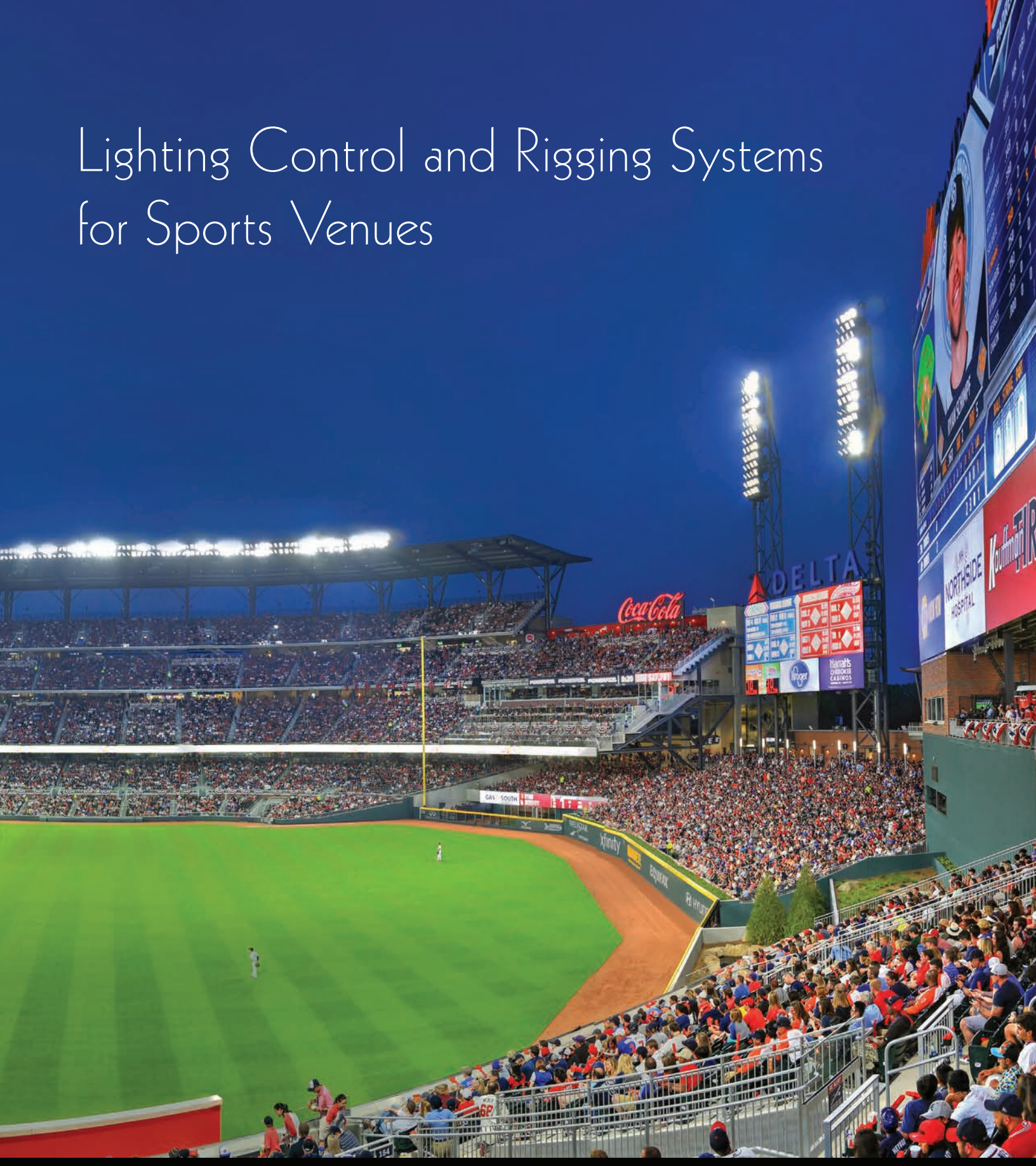
Lighting Control and Rigging Systems for Sports Venues



visual environment technologies | etcconnect.com

ETC



ETC is a leader in the manufacture of lighting and rigging technology for entertainment and architectural applications worldwide. With an array of lighting-control systems; conventional, LED and exterior lights; power-control systems; networking products; emergency-lighting equipment, and more, ETC has the solutions for a full spectrum of specified lighting projects.

