

# SUPER FLIGHT LINE ELECTRICAL DISTRIBUTION SYSTEM (SFLEDS)



<b>Revision Date:</b>	4/04 The information in the data sheet does not change. This data sheet will not be updated.
<b>Process Code:</b>	Navy and Marine Corps: MIL-002-99; Air Force: AC02, FA05; Army: ELM
<b>Usage List:</b>	Navy: Medium; Marine Corps: Medium; Army: Medium; Air Force: High
<b>Alternative For:</b>	Fuel-fired mobile electric power plants (MEPP)
<b>Compliance Impact:</b>	Low
<b>Applicable EPCRA Targeted Constituents and CAS Numbers:</b>	N/A

**Overview:** The Super Flight Line Electrical Distribution System (SFLEDS) reduces emissions created by diesel engine-driven support equipment (SE) by replacing the existing engine-driven power supplies with host facility power and redistributing the conditioned power along the flight line. SFLEDS converts and conditions 480V, 60 Hz, 3 phase host facility grid power to 120V, 60Hz, single phase output for low voltage equipment and 115V, 400 Hz, 3 phase for aircraft while still allowing outputs of 480V, 60 Hz, 3 phase for heavy duty equipment. Implementation of this system requires the routing of 480V, 60 Hz power cable from the host facility grid to the SFLEDS site. SFLEDS configuration includes frequency converters, transformers, and electrical controls.

**Compliance Benefit:** If the SFLEDS is used in place of diesel engine-driven SE the facility will decrease exhaust emissions. It may also decrease the need for a facility to obtain an air permit under **40 CFR 70 and 71**. In addition, less hazardous materials are used on site (i.e., diesel) so the possibility that the facility would meet any of the reporting thresholds for that substance under **SARA Title III (40 CFR 355, 370, and 372)** and **Executive Order 13148** is decreased. The decrease in the amount of oil stored on site may also drop the facility below threshold amounts for the requirement to develop and implement a Spill, Prevention, Control, and Countermeasure (SPCC) Plan under **40 CFR 112**. Note that additional electricity will be consumed with this technology and that this is at odds with the energy conservation requirements of **EO 13123**.

The compliance benefits listed here are only meant to be used as general guidelines and are not meant to be strictly interpreted. Actual compliance benefits will vary depending on the factors involved, e.g., the amount of workload involved.

**Materials Compatibility:** No material compatibility issues were identified.

**Safety and Health:** Proper design, operation, and maintenance of the equipment is required for its safe use. Trained personnel must perform installation of electrical systems.

Consult your local industrial health specialist, and your local health and safety personnel prior to implementing this technology.

**Benefits:**

- Eliminates hydrocarbon and carbon monoxide emissions.
- Reduces handling and use of hazardous and flammable materials on the flight line.

**Disadvantages:**

- High capital costs.
- Operator training requirements.

**Economic Analysis:** The following conservative 1997 estimates are based on the installation of a SFLEDS prototype. Actual costs for SFLEDS operation may be lower and will vary based on the equipment application.

**Assumptions:**

- Estimated SFLEDS equipment cost: \$300,000
- Estimated hours required for installation: 120 hours
- Labor rate: \$30/hr
- Installation cost: \$5,400
- Diesel fuel cost: \$0.97/gal
- Electricity: \$0.08/kw-hr
- Hours for handling diesel: 5 hr/week or 260 hr/yr
- No. of Mobile Electric Power Plants (MEPP) units in operation: 30 @ 12 hr/week
- MEPP total hours of operation: 18,720 hr/yr
- MEPP equipment rating: 118 hp or 88 kw
- Estimated diesel usage for MEPP: 155,000 gal/yr

**Table 1. Annual Operating Cost Comparison for SFLEDS and MEPP**

	<u>SFLEDS</u>	<u>MEPP</u>
<b>Operational Costs:</b>		
Labor:	\$0	\$7,800
Diesel:	\$0	\$150,000
Energy	\$106,330	\$0
<b>Total Recovered Income:</b>	\$0	\$0
<b>Net Annual Cost/Benefit:</b>	-\$106,330	-\$158,200

**Economic Analysis Summary:**

- Annual Savings for SFLEDS: \$51,870
- Capital Cost for Diversion Equipment/Process: \$305,400
- Payback Period for Investment in Equipment/Process: < less than 6 years (worse case scenario--for a facility where F18's (19 kW) are being serviced, the payback is less than 2.5 years.)

[Click Here](#) to view an Active Spreadsheet for this Economic Analysis and Enter Your Own Values. To return from the Active Spreadsheet, click the **back arrow** in the Tool Bar.

**NSN/MSDS:** None identified.

**Approving Authority:** Appropriate authority for making process changes should always be sought and obtained prior to procuring or implementing any of the technology identified herein.

**Points of Contact:** [For more information](#)

**Vendors:**

This is not meant to be a complete list, as there may be other manufacturers of this type of equipment.

**Frequency Converters:**

Unitron, Inc. Power Systems

10925 Miller Road

Dallas, TX 75238

Phone:

 (800) 527-1279 [Sales & Service]

 (214) 340-8600 [Purchasing]

FAX:

(214) 341-2099 [Sales & Service]

 (214) 341-2275 [Purchasing]

 (214) 341-4382 [Purchasing]

(214) 340-5706 [Purchasing]

URL: <http://www.unitroninc.com/>

**Transformers:**

EGS Electrical Group

Sola/Hevi-Duty

Headquarters

9377 W. Higgins Road

Rosemont, IL 60018

Phone:  (847) 268-6000

FAX: (847) 268-6652

Email: <http://www.sola-hevi-duty.com/>

URL: <http://www.sola-hevi-duty.com/>

**Controls:**

Square D Company

Schneider Electric

(Formerly: A Schneider North American Company)

Distributor: My Schneider Electric

Phone: Information Center at  1-888-778-2733 (1-888-SQUARED)

Login Currently Required - For Information Contact My Schneider Electric Help Desk at

 1-866-773-3929

**Related Links:**

[Do You Use Portable Diesel Electric Generators?](#), Navy Environmental Quality Initiative (EQI)  
[Super Flight Line Electrical Distribution System](#)

**Sources:**

*Mr. Anthony Vendetti, Naval Air Warfare Center, Aircraft Division, Lakehurst, NJ, September 1998.  
Phone conversation with Unitron, Inc. representative, August 1998.  
Phone conversation with EGS Electrical Group representative, August 1998.  
Phone conversation with Mr. Chuck Hastings, Square D Co., August 1998.*

**Supplemental:**

**Picture of Super Flight Line Electrical Distribution System**



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[Back](#)