SAFETY-INTERLOCKED CORD-CONNECTED POWER SOLUTIONS
Since its inception in the early 1990’s, ESL has established itself as the industry leader in the design and manufacturing of electrical devices for powering refrigerated ISO containers. With special attention to Safety, Quality, Innovation, Value and Customer Service, ESL sets itself apart from other players in the intermodal industry.

With a wide product offering that includes Safety-interlocked Reefer Outlet Assemblies, Reefer Sharing Units, ERTG Safety-interlocked Disconnect Cabinets, Transformers, Plugs and Connectors and related electrical equipment, ESL is the reliable link in the intermodal “cold” chain.

Quick link
Take a virtual tour of our manufacturing facility:
eslpwr.com/tour
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ESL’s Safety-interlocked Reefer Outlets are designed to provide the operator with a “de-energized” circuit during the insertion and retraction of the male plug, preventing “making or breaking” under load. All ESL products are designed for simplified operation and heightened safety. Molded-case circuit breakers supplied in the modules are available with various trip ratings to allow for branch, overload and short-circuit protection as required.

**ESL’s Safety-interlocked Reefer Outlets:**
- Prevent “making or breaking” under load (safety-interlocked)
- Function as a manual disconnect
- Provides branch circuit protection
- Modular design - easy to install and maintain
- Fabricated with stainless steel components
- High visibility LED indicating light(s), auxiliary contact(s), bell alarm, plug sensing, contact, and shunt trip
- Factory rebuild program available
- UL/cUL Listed

### Reefer Outlet Product Selection

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Circuit Breaker Trip Rating</th>
<th>Circuit Breaker Interrupting Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>240VAC</td>
<td>30 = 30AMP</td>
<td>35 = 35,000 AIC @ 480V</td>
</tr>
<tr>
<td>480VAC</td>
<td>50 = 50AMP</td>
<td>65 = 65,000 AIC @ 480V</td>
</tr>
<tr>
<td></td>
<td>60 = 60AMP</td>
<td></td>
</tr>
</tbody>
</table>

**Optional Features**
- P = Standard “Power On” LED
- Blank = No Options
- P = “Power Available” LED
- A = Auxiliary Contact
- B = Bell Alarm Contact
- R = Rear Actuated
- M = Plug Sensing

**Receptacle Cover**
- SP = Snap Cover
- SW = Screw Cover

**Additional designs and configurations available. Contact ESL for details.**
## Standard Product Offerings

### 32AMP
380VAC/50Hz
480VAC/60Hz

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>R32-480-30-35SNQP-SP</td>
<td>1706-56ANP</td>
<td>30A</td>
<td>35 KAIC @ 480VAC</td>
<td>5&quot;</td>
<td>6&quot;</td>
<td>8.5&quot;</td>
<td>Polyamide Housing/ Rynite® Insert</td>
<td>Mechanical</td>
</tr>
<tr>
<td>R32-480-30-35SSNQP-SP</td>
<td>1706-60ANP</td>
<td>30A</td>
<td>35 KAIC @ 480VAC</td>
<td>5&quot;</td>
<td>6&quot;</td>
<td>8.5&quot;</td>
<td>Stainless Steel Housing/ Rynite® Insert</td>
<td>Mechanical</td>
</tr>
<tr>
<td>R32-480-30-65SNQP-SP</td>
<td>1706-59ANP</td>
<td>30A</td>
<td>65 KAIC @ 480VAC</td>
<td>5&quot;</td>
<td>6&quot;</td>
<td>8.5&quot;</td>
<td>Polyamide Housing/ Rynite® Insert</td>
<td>Mechanical</td>
</tr>
<tr>
<td>R32-480-30-65SSNQP-SP</td>
<td>1706-61ANP</td>
<td>30A</td>
<td>65 KAIC @ 480VAC</td>
<td>5&quot;</td>
<td>6&quot;</td>
<td>8.5&quot;</td>
<td>Stainless Steel Housing/ Rynite® Insert</td>
<td>Mechanical</td>
</tr>
</tbody>
</table>

### 60AMP
480VAC/60Hz

<table>
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<tr>
<th></th>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>R60-480-30-55SSQP-SP</td>
<td>1706-55AP</td>
<td>50A</td>
<td>35 KAIC @ 480VAC</td>
<td>5&quot;</td>
<td>6&quot;</td>
<td>8.5&quot;</td>
<td>Stainless Steel/Rynite® Insert</td>
<td>Mechanical</td>
</tr>
<tr>
<td>R60-480-30-55SSQP-SP</td>
<td>1706-75AAP</td>
<td>30A</td>
<td>35 KAIC @ 480VAC</td>
<td>5&quot;</td>
<td>6&quot;</td>
<td>8.5&quot;</td>
<td>Stainless Steel/Rynite® Insert</td>
<td>Mechanical</td>
</tr>
</tbody>
</table>

### 30AMP
250VAC/60Hz

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>R30-240-50-65SC-SPL</td>
<td>1700-34A</td>
<td>50A</td>
<td>65 KAIC @ 240VAC</td>
<td>5&quot;</td>
<td>6&quot;</td>
<td>7&quot;</td>
<td>Rynite®</td>
<td>Mechanical</td>
</tr>
</tbody>
</table>

### 50AMP
250VAC/60Hz

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>R50-240-50-65SC-SPL</td>
<td>1700-37A</td>
<td>50A</td>
<td>65 KAIC @ 240VAC</td>
<td>5&quot;</td>
<td>6&quot;</td>
<td>7&quot;</td>
<td>Rynite®</td>
<td>Mechanical</td>
</tr>
</tbody>
</table>