Founded in Madison, Wisconsin, in 1975, ETC began as a college project that grew into an award-winning company focused on producing the highest quality products. Over the years, ETC has expanded by product development and acquisitions to include over 1000 employees in 11 corporate and several home offices in a dozen cities around the globe.

Since its beginning, ETC has earned an industry reputation for unmatched technical and customer service. In addition to its own renowned service department offering 24-hour support. ETC has nearly 300 authorized service centers throughout the world staffed by hundreds of certified technicians. Customers are guaranteed the assistance they need throughout the entire life of a product.

Stadiums and Arenas

With decades of experience lighting large and small themed environments around the globe, it should come as no surprise that stadium and arena projects have been rapidly filling the ETC portfolio.

ETC's control options are a great fit for the quantity of spaces that are often part of large facilities that cater to sporting events, concerts, and tradeshows. Each of these spaces requires individual and reliable lighting control.

- LOBBIES
- CONCESSIONS
- PRESS BOXES
- CORPORATE SUITES
- RESTROOMS
- LOCKER ROOMS
- CONCOURSE AREAS
- BUILDING EXTERIORS
- MEETING ROOMS
- OFFICES
- PLAYING FIELD
- SHOW FLOOR

Scheduling and day-to-day operation of an ETC project is quick and easy. Special events can be scheduled area by area or for the entire facility without interrupting the programmed functions of other areas. The system easily accepts schedule changes so the lighting will match last minute changes to a building's hours of operation.

An ETC lighting control system can also cut unnecessary costs. It can be programmed to shut lights off at designated times so unoccupied areas aren't lit up while not in use. The system can adjust lighting levels depending on the time of day and available natural lighting. In addition, an ETC lighting control system shares many common components requiring fewer parts be kept in inventory as replacement stock.

Beyond lighting control, our rigging is making a home in stadiums and arenas around the nation. Vortek hoists are customizable and have a long tradition of design, engineering, and manufacturing excellence. Each hoist is designed as part of a total system taking into consideration installation restrictions, operator safety, and overall application. Ideal for stadium score boards, the hoists are low-speed, and high-capacity.

One of the most important parts of purchasing an ETC system is the customer and technical service that comes with it. With a single-point support structure for an entire system, ETC works with clients every step of the way to select the right products, ensure the installation goes smoothly, and all staff is properly trained. If an after-hours issue comes up, ETC's phone support group is available 24 hours a day, seven days a week, and 365 days a year.

SunTrust Park

ATLANTA, GA

SunTrust Park was completed in early 2017 after four years in the making. This is the home field for the Atlanta Braves™ baseball team and although they've never left Atlanta, this is the third park they've called home since 1966.

A 60-acre parcel of land was purchased with the intention to include not only the Stadium, but also apartments, restaurants, offices, and more. SunTrust Park is the center of this entertainment district called Battery Atlanta. ETC is fortunate to be a part of several of the spaces including a monument garden, and brew pub. Within the park, ETC equipment can be found in the Chop House restaurant, the Home Depot Clubhouse, and a large, kid-friendly area with zip-line and numerous baseball-themed activities.

A handful of concerts also share the field between baseball games, making this truly a multi-use venue.

