

Ericson Jobsite Power and Protection

Safety is our standard



Protecting The Last Mile

IT ALL WORKS TOGETHER

For over 100 years, Ericson has engineered and manufactured the safest portable power distribution and temporary lighting products on the market. Designed for superior durability and convenience, our engineered solutions offer customers the best tailor-made products to fit their specific needs.

NO ONE DOES IT BETTER.

We pride ourselves on providing distributor partners, industrial end users, and OEM customers all over the world with durable, industrial-grade products that protect the workforce from work site hazards, increase productivity, and have a lower cost of ownership than other options on the market.

Our unique array of products allows Ericson to offer our customers a comprehensive line of portable power and lighting solutions all in one place. Ericson is a customer-driven organization focused on high quality products, continuous improvement, and exceeding our customer's expectations. From initial application consultation, to design and manufacturing, to product performance in the field, we aim to consistently impress.

Thank you for considering Ericson products for your company.



① PTU

The Power Transformation Unit converts voltages of 480V or 600V plant power, such as from a welder socket, to lower voltages suitable for use by workers with portable tools and lights.

② PDU

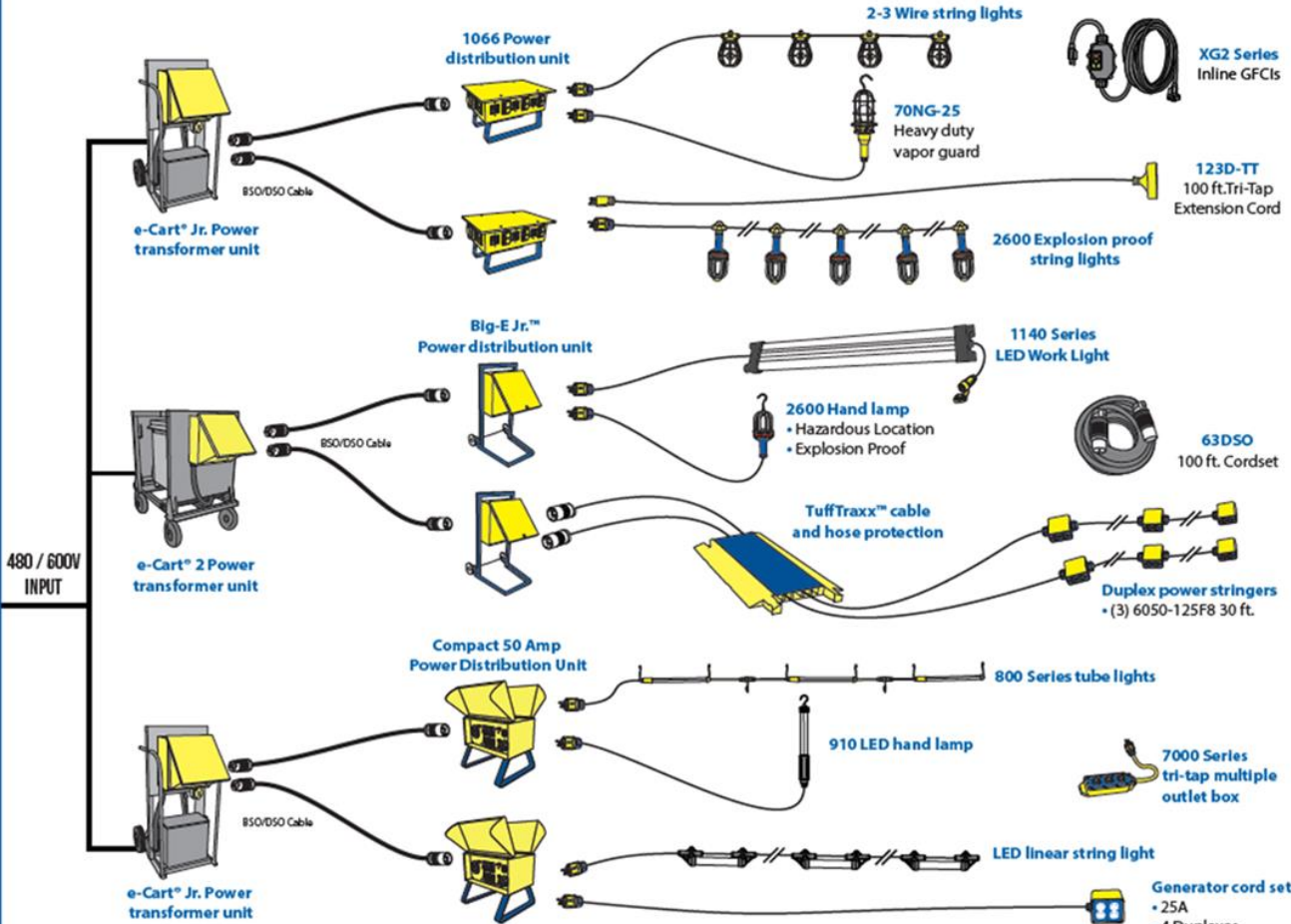
The Power Distribution Unit provides circuit breaker protection and distribution receptacles to distribute the 120, 240, or 208V power to tools and lights.

③ LIGHTING

Wide area lamps and task lamps provide bright, glare-free illumination for all your lighting needs.

④ CORD SETS

Cord sets bring reliable power right to where you need it to get the job done.