Replace “SP” with “SW” for Shipboard Applications.
Additional designs and configurations available. Contact ESL for details.
Heavy Duty Stainless Steel Construction
- Withstands marine use and abuse
- Superior corrosion resistance

UL 489 Listed Molded Case Circuit Breaker
- Maximum operator & equipment protection
- Approved for branch circuits
- Various interrupting capacities available

Interlock Mechanism
- Prevents “making or breaking” under load
- Maximum operator safety
- Easy plug insertion
- Ground pin actuated

2 Receptacle Options (IEC 60309-1 & 2)
- Two-piece Polyamide/Rynite®
- Two-piece 316 Stainless Steel/Rynite®

Two-piece Polyamide/Rynite®
- Nickel-plated brass sleeves provide excellent conductivity
- O-ring for watertight installation
- Sleeve springs maximize contact area between pin & sleeve
- High-temperature Rynite® insert
- Tubular design minimizes arc tracking
- Stainless steel set screws
- Polyamide receptacle housing with excellent impact characteristics

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**High Visibility LED Indicating Light**
- Power On
- Power Available (optional)
- Trip (optional)

**Heavy Duty Actuator Rod**
- Manual disconnect
- Superior corrosion resistance
- Withstands marine use and abuse
- Stainless steel rod
- Non-metallic knob & seal holder

**Heavy Duty Stainless Steel “Snap” Cover**
- Strong & corrosion resistant
- Self closing & aligning
- Protects contacts from contamination

**Optional Features:**
- Shunt trip
- Bell alarm
- Auxiliary contact
- Electrically interlocked
- Nylon screw cover
- Plug sensing device
- Indicating light(s)

**Nylon Screw Cover (Optional)**
- Stainless steel tether
- Interior gasket for a watertight seal

**Two-piece 316 Stainless Steel / Rynite®**
- Nickel-plated brass sleeves provide excellent conductivity
- High-temperature Rynite® insert
- Tubular design minimizes arc tracking
- Stainless steel set screws
- Powder-coated 316 stainless steel receptacle housing
- Sleeve springs maximize contact area between pin & sleeve
Container port terminals are dynamic and often dangerous environments. ESL offers a full line of Reefer Outlet Assemblies (ROAs) designed specifically for port terminal applications with a focus on safety and quality. ESL’s ROAs are fabricated to withstand harsh marine environments while providing operator safety and equipment protection.

Reefer Outlet Assemblies are equipped with Safety-interlocked Reefer Outlets (Power Modules) to provide safe and reliable connections for refrigerated containers. These modules also allow for easy maintenance and minimal downtime.

**Features**

- Customized assemblies designed to meet specific project requirements
- Type 4X enclosures
- Seam welded powder-coated stainless steel enclosures
- Safety-interlocked reefer outlets are factory-wired to power distribution blocks for easy field installation
- Modular design allows for simple maintenance and significantly reduces downtime
- Complete assembly and individual reefer outlets are UL and cUL Listed

Quick link

ROA Resources
Including Specifications for Engineers: eslpwr.com/intermodal-reefer
Rack mount assemblies allow for quick and easy plug-in of refrigerated containers to power outlets installed on rack structures. These outlet assemblies are secured to the racks using stainless steel tabs. ESL can accommodate various mounting and power requirements needed for reefer racks.
Rack Mount Assemblies

10-Gang Rack Mount Assembly
ESL Series: 2223-61B

2-Gang Rack Mount ROA
ESL Series: 2274-04ANW

1-Gang Rack Mount ROA
ESL Series: 2263-22ENDW

4-Gang Rack Mount Assembly
ESL Series: 2219-82L

2-Gang Rack Mount Assembly
ESL Series: 2207-90-3L

3-Gang Rack Mount Assembly
ESL Series: 2214-23N

2-Gang Rack Mount Assembly
ESL Series: 2222-56A
Pedestal Mount Assemblies

When Reefer Outlet Assemblies cannot be mounted to a rack or pole, ESL’s pedestal mount assemblies ensure that electrical connections are up off the ground and at a convenient height for quick plug-in capabilities.
Bunker Mount Assemblies

For wheeled terminals, ESL’s bunker mount assemblies provide a connection point for chassis-mounted refrigerated ISO containers to plug into.

Quick link
Intermodal Infographic: blog.eslpwr.com/intermodal-infographic

4-Gang Bunker Mount Assembly
ESL Series: 2217-02

2-Gang Bunker Mount Assembly
ESL Series: 2223-72A

4-Gang Bunker Mount Assembly
ESL Series: 2223-72

2-Gang Bunker Mount Assembly
ESL Series: 2220-78F

4-Gang Bunker Mount Assembly
ESL Series: 2207-88

6-Gang Bunker Mount Assembly
ESL Series: 2209-10B
Power packs are containerized diesel generator sets that are widely used in the intermodal industry to power multiple refrigerated containers when permanent reefer outlets are not available. Power packs offer flexibility by providing reefer outlet capacity when and where needed without the expense of a permanent installation.

ESL designs and manufactures custom power pack reefer outlet assemblies that can be supplied in various configurations, minimizing labor and installation for power pack manufacturers. ESL power pack panels are manufactured using safety-interlocked reefer outlets pre-wired to power distribution blocks. Optional features such as voltmeter, ammeter, and output cam connectors are available and can be incorporated in power pack panels.
ESL’s Rear Actuated Safety-interlocked Power Modules (Reefer Outlets) share all of the key features with the standard ESL Safety-interlocked Power Modules.

