



Industrial and Manufacturing Applications

U-S SAFETY TROLLEY



STARLINE



Powering industrial sites for more than 50 years.

Universal Electric Corporation (UEC) has been an innovator in delivering flexible power solutions to industrial and manufacturing facilities since the 1960s. In fact, UEC was founded when we recognized the need to bring safer products to these markets. Obsolete wiring methods and unprotected conductors in overhead electrical equipment created dangerous work environments. Our expert engineers envisioned safer and more reliable power distribution systems. This has grown into two unique product lines, STARLINE and U-S Safety Trolley, with a variety of components and solutions, that can withstand harsh work conditions.

We invite you to learn more about our strong commitment to developing innovative products, and how we can deliver safe, reliable power within your facility.

Mobile Power

U-S Safety Trolley pioneered no-joint electric conductor bars with our innovative crane electrification products including Span-Guard, Tri-Bar/Four-Bar, PowerGlide and TightWire.



Span-Guard

Ampacity: 250 & 520 amps

Environment: Indoor & Outdoor

Perfect for: Industrial/Manufacturing environments, lock & dam installations, crane electrification, steel mills, paper mills

Special features: Joint-free with a self-sealing vinyl cover for extra protection



Tri-Bar/Four-Bar

Ampacity: 100 & 125 amps

Environment: Indoor & Outdoor

Perfect for: Factory assembly lines, amusement park rides, aircraft hangar doors, crane electrification, industrial/manufacturing environments

Special features: Joint-free with the ability to be factory shaped into curves, ovals and loops



PowerGlide

Ampacity: 90 amps

Environment: Indoor only

Perfect for: Aircraft hangar doors, overhead work station and jib crane electrification, industrial/manufacturing environments

Special features: Joint-free design offers a lower ampacity design with aluminum housing and optional sealing strip



TightWire

Ampacity: 90 amps

Environment: Indoor only

Perfect for: Light duty and overhead crane electrification, industrial/manufacturing environments

Special features: Joint-free design that was built lightweight for easy and quick installation

STARLINE®

TRACK BUSWAY

Flexible Stationary Power

STARLINE Track Busway is a stationary yet reconfigurable overhead power distribution system that can be instantly tapped for power anywhere along the busway run.



Track Busway

Ampacity: 40 to 800 amps

Environment: Indoor

Perfect for: Factory assembly lines, industrial/manufacturing environments, work station power that may need reconfigured in the future, lighting, temporary installations

Special features: Reconfigurable, scalable power distribution system that allows you to add power as you go, and is completely customizable to your needs. Wherever you need power along the busway run, you've got it.

STARLINE®

CRITICAL POWER MONITOR

Power Monitoring



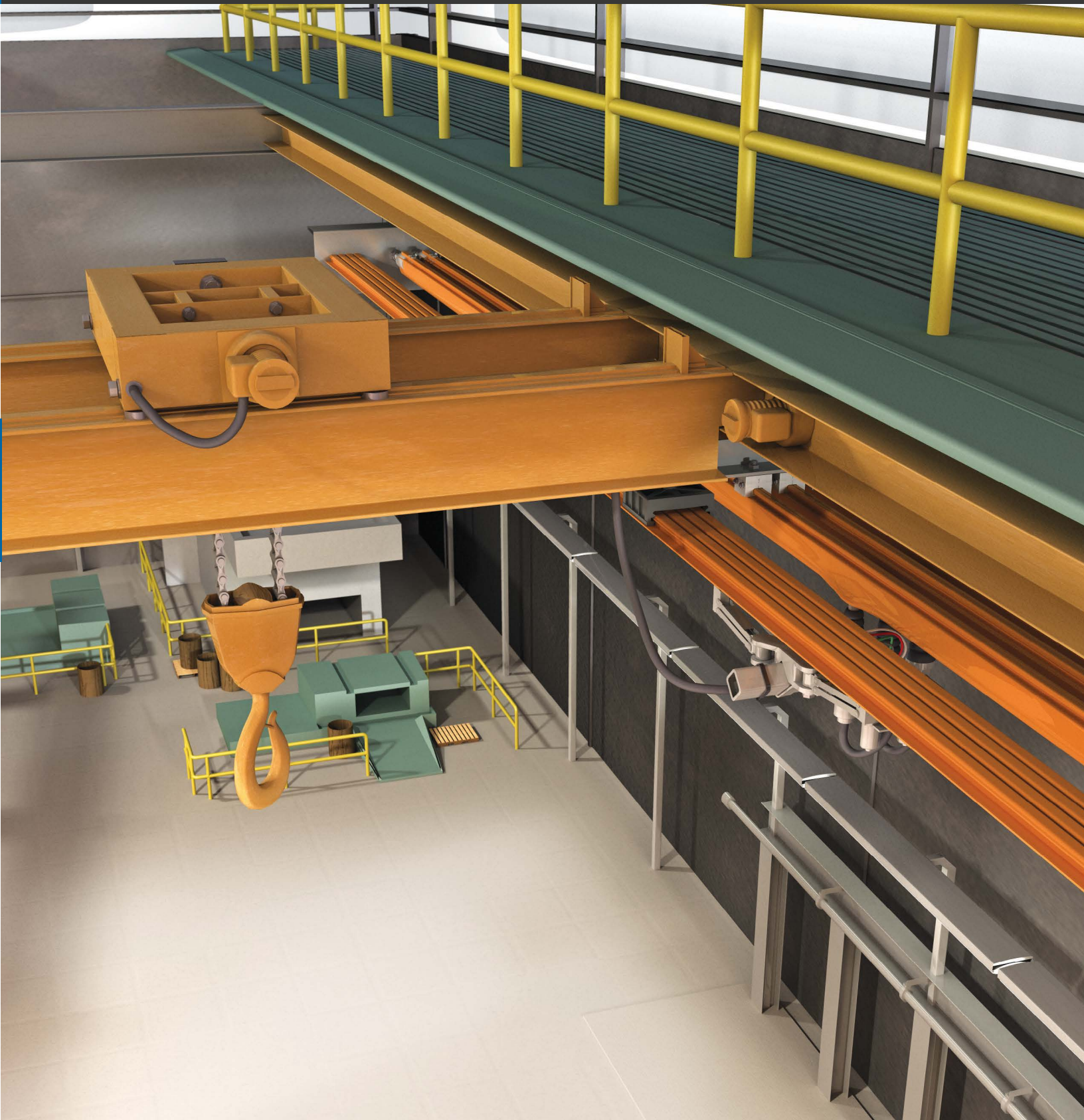
Critical Power Monitor (CPM)