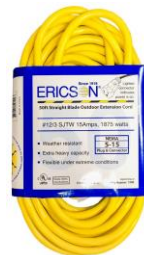
*PRODUCT NOT PORTRAYED TO SCALE

L1000679C

Today's Agenda

May is Electrical Safety Month

- Jobsite Power & Protection
 - **In-Line GFCI Cord Sets** – Your First Line of defense in Safe Portable Power
 - **Smart Monitor Plugs and Connectors** – Safe Power Delivery to the Last Connection
 - **Ericson Cordsets** – Robust/Reliable Power
 - **Wire Mesh** – Protecting Connections from Strain
 - **TuffTraxx** – Protecting Critical Power from Damage



Why is Jobsite Electrical Safety Important?

- Deaths and injuries:
 - 154 electrical workplace fatalities per year.
 - 1,640 nonfatal workplace electrical injuries
- Average cost per injury:
 - \$ 1 million to \$ 4 million
- Codes & Standard for compliance:
 - OSHA
 - National Electrical Code 590
 - NFPA 70e



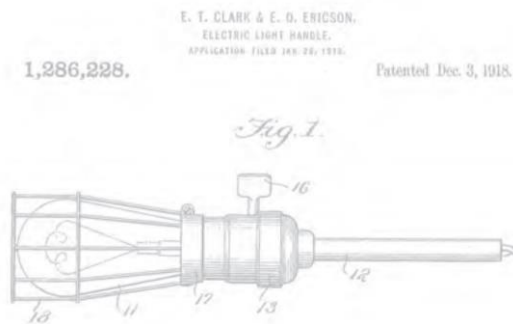
History & The Ericson Difference

1916

- Founded in 1918
- 4th Generation Family Owned & Operated
- Manufacturing in Willoughby, OH
- From our start Ericson's focus has been worksite safety
- Innovative Patents & Technology Introductions Through the Years



First Logo



The Rubber industry brings Edward Oscar Ericson (founder of Ericson Manufacturing) to Akron, Ohio where his awareness of worksite safety hazards brought forth inspiration to develop products for a safer workplace.

Temporary Installations



NEC Article 590: Temporary Installations

590.3 Time Constraints

(A) During the Period of Construction.

Temporary electric power and lighting shall be permitted during the period of construction, remodeling, maintenance, repair, or demolition of buildings, structures, equipment, or similar activities.

(C) Emergencies and Tests

Temporary electric power and lighting shall be permitted during emergencies and for tests, experiments, and development work.

Ground Fault Circuit Interrupters (GFCI)



NEC Article 590: Temporary Installations

590.6 Ground-Fault Protection for Personnel

(1) Receptacle Outlets Not Part of Permanent Wiring.

All 125-volt, single-phase, 15-, 20-, and 30-ampere receptacle outlets that are **not a part of the permanent wiring** of the building or structure and that are in use by personnel **shall have ground-fault circuit-interrupter protection for personnel**. In addition to this required ground-fault circuit-interrupter protection for personnel, **listed cord sets** or devices incorporating listed ground-fault circuit-interrupter protection for personnel identified for portable use **shall be permitted**.

NEC Article 590: Temporary Installations

590.6 Ground-Fault Protection for Personnel

(2) Receptacle Outlets Existing or Installed as Permanent Wiring.

Ground-fault circuit-interrupter protection for personnel shall be provided for all 125-volt, single-phase, 15-, 20-, and 30-ampere receptacle outlets installed or existing **as part of the permanent wiring of the building or structure and used for temporary electric power**. **Listed cord sets** or devices incorporating listed ground-fault circuit-interrupter protection for personnel identified for portable use **shall be permitted**.

NEC Article 590: Temporary Installations

590.6 Ground-Fault Protection for Personnel

(3) Receptacles on 15-kW or less Portable Generators.

All 125-volt and 125/250-volt, single-phase, 15-, 20-, and 30-ampere receptacle outlets that are a part of a **15-kW or smaller portable generator** shall have listed ground-fault circuit-interrupter protection for personnel. All 15- and 20-ampere, 125- and 250-volt receptacles, including those that are part of a portable generator, **used in a damp or wet location** shall comply with 406.9(A) and (B). **Listed cord sets** or devices incorporating listed ground-fault circuit-interrupter protection for personnel identified for portable use **shall be permitted** for use with 15-kW or less portable generators manufactured or remanufactured prior to January 1, 2011.

2021 NFPA 70e Standards

110.10 Ground-Fault Circuit-Interrupter (GFCI) Protection.

(B) Maintenance and Construction. GFCI protection shall be provided where an employee is operating or using cord sets **(extension cords) or cord and plug-connected tools** related to maintenance and construction activity supplied by 125-volt, 15, 20, or 30 ampere circuits.

What is GFCI?

- **In the event of electric shock**
 - The GFCI senses an imbalance between the hot and the neutral and immediately releases the holding relay and breaks both the hot and neutral lines simultaneously
 - Breaks the circuit below the ventricular fibrillation threshold, typically 5 mA.