ETC EQUIPMENT CONTROLS:

Home Plate/Hall of Fame Lounge
Monument Garden
Team Store
Lodge
Club Suites
Kids Zone
Locker Rooms
Brew Pub
Chop House
Offices
Conference Room
Stadium Club
Terrace Level

PROGRAMMING

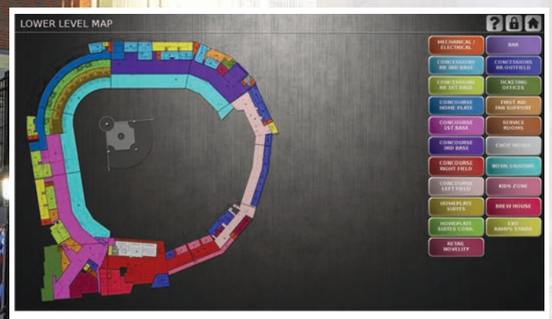
With ETC Paradigm® you can map out, program, and control your entire system from a single point. Your multi-space, or multi-venue system can be organized, color coded, and custom branded to your stadium. ETC Touchscreens offer the high-resolution interface and graphical controls needed to manage the largest of lighting systems.

ETC EQUIPMENT LIST

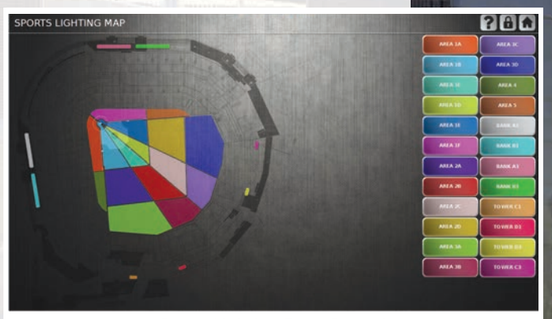
Echo Relay Panel
Unison DRd Power Control
Paradigm Architectural Control
Echo Architectural Control
Emergency Bypass Detection
DMX Emergency Bypass
Mosaic Show Control
Unison Button Stations
Unison Wireless Access Stations
Paradigm LCD
Echo Room Controller
Echo Expansion Bridge
EchoAccess Interface and Mobile App Control



System Wide Interface



Stadium Lighting Control



Sports Lighting Zone Control

Photo: Ryan Linton Images

ENVIRONMENTAL ARENA
The T-Mobile Arena is a
LEED Gold certified facility.

T-Mobile Arena

LAS VEGAS, NV

The T-mobile Arena opened in April of 2016 as the ultimate entertainment venue and has hosted dozens of world-class entertainers including the Rolling Stones and Coldplay. With a 20,000 seat capacity, the arena is setup to host everything from UFC, to basketball, large concerts, hockey, and family events.

Located on the Las Vegas strip, the venue includes not only a large entertainment space, but also restaurants, a private lounge with VIP access, luxury suites, party suites, and a two-acre outdoor pre-event area. The majority of these spaces include ETC equipment and control.

Below are screen shots taken from the building control system provided and programmed by ETC. These screen shots show the complexity of the lighting controls for the T-Mobile Arena and the large number of spaces controlled from a single touchscreen device.

ETC EQUIPMENT CONTROLS:

Event Levels A-D
Concourse
Catwalks
Mezzanine
Suites
Tower Levels

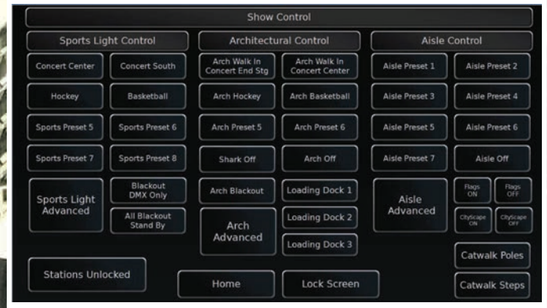
ETC RIGGING

ETC offers a variety of customizable rigging hoists that have a long tradition of design, engineering, and manufacturing excellence. Hoists are designed as part of a total system taking into consideration installation restrictions, operator safety, and overall application.

Ideal for stadium score boards, the hoists are low-speed, and high-capacity. ETC has custom designed and manufactured hoists with a capacity of up to 150,000 pounds.