Easily meet your primary and submetering needs with the STARLINE CPM.

STARLINE also offers a monitoring solution with revenue grade metering functionality. The CPM is available in display and non-display versions, and comes with standard integral web pages to easily configure meter attributes and view data; making it the perfect way to monitor your energy usage in order to optimize productivity and efficiency.

U-S SAFETY TROLLEY

The focus of the four unique applications that make up the U-S Safety Trolley product offering is right there in the name: Safety. These flexible products were created to meet the special power needs of the industrial environment, while also ensuring the safety of industrial workers.



SPAN-GUARD

Features:

- Superior design - continuous copper conductor and self-closing cover - NO ELECTRICAL JOINTS!
- Available in 250 and 520 amp sizes
- Highest performing crane electrification system for indoor and outdoor applications
- 15' to 25' hanger spacing (use of roof trusses for support common)
- Safe - no chance of accidental contact with conductors
- Copper conductor and cover ships pre-assembled on a reel and can be cut to your specification
- Unsurpassed reliability for more than 50 years

Benefits:

- Eliminates the most common source of crane electrification problems: electrical joints
- Installs faster - 50% less time than jointed conductor bar systems
- Under tension - no expansion joints required
- Virtually maintenance free

Perfect for:

- Industrial/manufacturing environments
- Lock & dam installations
- Crane electrification
- Steel mills & paper mills

The Indoor/Outdoor Industrial Power Supply System for Cranes and Stationary Equipment

Plant managers, engineers, crane operators, and others with extensive crane experience know that electrical joints are the most common source of crane electrification problems. Among other things, electrical joints become loose over time, overheat, expand and contract, and can cause a loss of power.

Span-Guard was the first continuous, joint-free electric conductor bar introduced. Span-Guard is uniquely designed without joints in the copper conductor. And the flexible fully-enclosed insulated cover provides the most reliable, highest quality conductor system on the market. This jointless conductor is ideal for cranes, hoists, and moving equipment where problems and downtime cannot be tolerated.

Superior design means fewer parts to repair or replace.

The solid copper conductors and cover ship pre-assembled on a reel and come in 250 and 520 amp sizes. The spring loaded collectors come in 100, 200, 300 and 400 amp sizes.

Capable of running joint-free at lengths up to 2,000 feet, Span-Guard eliminates the power loss and overheating associated with the unreliable electrical joints of other heavy industrial power systems.



Our spring-loaded collectors use a carbon-graphite shoe and are more reliable and less costly to maintain than wheel based trolley systems because fewer moving parts require less maintenance. The spring loaded collectors automatically compensate for up-and-down, and side-to-side misalignments between the trolley electrification bars and the crane runway.