GFCI – How it works

- In the event of an imbalance
 - GFCI immediately releases the holding relay and breaks both the hot and neutral lines simultaneously
 - Stopping current flow and prevents human injury
- Not a circuit breaker
 - Does not sense the overall load and disconnect in the event of full or excess balanced current flow
- Trip current flow can be very small
 - If current flow exceeds 5 mA (+/- 1 mA) the GFCI opens the relay stopping the current flow

Portable GFCI's – Two Types of Reset

- AUTO & MANUAL

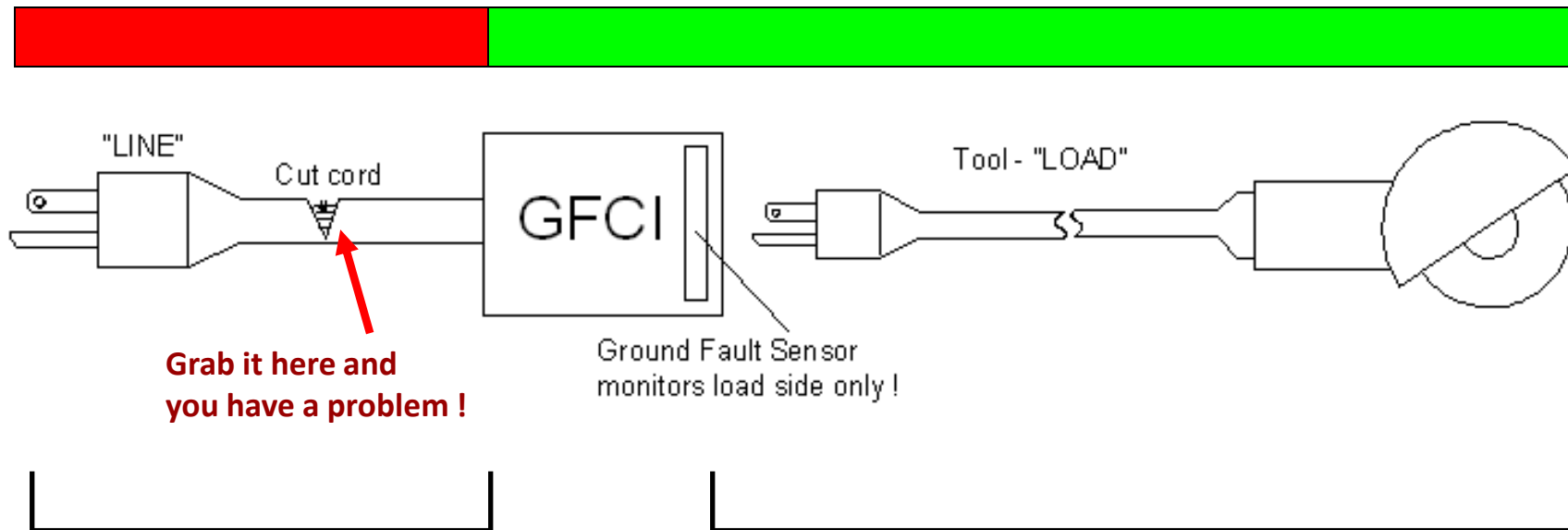
- Refers to operation when first plugged into a voltage source
- Power up mode
 - Condition of the GFCI after being plugged into voltage source
- AUTO
 - ✓ GFCI will immediately energize the relay and allow protected voltage to be present at the “load” side of the GFCI – Think Refrigerator
- Manual
 - ✓ Requires operator to press the “RESET” – Think Rotating Tools, Saws, etc.

❑ In-Line GFCI's offer Open Neutral Protection – the GFCI Relay Opens with Neutral Loss.

GFCI

NOT PROTECTED

PROTECTED



ALWAYS KEEP THE GFCI NEAR THE SUPPLY NOT THE TOOL

Industrial Inline GFCI's: XG2

- Work Site Open-Neutral Protection Compliant – UL1640
- Latest GFCI Compliance – UL943-5th Edition
- 15A, 20A & 30A 120 & 240V Configurations Available
- All cULus Listed Products
- NEMA 4X / 6P
 - Only 6P Submersible Inline GFCI (6' for 24hrs)
- Offered in 2/10/25/50 Foot Lengths
- Automatic & Manual Power Up Versions
- Custom OEM Options Available
- Perfect for portable equipment protection and replacement – pumps, drain cleaners, etc.
- Compliance Rich – OSHA, NEC, NFPA



XG2-14-2S

XG2-12-2TT

XG2-12-2W-15



XG2-12-2B



XG2-12-2W-UGP15231



Ericson mfg

Assured Equipment Grounding Conductor Program (AEGCP)



Why Assured Grounding?

- Safety – To ensure that portable cord sets used in the field are safe
- Visually assure the cords comply with AEGCP Requirements and electrical connections are safe.
- Although In-Line GFCI's will work without a ground, grounded conductors and circuits are significantly more safe than ungrounded electrical circuits.
- Why Ericson Smart Monitor?
 - Ability to use 120V, 15A & 20A non-molded cords on jobsites – visual indication of proper wiring
 - Repairs
 - Custom Lengths
 - Serve as a “glow-end” for both the plugs and connectors offering double advantage – visual indication of power and safe connections.
 - Available in Factory Assembled and Labeled units for compliance.

OSHA - Safety and Health Regulations for Construction

Standard Number: 1926.404

Title: Wiring design and protection.

- 1926.404(b)(1)
- Ground-fault protection -
- 1926.404(b)(1)(i)
- General. The employer shall use either ground fault circuit interrupters as specified in paragraph (b)(1)(ii) of this section or an assured equipment grounding conductor program as specified in paragraph (b)(1)(iii) of this section to protect employees on construction sites. These requirements are in addition to any other requirements for equipment grounding conductors.
- 1926.404(b)(1)(ii)
- Ground-fault circuit interrupters. All 120-volt, single-phase 15- and 20-ampere receptacle outlets on construction sites, which are not a part of the permanent wiring of the building or structure and which are in use by employees, shall have approved ground-fault circuit interrupters for personnel protection. Receptacles on a two-wire, single-phase portable or vehicle-mounted generator rated not more than 5kW, where the circuit conductors of the generator are insulated from the generator frame and all other grounded surfaces, need not be protected with ground-fault circuit interrupters.