ETC EQUIPMENT LIST

Echo Relay Panel
Emergency Bypass Detection
Unison® Button Stations
Response Gateways
Paradigm 7" Touchscreens
Paradigm 18" Touchscreens
Unison DRd Power Control
Echo Architectural Control
Occupancy Sensors
Mosaic® Show Control
Eos® Entertainment Control
Sensor3 Power Control
EchoAccess® Interface and
Mobile App Control



Arena Control



Sports Lighting Control

Madison Square Garden

NEW YORK CITY, NY

The World's Most Famous Arena, that's the tagline for Madison Square Garden, and for good reason. This arena hosts boxing tournaments, WWE shows, Rangers Hockey, and Knicks basketball games.

The original Madison Square Garden opened in 1968 making the oldest sporting facility in the New York metro area. It is also one of the largest and best-known concert venues in the US accommodating over 20,000 guests for a single event.

The building houses a number of bars, restaurants, and The Theatre at Madison Square Garden, a 5,600 seat theatre that hosts award ceremonies, corporate product launches, and family theatrical events.

ETC EQUIPMENT CONTROLS:

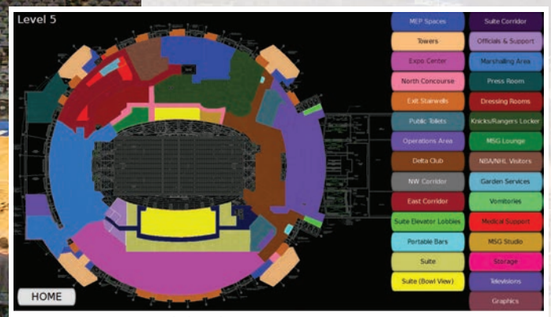
ETC has been through the last several renovations with "The Garden" supplying lighting control for every major space of the venue on multiple levels.

VENUE-WIDE TOUCHSCREEN CONTROL

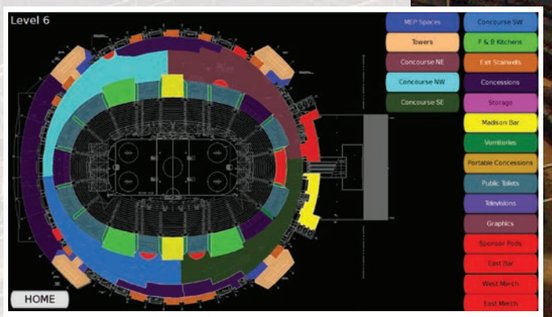
When working with a multi-level, multi-space arena, a single point of control is a luxury not many systems can offer. With ETC's control system you have access to control the lighting in a restaurant, the locker rooms, the arena, and the concession stands all from a single touchscreen mounted in a location that is ideal for you. Ultimate flexibility for ultimate control.

ETC EQUIPMENT LIST

SmartSwitch Relay Panels
Echo Rely Panel – Feedthrough
Emergency Bypass Detection
Unison Button Stations
Sensor® Power Control
Paradigm Architectural Control
Paradigm 7" Touchscreens
Paradigm 18" Touchscreens
Mosaic Show Control
Net3/DMX/RDM Gateways



5th level event support systems



6th level event support systems

Photo: Rebecca Taylor/MSG Photos



> **"The opportunities we now have for lighting and control are endless. It's pretty cool what we can do."**
>
> **Gary Glawe, Senior Director, Ballpark Systems**

Target Field

MINNEAPOLIS, MN

The lighting and control renovation to Target Field, home of the Minnesota Twins, happened over the course of nearly a decade. In 2010 nine, lighted baseball bat topiaries were added. One additional topiary is lit to signify the top of each new inning. A variety of colors and effects were programmed to change and coordinate with the teams, holidays, and other events that are happening in the park.

The second addition is known as the Wind Veil. This public art piece was created by environmental artist, Ned Kahn and installed on the exterior of the public parking ramp near Target Field. Fifty-thousand small, hinged, metal piece were designed to float with the slightest breeze. The lighting of this public art display is programmed using ETC equipment and designed for the hundreds who gather in the nearby public space to be a part of the Twins' games despite not having tickets to get through the gate.