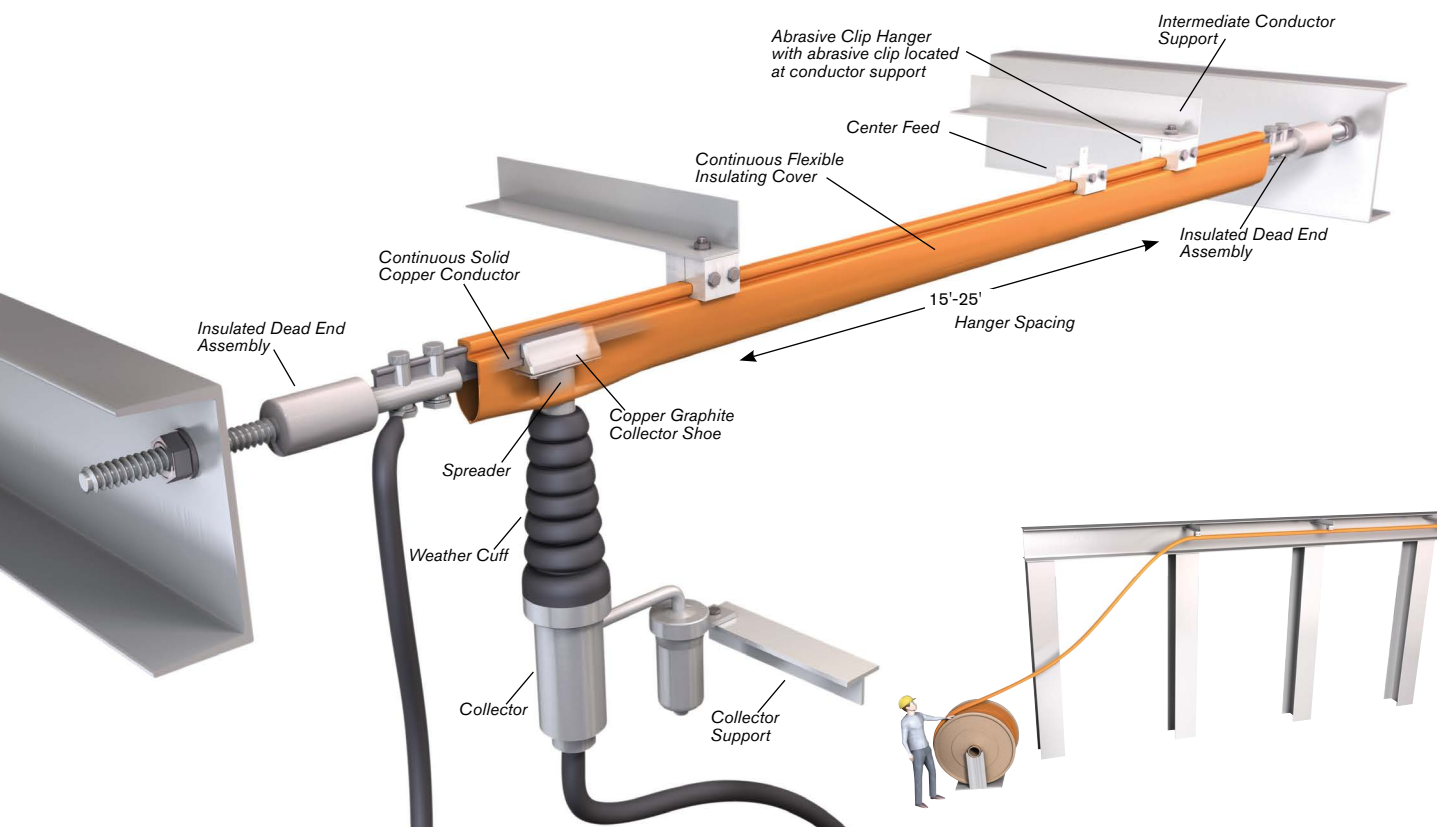
Unsurpassed Durability

The Span-Guard System's heavy duty design and construction allows it to take abuses that other systems would not survive, making it the ideal choice for heavy duty, high-wearing environments. Span-Guard systems can sustain high-wear applications, acid and corrosive

fumes, moisture, and severe outdoor weather including temperatures from 20°F to 140°F or -30°F to 160°F for low temperatures.

Easy Installation and Maintenance

Span-Guard has fewer parts than other systems, allowing for faster installation up-front, and less maintenance in the future. The system is comprised of an electrical conductor such as hard drawn copper that is completely enclosed by a flexible insulating cover. Advanced manufacturing methods make it possible to ship the conductor and cover in coil form to your exact length requirements.



TRI-BAR/FOUR-BAR

Features:

- Joint-free with the ability to be factory shaped into curves, ovals and loops
- Available in 100 and 125 amp sizes
- Able to withstand both inside and outside environments
- Custom systems are shipped for simple assembly and installation

Benefits:

- Eliminates the threats that come with jointed systems, including loose, expanding and overheating joints
- Installs faster - 50% less time than jointed conductor bar systems
- Under tension - no expansion joints required
- Virtually maintenance free

Perfect for:

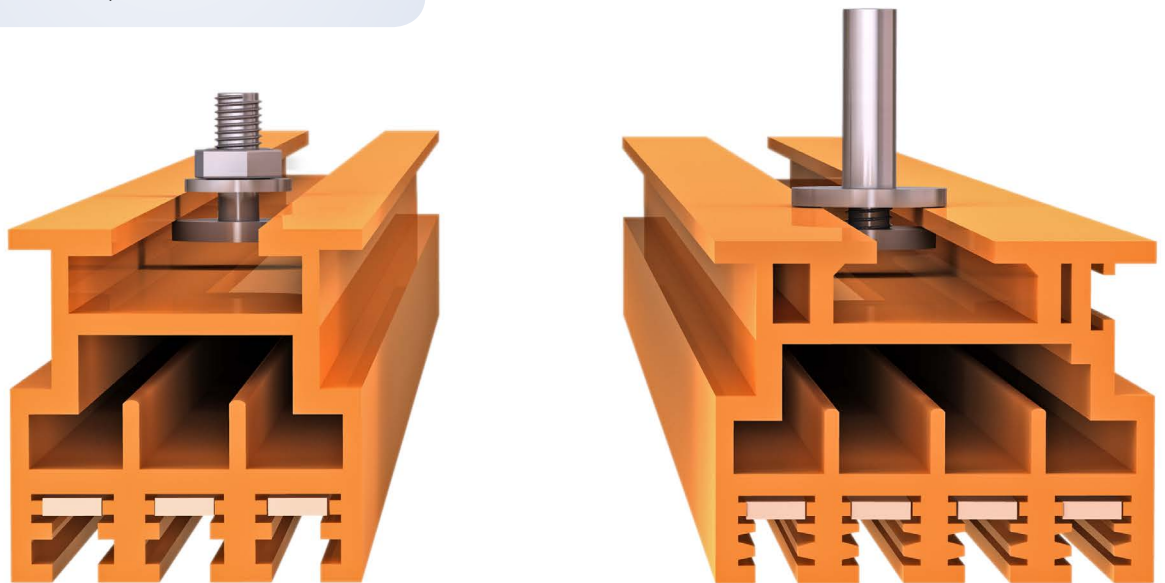
- Crane electrification
- Assembly lines
- Cutting tables and sewing lines in the garment industry
- Hanger doors
- Monorails
- Amusement park rides

A Low Maintenance and Hassle-Free Crane Electrification & Trolley System

Tri-Bar/Four-Bar continuous electrical conductor bar systems have been a long-time favorite among our customers. The joint-free construction, easy installation and maintenance, and custom fabrications make the Tri-Bar/Four-Bar the sensible choice in electric trolley bar systems.

Tri-Bar/Four-Bar solid copper conductors come in 100 and 125 amps with collectors in 35, 70, and 125 amps; and power pickups in 15, 30, 40 and 50 amps.

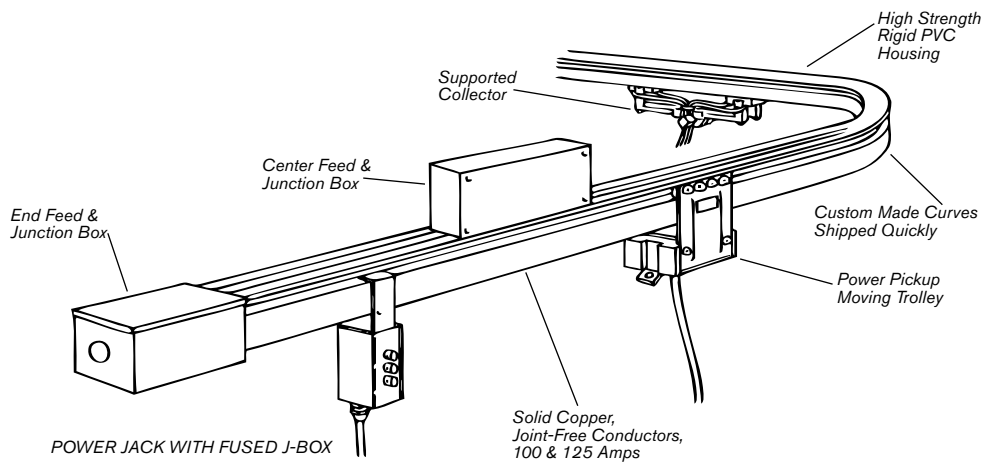
When U-S Safety Trolley set out to design an electric trolley system, we kept two things in mind. *First* - most problems with mobile electrification arise at the conductor joints. *Second* - on trolley systems those problems, and even extended routine maintenance, create downtime. And that costs our customers money. We eliminated the conductor joints, simplified installation and created the Tri-Bar/Four-Bar electric trolley product lines. On our Tri-Bar/Four-Bar trolley systems, installation and maintenance are simple and straightforward, and the continuous copper conductor reduces hang-ups and derailments.



Tri-Bar/Four-Bar provides a variety of electric power system design solutions for mobile electrification. The trolley systems can extend for hundreds of feet using continuous copper conductors, which are the ideal medium for communication and control signals for cranes and hoists. Our Tri-Bar/Four-Bar trolley systems can be factory shaped to your specifications into loops, ovals, circles, and multi-curved monorail tracks, and modified with switches and disengagable trolleys. These custom systems are shipped for easy assembly on your premises.

Joint-Free Design

The feature of continuous, joint-free, electrical conductors for the entire length of the run eliminates the weakest part of any electrical system — the joints. One-piece copper conductors are cut to each job requirement and shipped in a coil.