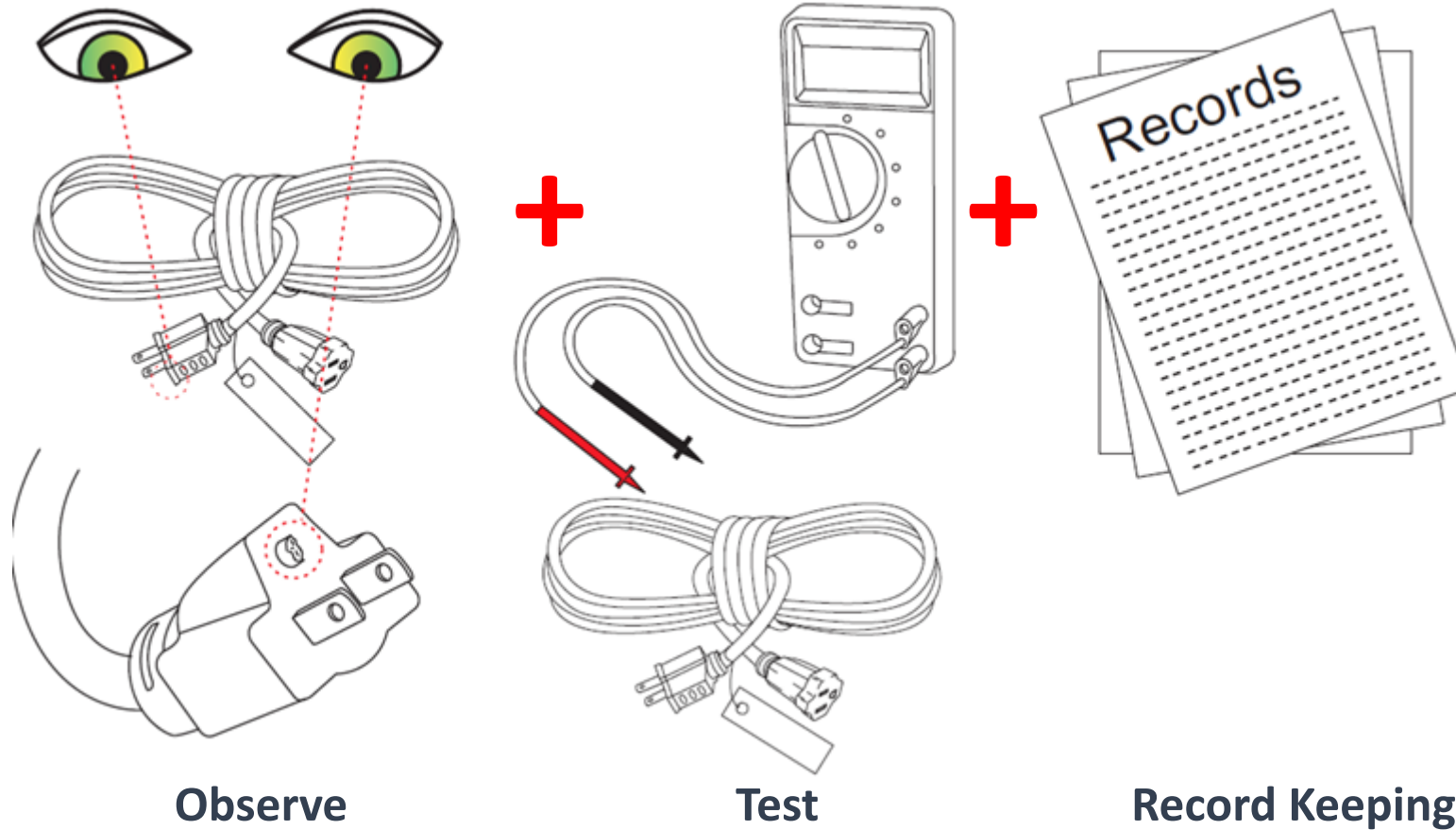
Assured Grounding Program

- 1926.404(b)(1)(iii)
 - Employer shall establish and implement an assured equipment grounding conductor program on construction sites covering all cord sets, receptacles which are not a part of the building or structure, and equipment connected by cord and plug which are available for use or used by employees
- 1926.404(b)(1)(iii)(A)
 - A written description of the program, including the specific procedures adopted by the employer, shall be available at the jobsite for inspection and copying by the Assistant Secretary and any affected employee
- 1926.404(b)(1)(iii)(B)
 - The employer shall designate one or more competent persons (as defined in 1926.32(f)) to implement the program
- 1926.404(b)(1)(iii)(C)
 - Each cord set, attachment cap, plug and receptacle of cord sets, and any equipment connected by cord and plug, except cord sets and receptacles which are fixed and not exposed to damage, shall be visually inspected before each day's use for external defects, such as deformed or missing pins or insulation damage, and for indications of possible internal damage. Equipment found damaged or defective shall not be used until repaired