The final phase combined the sports lighting system with RGB fixtures and central control capabilities. Custom programming completed the system by tying the fixtures, custom effects, and day-to-day lighting needs together creating a user-friendly interface for daily operations.

ETC EQUIPMENT CONTROL:

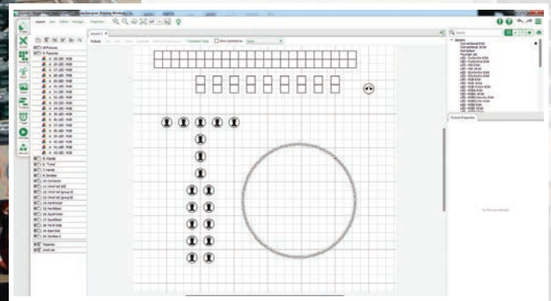
Outfield Sign
Parking Ramp Public Art
Exterior Topiaries

ULTIMATE SECURITY

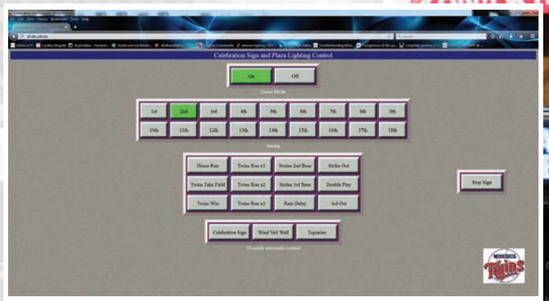
For the more advanced installations and effects, ETC offers custom programming so you can control an entire stadium from a single touchscreen. And all touchscreens come with multi-level, multi-password security so only those who should be controlling your system, are.

ETC EQUIPMENT LIST

Mosaic Show Control
Paradigm 7" Touchscreens
Unison Button Stations
Net3/DMX/RDM Gateways
Emergency Bypass Detection
DMX Emergency Bypass