POWERGLIDE

Features:

- Trolley with retractable wheels that mounts and dismounts anywhere - no tools
- Available in 90 amps
- Meets most crane needs and is right-sized for hoists, monorails, and small cranes
- Continuous solid copper, joint-free conductors, supplied in a roll
- A single-piece insulator containing four conductors
- Super-compact and lightweight
- Light weight aluminum housing available with sealing strips

Benefits:

- Fast and easy to install
- Virtually maintenance free

Perfect for:

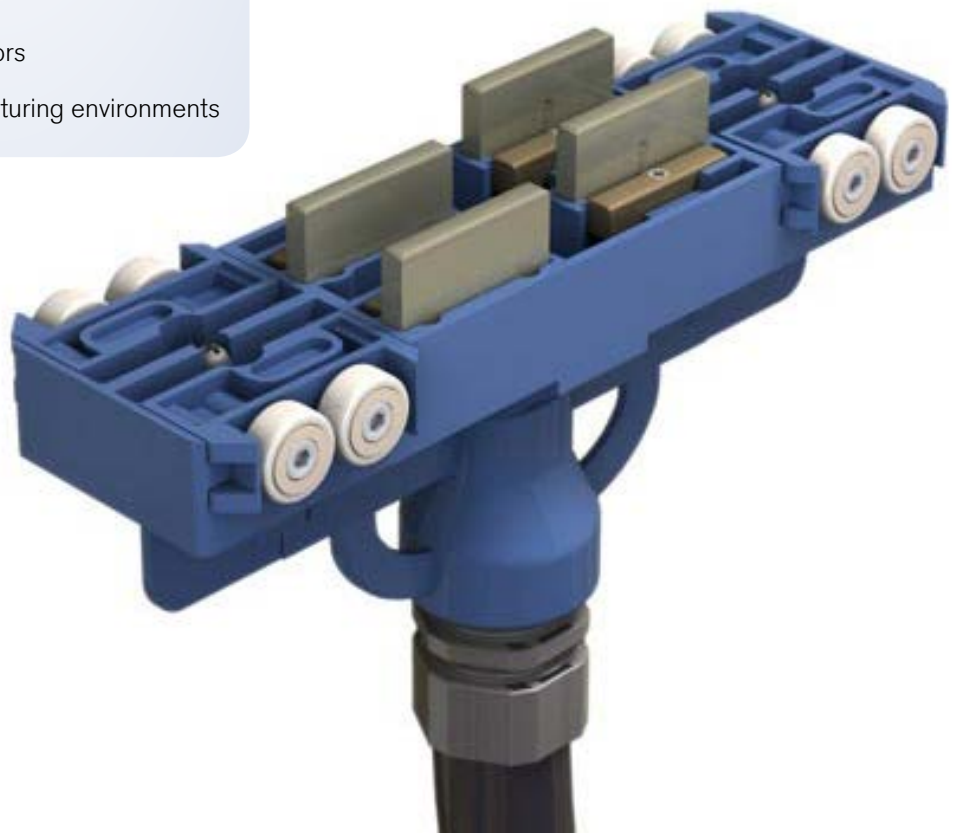
- Overhead work station & jib crane electrification
- Aircraft hangar doors
- Industrial/manufacturing environments

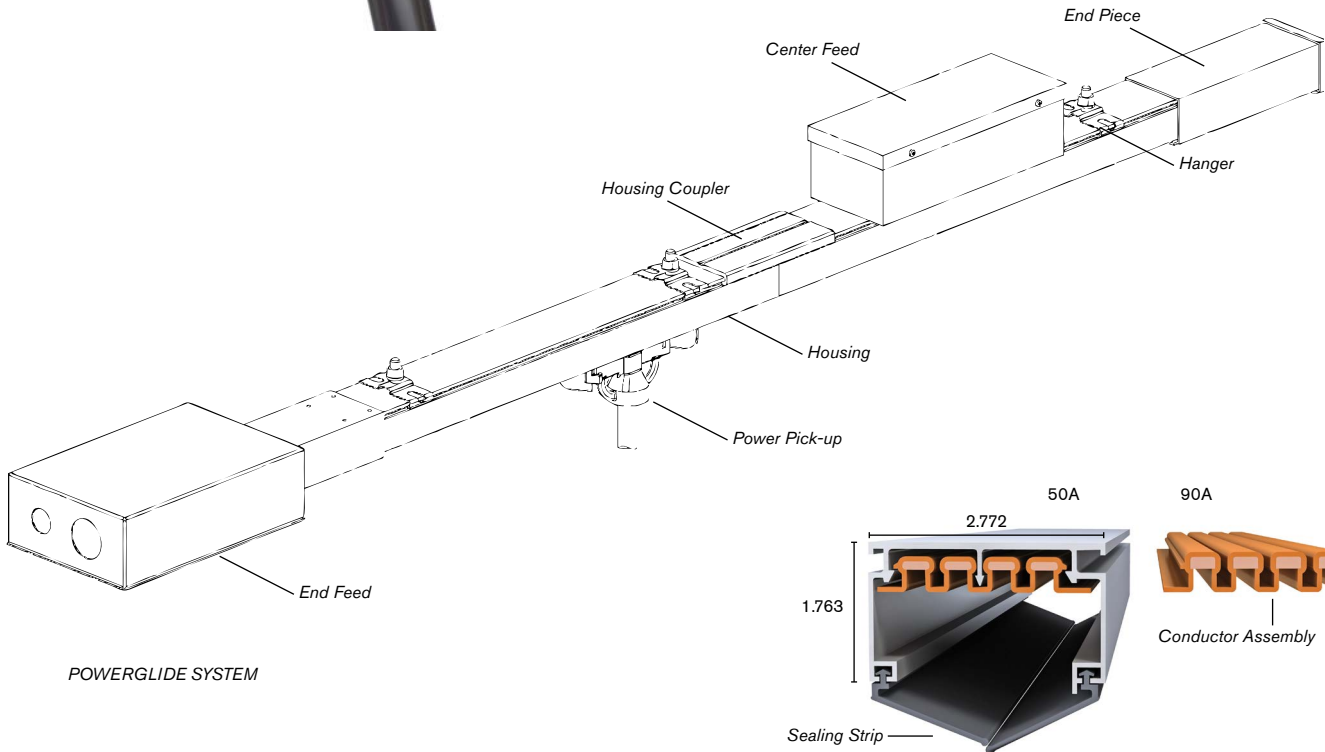
Electric trolley system with retractable wheels for workstation cranes