Assured Grounding Program

- NEC Section 590.6 (B)(2)
 - The following tests shall be performed on all cord sets, receptacles that are not part of the permanent wiring of the building or structure, and cord-and-plug-connected equipment required to be connected to an equipment grounding conductor:
 - ✓ All equipment grounding conductors shall be tested for continuity and shall be electrically continuous
 - ✓ Each receptacle and attachment plug shall be tested for correct attachment of the equipment grounding conductor.
 - ✓ All required tests shall be performed as follows:
 - ❖ Before first use on site
 - ❖ When there is evidence of damage
 - ❖ Before equipment is returned to service following any repairs
 - ❖ At intervals not exceeding 3 months
 - Tests shall be recorded and made available to the authority having jurisdiction

Assured Grounding Program

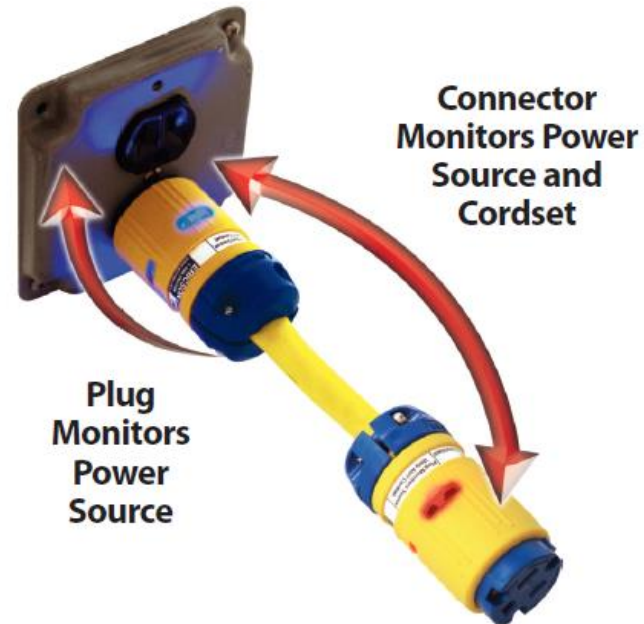


Ericson's SmartMonitor Plugs and Connectors – How they Work

Observe with SmartMonitor™ Integrated Diagnostic Capability

24/7 Monitoring

- No/Open Ground
- Loss of Ground In Cord
- Hot/Neutral Swap
- Reverse Polarity
- Hot on Ground
- No/Open Neutral



GREEN
OK TO USE



RED
STOP, CALL AN
ELECTRICIAN!



Ericson Goes Beyond monitoring the ground by Monitoring all conductors for proper continuity and connection.

Application Example

SmartMonitor™

Observe with SmartMonitor™ Integrated Diagnostic Capability



No Error Condition

- Ready For Use

Error Condition: Connector

- Check Cord for Nicks, Cuts
- Check Connector Wiring

Error Condition: Plug

- Check Power Source
- Check Cord for Nicks, Cuts
- Check Plug Wiring
- Check Connector Wiring

Assured Grounding Program

SmartMonitor™



Product Offering

- Available in pre-made cordsets and custom printing
- Attachable 15 & 20A plugs and connectors
 - Perma-Link, Perma-Grip and Perma-Tite Versions



NEMA Configuration	Electrical Ratings	Perma-Link®		Perma-Grip™		Perma-Tite®	
		Plugs	Connectors	Plugs	Connectors	Plugs	Connectors
5-15	15A, 125V	1510-PML	1610-CML	1510-PMGL	1610-CMGL	1510-PW6PL	1610-CW6PL
5-20	20A, 125V	1512-PML	1612-CML	1512-PMGL	1612-CMGL	1512-PW6PL	1612-CW6PL

Ericson's Factory Assembled Cordset - Test, Inspect and Recertification Program

- Return any Ericson Factory Assembled Cordset or in-line GFCI for:
 - Factory Inspection –
 - Plug, Cord, Connector
 - Test –
 - Polarity and Continuity Tests
 - GFCI Test and Compliance to latest UL943-5th Edition
 - Open Neutral Test
 - Smart Monitor Tests
 - Recertification –
 - Factory Recertification of Cordset Compliance

Temporary Power To Power



Powering the Last Mile

- Input Cables – 50-400A – Camlock, Pin & Sleeve, 50A Cordsets
- Secondary Connections –
 - Various Lengths
 - Various secondary Configurations
 - Custom Drop Configurations (Non-Metallic Boxes)
 - GFCI In-Line Cordsets
 - Y & W Adapters
 - Nema Configuration Adapters



Cable Markings

- **S** - Extra Hard Service. Rated for 600V service.
- **SJ** - Hard Service. Rated for 300V service. Also called a “Junior Jacket”.
- **E** - Thermoplastic Elastomer Jacket - TPE.
- **T** - Thermoplastic Jacket - PVC.
- **O** - Oil Resistant – outer jacket.
- **OO** - Oil Resistant - outer jacket *and* the insulation
- **W** - Weather and Water Resistant. Cabling rated for outdoor use.
- Several Letters used for application – SOOW, SEOW, SJEOW, SJT, etc.