As an additional safety attribute, these modules are designed with the ON/OFF actuator rod and the receptacle on opposite sides of the enclosure assembly. This allows the operator to be away from the plug and receptacle connection at the time the unit is energized.

ESL offers custom-designed stainless steel enclosures to house these modules in pole, rack, or pedestal style assemblies.

Features

• Actuator rod and receptacle are located on opposite sides of the enclosure assembly to protect operator in case of an unexpected explosion/flashover caused by a defective or wet plug
• Electrically-interlocked to prevent “making or breaking” electrical contacts under load
• High visibility indicator light(s)
• Modular design simplifies maintenance and minimizes downtime
• Interlocked circuit breaker with auxiliary contact available
• Stainless steel, spring-actuated snap-cover protects receptacle contacts from dust and water when not in use
• 14 GA stainless steel Type 4X enclosures (powder-coated after fabrication)
• Complete assembly & Rear Actuated Power Module are UL & cUL Listed
Rear Actuated Assemblies

3-Gang Rack Mount Rear Actuated Assembly
ESL Series: 2221-39L4

2-Gang Rack Mount Rear Actuated Reefer Outlet Assembly
ESL Series: 2221-14L

**Stainless Steel Actuator Rod**
- Reverse placement for safety
- Superior corrosion resistance
- Withstands marine use and abuse

**Heavy Duty Stainless Steel Construction**
- Withstands marine use and abuse
- Superior corrosion resistance

**UL 489 Listed Circuit Breaker**
- Maximum operator & equipment protection
- Approved for branch circuits
- Various interrupting capacities available

**Electrical Interlock**
- Maximum operator safety
- Easy plug insertion
- Ground pin actuated

**Angled Receptacle Gasket**
- Provides enhanced watertight protection

**High Visibility Indicator Light**
- Power On
- Power Available (optional)
- Trip (optional)

**Multiple Receptacle Options**
- Two-piece Polyamide/Rynite®
- Two-piece 316 Stainless Steel/Rynite®

**Heavy Duty Stainless Steel “Snap” Cover**
- Strong & corrosion resistant
- Self closing & aligning
- Protects contacts from contamination
Portable Distribution Trees

When terminals are over capacity or when moving refrigerated ISO containers to accommodate power requirements is inconvenient, ESL’s portable reefer outlet assemblies provide terminal operators with optimal flexibility. Portable Distribution Trees can be customized to meet unique requirements by adding cam-style receptacles for line-side power, wheels, fork pockets, or lifting handles for maneuverability.
Portable Distribution Trees

20-Gang Portable Distribution Tree
ESL Series: 2280-95FNW

6-Gang Portable Assembly with Cam-style Inlets
ESL Series: 2219-41

20-Gang Portable Distribution Tree with Cam-style Inlets
ESL Series: 2280-95FW

30-Gang Portable Distribution Tree with Cam-style Inlets
ESL Series: 2281-19CW

30-Gang Portable Distribution Tree with Cam-style Inlets
ESL Series: 2281-19CY
ESL’s non-modular reefer outlets (sockets) provide a safe and simple connection for refrigerated ISO containers. Non-modular reefer outlets are built to accommodate the most common power requirements, ranging from 32A to 60A and up to 480VAC.

Features

- Receptacles: 3h per IEC 60309-1 & -2
- Safety-interlocked with a rotary switch or molded case circuit breaker
- Powder-coated 304 stainless steel enclosures
- Fitted with a threaded flap cover and hinged for IP56 rating
- Non-UL Listed
## Non-Modular

### 1-Gang Switched Assembly without Breaker

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Current</th>
<th>Config.</th>
<th>Body &amp; Cover</th>
<th>Switch</th>
<th>Protection</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>380VAC/50Hz</td>
<td>32AMP</td>
<td>3P 4W</td>
<td>304 Stainless Steel (Powder Coated)</td>
<td>Rotary Switch</td>
<td>IP56</td>
<td>IEC 60309-1 &amp; 2 3h</td>
</tr>
<tr>
<td>440-480VAC/60Hz</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### 1-Gang Interlocked with Molded Case Circuit Breaker

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Current</th>
<th>Config.</th>
<th>Body &amp; Cover</th>
<th>Switch</th>
<th>Protection</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>380VAC/50Hz</td>
<td>32AMP</td>
<td>3P 4W</td>
<td>304 Stainless Steel (Powder Coated)</td>
<td>Molded Case Circuit Breaker</td>
<td>IP56</td>
<td>IEC 60309-1 &amp; 2 3h</td>
</tr>
<tr>
<td>440-480VAC/60Hz</td>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

### 2-Gang Interlocked with Molded Case Circuit Breakers

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Current</th>
<th>Config.</th>
<th>Body &amp; Cover</th>
<th>Switch</th>
<th>Protection</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>380VAC/50Hz</td>
<td>60AMP</td>
<td>3P 4W</td>
<td>304 Stainless Steel (Powder Coated)</td>
<td>Molded Case Circuit Breaker</td>
<td>IP56</td>
<td>ISO1496/II</td>
</tr>
<tr>
<td>440-480VAC/60Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: All dimensions are in inches. Non-UL Listed. Additional designs and configurations available. Contact ESL for details.
ERTG Disconnect (MV/LV)

ESL’s ERTG Safety-interlocked Cabinet provides safe power cord connections for Electrified Rubber Tire Gantries (ERTGs) at container terminals as well as for other medium or low-voltage cord-connected applications.

