AVC, MJPEG and QuickTime.
        2. Show Controller X: HDMI input for live video at up to 1080p30 with support for all major formats including H.264/ MPEG-4 AVC, MJPEG and QuickTime.
        3. Resumes playback automatically upon receiving power.

\*\* NOTE TO SPECIFIER \*\* The remaining paragraphs apply to Unison Mosaic Show Controller and Show Controller X. Delete if not required.

* + - * 1. Control for LED fixtures, fountain jets, and moving lights.
        2. Triggering and show-control integration using Ethernet, RS232/485, DMX, MIDI, digital/analog inputs, and optional remote devices.
        3. Shares onboard input status to other controllers on the network.
      1. Mechanical:
         1. Rugged aluminum enclosure with integrated heatsink.

\*\* NOTE TO SPECIFIER \*\* Delete if specifying Unison Mosaic Show Controllers.

* + - * 1. Plug-able rear panel data and power connections.

\*\* NOTE TO SPECIFIER \*\* The remaining paragraphs apply to Unison Mosaic Show Controller. Delete if not required.

* + - * 1. Wiring connections use plug-able rising clamp terminals.

\*\* NOTE TO SPECIFIER \*\* The next two paragraphs are optional. Delete options not required.

* + - * 1. Rack mount installation kit.
        2. Wall mount installation kit.

\*\* NOTE TO SPECIFIER \*\* Delete if specifying Unison Mosaic Show Controller.

* + - 1. Electrical:
         1. 100-240 VAC, 50/60 Hz power input using IEC connector.

\*\* NOTE TO SPECIFIER \*\* The following paragraph applies to Atlas and Show Controller X. The second paragraph applies to Atlas Pro. Delete paragraph not required.

* + - * 1. Two 10/100/1000 Ethernet ports for data output, programming, and system integration.
        2. Three 10/100/1000 Ethernet ports for data output, programming, and system integration.
        3. One port for RS232 serial integration.

\*\* NOTE TO SPECIFIER \*\* The following paragraph applies to Atlas and Atlas Pro. The second paragraph applies to Atlas Pro only. The third paragraph applies to the Controller X only. Delete paragraphs not required.

* + - * 1. One DVI video input port for live video input.
        2. One DVI video port for live video output to compatible devices.
        3. One Display Port for live video output to compatible devices.

\*\* NOTE TO SPECIFIER \*\* Optional accessory for Show Controller X. Delete if not required.

Video Capture Card supports HDMI video input for video-mapping (VCC).

\*\* NOTE TO SPECIFIER \*\* Applies to Unison Mosaic Show Controller. Delete if not required.

* + - 1. Electrical:
         1. RJ45 socket supporting 10/100Base-TX Ethernet with link and data LED with static and DHCP addressing support.
         2. PoE powered (IEEE 802.3af, Class 2) or 9 V to 48 V DC power input, 4 W typical draw.
         3. Two Isolated DMX512 ports, RDM compatible.
         4. Eight individually selectable digital/ analog inputs.

Supports active high/ low, analog, and contact closure.

* + - * 1. RS232/485 serial or DMX triggering using 3 pin connector.
        2. MIDI input and output using 5 pin DIN connectors.
      1. Operating Temperature Range: 32 to 122 degrees F (0 to 50 degrees C).
      2. Relevant Humidity Non-Condensing: 10 to 50 percent.
      3. Software: Running on PC or Mac platform. Programming features Configurable with Mosaic Designer 2 software for PC or Mac.

\*\* NOTE TO SPECIFIER \*\* Delete integration series if not required or delete product and model options not required. Multiple products and models may be specified.

* + 1. Integration Series: Mosaic Remote Input/Output RIO Products.
       1. Product: Unison Mosaic Audio/Timecode Module by ETC, Inc. Expands the advanced show-control capabilities Mosaic to allow analog audio or linear timecode signals from a remote source to trigger a Mosaic Controller.
          1. Model MRIO-A Mosaic Audio/Timecode Module.
       2. Product: Unison Mosaic DALI Module by ETC, Inc. Expands the advanced control capabilities of Mosaic to control 4 loops of Digital Addressable Lighting Interface (DALI) drivers and ballasts.
          1. Model MRIO-D4 DALI Module.
       3. Product: Unison Mosaic I/O Module by ETC, Inc. Expands advanced show-control capabilities of Mosaic allowing interaction with external triggers and systems. Remote I/O modules offer tri-mode inputs or relay outputs and integrated, bidirectional serial port (RS-232/RS-485) for interfacing to third-party equipment. Ethernet topology with Power-over-Ethernet (PoE) to connect to supported controllers.
          1. Model MRIO-08 I/O Module with 0 inputs and 8 outputs.

Eight fully isolated relay outputs.

* + - * 1. Model MRIO-44 I/O Module with 4 inputs and 4 outputs.

Four configurable tri-mode inputs and four relay outputs.

* + - * 1. Model MRIO-80 I/O Module with 8 inputs and 0 outputs.

Eight configurable tri-mode inputs configurable for digital, analog, or contact closure.

* + - 1. Standards Compliance: cETLus Listed. Conforms to UL-60950-1. Certified to CAN/CSA-C22.2 No. 60950-1. CE, UKCA Compliant.

\*\* NOTE TO SPECIFIER \*\* Applies to the Unison Mosaic Audio/Timecode Module. Delete if not required.

* + - 1. Functional:
         1. Allows one or more networked Mosaic controllers to provide synchronized control of lighting playback from audio or timecode to create sound-to-light effects.
         2. Multiple MRIO-A are supported per system:

Up to 4 RIO-A devices may be used for audio triggering.

Up to 6 RIO-A devices may be used for timecode triggering.

* + - * 1. Audio Input Mode:

Stereo balanced line level audio input with automatic or manual gain control.

Per channel, 3 -30 band, software configurable, spectrum analyzer with peak decay rate control.

Per channel, or combined volume level analysis.

* + - * 1. Linear Time (LTC) Mode:

Linear TimeCode (LTC) or MIDI TimeCode (MTC) input.

Linear TimeCode support on either audio channel.

User Configurable fly-wheel, error correction and jump support.

LTC format detection with support for 24fpx (film), 25fps (EBU), 29.97fps (NTSC), or 30fps (SMPTE).

* + - * 1. MIDI Mode: MIDI input and output of user-configurable short messages (notes), MIDI Show Control, or Extended Messages using built in message composer.
        2. Wiring Connectors: Plug-able rising clamp terminals unless otherwise noted.
        3. Five year warranty.

\*\* NOTE TO SPECIFIER \*\* Applies to the Unison Mosaic DALI Module. Delete if not required.

* + - 1. Functional:
         1. DALI Master.

Control for up to 256 DALI Devices over 4 loops.

DALI discovery and configuration.

Emergency lighting schedule, automatic function, and duration tests; automatic querying for battery level and lamp hours; test result and error reporting web interface.

* + - * 1. DALI Slave: Supports command input from external DALI systems or wall stations to trigger Mosaic timelines.
        2. Bus power detection and reporting of external DALI power supply.
        3. Up to 200 DALI interfaces supported per Mosaic project.
      1. Mechanical:
         1. Six unit wide DIN enclosure complies with EN60715 (35/7.5 rail).
         2. Plastic enclosure.
         3. DALI wiring connections use plug-able rising clamp terminals.

\*\* NOTE TO SPECIFIER \*\* Applies to the Unison Mosaic I/O Module. Delete if not required.

* + - 1. Functional:
         1. RS-232/485 serial output, or up to 96 channels of DMX output.
         2. Tri-mode inputs support:

Digital In: Presence of voltage between input and ground. supports active-high and active-low.

Analog In: Uses voltage range as a trigger.

Contact Closure: Uses a voltage free switch between input and ground.

* + - * 1. Relay outputs generate outputs to external systems.
      1. Mechanical:
         1. Four-unit wide DIN enclosure complies with DIN43880 and EN60715 (35/7.5 rail).
         2. Rugged aluminum enclosure.
         3. Rotary switch for selecting network address.
         4. Wiring connections: Plug-able rising clamp terminals.

\*\* NOTE TO SPECIFIER \*\* The next paragraph applies to Unison Mosaic Audio/Timecode Module. Delete if not required.

* + - * 1. Audio/TimeCode wiring connections made using three position plug-able 0.2 in (5.08 mm) rising clamp terminals.
      1. Electrical:
         1. RJ45 connection supports 10/100Base-TX Ethernet.

Link and data LEDs.

Static and DHCP addressing support.

* + - * 1. PoE powered (IEEE 802.3af, class 1) 1.5 W typical draw.

\*\* NOTE TO SPECIFIER \*\* Applies to the Unison Mosaic Audio/Timecode Module. Delete if not required.

* + - * 1. Audio input supported balance/ un-balanced input (0dBV).

\*\* NOTE TO SPECIFIER \*\* The remaining paragraphs apply to Unison Mosaic I/O Module. Delete if not required.

* + - * 1. Isolated Tri-Mode Inputs are Rated For:

Digital: 24 VDC maximum, internal 2 MOhm pull down.

Analog: 0- 24 VDC range configurable in software.

Contact Closure: Voltage free with internal 2.2 kOhm pull-up to 5 VDC.

* + - * 1. Isolated Relay Outputs are Rated For:

1 KV isolation per relay.

250 mA at 48V AC/DC.

* + - * 1. RS-232 or RS-485 bidirectional serial with support for free syntax ASCII, HEX or Decimal formats.

May be used for DMX output of up to 96 addresses.

* + - * 1. Wiring connections made using plug-able 0.2 in (5.08 mm) rising clamp terminals.
      1. Operating Temperature Range: 32 to 122 degrees F (0 to .50 degrees C).
      2. Relevant Humidity Non-Condensing: 10 to 50 percent.

\*\* NOTE TO SPECIFIER \*\* Delete user control options if not required or delete model options not required.

* + 1. User Control:
       1. Product: Unison Mosaic Button Station by ETC, Inc.
          1. Model M108-X. One-gang, 8-Button Station.
          2. Station Style: US Faceplate.
          3. Station Style: EU Faceplate.
          4. Standards Compliance: cETLus Listed. Conforms to UL-60950-1. Certified to CAN/CSA-C22.2 No. 60950-1. CE Compliant. California Title 20/24 compliant.
          5. Functional:

Programmable buttons for triggering mosaic timelines or functions on a connected Show Controller.

Independently configured LED backlight per button.

Learning IR receiver supports eight IR inputs from any third party remote control.

Remote firmware upload.

Operating Software: Stored in dedicated non-removable non-volatile solid-state memory. Update by download from remote personal computer over an Ethernet connection.

Internal watchdog feature restarts unit in event of program failure.

Programming Software: Configurable with Mosaic Designer 2 software for PC or Mac.

Configured by a controller over an Ethernet connection.

Magnetic polycarbonate overlay sitting within bezel to produce a tactile button response. Overlay to match the bezel color.

Recessed switch for resetting unit without removal of power.