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Wire Mesh - Strain Relief

Wire Mesh Grips – Relieve the Strain

- Supporting
 - Support Grips
 - I-Grips – used with wiring devices at cord clamp
- Pulling
 - Pulling Grips, wire and communication cables
- Strain Relief
 - Relief from direct or lateral strains at the panel
 - Cord Grips – without mesh, single point grip
- Several other styles

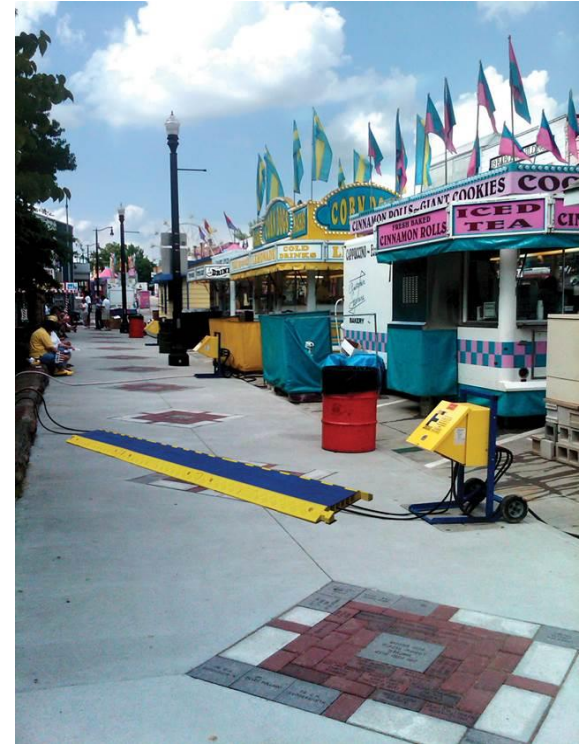


Cable & Hose Protection



Cable/cord protection:

- 1910.306 (k) (2) (viii)
 - Flexible cords and cables run on the ground, where accessible to the public, shall be covered with approved nonconductive mats
 - Cables and mats shall be arranged so as not to present a tripping hazard



NEC Article 590: Temporary Installations

590.4 General

(H) Protection from Accidental Damage

Flexible cords and cables shall be protected from accidental damage. Sharp Corners and projections shall be avoided.



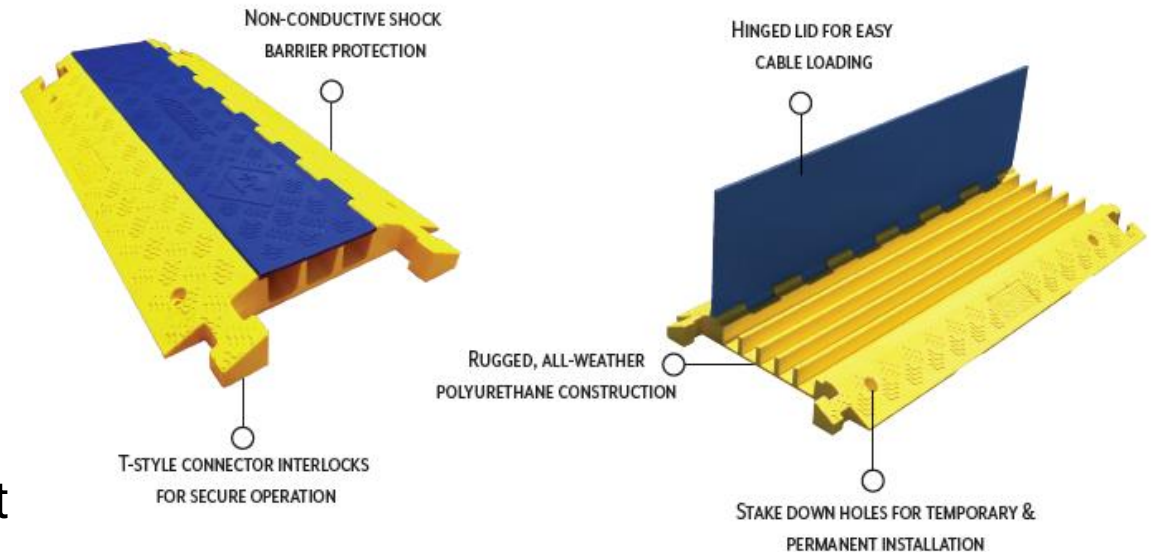
Cable/cord protection

- 1926.405(a)(2)(ii)(I) –
Protect Cords
 - Flexible cords and cables shall be protected from damage
 - Sharp corners and projections shall be avoided
 - Flexible cords and cables may pass through doorways or other pinch points, if protection is provided to avoid damage



Cable & Hose Protection: TuffTraxx

- Highest Load Rating in the Market
 - 27,000lbs (-ID Series), 50,000 (-ED Series)
- 3, 4 & 5 Channel
- 3 Channel (CP3-36-ED) Fit Cable OD up to 2.2"
- T-Style Ends Mate with Majority of Competitors
- TT-Cart Provides Convenient Means of Transport
 - Holds 10 TuffTraxx