For container terminals, this unique, patented design allows multiple MV ERTG cabinets to be daisy-chained, reducing the number of costly medium-voltage circuit breakers required upstream in the switchgear.

Features

• Interlocked air insulated load break medium-voltage switch or low-voltage molded case circuit breaker
• Safety-interlocked 7.2kV marine grade receptacle
• Internal grounding switch (MV)
• Compact footprint
• Redundant electrical safety-interlock
• Mechanical fuse tripping (MV)
• Electrically interlocked door

Quick link

ERTG Disconnect Cabinet Demo Video: eslpwr.com/ertg-demo
Medium Voltage Connections Boxes

Many automated container terminals rely on Rail Mounted Gantry cranes (RMGs) powered from medium voltage systems. ESL custom designs and manufactures durable medium voltage connection boxes for RMGs. ESL’s connection boxes are powder coated stainless steel which reduces corrosion and increases longevity in harsh marine environments. ESL can furnish connection boxes with most common options such as push pull connectors, dead-break elbows, fuses, and fiber optic boxes.

125A 24KV Fused Junction Box
ESL Series: 5101-41B

15KV Junction Box, Medium Voltage with Dead-Break Elbows
ESL Series: 5100-58A

125A 24KV Fused Junction Box
ESL Series: 5101-41B

15KV Junction Box, Medium Voltage
ESL Series: 5100-58
In addition to stepping down electrical voltage, ESL’s unit substations provide users with the benefits of load side power distribution capabilities.

**Features**

- 304 stainless steel Type 3R enclosure
- 480VAC primary to 120/240V single phase
- 480VAC primary to 208Y/120V three phase
- Breaker protection on primary side & secondary side
- Optional Safety-interlocked Power Modules or GFCI receptacles
- Ideal for port terminals, shipyards, marinas and other outdoor marine applications

### Single Phase

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>kVA</th>
<th>Primary Volt.</th>
<th>Secondary Volt.</th>
<th>Primary Current</th>
<th>Secondary Current</th>
<th>Height</th>
<th>Width</th>
<th>Depth</th>
<th>Max. Available Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPXR1-25-480-240/120</td>
<td>25</td>
<td>480VAC</td>
<td>240/120VAC</td>
<td>52A</td>
<td>104A</td>
<td>31&quot;</td>
<td>49&quot;</td>
<td>27&quot;</td>
<td>(24) 1&quot; Breaker Spaces</td>
</tr>
<tr>
<td>LPXR1-37-480-240/120</td>
<td>37.5</td>
<td>480VAC</td>
<td>240/120VAC</td>
<td>78A</td>
<td>156A</td>
<td>31&quot;</td>
<td>49&quot;</td>
<td>27&quot;</td>
<td>(24) 1&quot; Breaker Spaces</td>
</tr>
<tr>
<td>LPXR1-50-480-240/120</td>
<td>50</td>
<td>480VAC</td>
<td>240/120VAC</td>
<td>104A</td>
<td>208A</td>
<td>31&quot;</td>
<td>49&quot;</td>
<td>27&quot;</td>
<td>(24) 1&quot; Breaker Spaces</td>
</tr>
<tr>
<td>LPXR1-75-480-240/120</td>
<td>75</td>
<td>480VAC</td>
<td>240/120VAC</td>
<td>156A</td>
<td>313A</td>
<td>38&quot;</td>
<td>51&quot;</td>
<td>27&quot;</td>
<td>(30) 1&quot; Breaker Spaces</td>
</tr>
</tbody>
</table>

### Three Phase

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>kVA</th>
<th>Primary Volt.</th>
<th>Secondary Volt.</th>
<th>Primary Current</th>
<th>Secondary Current</th>
<th>Height</th>
<th>Width</th>
<th>Depth</th>
<th>Max. Available Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPXR3-30-480-240/120</td>
<td>30</td>
<td>480VAC</td>
<td>208Y/120VAC</td>
<td>36A</td>
<td>83A</td>
<td>31&quot;</td>
<td>49&quot;</td>
<td>27&quot;</td>
<td>(24) 1&quot; Breaker Spaces</td>
</tr>
<tr>
<td>LPXR3-45-480-240/120</td>
<td>45</td>
<td>480VAC</td>
<td>208Y/120VAC</td>
<td>54A</td>
<td>125A</td>
<td>38&quot;</td>
<td>51&quot;</td>
<td>27&quot;</td>
<td>(30) 1&quot; Breaker Spaces</td>
</tr>
<tr>
<td>LPXR3-75-480-240/120</td>
<td>75</td>
<td>480VAC</td>
<td>208Y/120VAC</td>
<td>90A</td>
<td>208A</td>
<td>38&quot;</td>
<td>51&quot;</td>
<td>27&quot;</td>
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</tr>
<tr>
<td>LPXR3-112-480-240/120</td>
<td>112.5</td>
<td>480VAC</td>
<td>208Y/120VAC</td>
<td>135A</td>
<td>312A</td>
<td>40&quot;</td>
<td>59&quot;</td>
<td>30&quot;</td>
<td>(42) 1&quot; Breaker Spaces</td>
</tr>
</tbody>
</table>

Additional designs and configurations available. Contact ESL for details.
ESL’s shipboard reefer outlets (sockets) are made to withstand harsh marine environments. In addition to features of the standard ESL reefer outlet, the shipboard reefer outlet comes equipped with an IP67 screw cover to ensure a watertight seal.