PowerGlide is a patented trolley system with retractable wheels that allows you to insert or remove the trolley anywhere along the conductor run. No more trap doors at the end of the electrical conductor run, or bending the bottom of the box track and forcing the trolley out. Just retract the trolley wheels for easy removal and inspection!

PowerGlide allows for easy shoe maintenance. PowerGlide comes 4 electrical conductors pre-assembled in a one-piece PVC insulator which means no joints to cause arcing and damage to the electrical conductors.

The 90 amp rating means that PowerGlide will fit most cranes, hoists and monorails while still keeping a compact, lightweight design for easy installation. The aluminum housing and optional closure strip help to keep dirt and grime from any environment out of the power path.





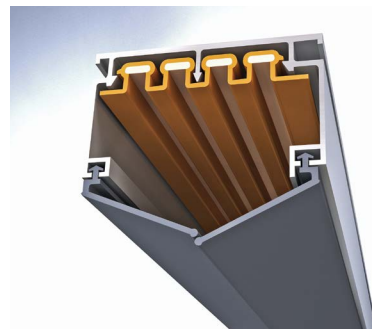
POWERGLIDE SYSTEM



PowerGlide with trolley



PowerGlide with trolley and sealing strip attachment



PowerGlide 4 conductor with sealing strips

TIGHTWIRE

Features:

- Continuous, joint-free conductors, shipped on a roll
- Available in 90 amps
- Meets most crane needs and is right-sized for hoists, monorails, and small cranes
- A single-piece insulator containing three or four conductors
- Solid copper conductors
- Super-compact and lightweight
- 10 feet spacing between hangers reduces number of supports

Benefits:

- Fast and easy to install
- Virtually maintenance free

Perfect for:

- Light duty & overhead crane electrification
- Industrial/manufacturing environments

Changing the Way You Think of

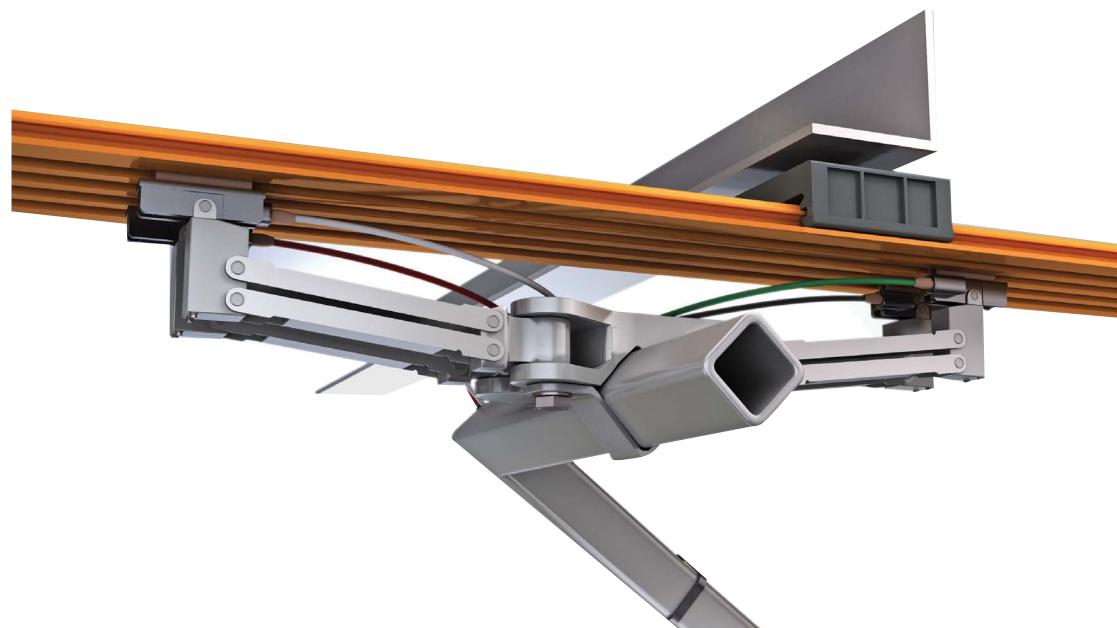
Mobile Electrification

TightWire is a continuous joint-free electrical conductor system that comes supplied in a portable roll. TightWire uses a single piece insulator containing 4 solid copper conductors. TightWire is compact and light weight which makes it fast and easy to install. Spring tension is applied from the end assemblies which keep the system strong and straight and only requires 10 feet spacing between hangers. Fewer supports translate into quicker installation time.

TightWire's conductors are pre assembled in a one-piece PVC insulator which means no joints to cause arcing and damage. The 90 amp size can be used for most crane needs.