Mosaic Designer Configuration



Paradigm Control Web Interface

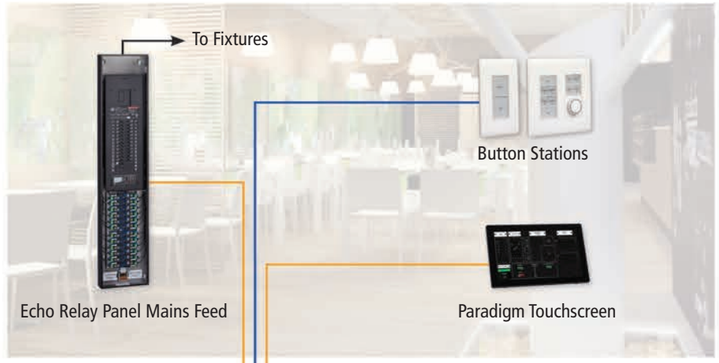
System Riser

WIRE TYPES
- Paradigm
- Echo
- Network
- DMX

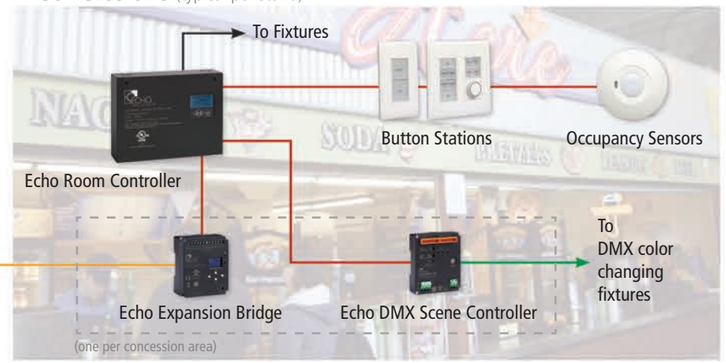
LOCKER ROOM



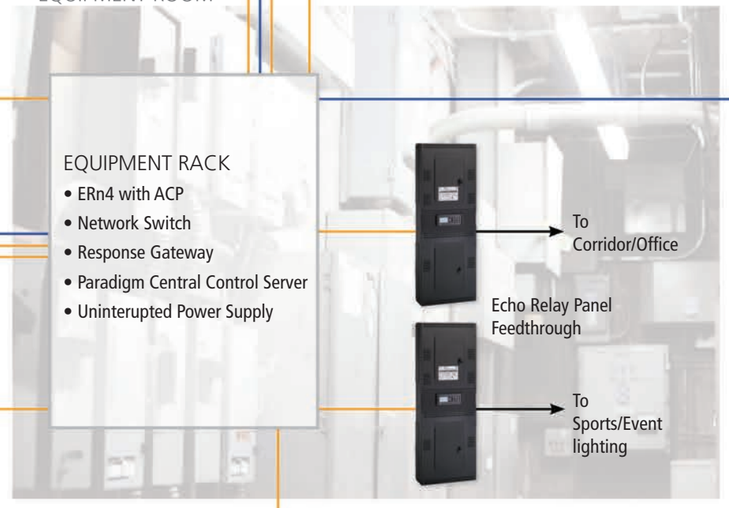
BAR/RESTAURANT



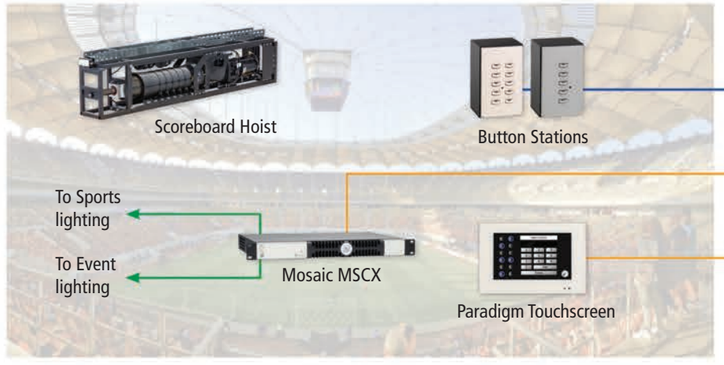
CONCESSIONS (typical per stand)