* + - * 1. Mechanical:

Eight tactile buttons with LED indicators.

Standard, 1-gang US, and European faceplate options.

No visible means of attachment.

Integrated IR receiver.

Rotary switch for selecting network address.

Uses standard 1-gang flush mount electrical box, or equivalent, provided by others.

Surface mount back boxes are available from ETC.

* + - * 1. Electrical:

RJ45 connection for 10/100 Base-TX Ethernet with link and data LED with Static and DHCP addressing support.

PoE powered (IEEE 802.3af, Class 1) 1.5 W typical draw.

* + - * 1. Operating Temperature Range: 32 to 122 degrees F (0 to 50 degrees C).
        2. Relevant Humidity Non-Condensing: 10 to 50 percent.

\*\* NOTE TO SPECIFIER \*\* Delete software if not required or delete product options not required.

* + 1. Software.
       1. Product: Control System Configuration Software to be Unison Mosaic Designer 2 Software as provided by ETC, Inc.
          1. Definitions:

System: Configuration of one or more Mosaic Show Controllers.

Fixture: Controllable entity with one or more attributes.

Attribute: Parameter of control such as intensity, pan or gobo select.

Group: Selection of fixtures that can be stored and recalled.

Trigger: Single point of control to the system (e.g. contact closure, serial command, timed event, etc.).

Actions: Items of functionality that can occur within a running Mosaic system in response to events (e.g. start timeline, pause timeline, set intensity, etc.).

Timeline: Series of connected steps referencing control with timing information.

Scene: Static look created for any fixture type.

Effects: Attribute settings that result in continually varying levels following a specified curve and using additional timing parameters (e.g. period, offset).

* + - * 1. System Configuration:

Interface: (i) Tree-view; (ii) workspace area; (iii) item selector.

Multiple 2-dimensional layouts display organization or layout of project.

Represent data about workspace area graphically or tabular form.

Drag-and Drop: Arrange Items displayed on layout.

Layout views support zoom.

Layout views support a management grid with user-defined spacing and color with associated snap-to-grid functionality.

Auto-backup feature.

Add fixtures by selecting a fixture template from provided library or download additional fixture templates from an internet hosted service.

Create fixture layout based on data imported from a defined documentation format. (E.g. CSV).

Provision for help functionality is accessed from within the application.

Import images as a background image to the layout view.

* + - * 1. Channel Configuration:

Functionality to patch channels to DMX and/or Ethernet Protocols including sACN, Philips KiNet Pathway XDMX and ARTNET.

Support for Channels with split patches (e.g. VL5).

Swap pan, invert pan, and tilt axes for a moving-light fixture.

Attributes: Specified minimum, maximum and default value.

* + - * 1. Design and Simulation:

Control of LED arrays supporting pixel mapping of static or video media in any Apple QuickTime supported file format.

Control of moving lights (as a type of fixture).

Independent control of every attribute of a channel or fixture.

Graphical controls for non-intensity attributes (e.g. color picker).

Create groups as a selection shortcut.

Plan to show simulation feedback for channels in a graphical form.

Simulate control events. Simulation may be linked to actual online system to synchronize playback and inject control events.

* + - * 1. Timelines:

Displayed and modified in linear form.

May be set on individual attribute basis.

May include split timing.

Applied based on priority.

To include effects.

End State: User configurable.

* + - * 1. Scenes:

Displayed and modified in a graphical form.

Multiple fixtures may be selected and modified at once.

May be inserted into timelines.

May be able to be recalled independent of timelines.

* + - * 1. Triggers:

Trigger actions using external trigger or individual events.

Set conditions for each trigger.

Specify timed events, and repeat intervals such as daily, weekly etc.

Specify astronomical timed events.

Serial input data: Treated as a trigger and handled as standard or custom action.

* + - * 1. Actions:

For starting / stopping timelines and scenes and pausing / resuming timelines.

To set timeline intensity, position, and setting fixture color.

For working with external triggers connected to Expansion Modules.

Initiate custom scripts as actions.

* + - * 1. Network:

Report online status of Mosaic Show Controller and remote devices.

Allow configuration of network properties (IP) of Mosaic Show Controllers.

Allow upload of configuration data to Mosaic Show Controllers.

Allow download of configuration data from Mosaic Show Controllers.

Allow for download of logging data from Mosaic Show Controllers.

Provide for performing firmware upgrades to Mosaic Show Controllers.

Allow for discovery of connected Mosaic Show Controllers.

Support an integrated web server for remote connectivity and control of programmed timelines.

* + - * 1. Reports: Printable. Generate tabular reports. Customize layout and appearance.
        2. Resources:

Effect curves and fade profiles: Common format and custom variants generated by user.

Additional fixture templates: Defined by the user (custom fixtures).

\*\* NOTE TO SPECIFIER \*\* Delete if not required or delete product option not required.

* + 1. Accessories: Mosaic MSC devices.
       1. Product: Unison Mosaic Ethernet Switch by ETC, Inc. Allows multiple Mosaic Controllers, accessories, and devices to network together. Five unmanaged Ethernet ports. Four ports providing Power over Ethernet (PoE) in a compact DIN rail format.
          1. Model: MSC-NET Mk3: Mosaic 5-port Ethernet Switch with PoE.
       2. Standards Compliance:
          1. cULus Listed. CE, UKCA Compliant.
       3. General:
          1. No configuration required.

\*\* NOTE TO SPECIFIER \*\* The next paragraph applies to Unison Mosaic Ethernet Switch. Delete if not required.

* + - * 1. Standard Ethernet connections using RJ45 connections.
      1. Mechanical:
         1. Six unit wide DIN enclosure complies with EN60715 (35/7.5 rail).
         2. Plastic enclosure.
         3. Wiring connections use plug-able rising clamp terminals.

\*\* NOTE TO SPECIFIER \*\* Applies to Unison Mosaic Ethernet Switch. Delete if not required.

* + - 1. Electrical:
         1. Five RJ45 connections support 10/100Base-TX Ethernet.

Link and data LEDs.

Static and DHCP addressing support.

* + - * 1. Four ports provide Power over Ethernet (IEEE 802.3af).
        2. PoE device detection and classification (Class 0 to Class 4).
        3. Auto detection for full or half duplex operation.
        4. Auto speed detection per port (10/100Base-TX).
        5. Supports auto detection of cable type for uplink.
        6. Individual indicators for port activity.
        7. Independent isolation per port.
        8. 24 VDC power input.
        9. Power consumption dependent on load, 40 W maximum.
      1. Operating Temperature Range: 32 to 122 degrees F (0 to 50 degrees C).
      2. Relevant Humidity Non-Condensing: 10 to 90 percent.

\*\* NOTE TO SPECIFIER \*\* Delete if not required or delete product and model options not required.

* + 1. Integration Series: Mosaic Touchscreen Devices.

\*\* NOTE TO SPECIFIER \*\* Delete product and model options not required.

* + - 1. Product: Unison Mosaic Tessera Controller by ETC, Inc. A touchscreen user-interface with 512 addresses of DMX-over-Ethernet to control color-mixing fixtures, conventional dimmable fixtures, and automated lights.
         1. Model MTPC-X: Unison Mosaic Tessera Panel Controller.
         2. Standards Compliance: cETLus Listed. Conforms to UL-60950-1. Certified to CAN/CSA-C22.2 No. 60950-1. CE Compliant. California Title 20/24 compliant.
         3. General:

Touchscreen controller. User-customizable interface. Support for button, slider, and color picker controls.

Capacitive Touch Display 4.3 inch.

Resolution: 480 x 272. 24-bit color.

Control Out[put: 512 Channel DMX-over Ethernet.

Streaming ACN (sACN), KiNet, Pathport, or ArtNet output.

Multiple protocol outputs simultaneously.

Battery-backed real-time, astronomical, and lunar timeclock.

Triggering and show-control integration using Remote Devices and MSC controllers connected over an Ethernet network.

Simple integration with other Mosaic devices for large systems, including MSC X and Atlas controllers.

Solid-state, high-reliability components.

Programming Software: Configurable with Mosaic Designer 2 software for PC or Mac.

* + - * 1. Functional:

Control for LED fixtures, fountain jets, and moving lights.

Scalable to 40 Mosaic controllers using standard PoE Ethernet networking.

Project data stored in non-volatile, solid-state memory.

Resumes output automatically upon receiving power.

Supports conditional logic and scripting for integration.

Triggering and show-control integration using Ethernet, RS232/485, DMX, MIDI, digital/analog inputs, and optional remote devices.

Shares onboard input status to other controllers on the network.

Software and configuration upload using Ethernet.

Integrated web server provides active monitoring and remote triggering using Ethernet.

* + - * 1. Mechanical:

No visible means of attachment.

Metal faceplate with magnetic overlay.

Learning IR receiver compatible with 3rd-party remote.

Surface mount and flush mount back box options available.

* + - * 1. Electrical:

RJ45 socket supporting 10/100Base-TX Ethernet with link and data LED with Static and DHCP addressing support.

Supports dual IP address for data output.

PoE powered (IEEE 802.3af, Class 2) 4W typical draw.

* + - * 1. Operating Temperature Range: 32-122 degrees F (0-50 degrees C).
        2. Relevant Humidity Non-Condensing: 10 to 50 percent.

\*\* NOTE TO SPECIFIER \*\* The Unison Mosaic Tessera I/O Interface is an optional accessory for the Unison Mosaic Tessera Controller specified above. Delete if not required.

* + - 1. Product: Unison Mosaic Tessera I/O Interface by ETC, Inc. For interfacing the Tessera Controller with a lighting control system.
         1. Model MTPC-RIO: Tessera Remote Input and Output Interface.
         2. Standards Compliance: cETLus Listed. Conforms to UL-60950-1. Certified to CAN/CSA-C22.2 No. 60950-1. CE Compliant. California Title 20/24 compliant.
         3. Functional:

Microprocessor-based system specifically designed as a companion to the Mosaic Tessera Controller.

Direct connection to Tessera via Cat5e or Cat6 cable.

Operating system stored in non-volatile solid-state memory.

Programming Software: Configurable with Mosaic Designer 2 software for PC or Mac.

* + - * 1. Mechanical:

Eight-unit-wide DIN enclosure complies with DIN43880 and EN60715 (35/7.5 rail).

Rugged aluminum enclosure.

Wiring connections use standard rising clamp, plug-able connectors.

Optional installation kits available.

* + - * 1. Electrical:

Power Supply Requirements: 100-240 VAC / 50-60 Hz / 0.1 A using Weidmuller BVZ 7.62/03/180 7.62 mm connector.

Typical Power Consumption: 10 W with TPC connected.

Supported Connections: Using included, plug-able 0.2 inch (5.08 mm) rising clamp terminals.

Isolated DMX512/ RDM.

RS232 serial.

Isolated DALI bus connection.

Eight individually-selectable tri-mode inputs configurable for digital high/ low, analog, or contact closure operation.

Isolated Tri-Mode Inputs are Rated For:

Digital: 24 VDC maximum, internal 2 MOhm pull down.

