

# ALTERNATIVE MARITIME POWER CONFERENCE



## Manufacturers' Perspective

**ESL**  
POWER SYSTEMS

April 23-25, 2006

# ESL Power Systems, Inc.



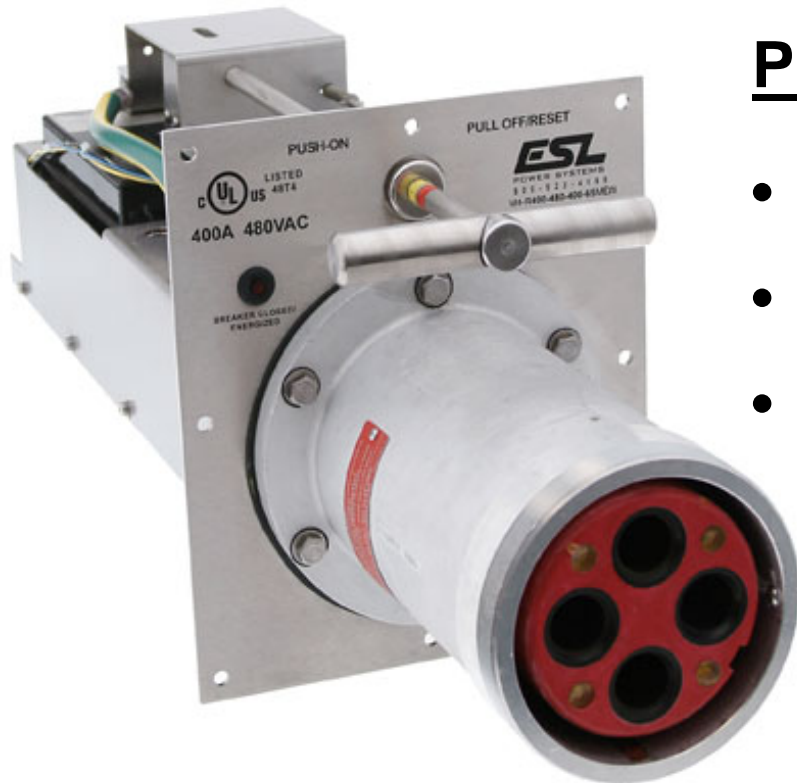
# Port of Los Angeles

## AMP™ Project 2004 - Berth 100



# Safety Interlocked Module

## 400AMP 480VAC



### Provides:

- No “make” or “break” under load
- Manual disconnect
- Over-current protection

## Power Flat Rack:

- 15KV 600A 40KA Type HVL Switch
- 3000/4000 KVA Power Cast Transformer
- 6.6KV Delta Primary Voltage
- Secondary 480VAC Panel with (12) ESL 400A 480VAC Interlocked Power Modules



## Reel Flat Rack:

- (1) Shore to Barge 5.5KV Cavotec Reel with 100 feet of 4/0 cable (motor driven)
- (3) Barge to Ship 480VAC Cavotec Reels with (3) 500MCM cables per reel (motor driven)
- (1) Control Panel for the 4 reels
- (1) Shore to Barge 480VAC Spring Reel for the Cavotec Reel motors, lighting controls, lights, and 120VAC power

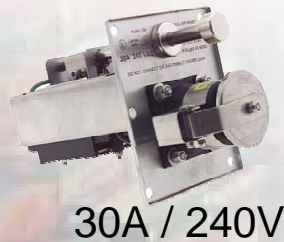


# Thoughts For The Future...

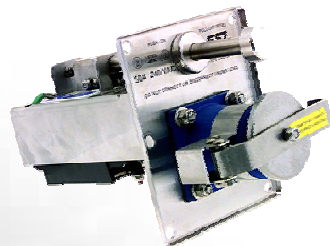


Historical Reflection  
(Case Study)

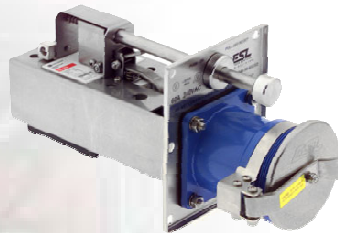
# Refrigerated Container Industry



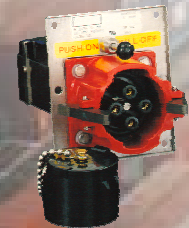
30A / 240V



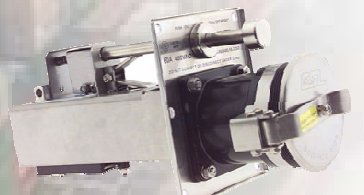
50A / 240V



60A / 240V



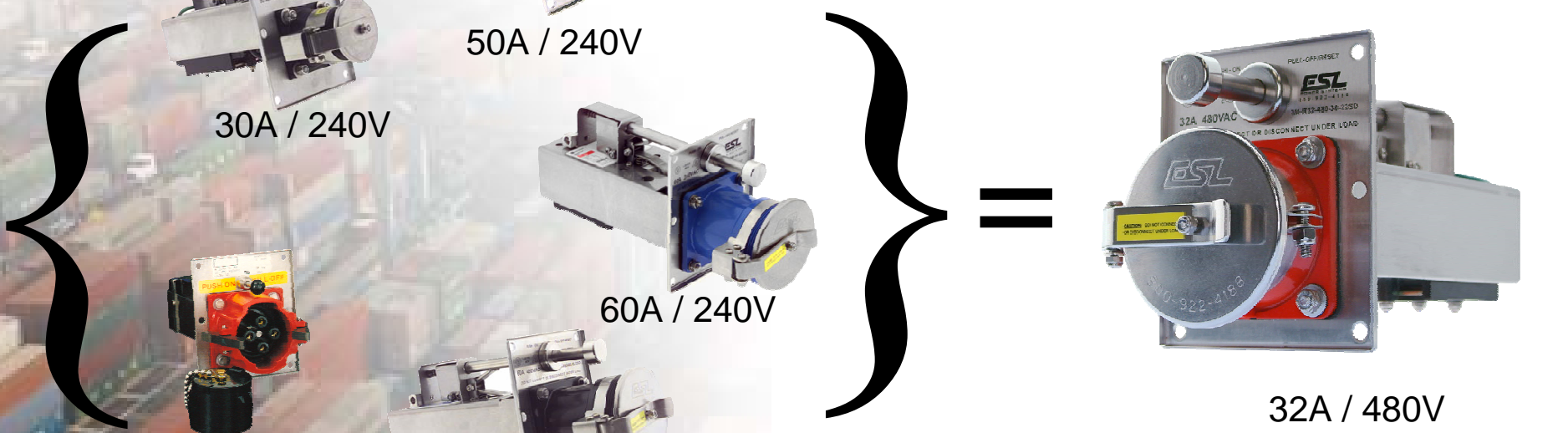
30A / 480V



60A / 480V



32A / 480V



# Call for Standardization - Now

- Shorepower Voltage
- Plug / Connector Configuration
- Land-side Infrastructure
- Safety & Operation Procedures