Features

- Non-metallic IP67 screw cover with coated stainless steel tether
- Mechanically interlocked to prevent “making or breaking” under load
- Circuit breaker rated 35KAIC @ 480VAC (up to 65KAIC)
- Stainless steel frame & interlock mechanism, impact resistant non-metallic socket, nickel plated brass contacts, stainless steel hardware
- CE, GL, UL & cUL Listed assemblies
ESL’s Portable and Modular Reefer Sharing Units (RSUs) are specifically designed to alternate or cycle power between two frozen or deep freeze loads from one permanent outlet; essentially doubling the number of reefer containers able to plug into available power without investing in additional transformers, switchgear, underground conduits or additional power generators.

**Portable RSU**

ESL’s Portable RSU houses two reefer outlets in one compact, lightweight assembly. Portable RSUs are designed with a hanger bracket for shipboard applications or with a utility handle commonly used in port terminal applications.

**Modular RSU**

Modular (or multi-gang) RSUs are ganged together in a Type 4X stainless steel enclosure and custom designed to meet a variety of different power requirements and dimensions.
Reefer Sharing Units

Features

- Electrical safety-interlock prevents “making or breaking” under load
- “Smart Sharing” system senses when only one reefer is plugged in to a module
- Two female receptacles for easy plug in
- High visibility LED lights show which receptacle is energized
- Type 4X stainless steel enclosures
- Safety-interlocked Modular RSUs are factory-wired to power distribution blocks for easy field installation
- Modular design allows for simple maintenance and significantly reduces downtime

Quick link
RSU Demonstration Video: eslpwr.com/reefer-sharing-unit-demo-video
ESL reefer outlets (sockets) are designed to handle the transportation challenges associated with railroad cargo transport. Taking into account the constant vibrations and extreme climatic conditions, ESL’s engineers have enhanced our safety-interlocked reefer outlets to offer ideal receptacle material and mechanism options for this application. ESL can design a solution to fit specific needs and ensure cargo stays powered.

Features

- Heavy duty stainless steel Type 4X enclosures resist corrosion and abuse
- Safety-interlock mechanism designed to reduce nuisance tripping
- Stainless steel receptacle housing for durability in extreme cold (optional)
- Modular design allows for ease of maintenance
- High visibility indicating light
- Complete assembly and individual reefer outlets are UL and cUL Listed

2-Gang Rail Assembly
ESL Series: 2214-04

8-Gang Flush Mount Panel Assembly
ESL Series:

2-Gang Rail Assembly
ESL Series: 2214-04

2-Gang Pole Mount Assemblies
ESL Series: 2207-21
The growing interest in measuring power consumption of reefer containers has been fueled by the fact newer containers consume significantly less power than older units. Average energy consumption reduction calls for a change in power charges; however the process of cooling a hot reefer needs to be addressed as well. Understanding the baseline carbon footprint in a port terminal can help measure and improve terminal energy efficiency overall. ESL’s Power Reefer Metering capabilities incorporate the safety of an ESL Reefer Outlet Assembly with the ability to measure actual power consumption with revenue grade accuracy and cost per reefer in real-time.
Reefer Plugs & Connectors

In addition to providing operators with a heightened level of safety and simplified installation, ESL’s complete line of refrigerated container plugs and connectors are designed to withstand tough marine environments and ensure a watertight seal.

- Heavy-duty design for harsh marine environments
- Watertight seal
- Universal grommet
- High resistance to chemicals & impact
- UL & cUL Listed

ESL’s reefer plugs and connectors are available in a variety of configurations to accommodate the industry’s most common power requirements.

**Features**

Quick link

How to Wire Reefer Plugs & Connectors Video: eslpwr.com/watertight-plug-install
Reefer Plugs & Connectors

32A 480VAC Male Plug

ESL Series: 1800-03P1A
IEC 60309-1 & 2 3h

- Polyamide housing and locking ring provides resilience and strength
- Gasket for a watertight connection to a mating receptacle
- Brass contacts for better electrical contact & lower operating temperature
- High temperature heavy-duty phenolic insert
- Two stainless steel screws per terminal
- Self-locking grommet provides simple installation, water seal & strain relief
- Polyamide cover automatically seals grommet as it is tightened
- O-rings for additional protection against water intrusion
- O-rings for additional protection against water intrusion

32A 480VAC Female Connector

ESL Series: 1900-01PA
IEC 60309-1 & 2 3h

- Polyamide housing and locking ring provides resilience and strength
- Brass contacts for better electrical contact & lower operating temperature
- High temperature heavy-duty phenolic insert
- Two stainless steel screws per terminal
- Self-locking grommet provides simple installation, water seal & strain relief
- Polyamide cover automatically seals grommet as it is tightened
- O-rings for additional protection against water intrusion
## Reefer Plugs & Connectors