Analog: 0-24 VDC range configurable in software.

Contact Closure: Voltage free with internal 2.2 kOhm pullup to 5 VDC.

RJ45 Connections Support 10/100Base-TX Ethernet:

Link and data LEDs.

Static and DHCP addressing support.

Port One: Direct connection to Tessera for power and data only.

Port Two: Connection to lighting control network for integration of other controllers and output of Ethernet DMX levels from the connected Tessera controller.

* + - * 1. Operating Temperature Range: 32 to 122 degrees F (0 to 50 degrees C).
        2. Relevant Humidity Non-Condensing: 10 to 50 percent.
      1. Product: Unison Mosaic 5 inch Touchscreen, User Control Series by ETC, Inc. Provides touchscreen control for any Mosaic system.

\*\* NOTE TO SPECIFIER \*\* Delete model option not required.

* + - * 1. Model M-TS5- 4 Mosaic 5 inch Touchscreen. Color: Black, RAL No. 9005.
        2. Model M-TS5- 5 Mosaic 5 inch Touchscreen. Color: White, RAL No. 9003.
        3. Standards Compliance: cULus, CE compliant, UKCA Compliant, California Title 20/24 Compliant.
        4. Touchscreen controller with user-customizable interface supporting button, slider, and color picker controls.

Capacitive Touch Display: 5 inches.

Resolution: 800 x 480.

Color Depth: 24 bits per pixel (bpp).

* + - * 1. A user interface for one or more Mosaic controllers.
        2. Software and configuration upload using Ethernet.
        3. Portrait or landscape mounting and operation.
        4. Supports buttons, faders, color picker, labels, keypads, and clock controls.
        5. Configuration: Stored as part of the system configuration file in non-volatile, solid-state memory.
        6. Solid-state, high-reliability components.
        7. Mosaic system supports 40 touchscreens or Show Controllers in any combination.
        8. Mechanical:

Seamless, uninterrupted front glass plate.

Mounts with no visible means of attachment.

Mounts to a standard US/EU/UK 1-gang back box.

Custom surface-mount back box is available as an accessory.

IP40 ingress rating.

* + - * 1. Electrical:

RJ45 socket supporting 10/100Base-TX Ethernet with Link and Data LEDs, and supports Static IP or DHCP addressing.

PoE powered (IEEE 802.3af, Class 2) 7 W typical draw.

* + - * 1. Ambient Temperature: 32 to 122 degrees F.
        2. Ambient Humidity: 10 to 95 degrees, non-condensing.
      1. Product: Unison Mosaic 8 inch Touchscreen, User Control Series by ETC, Inc. Provides touchscreen control for any Mosaic system.

\*\* NOTE TO SPECIFIER \*\* Delete model option not required.

* + - * 1. Model M-TS8- 4 Mosaic 8 inch Touchscreen. Color: Black, RAL No. 9005.
        2. Model M-TS8- 5 Mosaic 8 inch Touchscreen. Color: White, RAL No. 9003.
        3. Standards Compliance: cULus, CE compliant, UKCA Compliant, California Title 20/24 Compliant.
        4. Touchscreen controller with user-customizable interface supporting button, slider, and color picker controls.

Capacitive Touch Display: 8 inches

Resolution: 1024 x 768.

Color Depth: 24 bits per pixel (bpp).

* + - * 1. A user interface for one or more Mosaic controllers.
        2. Software and configuration upload using Ethernet.
        3. Portrait or landscape mounting and operation.
        4. Supports buttons, faders, color picker, labels, keypads, and clock controls.
        5. Configuration: Stored as part of the system configuration file in non-volatile, solid-state memory.
        6. Solid-state, high-reliability components.
        7. Mosaic system supports 40 touchscreens or Show Controllers in any combination.
        8. Mechanical:

Seamless, uninterrupted front glass plate.

Mounts with no visible means of attachment.

Mounts to a standard US 2-gang backbox, or EU/UK 1-gang back box.

Custom surface-mount back box is available as an accessory.

IP40 ingress rating.

* + - * 1. Electrical:

RJ45 socket supporting 10/100Base-TX Ethernet with Link and Data LEDs, and supports Static IP or DHCP addressing.

PoE powered (IEEE 802.3af, Class 2) 7 W typical draw.

* + - * 1. Ambient Temperature: 32 to 122 degrees F.
        2. Ambient Humidity: 10 to 95 degrees, non-condensing.
  1. ARCHITECTURAL CONTROLS - FOUNDRY

\*\* NOTE TO SPECIFIER \*\* Delete product and model options not required. Multiple products and models may be specified.

* + 1. Product: Unison Foundry Controllers by ETC, Inc.
       1. Model UFR2: Dual-Zone DMX Relay Controller. DMX controlled fully-rated 20 A relays. Switch lighting loads on and off.
       2. Model UFR2-LV: Dual Zone DMX Relay with 0 to 10 V Dimming Controller. DMX controlled fully-rated 20 A relays. Fully-isolated 0 to 10 V dimming for direct control of compatible LED drivers and fluorescent dimming ballasts.
       3. Model UFD 600 W Series Dimmers. DMX controlled line dimming for various load types.

\*\* NOTE TO SPECIFIER \*\* Delete dimmer option not required.

* + - * 1. Phase Adaptive Dimmer: Loads: Electronic Low Voltage (ELV), incandescent, and fluorescent.
        2. Forward Phase Dimmer: Loads: Magnetic Low Voltage (MLV).
      1. Standards Compliance: cULus Listed. Rated for plenum use.
      2. Functional:
         1. Supports USITT DMX512-A (ANSI E1.11).
         2. Supports RDM (ANSI E1.20).
         3. Control for individual fixtures, zone power.
      3. Mechanical:
         1. Mounts to an electrical junction box.
         2. Constructed of injection-molded ABS plastic.
         3. Button interface and LED indicators for configuration.
         4. Dimensions (HxWxD): 2.0 x 3.5 x 3.0 inches (51 x 89 x 77 mm).
         5. Weight: 0.75 lbs (0.34 kg).

\*\* NOTE TO SPECIFIER \*\* Delete accessory if not required.

* + - 1. Accessory: Black box with voltage barrier. Size: 4 inches (02 mm).
      2. Electrical:

\*\* NOTE TO SPECIFIER \*\* Paragraph below applies to UFR2 and UFR2-LV. Delete if not required.

* + - * 1. Power Input: 120 to 277 VAC, 50/60 Hz.

\*\* NOTE TO SPECIFIER \*\* Paragraph below applies to UFD. Delete if not required.

* + - * 1. Power Input: 120 or 277 VAC, 50/60 Hz.

\*\* NOTE TO SPECIFIER \*\* The two paragraphs below apply to models UFR2 and UFR2-LV. Delete if not required.

* + - * 1. Fully Rated Relay: Normally Open (NO) 20 A.
        2. Supports lighting and plug loads.

\*\* NOTE TO SPECIFIER \*\* The paragraph below applies to model UFR2-LV. Delete if not required.

* + - * 1. Control 0 to 10 VDC: Rated to 100 mA sink per output.

Connections: 0 to 10 VDC. Fully isolated from ground to 2500 V RMS.

\*\* NOTE TO SPECIFIER \*\* The three paragraphs below apply to model UFD. Delete if not required.

* + - * 1. Phase-adaptive dimming variant, default reverse phase, auto-switches to forward phase depending on load type.
        2. Forward phase dimming variant for magnetic loads, dims in forward phase only.
        3. 600 W load capacity.
      1. DMX Input Port:
         1. Withstands fault voltages of up to 250 VAC.
         2. Integrated DMX/RDM termination.
      2. Thermal: Operating range limits.
         1. Temperature: 32 to 122 degrees F (0 to 50 degrees C).
         2. Humidity Non-Condensing: 5 to 95 percent.
    1. Product: Unison Foundry DMX Mini Control Panels by ETC, Inc. DMX controlled lighting. Fully rated 20 A relays and optional 0 to 10 V control per zone. Demand Response input for energy saving integration and UL 924 emergency lighting control bypass with power loss sense. Flush or surface mount. Locatable in air plenums tucked out of sight.
       1. Model UFMP4: 4-zone DMX Mini Panel.
          1. Relays: 4. For switching for lighting and plug loads.
          2. Dimming Outputs 0 to 10 V: 4. for LED drivers and fluorescent ballasts.
       2. Model UFMP8: 8-zone DMX Mini Panel.
          1. Relays: 8. For switching for lighting and plug loads.
          2. Dimming Outputs 0 to 10 V: 8. for LED drivers and fluorescent ballasts.
       3. Standards Compliance: cULus and UL 924 Listed. Rated for plenum installation.
          1. Suitable for plug load control.
       4. Functional:
          1. Emergency Lighting Control: Per UL 924 via contact closure and power loss sense feed terminal.
          2. Demand Response Input: Provided by a power company can enforce a maximum level per circuit while active.
          3. Supports USITT DMX512-A; ANSI E1.11.
          4. Supports RDM; ANSI E1.20.
       5. Mechanical:
          1. Finish: Fine-textured, black powder coat.
          2. Mounting: Wall, Flush-mount. Rated for installation in plenum air space.
          3. Mounting: Wall, Surface-mount. Rated for installation in plenum air space.

\*\* NOTE TO SPECIFIER \*\* Voltage divider is optional. Delete if not required.

* + - * 1. Voltage Divider: Allows for separation of normal and emergency circuits in a single controller were allowed by local codes.
      1. Electrical:
         1. Power Input: 100 to 277 VAC, 50/60 Hz per circuit with support for pass thru to multiple circuits.
         2. Single Phase Sense Feed Input: 100 to 277 VAC.
         3. Supports 120 VAC and 277 VAC circuits within the same panel.
         4. Fully-Rated Bi-State Latching Relay per Output: 20 A.
         5. Control Rated: 0 to 10 VDC for up to 100 mA sink per output.

Outputs 0 to 10 V: Fully isolated from ground to 2500 V RMS.

* + - * 1. Demand Response input supports Normally Open (NO) operation.
        2. UL 924 contact closure input supports normally open (NO) or normally closed (NC) operation.
        3. Onboard status indicators for controller power, DMX signal, Demand Response input, and UL 924 emergency lighting control.
        4. Slide Switch Configuration For:

UL 924 operation; NO/NC.

UL 924 inclusion per circuit; On/Off.

* + - 1. Relays: Mechanically held.
      2. DMX Input Port:
         1. Integrated DMX/RDM termination.
      3. Thermal: Operating range limits.
         1. Temperature: 32 to 122 degrees F (0 to 50 degrees C).
         2. Humidity Non-Condensing: 5 to 95 percent.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete ceiling or switch mounted sensors and relevant data whichever is not required.