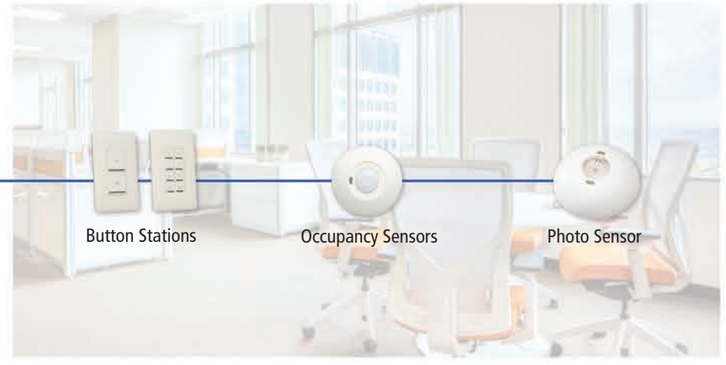
EQUIPMENT ROOM



FIELD/ARENA



OFFICE

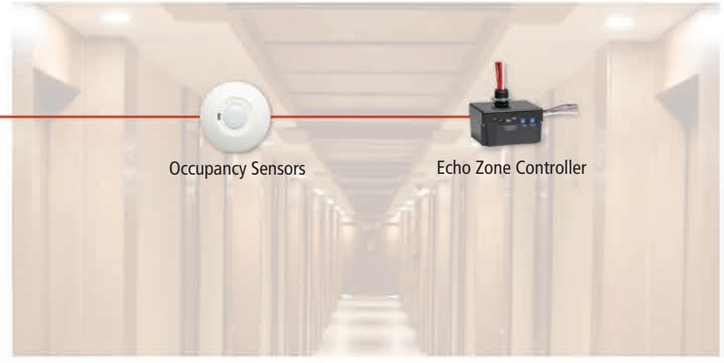


BOX/SUITE

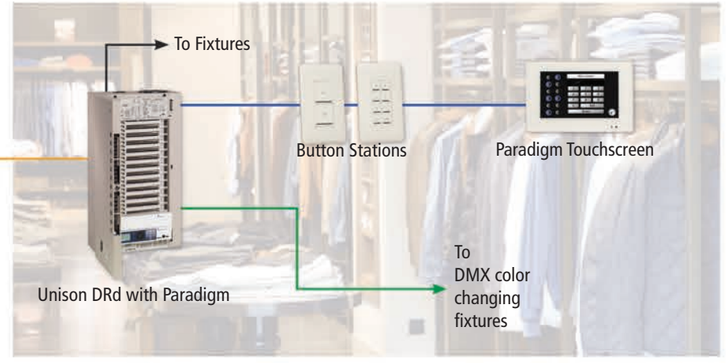


Echo Expansion Bridge

CORRIDOR



STORE/RETAIL



Product Guide

ARCHITECTURAL CONTROL



Paradigm and Echo Architectural Control Processors

Designed with performance, reliability and ease of use in mind, these processors contains state-of-the-art electronics and are packed with input and output ports. A large graphic and text display makes for an easy to navigate interface.



Paradigm Central Control Server

If you need to control the most complex venues with multiples spaces, the Paradigm Central Control Server enables you to think locally and control globally. This essential systems-management tool for multi-venue stadiums, arenas, casinos, and resorts brings control to one central point.



Button Stations

Button stations, fader stations, key switch stations, and a wide variety of combinations. Each station indicates its status through a series of visual, programmable indicators and can be locked with multiple levels of access.



Paradigm Touchscreens

Four touch screen options available for any size space with programming, playback or configuration needs. The handheld for portable applications, the 7" and 18" for wall-mounted applications, and the Touchscreen Interface for managing your entire system from a single screen.



EchoAccess User Interface and mobile app

Use this interface and mobile phone app to control your lighting system from anywhere your phone as a signal. Playback presets or customize your system stations and controllers from the palm of your hand. When combined with an Echo DMX scene controller, you can adjust DMX controlled fixtures' hue, saturation, and intensity as well.



Echo Expansion Bridge

Looking to build bigger Unison Echo Control systems? The Echo Expansion Bridge not only connects Echo and Paradigm systems, but also enables you to add more devices to an Echo control system without losing your single-point control. With the Expansion Bridge, you can control up to four individual segments – each with up to 16 stations or sensors, and 16 output devices each. That's a total of 64 stations and sensors, 64 output devices, and 16 zones per space. The EchoAccess Mobile app controls it all from your mobile device via Wi-Fi.



Echo DMX Scene Controller

This is a powerful little device that enables you to create DMX lighting presets in a few simple steps. Record a look on your Inspire button station then snapshot it with the DMX Scene Controller. Up to 32 presets can be recalled from this device making it ideal for offices, retail spaces, restaurants, and larger venues that have multiple small spaces as part of a larger system, such as arenas and stadiums. When combined with the EchoAccess Mobile app, you get access to a built-in color picker.



Occupancy Sensors

Cut down on wasted electricity with occupancy and vacancy sensors. These sensors can detect up to 2,000 square feet ensuring a space is only lit when in use. In large venues, these sensors are perfect for conference rooms, custodial closets, locker rooms, restrooms. Small-room, large-room, and high-ceiling options are available.



Photo Sensor

When a space is lit by natural light it doesn't make sense to have electric light running at full intensity. Install light sensors to detect and measure ambient light, and then raise or lower the output of the electric fixtures accordingly to maintain a consistent lighting level. Two sensor averaging is also an available option for large spaces where light levels may vary from one corner of the room to another.



Mosaic Controllers

Instant-on, compact controllers run your sophisticated shows reliably and precisely time after time. The Mosaic Show Controllers support DMX512 and DMX over Ethernet protocols to LED fixtures, conventional dimmable fixtures, and automated lights. Up to 2048 channels of control are available from a single controller.