<table>
<thead>
<tr>
<th>Clocking Config.</th>
<th>Male Plug</th>
<th>Female Connector</th>
<th>CF Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>32A 480VAC</strong></td>
<td><img src="image1" alt="Male Plug" /></td>
<td><img src="image2" alt="Female Connector" /></td>
<td><img src="image3" alt="CF Connector" /></td>
</tr>
<tr>
<td></td>
<td>ESL Series: 1800-03P1A 32A 480VAC 3P4W Watertight &amp; UL/cUL Listed</td>
<td>ESL Series: 1900-01PA 32A 480VAC 3P4W Watertight &amp; UL/cUL Listed</td>
<td>ESL Series: 1910-01 32A 480VAC 3P4W Stainless Steel Back Housing with Cord Grip</td>
</tr>
<tr>
<td></td>
<td><img src="image4" alt="IEC 60309-1 &amp; 2 3h" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>60A 480VAC</strong></td>
<td><img src="image5" alt="Male Plug" /></td>
<td><img src="image6" alt="Female Connector" /></td>
<td><img src="image7" alt="CF Connector" /></td>
</tr>
<tr>
<td></td>
<td>ESL Series: 1800-05PA 60A 480VAC 3P4W Watertight &amp; UL/cUL Listed</td>
<td>ESL Series: 1900-03P 60A 480VAC 3P4W Watertight &amp; UL/cUL Listed</td>
<td>ESL Series: 1910-07 60A 480VAC 3P4W Stainless Steel Back Housing with Cord Grip</td>
</tr>
<tr>
<td></td>
<td><img src="image8" alt="ISO 1496-2" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>60A 240VAC</strong></td>
<td><img src="image9" alt="Male Plug" /></td>
<td><img src="image10" alt="Female Connector" /></td>
<td><img src="image11" alt="CF Connector" /></td>
</tr>
<tr>
<td></td>
<td>ESL Series: 1800-04PA 60A 240VAC 3P4W Watertight &amp; UL/cUL Listed</td>
<td>ESL Series: 1900-02P 60A 240VAC 3P4W Watertight &amp; UL/cUL Listed</td>
<td>ESL Series: 1910-08 60A 240VAC 3P4W Stainless Steel Back Housing with Cord Grip</td>
</tr>
<tr>
<td></td>
<td><img src="image12" alt="ISO 1496-2" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>50A 240VAC</strong></td>
<td><img src="image13" alt="Male Plug" /></td>
<td><img src="image14" alt="Female Connector" /></td>
<td><img src="image15" alt="CF Connector" /></td>
</tr>
<tr>
<td></td>
<td>ESL Series: 1800-06P 50A 240VAC 3P4W Watertight &amp; UL/cUL Listed</td>
<td>ESL Series: 1900-04P 50A 240VAC 3P4W Cord Connector</td>
<td>ESL Series: 1910-02 50A 240VAC 3P4W Stainless Steel Back Housing with Cord Grip</td>
</tr>
<tr>
<td></td>
<td><img src="image16" alt="ISO 1496-2" /></td>
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<td></td>
</tr>
<tr>
<td><strong>30A 240VAC</strong></td>
<td><img src="image17" alt="Male Plug" /></td>
<td><img src="image18" alt="Female Connector" /></td>
<td><img src="image19" alt="CF Connector" /></td>
</tr>
<tr>
<td></td>
<td><img src="image20" alt="ISO 1496-2" /></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
By testing continuity and insulation resistance, ESL’s reefer plug testers can detect potential short circuits, incorrectly wired plugs, and potentially unsafe cable. In addition, ESL manufactures reefer phase rotation testers and reefer plug test adaptors with test ports for portable Fluke-style multi-meters.
**Reefer Cable**
Suitable for outdoor use

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Rating</th>
<th>Color</th>
<th># of Conductors</th>
<th>AWG Size</th>
<th>Description</th>
<th>Conductor Colors</th>
</tr>
</thead>
<tbody>
<tr>
<td>0911-10-4Y</td>
<td>600VAC</td>
<td>Yellow</td>
<td>4</td>
<td>10</td>
<td>1000 ft. 10/4 SEOOW</td>
<td>Black, White, Red, Green</td>
</tr>
<tr>
<td>0911-11-4Y</td>
<td>600VAC</td>
<td>Yellow</td>
<td>4</td>
<td>11</td>
<td>1000 ft. 11/4 SEOOW</td>
<td>Black, White, Red, Green</td>
</tr>
<tr>
<td>0911-10-4YSOOW</td>
<td>600VAC</td>
<td>Yellow</td>
<td>4</td>
<td>10</td>
<td>1000 ft. 10/4 SOOW</td>
<td>Black, White, Red, Green</td>
</tr>
<tr>
<td>0911-10-4SOOW</td>
<td>600VAC</td>
<td>Black</td>
<td>4</td>
<td>10</td>
<td>1000 ft. 10/4 SOOW</td>
<td>Black, White, Red, Green</td>
</tr>
</tbody>
</table>

**SEOOW Cable**

**Conductors:**
- Fully annealed stranded bare copper

**Jacket:**
- Thermoplastic Elastomer (TPE)

**Insulation:**
- Temperature range: -50ºC to +105ºC

**Features:**
- Lightweight
- Oil-resistant
- Very good flexibility
- Excellent molding characteristics
- Water-resistant*
- UL Listed and c(UL) Listed for indoor or outdoor use

**SEOOW & SOOW Industry Approvals**
- UL Flexible Cord - UL 62
- CSA Flexible Cord - C22.2-49
- MSHA Approved
- RoHS Compliant

* Suitable for immersion in water if properly sealed and terminated.

**SOOW Cable**

**Conductors:**
- Fully annealed stranded bare copper

**Jacket:**
- Rubber

**Insulation:**
- Premium-grade, color-coded 90ºC EPDM

**Features:**
- Excellent resistance to oil and moisture
- Good tensile strength, elongation and aging characteristics
- High flexibility
- Excellent abrasion resistance
- Water-resistant*
- UL Listed and CSA Certified for indoor and outdoor use
- Ozone-, sunlight (UV)- and weather-resistant

* Suitable for immersion in water if properly sealed and terminated.
Extension Cords & Splice Kits

ESL offers a wide range of extension cords with various plug and connector configurations as well as cable types and lengths. A variety of cable splice kits are also available to repair damaged reefer cables.