* 1. ARCHITECTURAL CONTROLS - SOHRANA
     1. Stand-Alone Line Voltage Occupancy Sensors: Unison Sohrana Responsive Controls Series as manufactured by ETC, Inc. For stand-alone areas.
        1. Standards Compliance:
           1. cULus Listed.
           2. ASHRAE 90.1, CA Title 24, IECC and NYC local law 48.
        2. Mechanical:
           1. No visible means of attachment. Include all wiring instructions.
           2. Ceiling-Mount Sensors: Constructed of ABS plastic. Color: Pure white.

Mounting: Any standard ceiling box or standard junction box.

Coverage: 360 degrees.

Large Room: 2300 sq ft at 8 ft ceiling, 3600 sq ft at 10 ft ceiling.

Small Room: 250 sq ft at 8 ft ceiling, 400 sq ft at 10 ft ceiling.

* + - * 1. Switch-Mount Sensors: Constructed of ABS plastic. Color: Signal white.

Mounting: Single gang RACO box.

Coverage: 180 degree field of detection. More than 1,200 sq ft.

* + - 1. Electrical:
         1. PIR-Only Sensors: Support PIR sensing for occupancy detection as well as to maintain occupied state.
         2. Dual Tech Sensors: Support PIR sensing for occupancy detection and PIR and High Frequency Doppler (HFD) sensing to maintain occupied state.
         3. Sensors: Standalone. Use Class 1 wiring to provide power fixture or device.

Utilize LED illumination for status feedback of motion detection and for use during programming and operation.

* + - * 1. Switch-Mount Sensors: 0-10V fixture control.

Load Controls:

Incandescent/Halogen 800 W (VA).

Fluorescent Ballast (CFL) 800 W (VA).

Ballast Electronic (LED) 500 W (VA) at 120 VAC/ 800 W (VA) at 277 VAC.

Motor 1/6 HP.

* + - 1. Environmental: The sensors shall be rated for the following environments:
         1. Ceiling-Mount:

Ambient temperature: Minus 40 to 158 degrees F (Minus 40 to 70 degrees C).

Relative humidity: Maximum 95 percent, non-condensing.

* + - * 1. Switch-Mount:

Ambient temperature: Minus 40 to 131 degrees F (Minus 40 to 55 degrees C).

Relative humidity: Maximum 95 percent, non-condensing.

* + - * 1. Switch-Mount with 0 to 10 V:

Ambient Temperature: 14 to 131 degrees F (Minus 10 to 55 degrees C).

Relative Humidity: Maximum 95 percent, non-condensing.

* + - 1. Functional:
         1. Support configurable actions based on occupancy status:

Auto-on and auto-off actions.

Switch-Mount Sensors: Manual-on and auto-off actions for compliance with various energy codes.

* + - * 1. Hybrid Switching technology protects relay contacts from being fused by inrush current generated while switching on multiple LED lights.
        2. Built-in ambient light sensor (ALS) to inhibit lights from turning on when there is sufficient ambient light.
        3. Ceiling-Mount Sensors: Wireless programming remote for configuration without having to access device directly.
        4. Walk-test mode for simple testing of coverage:

Timeout: 10 seconds.

Green LED: Illuminates during walk-test indicating occupancy detection.

Ceiling-Mount Sensors: Activate walk-test mode through wireless programming remote.

Switch-Mount Sensors: Configuration dials for enabling a walk-test mode.

* + - * 1. A 30-second grace timer (retrigger) automatically returns lighting loads to their previous state when motion is detected after a no occupancy (auto-off) event.

Switch-Mount 0-10 V Sensor: Lowers levels to 1/3 of set-level during grace period.

* + - * 1. Two dials to quickly set delay time and ambient light levels.
        2. Multiple sensors to be supported within a single room or space without the need for additional configuration.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. ARCHITECTURAL CONTROLS - EMERGENCY CONTROL PRODUCTS

\*\* NOTE TO SPECIFIER \*\* Delete product and model options not required. Multiple products and models may be specified.

* + 1. Product: DMX Emergency Bypass Controller by ETC, Inc. Where required to trigger special-purpose lighting presets and bypass normal lighting controls during emergency or panic situations.
       1. Model DEBC-1: DMX Emergency Bypass Controller, 1-output.
       2. Model DEBC-6: DMX Emergency Bypass Controller, 6-output.
       3. Capable of overriding a single universe of DMX512 control signals from "Normal" to "Bypass" when a trigger signal is detected via a contact closure trigger input.
          1. Output to a single DMX output or up to six optically-isolated DMX outputs.
          2. Poll bypass trigger input after a power loss and react upon start up.
          3. Recalled immediately on restart if trigger is also applied at restart.
       4. Capable of recording a single DMX preset (snapshot) of 512 channels for recall during "Bypass" mode.
       5. Internally accessible, labeled DIP switches for configuration of:
          1. DMX Record Mode: 512 channels. Selected channels, snapshot.
          2. Contact Input Type: Normally open (default). Normally closed.
          3. Wait Time for Restore incoming DMX; Bypass Trigger Removed: 0 Seconds (default). 10 second wait. 30 second wait. 10 minute wait.
       6. Single Bypass Input Using Two Input Modes:
          1. Bypass Triggering: Via a maintained contact input configurable for normally open (N.O.) or normally closed (N.C.) operation.
          2. Contact Input: 12 VDC wet input for interface with fire alarm or secondary trigging systems.
       7. Mechanical:
          1. Surface Mounted Enclosure. Removable Front Cover: 16-gauge, formed steel.
          2. Single Bi-Color LED Indicator: Visible from exterior of enclosure.

Normal State: Green light when Power and DMX are present.

Off indicates Power or DMX are not present.

Bypass State: Red light. Includes bypass input contact trigger or 'test' active.

* + - * 1. Test Button: Front enclosure accessible without removing panels.

Triggers bypass state if it is held down. Releases bypass state upon button release.

Button: Momentary only. Recessed to prevent accidental triggering.

* + - * 1. Single, internally accessible button for DMX Record (snapshot) with an indicator LED for record action.

Record Button: Momentary only and held for 3 seconds before activation to prevent accidental recording.

LED indicator: Flashes rapidly when record function is active and illuminate steady when record function is complete.

* + - 1. Electrical: Internally pre-wired by Manufacturer.
         1. Contractor to provide input feed and control wiring to terminals.

Input Power: 100 to 277 V, 50/60 Hz, 150 mA maximum current.

* + - * 1. Labeled terminations for two 24 to 0 AWG solid or stranded power wires.
        2. One Grounding Lug for 24 to 14 AWG solid or stranded ground wire.
        3. Labeled, socketed termination connections for DMX Input and Output wiring.

Terminations support Belden 9729, 1583A Category 5 cable, or equivalent.

* + - * 1. Labeled, socketed termination for bypass contact input.

Termination to support two, 30 to 12 AWG low-voltage wires.

Bypass Input: To maintained normally open (N.O.) or normally closed (N.C.) dry contact input.

Wet Contact Input: 12 VDC for fire alarm system interface.

Socketed DMX transceiver chips.

Spare chip in labeled, inactive socket.

* + - * 1. Internally switch from normal DMX input (pass through) to bypass DMX output using electromechanical relays when triggered.

Non-Volatile Memory: For storage of single recorded sequence of 512 channels.

Recorded sequence to persist through power outages.

Default Sequence: 512 channels at "full" if no sequence is recorded.

DMX Baud Rate: "Slow," 20 packets per second for increased compatibility during bypass DMX output.

* + - * 1. Two versions capable of output to a single DMX line or up to six optically-isolated DMX lines.
        2. Standards Compliance: UL and cUL Section 924 Listed for interaction with similarly listed products.
      1. Room Operating Temperature: 32 to 104 degrees F (0 to 40 degrees C).
         1. Humidity Non-Condensing: 10 to 95 percent.
    1. Product: Emergency Bypass Detection Kit by ETC, Inc. To detect loss of normal power and trigger special-purpose lighting presets.
       1. Model EBDK: Emergency Bypass Detection Kit.
       2. Standards Compliance: UL and cUL Section 924 Listed.
       3. Surface Mounted Enclosure. Removable Front Cover: 16-gauge, formed steel.
          1. Finish: Fine textured, scratch-resistant, powder coat paint.
       4. Breaker: 3 pole, 10 amp for local over-current protection and simulation of normal power loss.
       5. Lockable Door: Limits access to over-current protection breaker.
       6. Components to be properly treated and finished.
       7. Discrete high and low voltage wiring compartments with voltage barrier.

\*\* NOTE TO SPECIFIER \*\* Delete accessories not required.

* + - 1. Accessories:
         1. Emergency Bypass Detection Tap Kit (EBDK-TAP): For normal power loss sensing within an ETC Unison DRd Enclosure.

Fused over-current protection for sense feed wiring without need for external circuit breaker.

Install within an ETC Unison DRd Enclosure.

* + - * 1. Emergency Bypass Restore Switch (EBDK-SWITCH): Switch kit requiring manual override before allowing EBDK to return to a normal power state.

Restore Switch: Single-gang, supplied with mounting holes.

Label: Lighting System Restore.

* + - 1. Electrical:
         1. Input Power: 100 to 277 V. Field configurable for single-phase, bi-phase, and three-phase operation without additional components.
         2. Phase Loss Detection Circuitry: 0.5 second delay to prevent nuisance tripping.
         3. Integrated Circuit Breaker: Over-current protection and normal power loss simulation.
         4. Isolated Outputs: For connection to multiple dimming products simultaneously.

Three Isolated Contacts: Each support connection of four dimming products.

* + - * 1. Pre-wired by Manufacturer. Contractor to provide input feed and control wiring.
        2. Control Wire Connections: Terminated via factory provided connectors.

Support 12 to 22-gauge wiring.

Emergency Lighting Input: Support load shedding.

* + - * 1. Bypass Detection Kit: Proves a normally-closed input for interface with fire alarm systems. UL and cUL Section 924 Listed for interaction with similarly listed dimming and switching panels.
      1. Operating Temperature Range: 32 to 104 degrees F (0 to 40 degrees C).
         1. Humidity Non-Condensing: 10 to 90 percent.
    1. Product: UL924 Emergency Lighting Device to be the Automatic Load Control Relay by ETC, Inc. Allows standard lighting control devices to control emergency lighting in conjunction with normal lighting in any area within a building.
       1. Model ALCR-PP-Mk2: Automatic Load Control Relay Power Pack.
       2. Model ALCR-DIN: Automatic Load Control Relay DIN rail mountable.
       3. Standards Compliance: UL and cUL listed to UL924 standard and labeled for connection to normal and emergency lighting power sources.
       4. Control of emergency lighting fixtures in tandem with normal lighting in an area while ensuring emergency lighting will turn on immediately to full brightness upon loss of normal power supplying the control device. Independent for each controlled area and will not require a generalized power failure for proper operation.
       5. Two Form Factors Available:
          1. ALCR-PP-Mk2: Power pack model. Constructed of 94-V-0 plastic enclosing high voltage components. Mounts to 1/2 inch (13 mm) electrical junction box knock out using a thread nipple and retaining nut.

Flying lead connections for power and 0 to 10 V.

Terminal connections for DMX.