TightWire eliminates the most common problems with jointed systems:

- Number of hangers and mounting brackets cut in half
- Joints every ten feet, with pins, clamps or splices
- Figure 8 shaped carbon steel conductors
- Bulky space requirements
- Three or four separate bars to install
- Oversized conductors for hoists and monorails



**Fast, Easy Installation
Means More Profits**

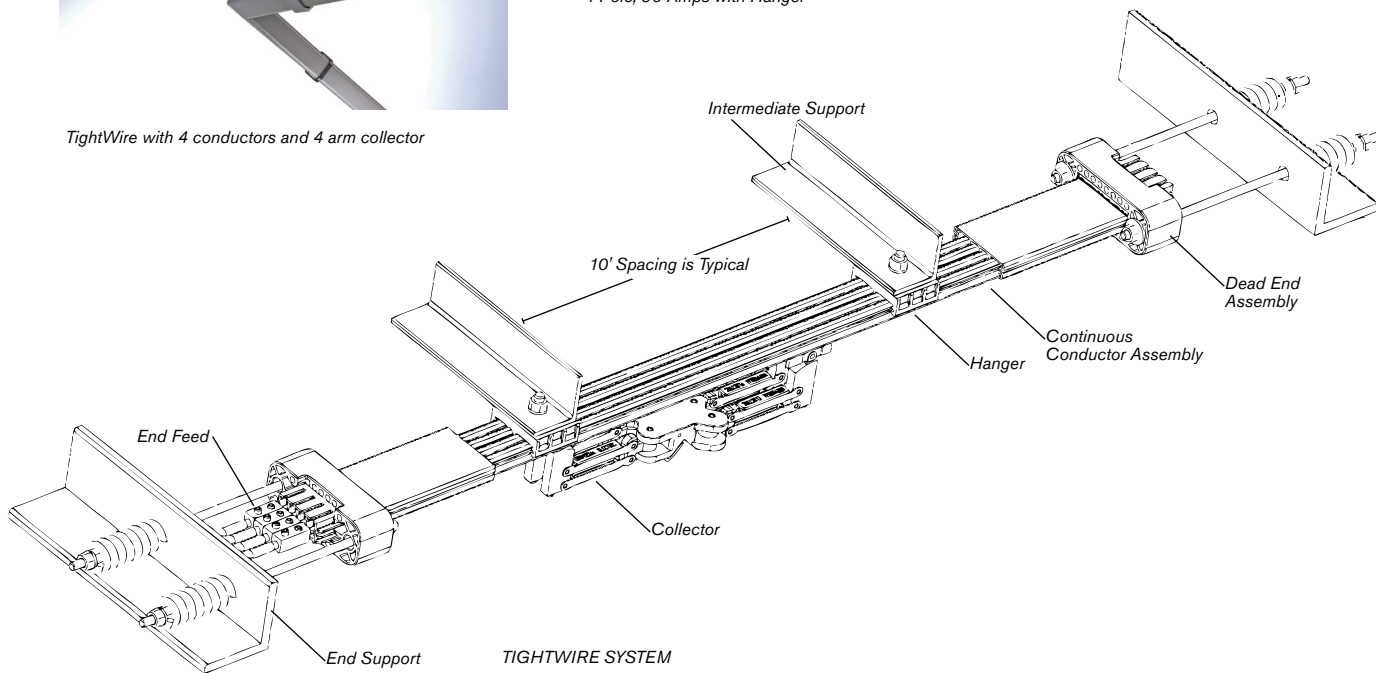
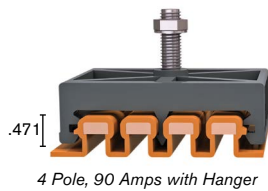
The key to larger profits with TightWire is in labor savings. Typically, a large amount of installation time is used to weld the mounting brackets to the building.

TightWire's unique design allows hanger spacing of 10 feet, instead of the usual 5 feet, by tensioning the system from each end, using heavy springs. Thus, the

"tightwire" name. The time and cost of installing mounting brackets and hangers is cut in half. In addition, TightWire speeds up installation with its one-piece design. All conductors are pre assembled in a one-piece extruded insulator. This assembly is supplied on a roll with no joints, to the exact total length needed for each project. 10-foot single bars, joint pins, screws and covers are eliminated.



TightWire with 4 conductors and 4 arm collector



TIGHTWIRE SYSTEM

STARLINE

STARLINE has revolutionized electrical power distribution for industrial sites. Its simplicity and versatility provide site managers with fast and economical solutions for supplying power and expanding operations quickly.



Reduced Facility Construction Costs

Simple installation equals labor savings.

Eliminates costly change orders and outside labor costs for electrical specialists.

Lower cost of ownership.

Faster Installation

Building projects are up and running faster.

Add, remove or relocate power easily and quickly with no downtime.

Flexibility for the Future

Plug-in units can be disconnected and connected without de-energizing the busway.

Requires no routine maintenance.

Easily reconfigure work space.

Environmentally Friendly

Less installation materials.

Busway and outlets are reusable and re-locatable.

More Choices

Customizable for any environment, space or power requirement.