MSCX

If your project demands more control, the MSCX is what you need. Our controllers take on the sheer volume of control and the need for synchronization across all fixtures and devices without effort. These extreme Mosaic controllers were designed to meet the unique needs of landmark installations offering more than 50,000 outputs per controller.

POWER CONTROL



Sensor3 Racks with CEM3 Processors

As facilities grow and change, so do their lighting and control needs. Sensor3 a UL924 listed device, will be there as a constant, able to control a large variety of load types for decades to come. No matter if your lighting requires dimmed, switched on/off, or constant power, Sensor3 can accommodate. The easy-to-use CEM3 processor includes a backlit graphical display, one-button operation number pad for circuit entry, and features to quick-check your system.



Unison DRd

The Unison DRd series of power control is the workhorse behind thousands of systems in the US. Each panel supports a networkable processor and variety of dimming and switching modules. Connect button stations, touchscreen stations, and other control products to quickly makeup an entire self-sufficient system.



Echo Relay Panel

Designed to help facilities with a variety of load types, the Echo Relay Panel can control fluorescents, low voltage, and dimmed loads in a variety of voltages. The Echo panels were designed to meet growing energy codes such as ASHRAE 90.1. CA Title 20/24, and IECC. The Relay Panels are UL924 listed and available for both 120V and 277V power with up to 48 relays or dimmers per panel.



Echo Zone Controllers

0-10V Dimming: Relay and dimming capabilities all in one, the Echo 0-10V Dimming Controller provides you with on/off functionality for LED drivers and fluorescent ballasts up to 20 amps.

Echo Relay Controller: Provides you with on/off capabilities for all types of lighting fixtures up to 20 amps such as tungsten, fluorescent, and LED fixtures.

Phase-Adaptive Dimmer: Provides smooth reverse or forward phase dimming for multiple types of lighting loads up to 600 watts.



Unison Echo Room Controller

The Room Controller provides a complete power solution for small and medium sized rooms, all from a single product. Its feed-thru power input enables all four or eight relay outputs and 0-10V control to be gained on the same or separate input circuits. AV integration demand response, and timeclock capabilities are also available.

EMERGENCY



Branch Circuit ELTS

This is the first branch circuit ELTS of its kind. Designed to transfer a single lighting circuit up to 20A from one power source to another during a power failure or other emergency situation. UL1008 listed for North American emergency applications where life safety is an issue.



DMX Emergency Bypass Controller

In recent years, we've seen a dramatic increase in use of LED fixtures in stadiums and arenas. Controlling these fixtures in an emergency situation however, is something few manufacturers are able to do while still meeting code. ETC's DMX Emergency Bypass Controller (DEBC) enables DMX controlled fixtures to operate as emergency fixtures.

NETWORKING



Response Gateways

These DMX/RDM distribution devices were built on the quality of ETC's network equipment. 1-Port, 4-Port, 0-10V, and DALI options are available. Both ACN and RDM protocols are supported enabling flexible communication no matter what network equipment the rest of your system includes.

RIGGING



Hoists

Hoists are available for a variety of heavy-lifting installations and perfect for stadiums and arenas with scoreboards or large video screens. Each hoist is custom built taking location, installation, and operator safety into account.

To learn more about ETC, visit etcconnect.com



Photo: Ryan Linton Images

Corporate Headquarters ▪ 3031 Pleasant View Rd, PO Box 620979, Middleton WI 53562 0979 USA ▪ +1 608 831 4116
London, UK ▪ Unit 26-28 Victoria Industrial Estate, Victoria Road, London W3 6UU, UK ▪ +44 (0) 20 8896 1000
Rome, IT ▪ Via Pieve Torina, 48, 00156 Rome, Italy ▪ +39 (06) 32 111 683
Holzkirchen, DE ▪ Ohmstrasse 3, 83607 Holzkirchen, Germany ▪ +49 (80 24) 47 00-0
Hong Kong ▪ Room 1801, 18/F, Tower 1 Phase 1, Enterprise Square, 9 Sheung Yuet Road, Kowloon Bay, Kowloon, Hong Kong ▪ +852 2799 1220
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