* + - * 1. ALCR-DIN: DIN rail model. Constructed of 94 V-0 plastic enclosing high voltage components. Mounts to DIN43880 and EN60715 compliant 35 mm bracket at least 2.5 inches (64 mm) length. Includes screw terminal connections which receive wires size 10-18 AWG.

Terminal connections.

* + - 1. Breaks data circuit upon loss of normal power supporting fixtures that switch to full brightness upon loss of an incoming data signal.
         1. ALCR-PP-Mk2: Supports DMX and two circuits of 0 to 10 V pass-through for intensity and color temperature control.
         2. ALCR-DIN: Supports single circuit of 0 to 10 V pass-through.
      2. Capable of switching 20 amp emergency ballast loads at 120-277 VAC, 60 Hz, or 10 amp tungsten loads at 120 VAC, 60 Hz.
      3. Universal Rated Voltage Input: For normal power sense and normal switched power at 120-277 VAC, 60 Hz.
      4. Integral Momentary Test Switch: Press and hold switch forces emergency mode and turns on emergency lighting. Releasing switch returns unit to normal operation unless optional "return to normal" delay has been programmed.
      5. Dedicated leads and 24 VDC source for connection to remote triggering device such as test switch, fire alarm system, or other external system capable of providing a normally closed dry contact closure.
         1. Remote Trigger: Install no further than 1000 ft wire distance from ALCR. Breaking loop or contact between the terminals forces and holds emergency lighting on until loop is closed.
         2. Integral LED indicator indicates unit's current remote activation status.
      6. Status and Remote LEDs indicate device state.
         1. Status LED: Indicates whether emergency output is required and active. Lit Green: Normal power is present. Lit Red: Emergency output is active due to remote activation or due to loss of normal power.
         2. Remote LED: Lit Amber: Indicates normal lighting control is commanding emergency light to be active. Unlit Dark: Normal control is open (off).
      7. Device's Normal Power Input Lead: Connected to line side of control device such that any upstream fault causing a loss of power, including tripping of branch circuit breaker, will force unit into emergency mode and turn on emergency lighting.
      8. Programmable "Return to Normal"Delay: Keeps lights on for a period of 15 minutes after normal state returns such that any egress in progress can complete before a normally dark area is allowed to return to its dark state. Programmable delay options include instant, 10 seconds, 30 seconds, 10 minutes, and 15 minutes.
      9. Zero crossing circuitry to protect relay contacts from damaging effects of inrush current generated by switching electronic ballast loads.
      10. Unit Housing: UL2043 plenum rated and equipped with flying leads.
    1. Product: Emergency Lighting Transfer System by ETC, Inc. Automatic transfer of branch circuits from normal to emergency power when normal power fails. Power transfer switches and control circuitry interconnected to provide protection. Transfer designated lighting load branch circuits from dimmers or secondary control outputs to a second power source in event of a power loss to dimmer rack, a normal system failure, or activation of fire alarm.
       1. Model ELTS2:

\*\* NOTE TO SPECIFIER \*\* Delete enclosure option not required and emergency feed inputs option not required.

* + - * 1. Enclosure: NEMA 1.
        2. Enclosure: NEMA 4.
        3. Emergency Feed Inputs: Discrete inputs.
        4. Emergency Feed Inputs: Main Feed.

\*\* NOTE TO SPECIFIER \*\* Mixed voltages are not allowed in the same unit and require two separate units.

* + - * 1. Voltage Options: 120 = 120 VAC circuits at 20 A.
        2. Voltage Options: 277 = 277 VAC circuits at 20 A.
        3. Voltage Options: 3P = 120/208 VAC (3 Phase 4-wire).
        4. Voltage Options: 1P = 120/240 VAC (1 Phase 3-wire).
        5. Voltage Options: 3P240 = 230/400 VAC (3 Phase 4-wire).
        6. Voltage Options: 277 = 277/480 VAC (3 Phase 4-wire).
      1. Standards Compliance: ANSI / UL1008 Transfer Switch Equipment. ANSI / NFPA 110 Standard for Emergency and Standby Power Systems. ANSI / NFPA 70 (NEC), including Article 700, 701 and 702 safety standards.
         1. Satisfy Requirements of National Electrical Code (NFPA 70):

Article 700: Emergency Systems.

Article 701: Legally Required Standby Systems.

Article 702: Optional Standby Systems.

Section 518.3(C): Assembly Occupancies.

Section 520.7: Theatres and Similar Locations.

Section 540.11(C): Motion Picture Projection Rooms.

* + - * 1. Comply with US seismic requirements of International Building Code (IBC) for equipment in emergency life-safety chain and be approved for seismic applications. Seismic certification includes installation applications for Roof, Grade, Below Grade, and Intermediate Level installation in the USA with an Ss level of 3.42 and SDS level of 2.28.
        2. Comply with IBC Codes Listed:

IBC 2000: Referencing ASCE 7-98 and ICC AC-156.

IBC 2003: Referencing ASCE 7-02 and ICC AC-156.

IBC 2006: Referencing ASCE 7-05 and ICC AC-156.

IBC 2009: Referencing ASCE 7-05 and ICC AC-156.

* + - 1. Self-Contained system for 24 circuits at 20 amps and available for single or three phase power (120/208V, 120/240V or 277/480V).
         1. Available with discrete emergency branch circuit feeds from external circuit breaker panel (by others) or emergency main feed with built-in branch circuit distribution and over current protection.
      2. Transfer Switch:
         1. UL 1008 Listed, electrically operated, and mechanically held.
         2. Positively Locked: Unaffected by voltage variations or momentary outages so constant contact pressure is maintained and temperature rise at contacts is minimized.
         3. Mechanically Interlocked: To ensure one of two positions, Normal or Emergency.
         4. Configured as guaranteed break-before-make.
         5. Built-In Fuses: 65000 A Short Circuit Current Rating (SCCR) on connected emergency circuits. Class G on each output for compliance with NEC Section 700.27 Coordination.

Larger upstream breakers cannot be tripped by downstream branch circuit faults.

* + - * 1. Switch Contacts: Withstand transfer without welding, with 180 degree phase displacement between Normal and Emergency power sources.

Both sources energized and with 80 percent load.

Rated for mixed loads, including electric discharge lamps and tungsten filament lamps.

Rated for 6000 cycles at full tungsten load.

* + - 1. Control Circuit:
         1. Direct operation of transfer switch.
         2. User Configurable Timing Delays for Power Transfer Between:

Loss of Normal Power and Transfer to Emergency: Up to 10 sec.

Normal Power Restoration: Transfer from emergency up to 60 seconds.

* + - * 1. Normally closed dry contact closure fire alarm input.
        2. Connections for 5 Remote Stations which manually switch between normal and emergency power.
      1. Operation:
         1. Transfer to alternate supply when normal supply voltage drops below 80 V when used at 120V, or 185 V for the A phase and 80 V for the B and C phase when used at 277 V.
         2. Self-supervising isolated signal input for connection to facility fire alarm. Transfers loads to Emergency power when fire alarm is activated as part of normally-closed loop.
         3. Key-Operated Switch: Provided to manually control ELTS2. Automatic functions override this control. Two indicator lights show position of transfer switch.
         4. Automatic functions override remote control functions. Any combination of open or shorted wiring to remote stations will not affect automatic functions or disable local switch.
      2. Enclosure:
         1. Mounts in a NEMA 1 interior or NEMA 4 watertight enclosure finished in textured epoxy paint. Hinged locking door.
         2. Power distribution and branch circuit protection for emergency power circuits.
         3. Independent of other equipment. In no instance is the ELTS2 to be enclosed in a dimmer rack or an enclosure with other equipment.
         4. Approved overlay mounted on front of enclosure, stating, "EMERGENCY LIGHTING TRANSFER SYSTEM."
         5. Standards Compliance: UL1008 Listed.
      3. Accessory:

\*\* NOTE TO SPECIFIER \*\* Remote stations are optional. Delete if not required.

* + - * 1. Remote Stations:

Key Switch: 3-postion. Left and Right Positions: Momentary. Switch always returns to center position.

Faceplate: Labeled Normal for left switch position, Emergency for right switch position and Auto for center position.

Two LEDs to confirm transfer switch position.

Mounting: To standard, two-gang wall box, 4 x 4 x 3.5 inches (102 x 102 x 90 mm).

Must not be incorporated into or mounted onto other equipment.

Wiring: 5-conductor, Class 2 wiring (24V DC). Terminal strip for Contractor wiring.

* + 1. Product: Master Phase Loss Detector by ETC, Inc. Where required to detect loss of normal power, fire alarm, and other emergency systems, then trigger special-purpose lighting presets.
       1. Model MPLD2: 1/1 MPLD2, 1 Input Card, 1 Output Card.
       2. Model MPLD2: 1/4 MPLD2, 1 Input Card, 4 Output Cards.
       3. Model MPLD2: 2/8 MPLD2, 2 Input Cards, 8 Output Cards.
       4. Model MPLD2: 4/12 MPLD2, 4 Input Cards, 12 Output Cards.
       5. Standards Compliance: cULus Listed. UL924 Listed as emergency lighting and power equipment. CSA C22.2 No. 141-15, emergency lighting equipment.
       6. Single sense feed input.
       7. Sixteen input and output cards and require at least one of each type.
          1. Input Cards: two contact inputs.
          2. Output Cards: four contact outputs.
       8. Custom configurations of cards installed either in factory or on-site.
       9. Manual restore after emergency system has returned to a normal state.
       10. Enclosure: Surface mounted. Housing: 16 ga formed steel panels with removable front cover.
           1. Lockable door to limit access to over-current protection breaker.
           2. Components to be properly treated and finished.
           3. Exterior Surfaces: Fine textured, scratch-resistant, powder coat paint.
       11. Three pole, 10 amp breaker for local over-current protection and simulation of normal power loss.
       12. Discrete high and low voltage wiring compartments with voltage barrier.
       13. Accessories:

\*\* NOTE TO SPECIFIER \*\* Delete accessories not required.

* + - * 1. Emergency Bypass Detection Tap Kit (EBDK-TAP):

MPLD2 supports an optional tap kit for normally power loss sensing within an ETC Unison DRd Enclosure.

Tap Kit: Provides fused over-current protection for sense feed wiring without need for external circuit breaker.

Installs in ETC Unison DRd Enclosure.

* + - * 1. Emergency Bypass Restore Switch (EBDK-SWITCH):

Optional. Requires manual override before allowing MPLD2 to return to normal power state.

Restore Switch: Single-gang device, fully finished, and supplied with mounting holes.

Clearly labeled identifying intended operation.

Labeled Lighting System Restore.

Red indicator illuminated when bypass operation is active.

Two 16-gauge wires for connection to MPLD2.

* + - 1. Electrical:
         1. Power: 100 to 277 V. Field configurable for single-phase, bi-phase, and three-phase operation without additional components.
         2. Phase Loss Detection Circuitry: 0.5 second delay to prevent nuisance tripping.
         3. Integrated circuit breaker simulation of normal power loss.
         4. MPLD2-OUT Card: Support isolated outputs for connection to multiple dimming products simultaneously.