### Extension Cords*

Connects a reefer container plug to an electrical outlet

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Item No.</th>
<th>Rating</th>
<th>Configuration</th>
<th>Color</th>
<th>Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC-32-480-30Y</td>
<td>0905-03Y</td>
<td>32A 480VAC</td>
<td>3P4W</td>
<td>Yellow</td>
<td>30 ft. 10/4 SEOOW</td>
</tr>
<tr>
<td>EC-32-480-60Y</td>
<td>0905-02Y</td>
<td>32A 480VAC</td>
<td>3P4W</td>
<td>Yellow</td>
<td>60 ft. 10/4 SEOOW</td>
</tr>
<tr>
<td>EC-32-480-90Y</td>
<td>0905-04Y</td>
<td>32A 480VAC</td>
<td>3P4W</td>
<td>Yellow</td>
<td>90 ft. 10/4 SEOOW</td>
</tr>
<tr>
<td>EC-32-480-30</td>
<td>0905-01A-30</td>
<td>32A 480VAC</td>
<td>3P4W</td>
<td>Black</td>
<td>30 ft. 10/4 SOOW</td>
</tr>
<tr>
<td>EC-32-480-60</td>
<td>0905-01A-60</td>
<td>32A 480VAC</td>
<td>3P4W</td>
<td>Black</td>
<td>60 ft. 10/4 SOOW</td>
</tr>
<tr>
<td>EC-32-480-90</td>
<td>0905-01A-90</td>
<td>32A 480VAC</td>
<td>3P4W</td>
<td>Black</td>
<td>90 ft. 10/4 SOOW</td>
</tr>
</tbody>
</table>

### Cable Splice Kits*

Kits allow for quick repair of damaged cables in the field

4 Conductor
12-8 AWG

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Item No.</th>
<th>Connector Type</th>
<th>Contact Carrier</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SK-RS-BSM</td>
<td>4501-01</td>
<td>Brass Sleeves with Set Screws</td>
<td>Sanoprene®</td>
<td>Rip Shrink “Cold” Splice Kit</td>
</tr>
<tr>
<td>SK-RS-BCE</td>
<td>4501-02</td>
<td>Butt Connectors</td>
<td>Rubber</td>
<td>Rip Shrink “Cold” Splice Kit</td>
</tr>
<tr>
<td>SK-HS-BSM</td>
<td>4502-01</td>
<td>Brass Sleeves with Set Screws</td>
<td>Sanoprene®</td>
<td>Hot Shrink Splice Kit</td>
</tr>
<tr>
<td>SK-HS-BCE</td>
<td>4502-02</td>
<td>Butt Connectors</td>
<td>Rubber</td>
<td>Hot Shrink Splice Kit</td>
</tr>
<tr>
<td>SK-RS-BSM-SS</td>
<td>4501-01SS</td>
<td>Brass Sleeves with Stainless Steel Set Screws</td>
<td>Sanoprene®</td>
<td>Rip Shrink “Cold” Splice Kit</td>
</tr>
<tr>
<td>SK-RS-BSM-1-SS</td>
<td>4501-04SS</td>
<td>Brass Sleeves with Stainless Steel Set Screws</td>
<td>Sanoprene®</td>
<td>Rip Shrink “Cold” Splice Kit</td>
</tr>
<tr>
<td>SK-RS-BC-1208</td>
<td>4501-10</td>
<td>Butt Connectors</td>
<td>Rubber</td>
<td>Rip Shrink “Cold” Splice Kit</td>
</tr>
<tr>
<td>SK-HS-BSM-SS</td>
<td>4502-01SS</td>
<td>Brass Sleeves with Stainless Steel Set Screws</td>
<td>Sanoprene®</td>
<td>Hot Shrink Splice Kit</td>
</tr>
</tbody>
</table>

*Additional lengths, and configurations available. Contact ESL for details.
ESL’s Cord Converters provide the ability to connect differing plug and receptacle configurations with the same voltage at port terminals and ships.

### Converter Cords

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Item No.</th>
<th>Plug Rating</th>
<th>Connector Rating</th>
<th>Configuration</th>
<th>Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC32-480-60-1F</td>
<td>0914-00-1F</td>
<td>32A 480VAC</td>
<td>60A 480VAC</td>
<td>3P4W</td>
<td>1ft. 10/4 SEOOW</td>
</tr>
<tr>
<td>CC32-480-60-3F</td>
<td>0914-00-3F</td>
<td>32A 480VAC</td>
<td>60A 480VAC</td>
<td>3P4W</td>
<td>3ft. 10/4 SEOOW</td>
</tr>
<tr>
<td>CC60-480-32-1F</td>
<td>0914-01-1F</td>
<td>60A 480VAC</td>
<td>32A 480VAC</td>
<td>3P4W</td>
<td>1ft. 10/4 SEOOW</td>
</tr>
<tr>
<td>CC60-480-32-3F</td>
<td>0914-01-3F</td>
<td>60A 480VAC</td>
<td>32A 480VAC</td>
<td>3P4W</td>
<td>3ft. 10/4 SEOOW</td>
</tr>
<tr>
<td>CC32-480-60-5F</td>
<td>0914-00-5F</td>
<td>32A 480VAC</td>
<td>60A 480VAC</td>
<td>3P4W</td>
<td>5ft. 10/4 SEOOW</td>
</tr>
<tr>
<td>CC60-240-30-1F</td>
<td>0914-04-1F</td>
<td>60A 240VAC</td>
<td>30A 240VAC</td>
<td>3P4W</td>
<td>1ft. 8/4 SEOOW</td>
</tr>
</tbody>
</table>

Y-Splitters connect two reefers to one outlet providing additional outlet capacity on a temporary basis. ESL offers multiple Y-Splitter cord configurations. Note: Operators must ensure the total load does not exceed connector rating at any time. Loads must be connected first and then the power source can be connected and energized.