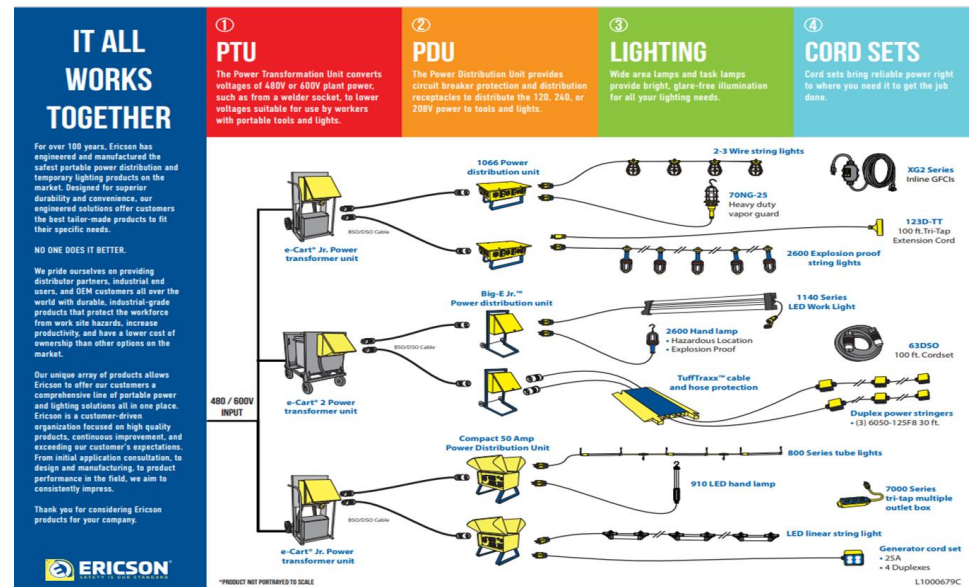
Max. Allowable Cable Size

Cord Type	Voltage	Size
SOOW Portable	(600V)	2/3
SOOW Control	(600V)	18/30, 16/52, 14/24
Type W (2000V)	(2000V)	2/2, 2/3, 4/4, 6/5
Stage Lighting	(600V)	4/0
Welding	(600V)	500MCM
Utility Ground	(600V)	2/0 and 4/0
Type G-GC	(2000V)	8/3 to 4/3



Ericson – Jobsite Power & Protection

- Providing a Complete Solution for Safe Code Compliant Power
 - From Point of Connection to Point of Use – meet and exceed NEC, NFPA, OSHA Requirements for Safe Jobsite Power and Worker Protection

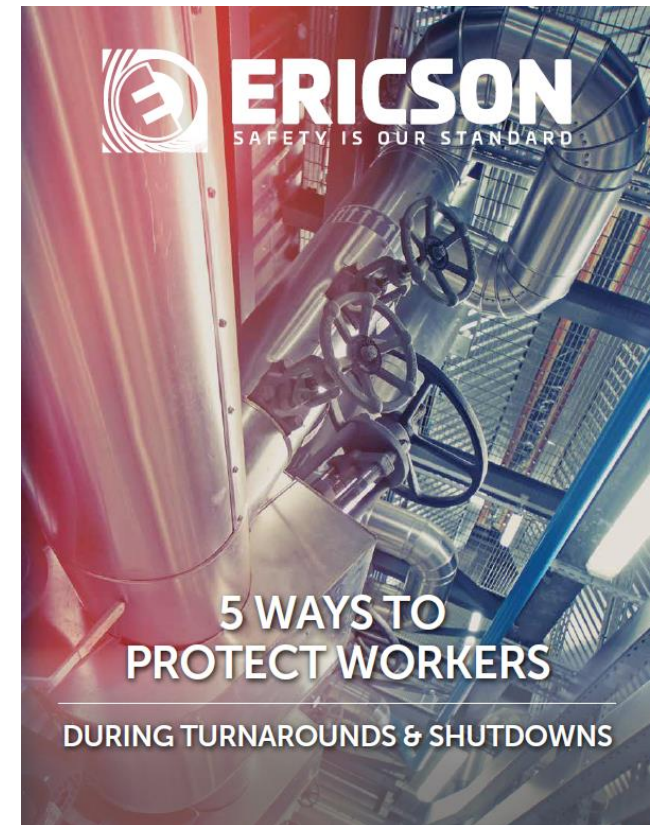
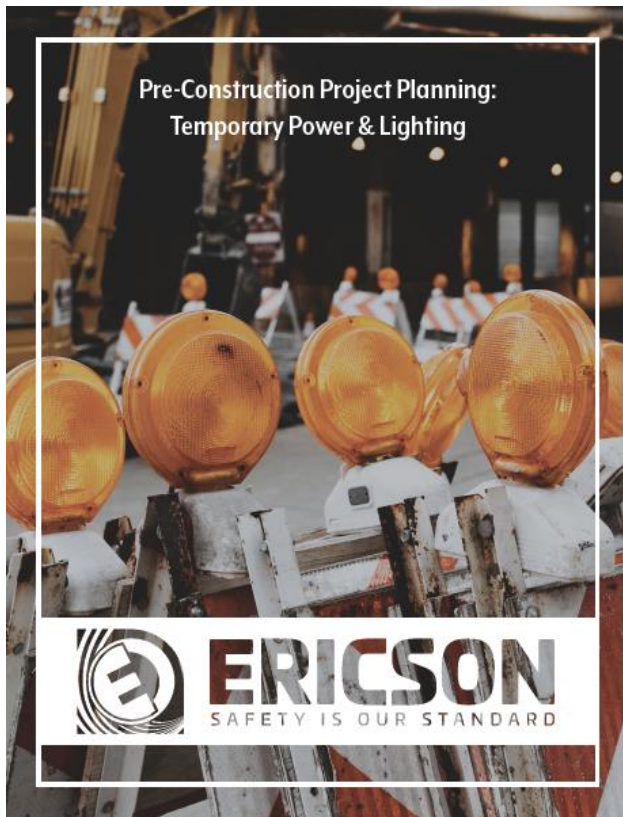
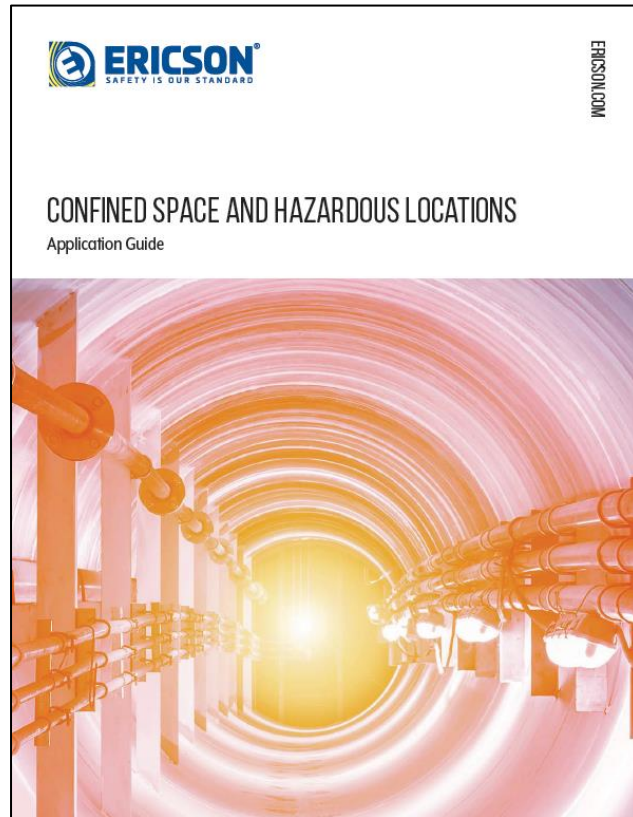