Four isolated contacts provided per output card.

Each contact to support connection of eight ETC products.

* + - * 1. Control wire connections: Terminated via factory provided connectors.

Factory provided connector: Support 10 to 20-gauge wiring.

* + - * 1. Normally-closed inputs for fire alarm and emergency systems interface.
        2. UL and cUL Section 924 Listed for interaction with similarly listed dimming and switching panels.
      1. Operating Temperature Range: 32 to 104 degrees F (0 to 40 degrees C).
         1. Ambient Humidity Non-Condensing: 10 to 90 percent.
      2. Enclosures: NEMA 1 interior type.
         1. Overlay mounted on front of enclosure, stating, "BRANCH CIRCUIT EMERGENCY LIGHTING TRANSFER SWITCH"
         2. Label indicating system is UL1008 Listed for Emergency Systems.
    1. Product: Branch Circuit Emergency Lighting Transfer Switch by ETC, Inc.
       1. Model SC1008: Branch Circuit Emergency Lighting Transfer Switch (BCELTS).
       2. Automatic transfer of single branch circuit from normal to emergency power source when normal power fails.
       3. Transfer a lighting load branch circuit from a dimmer, relay, or secondary control output to second power source in event of a power loss to primary power source, normal system failure, or activation of fire alarm.
       4. Standards Compliance:
          1. Listed under ANSI / UL1008 Transfer Switch Equipment and comply with ANSI / NFPA 110 Standard for Emergency and Standby Power Systems, and ANSI / NFPA 70 (NEC), including Article 700, 701 and 702 safety standards. Emergency transfer systems that do not comply with the below stated NEC articles and sections shall not be permitted.

Satisfies requirements of National Electrical Code (NFPA 70):

Article 700 - Emergency Systems.

Article 701 - Legally Required Standby Systems.

Article 702 - Optional Standby Systems.

Section 518.3(C) - Assembly Occupancies.

Section 520.7 - Theatres and Similar Locations.

Section 540.11(C) - Motion Picture Projection Rooms.

* + - 1. Transfer a single circuit at 120V or 277V up to 20 Amperes in capacity.
      2. Transfer Switch: UL1008 transfer switch listed for Emergency Systems (NEC Articles 700 and 701; UL CCN WPWR).
         1. Positively latched. Unaffected by voltage variations or momentary outages. Constant contact pressure maintained, and temperature rise minimized.
         2. Electrically interlocked ensuring, Normal or Emergency, is engaged at any time.
         3. Break-before-make to ensure normal and emergency sources are never interconnected within the unit.
         4. Built-in Fuses: 10,000 Ampere Short Circuit Current Rating (SCCR) on connected emergency circuit.
         5. Switch Contacts: Withstand transfer without welding, with 180 degree phase displacement between normal and emergency power sources if both sources are energized.
         6. Contacts to be rated for mixed loads, including electric discharge lamps and tungsten filament lamps.
         7. Rated for minimum of 6,000 cycles at full tungsten load.
      3. Control Circuitry:
         1. Directs operation of transfer switch.
         2. Field-configurable normally closed (NC) or normally open (NO) dry contact closure input is provided.

Ten BCELTS devices may be connected to a single remote loop.

* + - * 1. BCELTS support transfer of a 0 to 10V or DALI controlled circuit.

Upon activation of emergency transfer BCELTS break the 0 to 10V or DALI control circuit, driving connected 0 to 10V circuits to full output and DALI circuits to their default level.

* + - 1. Operation: Transfer to alternate emergency supply will occur when normal supply sense voltage drops below 80 V when used at 120 or 277 Volts.
      2. Enclosures: Mount in NEMA 1 interior type.
         1. Overlay mounted on front of enclosure, stating, "BRANCH CIRCUIT EMERGENCY LIGHTING TRANSFER SWITCH"
         2. Label indicating system is UL1008 Listed for Emergency Systems.
  1. ARCHITECTURAL CONTROLS - NETWORKING

\*\* NOTE TO SPECIFIER \*\* The Simple Network Boxes provide a solution for systems with a limited number of network devices without the requirements of a full equipment rack. Small networked systems, basic systems requiring Power over Ethernet (PoE), or isolated devices requiring fiber interconnection. Delete paragraph if not required or delete model not required.

* + 1. Network Boxes:
       1. Basis of Design: Simple Network Boxes (SNB) as manufactured by ETC Inc. Provides Ethernet connectivity for small systems requiring basic network connectivity between system devices. Combines an 8 or 16 port network switch with a patch panel and isolated fiber termination area in a convenient surface-mount installation.
       2. Model SNB8FP: 8-Port Simple Network Box with PoE and Fiber Input Option.
          1. Dimensions (HxWxD): 20 x 14 x 6 inches (508 x 356 x 152 mm).
          2. Weight: 20.9 lbs (9.5 kg).
       3. Model SNB16FP 16-Port Simple Network Box with PoE and Fiber Input Option.
          1. Dimensions (HxWxD): 20 x 14 x 6 inches (508 x 356 x 152 mm).
          2. Weight: 21.5 lbs (9.8 kg).
       4. UTP terminations using integrated patch panels and connectors.
       5. Isolated fiber termination area with dedicated space for service loop
       6. Standards Compliance:
          1. ETL Listed.
          2. IEEE 802.3 Ethernet.
          3. IEEE 802.3af Power over Ethernet (PoE).
          4. IEEE 802.1AB Link Layer Discovery Protocol (LLDP).
          5. IEEE 802.1Q VLAN Support.
          6. IEEE 802.1w Rapid Spanning Tree Protocol (RSTP).
          7. IETF RFC 2236 Internet Group Management Protocol, version 2 (IGMPv2).
       7. Enclosure: Fully enclosed surface-mount box. Cover: Keyed and removable.
          1. Material: 16 gauge steel construction.
          2. Finish: Black fine-textured power coat paint.
          3. Conduit Knockouts: All four sides. None on front cover or back.
          4. Isolated fiber termination area.
       8. Electrical: Power Feed Required: 120 VAC, 20 A maximum.
          1. Switch Power Supply: 92 W. Fully integrated within enclosure. 82 W available for PoE devices.
       9. Electronics:

\*\* NOTE TO SPECIFIER \*\* Delete port count option not required.

* + - * 1. Port Count: 8-port switch supplied with enclosure.
        2. Port Count: 16-port switch supplied with enclosure. PoE available on first 12 ports.
        3. Includes UTP termination panel and patch cables.

\*\* NOTE TO SPECIFIER \*\* Termination kits are optional. Delete termination kit not required.

* + - * 1. Fiber Connections: Supports up to 2 connections with fiber termination kits. A Fiber Termination Kit is required for each fiber port; a maximum 2 per Simple Network Box.

Short Haul Fiber Termination Kit: Model SNBFP-SHK for the Simple Network Boxes specified. Supports 850 nm multi-mode fiber.

Maximum Distance: 1804 ft (550 meters).

Long Haul Fiber Termination Kit: Model SNBFP-LHK for the Simple Network Boxes specified. Supports 1310 nm single-mode fiber.

Maximum Distance: 6.2 miles. (10 kilometers).

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. ARCHITECTURAL CONTROLS - RESPONSE
     1. Gateway Series:
        1. Product: Response Mk2 Four-Port Gateway by ETC Inc. Four-Port Gateway provides data distribution using the quality and reliability of ETC's network technology. Built for Net3 using industry-standard sACN, DMX and RDM.
           1. Model: RSN-DMX4-O Response Mk2 4-Port Gateway - 4 Output
           2. Model: RSN-DMX4-I Response Mk2 4-Port Gateway - 4 Input
           3. Model: RSN-DMX4-3O1I Response Mk2 4-Port Gateway - 1 In 3 Out
           4. Model: RSN-DMX4-T Response Mk2 4-Port Gateway - 4 Terminal
           5. Model: RSN-DMX4-R Response Mk2 4-Port Gateway - 4 RJ45
           6. Standards Compliance: cETLus Listed, CE compliant, EAC certified, RoHS compliant, WEEE.
           7. Functional:

Supports Net3/ACN (ANSI E1.31 and E1.17), RDM (ANSI E1.20), and Supports USITT DMX512-A (ANSI E1.11).

Compliance: USITT DMX512 and ANSI E1.11 DMX512-A.

Flexible Output Patch: Allows a 512-address universe to begin at any output address.

Advanced Input Patch.

Support for per-address- or per-universe-level priority.

Delay Time: From input to output not greater than one packet time.

Selectable DMX refresh rate: Maximum of 40 Hz.

Supports 255 total RDM devices.

* + - * 1. Mechanical:

Intuitive four-button interface.

Onboard display for identification, status, and configuration.

Fabricated from 16-gauge cold-rolled steel.

Finish: Black, Fine-textured, powder-coat.

C-clamp and U-bolt hardware available.

Half 19 inch equipment rack width allows eight DMX ports in 1U height.

Network, power, and data activity LED indicators.

Blue power indicator, green network activity indicator.

Bi-color DMX activity indicator.

Repositionable RJ45 connector for connection to lighting network.

Reset button for hard reset or forced reboot.

* + - * 1. Environmental:

Ambient operating temperature: 32 to 104 degrees F.

Operating Humidity: 5 - 95 percent non-condensing.

Storage temperature: Minus 40 to 158 degrees F.

* + - * 1. Electrical:

Compliant with IEEE 802.3i for 10BASE-T, 802.3u for 100BASE-TX and 802.3af for Power over Ethernet.

Power Input: 12-24 VDC for use with non-PoE systems.

Maximum seven watt current draw.

Pluggable clamp style terminals for solid and stranded cable provided for terminal version.

* + - * 1. Configuration:

Local configuration options.

Remote configuration by Concert.

Supports 512 DMX addresses per port.

Supports 63,999 Streaming ACN universes.

DMX data input or output configurable by user.

Multiple sources may be combined to the network with each source or address allowed an independent priority

Individual port start address and offset

User-configurable labeling

* + - 1. Product: Response Mk2 DIN Gateways by ETC Inc. DIN Gateway provides data distribution using the quality and reliability of ETC's network technology. Built for Net3 using industry-standard sACN, DMX and RDM.
         1. Model: RSN-DMX1-DIN Response MK2 1-port Gateway - DIN Rail.
         2. Model: RSN-DMX2-DIN Response MK2 2-port Gateway - DIN Rail.
         3. Model: RSN-DMX4-DIN Response MK2 4-port Gateway - DIN Rail.
         4. Standards Compliance: cETLus Listed, CE compliant, EAC certified, RoHS compliant, WEEE.
         5. Functional:

Supports Net3/ACN (ANSI E1.31 and E1.17), RDM (ANSI E1.20), and USITT DMX512-A (ANSI E1.11).

Compliance: USITT DMX512 and ANSI E1.11 DMX512-A.