Designed specifically for industrial environments, our 225, 250, 400 and 800 Amp systems offer plug-in units that are interchangeable.

Scalable, reusable and customizable lengths, sizes, colors and configurations to meet your unique specifications.

A variety of plug-in units and STARLINE'S monitoring capabilities make us the preferred choice for industrial and manufacturing facilities.

With STARLINE Track Busway, power distribution has been revolutionized. This simple, versatile, and economical solution for supplying power to industrial sites is unique because STARLINE Track Busway can be tapped instantly at any location, without any downtime.

Having STARLINE Track Busway power your industrial facilities gives you the advantage:

- Maintenance-free track busway design has been field-proven in industrial sites for over 25 years.
- Plug-in units can be positioned at any point along the busway for maximum versatility.
- Customization of plug-in units for any environment.
- Easiest installation of plug-in units – just insert and turn.
- No complicated mechanisms or levers.
- Most reliable plug-in design with the least amount of electrical connections from busway to plug-in unit.
- Interchangeable plugs for systems including: B250, B400 and B800.
- Multiple busway feed options: end, top, center – for installation flexibility.
- Available in lengths up to 20ft. for faster installation.
- UL and ETL listed.

The power of simplicity.

STARLINE eliminates all the distribution panels associated with traditional power distribution systems, so changes and additions can be easily made without shutting off power. Unlike other busway systems, STARLINE's plug-in units are lighter and have only one connection point, yet they deliver the same amount of power as heavier, more cumbersome units. The all-in-one, self-contained plug-in units can also be inserted anywhere along the busway in almost any NEMA configuration, and have fewer mechanical joints for reliability and efficiency.

STARLINE Track Busway offers plug-in units with a wide variety of receptacles, circuit breakers, and drop cords. Multiple circuit breaker plug-ins are offered and can be used in high-density applications. The simple "turn-n-lock" connection at the heart of the system has transformed the design and lowered the costs of maintaining and upgrading industrial and manufacturing sites.

Specifications	System Ratings			
	100A/225	250	400	800
Ampacity				
Rated Voltage	600V AC or DC	600V AC or DC	600V AC or DC	600V AC or DC
Rated Short Circuit Capacity	22kAIC	35kAIC	42kAIC	35/50kAIC
Conductor Type	Copper	Copper	Copper	Copper or Copper/Aluminum
Frequency Ratings	50/60Hz	50/60Hz	50/60Hz	50/60Hz
Testing Criteria	UL857, CCC, NOM	UL857, CCC, NOM	UL857, CCC, NOM, VDE	UL857, NOM
IEC Rated	Yes	Yes	Yes	Yes
Material	Extruded Aluminum Housing 100% ground path meeting UL857	Extruded Aluminum Housing 100% ground path meeting UL857	Extruded Aluminum Housing 100% ground path meeting UL857	Extruded Aluminum Housing 100% ground path meeting UL857
System Weight	Straight sections per foot based on 4 pole. 1ft. = 3.4 lbs.	Straight sections per foot based on 4 pole. 1ft. = 4.1 lbs.	Straight sections per foot based on 4 pole. 1ft. = 9.5 lbs.	Straight sections per foot based on 4 pole. 1ft. = 19.6 lbs. 11.5 lbs. CU CU/AL
Support Distance	Max distance 10ft.	Max distance 10ft.	Max distance 10ft.	Max distance 10ft.
Available Lengths	Up to 20ft.	Up to 20ft.	Up to 15ft.	Up to 10ft.

STARLINE®

CRITICAL POWER MONITOR

The STARLINE CPM also features:

- Revenue grade metering functionality
- Monitors multi-circuit configurations
- End feed and branch circuit models
- Display and non-display versions available
- Wired Ethernet and serial communications are standard, optional 802.11n Wi-Fi connectivity
- Ability to use all Serial and Ethernet protocols simultaneously
- Telnet, SNMP, Modbus (both RTU and TCP/IP) and BACnet TCP/IP are also standard protocols
- Daisy-chain Ethernet is available

Real-time monitoring for peak efficiency.

The STARLINE Critical Power Monitor (CPM) is uniquely designed to provide the functionality required for monitoring any facility's power use. Monitors are factory-built into STARLINE wall-mountable enclosures, providing a clean and seamless integration for monitoring any type of panel. The CPM also comes field-mountable to applicable panel doors. The STARLINE CPM creates value for all facility managers by providing the critical information needed to optimize productivity and efficiency.

To learn more about how our CPM can help your data center or other mission critical installation, please visit www.StarlinePower.com.



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U-S SAFETY TROLLEY

www.USSafetyTrolley.com

STARLINE

www.StarlinePower.com

Universal Electric Corporation (UEC), the manufacturer of U-S Safety Trolley and STARLINE Track Busway, has been a leader in power distribution since 1924. The company's founders led the way for many new technologies in the power distribution equipment industry. Today, this family tradition of innovation continues to pave the way for safer, more innovative and more reliable electrical power distribution systems. For installation details and actual case histories of projects where savings with STARLINE have been documented, contact UEC's Customer Service Department at 1-800-245-6378 or +1 724-597-7800.



Most STARLINE systems and most standard components are UL, CE or ETL listed.

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