Marketing Strategy & Support

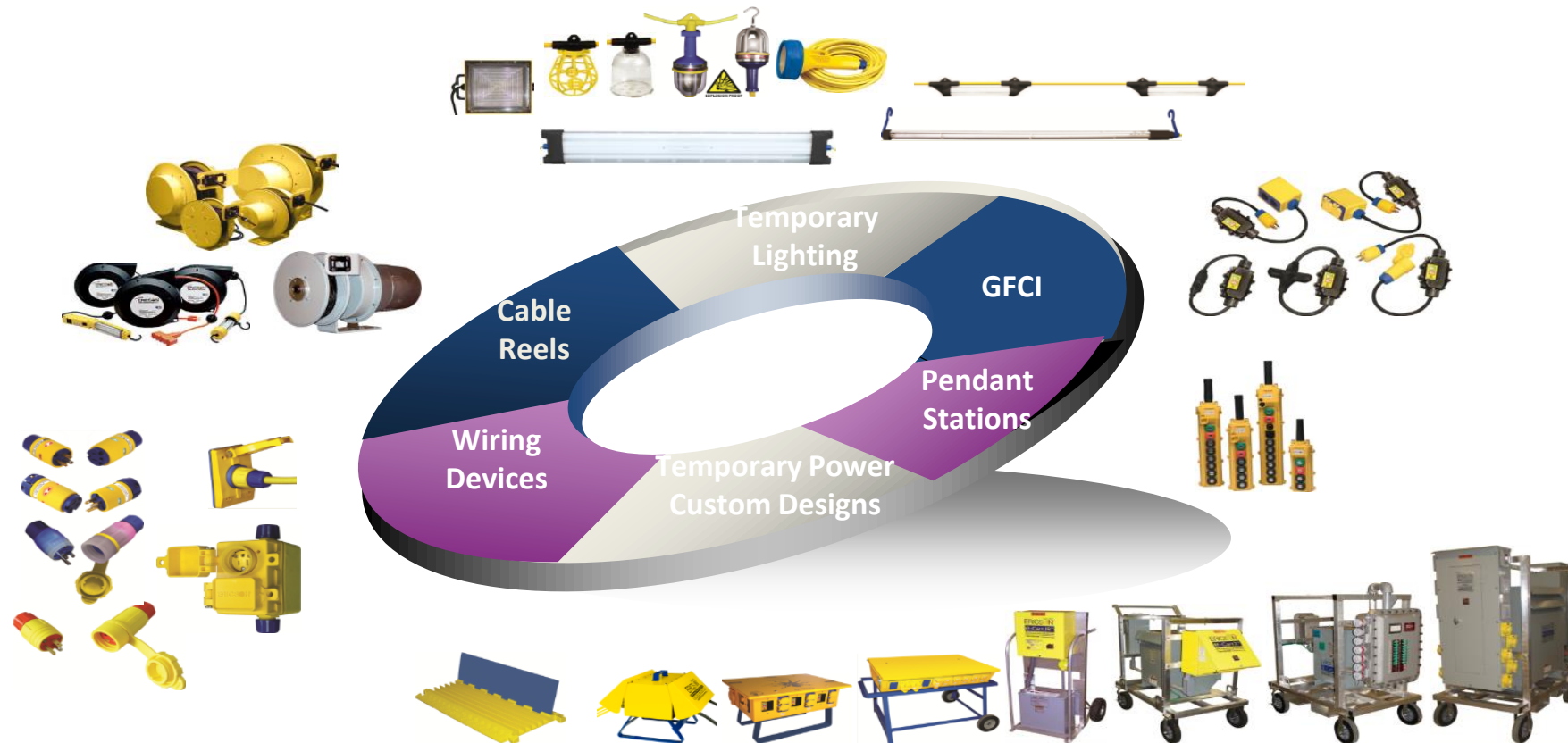
- Blog Posts – “Triple Play of Protection – Smart Monitor & GFCI’s”
- Advertising –
 - VPPPA
 - EC&M
 - Contractor Magazine
 - OH&S
- Recommended Stock Lists & Merchandising Displays
- Individual Training Sessions for Each Product Family



Jobsite Power Resources



Ericson – Safe Power and Lighting where its Needed



www.ericson.com

Thank you
for your
time today