Flexible Output Patch: Allows a 512-address universe to begin at any output address.

Advanced Input Patch.

Support for per-address- or per-universe-level priority.

Delay Time from Input to Output: Not greater than one packet time.

Selectable DMX Refresh Rate: Maximum of 40 Hz.

Supports 255 total RDM devices.

* + - * 1. Mechanical:

Intuitive four-button interface.

Onboard display for identification, status, and configuration.

Molded plastic enclosure.

Mounting: Complies with DIN43880 (35/7.5 rail).

DIN installation enclosure available.

Network, power, and data activity LED indicators.

Blue power indicator, green network activity indicator.

Bi-color DMX activity indicator.

RJ45 connector for connection to lighting network.

Reset button for hard reset or forced reboot.

* + - * 1. Environmental:

Ambient operating temperature: 32 to 104 degrees F.

Operating Humidity: 5 - 95 percent non-condensing.

Storage temperature: Minus 40 to 158 degrees F.

* + - * 1. Electrical:

Compliant with IEEE 802.3i for 10BASE-T, 802.3u for 100BASE-TX and 802.3af for Power over Ethernet.

Power Input: 12-24 VDC for use with non-PoE systems.

Maximum seven watt current draw.

Pluggable clamp style terminals for solid and stranded cable provided.

* + - * 1. Configuration:

Local configuration options.

Remote configuration by Net3 Concert.

Supports 512 DMX addresses per port.

Supports 63,999 Streaming ACN universes.

DMX data input or output configurable by user.

Multiple sources may be combined to the network with each source or address allowed an independent priority.

Individual port start address and offset.

User-configurable labeling.

* + - 1. Product: Response Mk2 One-Port Gateway by ETC Inc.
         1. Standards Compliance: cETLus Listed, CE compliant, EAC certified, RoHS compliant, WEEE.
         2. One-Port Gateways - Wall-Mount

Model: RSN-DMX1-O-\_ Wall-mount 1-port Gateway - 1 Output

Model: RSN-DMX1-I-\_ Wall-mount 1-port Gateway - 1 Input

* + - * 1. One-Port Gateways - Portable

Model: RSN-DMX1-O-P-\_ Portable 1-port Gateway - 1 Output

Model: RSN-DMX1-I-P-\_ Portable 1-port Gateway - 1 Input

* + - * 1. Color: As determined by the Architect from the Manufacturer's offering.
        2. Functional:

Supports Net3/ACN (ANSI E1.31 and E1.17), RDM (ANSI E1.20), and USITT DMX512-A (ANSI E1.11).

Compliance: USITT DMX512 and ANSI E1.11 DMX512-A.

Flexible Output Patch allows a 512-address universe to begin at any output address.

Advanced Input Patch.

Support for per-address- or per-universe-level priority.

Maximum delay time from input to output not greater than one packet time.

Selectable DMX refresh rate: At least 40 Hz.

Supports 255 total RDM devices.

* + - * 1. Mechanical:

Intuitive four-button interface,

Onboard display for identification, status, and configuration.

Enclosed electronics assembly and faceplate.

No visible means of attachment.

Flush-mount in industry standard backbox, RACO 690 or equivalent. Surface-mount backboxes available

Construction: Injection-molded, ABS plastic.

Green LED: For network activity indication.

RJ45 connector for connection to lighting network.

Reset button: For hard reset or forced reboot.

* + - * 1. Environmental:

Ambient operating temperature: 32 to 104 degrees F.

Operating Humidity: 5 - 95 percent non-condensing.

Storage temperature: Minus 40 to 158 degrees F.

* + - * 1. Electrical:

Compliant with IEEE 802.3i for 10BASE-T, 802.3u for 100BASE-TX and 802.3af for Power over Ethernet.

Power Input: 12-24 VDC for use with non-PoE systems.

Maximum Current Draw: 4 W.

* + - * 1. Configuration:

Local configuration options.

Remote configuration by Net3 Concert.

Supports 512 DMX addresses per port.

Supports 63,999 Streaming ACN universes.

DMX data input or output configurable by user.

Multiple sources may be combined to the network with each source or address allowed an independent priority.

Individual port start address and offset.

User-configurable labeling.

* + - 1. Product: Response Mk2 Two-Port Gateway by ETC Inc.
         1. Standards Compliance: cETLus Listed, CE compliant, EAC certified, RoHS compliant, WEEE.
         2. Two-Port Gateways - Wall-Mount:

Model: RSN-DMX2-O. Wall-mount 2-port Gateway - 2 Output.

Model: RSN-DMX2-I. Wall-mount 2-port Gateway - 2 Input.

* + - * 1. Two-Port Gateways - Portable:

Model: RSN-DMX2-O-P. Portable 2-port Gateway - 2 Output.

Model: RSN-DMX2-I-P. Portable 2-port Gateway - 2 Input.

* + - * 1. Color: As determined by the Architect from the Manufacturer's offering.
        2. Functional:

Supports Net3/ACN (ANSI E1.31 and E1.17), RDM (ANSI E1.20), USITT DMX512-A (ANSI E1.11).

Compliance: USITT DMX512 and ANSI E1.11 DMX512-A.

Flexible Output Patch allows a 512-address universe to begin at any output address.

Advanced Input Patch.

Support for per-address- or per-universe-level priority.

Maximum delay time from input to output not greater than one packet time.

Selectable DMX refresh rate with a maximum at least 40 Hz.

Supports up to 256 total RDM devices.

* + - * 1. Mechanical:

Intuitive four-button interface.

Onboard display for identification, status, and configuration.

Enclosed electronics assembly and faceplate.

No visible means of attachment.

Flush-mount in industry standard backbox, RACO 690 or equivalent. Surface-mount backboxes available

Construction: Injection-molded, ABS plastic.

Network and power activity LED indicators.

Blue power indicator, green network activity indicator,

RJ45 connector for connection to lighting network.

Reset button: For hard reset or forced reboot.

* + - * 1. Environmental:

Ambient operating temperature: 32 to 104 degrees F.

Operating Humidity: 5 - 95 percent non-condensing.

Storage temperature: Minus 40 to 158 degrees F.

* + - * 1. Electrical:

Compliant with IEEE 802.3i for 10BASE-T, 802.3u for 100BASE-TX and 802.3af for Power over Ethernet

Power Input: 12-24 VDC for use with non-PoE systems.

Current Draw: Maximum 4 W.

* + - * 1. Configuration:

Local configuration options.

Remote configuration by Net3 Concert.

Supports 512 DMX addresses per port.

Supports 63,999 Streaming ACN universes.

DMX data input or output configurable by user.

Multiple sources may be combined to the network with each source or address allowed an independent priority.

Individual port start address and offset.

User-configurable labeling.

* + 1. Specialty Gateway Series:

\*\* NOTE TO SPECIFIER \*\* Delete product and options not required. Multiple products and models may be specified.

* + - 1. Product: Response 0 to 10V Gateway by ETC, Inc. Lighting control gateway; microprocessor-based providing 0 to 10 V control for lighting systems. Permit DMX-512 and Ethernet Data to be received and converted to 0 to 10V control outputs.
         1. Model RSN-LV: Response 0 to 10 V Gateway.
         2. Standards Compliance: cETLus Listed. CE compliant. EAC certified. RoHS compliant. WEEE. UL 924 LISTED for emergency lighting applications
         3. Functional:

Supports sACN control input (ANSI E1.31).

Supports USITT DMX512-A control input (ANSI E1.11).

Supports 0-10 V sink control (IEC60929 Annex E).

Supports per-address- or per-universe-level priority.

Configurable dimming curve per channel.

Linear.

Mod-Square.

Custom.

* + - * 1. Mechanical:

Intuitive four-button interface.

Onboard display for identification, status, and configuration.

Extruded aluminum enclosure.

Network and power activity indicators.

Blue power indicator.

Green and orange network activity indicator.

Female RJ45 for connection to lighting network.

Pluggable terminals provided for all wiring connections.

Selection switch for emergency input configuration.

Normally Open, Normally Closed or Off.

10 unit DIN enclosure.

Mounting complies with DIN43880 (35/7.5 rail).

* + - * 1. Electrical:

Compliant with IEEE 802.3i for 10BASE-T, 802.3u for 100BASE-TX.

18 to 24 VDC power input using two-pin pluggable connection.

Maximum 18 W current draw at 18 to 24 V.

24 0 to 10 V outputs, each supporting voltage sink connections, 100 mA maximum current per output.

* + - * 1. DMX Input Port:

Optically-isolated input from the Gateway electronics.

Withstands fault voltages of up to 250 VAC.

Integrated DMX/RDM termination.

* + - * 1. Configuration:

Onboard configuration using intuitive four-button interface.

Configuration provided using Concert software.

Configurable starting address.

Up to four sources may be combined to the network with each source or address allowed an independent priority.

* + - * 1. Ambient Operating Temperature: 32 to 104 degrees F (0 to 40 degrees C).
        2. Operating Humidity: 5 to 95 percent non-condensing.
        3. Storage Temperature: Minus 40 to 158 degrees F (Minus 40 to 70 degrees C).
      1. Product: Response Analog IO Gateway by ETC, Inc.
         1. Model RSN-IO-DIN: Response Analog IO Gateway.
         2. Standards Compliance: cETLus Listed. CE compliant. RoHS compliant. WEEE.
         3. Functional:

Integrates with Eos, Paradigm, Mosaic and third party systems.

12 Analog Inputs (contact closure or 0 to 10 V) Capable of Triggering:

ACN messages including contact state or analog control.

User defined UDP messages on change from high to low, or low to high, of a 0 to 10 V input.

sACN level controlled mapped from a 0 to 10 V input.

12 Low Voltage Relay Outputs Controlled By:

ACN messages.

UDP messages.

sACN levels.

Parameter configuration of each input and output via Concert software.

On board screen displays status of all inputs and outputs.

Supports connection of multiple gateways for integration network tunnelling without the need for an additional controller.

* + - * 1. Mechanical:

Intuitive four-button interface.

Onboard display for identification, status, and configuration.

Molded plastic enclosure.

Network and power activity indicators:

Blue power indicator.

Green network activity indicator.

Female RJ45 for connection to lighting network.

Pluggable terminals provided for all wiring connections.

9 unit DIN enclosure.

Mounting complies with DIN43880 (35/7.5 rail).

* + - * 1. Electrical:

Compliant with IEEE 802.3i for 10BASE-T, 802.3u for 100BASE-TX.

Powered using 802.3af for Power over Ethernet.

Optional 12- 24 VDC power input for use with non-PoE systems.

* + - * 1. Analog Inputs:

Two pluggable rising clamp screw terminal connectors with 6 analog inputs per terminal.

Terminal connectors support in and common per input.

Analog inputs can sense between 0 to 10 V (10 V, 100 mA per gateway utility supply provided).

Wet or dry contact closure per input.

* + - * 1. Contact Outputs:

Three pluggable rising clamp screw terminal connectors with 4 relay outputs per terminal.