### Y-Splitters

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Item No.</th>
<th>Plug Rating</th>
<th>Connector Rating</th>
<th>Configuration</th>
<th>Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>YA-32-480-36</td>
<td>0904-02-36</td>
<td>32A 480VAC</td>
<td>32A 480VAC</td>
<td>3P4W</td>
<td>36ft. 10/4 SOOW</td>
</tr>
<tr>
<td>YA-60-480-24</td>
<td>0904-02-38</td>
<td>60A 480VAC</td>
<td>60A 480VAC</td>
<td>3P4W</td>
<td>24ft. 8/4 SOOW</td>
</tr>
<tr>
<td>YA-60-480-36</td>
<td>0904-02-37</td>
<td>60A 480VAC</td>
<td>32A 480VAC</td>
<td>3P4W</td>
<td>36ft. 8/4 SOOW</td>
</tr>
</tbody>
</table>

60A 480VAC Y-Splitter Cord  
ESL Series: 0904-02-38

32A 480VAC Y-Splitter Cord  
ESL Series: 0904-02-36
Reefer Transformers

ESL’s Reefer Transformers enable operators to increase or decrease the electrical voltage to match the load requirements without investing in additional infrastructure.

Features

- Safety-interlocked power module, equipped with UL/cUL Listed circuit breaker protects operator and equipment
- Powder-coated stainless steel Type 4X enclosure resists corrosion & abuse
- Handles, wheels and latching points allow maximum flexibility for shipboard or port terminal

Non-interlocked
45KVA 480:240 Transformer
ESL Series: 5100-82

Safety-interlocked
15KVA 240:480 Step-up Transformer
ESL Series: 2203-97-01A

Transformer
ESL Series: 3900-04

3KVA 480:120 GFI Portable Transformer
ESL Series: 2203-97A

Safety-interlocked
15KVA Step-down Transformer
ESL Series: 2203-98-03

Safety-interlocked
15KVA 480:240 Dual Voltage Transformer
ESL Series: 2219-37A

Non-interlocked 15KVA Step-up Transformer
ESL Series: 2206-06E
Industrial products are made to withstand harsh environments while maintaining the highest level of safety. ESL’s industrial power distribution units are safety-interlocked and custom manufactured to accommodate various voltages, amperages, sizes and capabilities.

Industrial power solutions include:
- Power Distribution Stations
- Portable Welding Power Units
- Portable AC-DC Converter Assemblies
- Spider Boxes
- Safety-interlocked Single & Multi-gang Assemblies

ESL manufactures power modules using receptacles from major manufacturers such as Cooper Crouse-Hinds®, Russellstoll®, Appleton®, Meltric®, Hubbell® and others.

Cooper Crouse-Hinds®, Russellstoll®, Appleton®, Meltric®, and Hubbell® are registered trademarks of their respective companies.
ESL manufactures safety-interlocked cord connected power solutions for military vessels and is known as best-in-class builders of Ship-to-Shore Power Mounds. Working with customers globally, ESL builds custom engineered solutions for military applications such as:

- Navy/NATO Ships & Bases
- USCG Ships & Bases
- Container Ships & Ports Barges

ESL’s MIL-C-24368 shore power plugs and receptacles have NAVSEA qualification approval and are listed under QPL-24368. ESL builds the most durable MIL-C-24368 plugs and receptacles on the market; we are the only manufacturer using passivated 316SS castings and all 316SS hardware. This reduces corrosion and increases longevity in harsh marine environments and demanding use.
ESL’s truck-trailer shore power solution provides utility power to docked refrigerated trucks, eliminating emissions while truck is loading/unloading. When refrigerated trucks are connected to shore power, they are “clean” and consume no fuel. ESL truck-trailer shore power is widely used in distribution centers, warehouses and truck stops.
StormSwitch™
(Manual Transfer Switch)
UL/cUL 1008 Listed up to 3000A

StormSwitch™ is a UL/cUL 1008 Listed manual transfer switch that provides an economical commercial solution for businesses that want to be prepared for emergency power loss. Equipped with safety-interlocked circuit breakers and color-coded cam-style receptacles, ESL’s StormSwitch ensures a safe and simple hook-up to a portable power generator during a power outage.

TempTap™
(Generator Tap Box)
UL/cUL 1008 Listed up to 3200A

ESL’s UL/cUL1008 Listed generator tap boxes provide end users with a safe and simple solution to connect a portable generator to a grid-tied facility. Once installed by a licensed electrician, connection to a portable generator is easy with color-coded cam-style receptacles.

TripleSwitch™
(3-Way Manual Transfer Switch)
UL/cUL 1008 Listed up to 3000A

ESL’s UL/cUL 1008 Listed 3-way manual transfer switch is a dual purpose solution to service those facilities that utilize an automatic transfer switch and a permanent generator. The TripleSwitch™ provides three interlocked breakers to isolate the permanent standby generator circuit from the ATS during load bank testing. The TripleSwitch™ also provides a means to quickly connect a portable backup generator to the ATS while the permanent generator is offline.