Normally open "N.O.," normally closed "N.C.," and common "COM" connectors.

Each output is rated for 0.5 A at 30 VDC/VAC.

Pilot duty rated.

Single-pole double-throw relays.

* + - * 1. Operating Temperature Range: 32 to 104 degrees F (0 to 50 degrees C).
        2. Relevant Humidity Non-Condensing: 5 to 95 percent.
      1. Product: Response SnapBack by ETC Inc.
         1. Model RSN-SB-DIN: Response SnapBack (DIN rail mounted)
         2. Model RSN-SB-RM: Response SnapBack (portable)
         3. Standards Compliance: cETLus Listed, CE Compliant, RoHS Compliant, and WEEE
         4. Functional:

Integrates with Eos, Paradigm, Mosaic, and Echo systems using UDP triggering.

Eos, Paradigm, and Mosaic systems can support up to 50 SnapBacks in a single system.

Echo systems can support up to two SnapBacks on a single EchoTouch or Echo Integration Interface with each assigned to a single Echo space.

Integrates with Echoflex systems using analog inputs.

12 analog inputs capable of triggering preset playback and off.

Inputs 1-10 trigger preset playback.

Input 11 is reserved for future development.

Input 12 triggers the Off state.

UDP triggering supports up to two subscribers as well as "Subscribers-only" triggering for security.

Supported UDP triggering includes:

Preset playback, with custom timing.

Off state, with custom timing.

Preset record.

Preset status.

Contact resync.

Help

On board screen displays current preset status and record options.

Supports local device configuration or advance configuration with ETC Concert software.

* + - * 1. Mechanical:

Intuitive four-button interface.

Onboard display for identification, status, and configuration.

Molded plastic enclosure.

Network and power activity indicators.

Blue power indicator.

Green network activity indicator.

RJ45 socket for connection to lighting network.

Pluggable terminals provided for all wiring connections.

9 standard unit DIN enclosure.

Mounting complies with DIN 43880 (35/7.5 rail).

* + - * 1. Electrical:

Compliant with IEEE 802.3i for 10BASE-T, 802.3u for 100BASE-TX.

Powered using 802.3af for Power over Ethernet.

\*\* NOTE TO SPECIFIER \*\* Power unit below is optional Delete if not required.

Power Unit: 12-24 VDC for use with non-PoE systems.

* + - * 1. Analog Inputs:

Two pluggable rising clamp screw terminal connectors with six analog inputs per terminal.

Terminal connectors support in and common per input.

Analog inputs support contact closures for preset triggering.

Wet or dry contact closure per input.

* + - * 1. Ambient temperature: 32 to 104 degrees F (0 to 40 degrees C)
        2. Ambient humidity: 5 to 95 percent non-condensing
      1. Product: Response DALI Gateway by ETC, Inc.
         1. Model RSN-DALI: Response DALI Gateway.
         2. Standards Compliance: cETLus Listed. CE compliant. RoHS compliant. WEEE.
         3. Functional:

Supports USITT DMX512-A control input (ANSI E1.11).

Supports DALI loop control for one DALI loop.

Algorithmic dimming conversion to ensure fade performance.

Supports failed device replacement without the need for software or configuration.

* + - * 1. Mechanical:

Onboard display for identification, status, and configuration.

Extruded aluminum enclosure.

DMX and DALI activity indicators.

Plug-able terminals provided for all wiring connections.

8 unit DIN enclosure.

Mounting complies with DIN43880 (35/7.5 rail).

* + - * 1. Electrical:

12 to 24 VDC power input using three-pin plug-able connection.

One DALI loop output (requires external DALI power supply).

* + - * 1. DMX Input Port:

Optically-isolated input from the Gateway electronics.

Withstands fault voltages of up to 250 VAC.

Integrated DMX/RDM termination.

* + - * 1. Configuration:

Configured via RDM.

Configuration provided using Net3 Concert software connected to an ETC DMX gateway, or third party configuration software.

Configurable starting address with support for custom patch tables allowing non-sequential addressing.

* + - * 1. Operating Temperature Range: 32 to 104 degrees F (0 to 50 degrees C).
        2. Relevant Humidity Non-Condensing: 5 to 95 percent.
        3. Storage Temperature Range: Minus 40 to 158 degrees F (Minus 40 to 70 degrees C).
      1. Product: Response Show Control Gateways by ETC Inc. A family of reliable, portable devices that can communicate with MIDI, SMPTE, Serial or other third party devices.
         1. Response MIDI Gateways: Sends and receives information in all flavors of MIDI: Note, Show Control (MSC), and Time Code (MTC). Translates MIDI to and from UDP for integration with ETC and third-party products.

Model: RSN-MIDI-P. Backpack Style.

Model: RSN-MIDI-RM. Rack-Mount Style.

* + - * 1. Response SMPTE Gateways: Brings SMPTE LTC timecode signal to the Eos family console reliably to make sure everything stays on track. Ensures reliable bi-directional RS-232 data communication for system integration.

Model: RSN-SMPTE-P. Backpack Style.

Model: RSN-SMPTE-RM. Rack-Mount Style.

* + - * 1. Response Analog IO Gateways: Integration aid. 12 analog inputs and 12 relay outputs, it can integrate with a large selection of devices using industry-standard protocols including UDP, ACN, and sACN. In addition to third-party integration it speaks natively to Eos consoles, Unison Paradigm, and Unison Mosaic control systems.

Model: RSN-IO-DIN. DIN-Mount Style

Model: RSN-IO-RM. Rack-Mount Style.

* + - * 1. Response Serial Gateways:

Model: RSN-SERIAL-P. Backpack Style.

Model: RSN-SERIAL-RM. Rack-Mount Style.

* + - * 1. Standards Compliance: cETLus Listed, CE compliant, EAC certified, RoHS compliant, WEEE.
        2. Functional: MIDI.

Distributes MIDI over USB or Ethernet.

Supports Standard MIDI over USB device class, Net3/ACN (ANSI E1.17), and MIDI over UDP.

* + - * 1. Functional: SMPTE.

Distributes SMPTE over USB or Ethernet.

Supports Net3/ACN (ANSI E1.17) and SMPTE over UDP.

* + - * 1. Functional: Serial.

Distributes Serial over USB or Ethernet.

Supports Net3/ACN (ANSI E1.17), Serial over UDP, Standard USB Serial Port Emulation Class.

* + - * 1. Mechanical:

Finish: Fine-textured, powder-coat paint with matching overlay.

SMPTE: 3-Pin Female XLR Connector.

MIDI: 5-Pin DIN Connector In/Out/Thru ports.

Serial: 9-Pin D-sub Connector

RJ45 Port: For connection to lighting network. Configurable on rack-mount units

Type B USB Female connection

Intuitive four-button interface.

Onboard display for identification, status, and configuration.

Status and Activity Indicators:

Blue: Power indicator.

Green: Network activity indicator.

Red/Green: USB activity indicator.

* + - * 1. Environmental:

Ambient operating temperature: 32 to 104 degrees F.

Operating Humidity: 5 - 95 percent non-condensing.

* + - * 1. Electrical:

MIDI, SMPTE, Serial: 5 V USB power.

Analog IO: Optional 12-24 VDC power input for use with non-PoE systems. Maximum 7 W current draw at 12-24 V.

RJ45 connector compliant with IEEE 802.3i for 10BASE-T, 802.3u for 100BASE-TX and 802.3af for Power over Ethernet.

* + - * 1. Analog Inputs: Analog IO only.

Two pluggable rising clamp screw terminal connectors with 6 analog inputs per terminal.

Terminal Connectors: Support in and common per input.

Analog inputs can sense between 0 - 10 V (10 V, 100 mA per gateway utility supply provided.

Wet or dry contact closure per input.

* + - * 1. Contact Outputs: Analog IO only.

Three pluggable rising clamp screw terminal connectors with 4 relay outputs per terminal.

Normally open "N.O.," normally closed "N.C.," and common "COM" connectors.

Each output is rated for 0.5 A at 30 VDC/VAC.

Pilot duty rated.

Single-pole double-throw relays.

* + 1. Opto-Splitter Series:
       1. Product: Response Opto-Splitter by ETC Inc. Provides quality and reliable DMX data distribution using industry-standard DMX and RDM.
          1. Model: RSN-OPTO-12O. 12 Port Rack-mount - XLR.
          2. Model: RSN-OPTO-16R. 16 Port Rack-mount - RJ45.
          3. Model: RSN-OPTO-16T. 16 Port Rack-mount - Terminal.
          4. Model: RSN-OPTO-8DIN. 8 Port DIN rail - Terminal.
          5. Model: RSN-OPTO-DBOX. 16 Output - DIN box dual 8 Opto.
          6. Model: RSN-OPTO-BOX. 8 Output -DIN box single 8 Opto.
          7. Model: RSN-OPTO-DBOX-E. 16 Output -DIN box dual 8 Opto (Emergency).
          8. Model: RSN-OPTO-BOX-E. 8 Output -DIN box single 8 Opto (Emergency).
          9. Standards Compliance: cETLus Listed, CE compliant, EAC certified, RoHS compliant, WEEE.
          10. Functional:

No configuration required.

Supports DMX512, DMX512 (1990), DMX512-A, ANSI E1.20 Remote Device Management (RDM).

Supports 256 total RDM devices

* + - * 1. Mechanical:

Rack-mount form factor:

Fabricated from aluminum.

Black, Fine-textured, powder-coat finish.

Full 19 inch equipment rack width.

Front or rear facing mounting options.

DIN rail form factor:

Molded plastic enclosure.

Mounting complies with DIN43880 (35/7.5 rail).

Unit is 9 DIN units wide.

DIN installation enclosure available.

Power and data activity LED indicators.

Blue power indicator.

Green DMX activity indicator.

* + - * 1. Environmental:

Ambient operating temperature: 32 to 104 degrees F.

Operating Humidity: 5 - 95 percent non-condensing.

Storage temperature: Minus 40 to 158 degrees F.

* + - * 1. Electrical:

Supports DMX input and DMX thru.

Provides optically isolated DMX/RDM outputs.

Rack-mount form factor:

Power Unit: 100-240 VAC 50/60 Hz.

User configurable front or rear IEC C13 power connector position.

Power Draw: 35 W max

XLR, RJ45 and Terminal connector options.

DIN rail form factor:

Power Input: 12-48 VDC power input.

Power Draw: 8 W max

Wiring connections use pluggable clamp style terminals for solid and stranded cable.

DIN Box form factors include a suitable power supply.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until substrates have been properly constructed and prepared.
      2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Clean surfaces thoroughly prior to installation.
      2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. INSTALLATION
      1. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
   4. FIELD QUALITY CONTROL
      1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

\*\* NOTE TO SPECIFIER \*\* Include if manufacturer provides field quality control with onsite personnel for instruction or supervision of product installation, application, erection, or construction. Delete if not required.

* + 1. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
  1. CLEANING AND PROTECTION
     1. Clean products in accordance with the manufacturers recommendations.
     2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION