FLEX SLS 3.0

SITE LIGHTING SYSTEM

The world's most advanced
low voltage LED-based temporary
lighting system for construction sites

clear-vu
lighting

The world's most advanced low voltage LED-based temporary lighting system for construction sites just got even better…

Clear-Vu Lighting's award-winning FLEX SLS Site Lighting System is safer, more energy efficient, cost-effective, and flexible than traditional line voltage temporary lighting systems including incandescent/compact fluorescent/LED lamp-based "stringers" and 400W metal halide fixtures or their fluorescent equivalents for a wide variety of applications. FLEX LED modules are IP66-rated, extremely rugged and durable (can withstand 15' drop test) and theft-resistant due to the proprietary T-Conn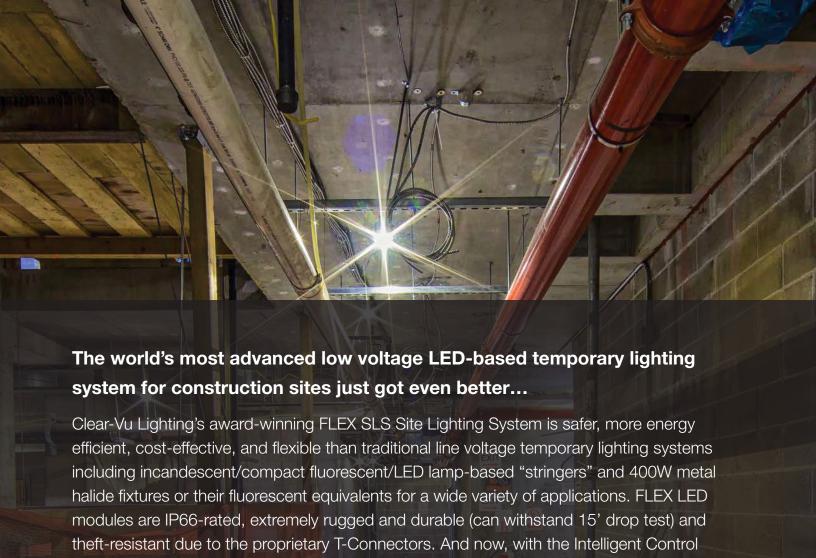ectors. And now, with the Intelligent Control System, an entire jobsite's temporary lighting can serve as an emergency alarm—controlled and managed from a single access point!

The FLEX SLS Site Lighting System includes three standard modules designed to simplify layouts in 10/20/30 foot spacing. All the modules can be comingled on the same 24VDC low-voltage bus line, and are backwards compatible with the previous generations of the FLEX System.

System Overview

- **FM2A** – 1000 lumen
- **FM10A** – 3000 lumen
- **FM30A** – 6000 lumen
- **T-Connector** – Included on all LED Modules

Power Supplies

- **FPS450** – 450W transformer steps 110-220VAC down to low voltage
- **FPS450DT** – Includes a time clock and dimmer to drop light level to emergency level during non-working hours
- **FPS450I** – Zigbee wireless transceiver enables emergency alarm function and remote control
- **FPS450-BB50** – Integral 90-minute 50 AH emergency battery backup
- **FPS550** – 550W transformer steps 120-277VAC down to low voltage

FLEX Intelligent Control System: project-wide control from a single access point

- **FIS1** (Intelligent Control Panel) – LCD screen, keypad interface and emergency button

Accessories

- **CDB1** (Concrete Deck Box)

SYSTEM BENEFITS

Safety and Security

The power distribution system is entirely low voltage, eliminating the risk of electrocution and shock hazards on jobsites. With the optional Intelligent Control System, the entire temporary lighting installation can serve as an emergency alarm for building evacuation by intermittently strobing the LED modules.

The operating temperature of the LED modules is never too hot to touch (in contrast to MH, quartz, halogen, etc), substantially reducing the possibility of injuries and fires. Additionally, the LED modules deliver superior quality and consistency in light output to conform to OSHA foot candle requirements. The LED modules are resistant to theft because they do not support standard input voltage.

Cost and Energy Savings

On a 250,000 sq. ft. job site with a 2 year duration, over $200,000 in electricity savings alone is possible over the course of the project compared to existing lighting technologies (factoring $0.12/kwh). The FLEX SLS system consumes less than 1/4 the energy!

Sustainability

The FLEX SLS System has earned its first LEED ID Credit (#10270) due to the significant decrease in electricity consumption and electrical waste! All components of the FLEX SLS System are RoHS compliant and contain no hazardous materials unlike compact fluorescent and metal halide bulbs.

Installation and Labor Efficiency

Utilizing the revolutionary T-Connector, temporary lighting is no longer limited to the fixed distance spacing of stringers or the hardwiring of MH fixtures. The electrical contractor simply connects the Power Supply to a 110/220VAC input source, wires the 24VDC Bus Line along a ceiling, beam, or other type of harness, and then connects LED Modules to the 24VDC Bus Line at optimal spacing depending on dynamic job site requirements.

Operational Life and Durability

The illumination for the LED modules is rated for L70 @ 80,000 hours. After almost 6 years of continuous, full-power usage (or 10 years when using the dimming function), the LEDs will output 70% of their initial brightness. The modules themselves are extremely durable (impact-grade polycarbonate and cast aluminum assembly), wet location (IP66-rated) for core and shell applications, and will survive a 15' drop test on concrete. Additionally, the power supply includes secondary surge protection for lighting strikes. In contrast to traditional temporary lighting systems, or fan-cooled LED corn cobs, the LED modules will last far more than a single project!

LED Modules

Clear-Vu Lighting's FLEX system provides safe and sustainable LED lighting for temporary construction sites. This low-voltage LED System offers an energy-efficient, zero maintenance alternative to traditional incandescent, CFL and HID systems. The LED Modules utilize best-in-class LEDs from top-tier chip manufacturers combined with robust heat sinks to guarantee the life of the product.

Features:

- Impact resistant and impervious to environment – IP66-rated module enclosure is designed to withstand extreme environmental and physical abuse.

- Modules have twist and lock connectors for ease of installation.

- High footcandles without direct glare.

- Lumen maintenance for modules: 70% at 80,000 hours.

- FM30A includes a 10' whip standard for ease of configuration, optional on the FM2A and FM10A (TE-10).

- The FPS450/FPS450DT/FPS450I power supplies accommodate up to (54) FM2As, (18) FM10As, (6) FM30As, or a combination of the different modules preserving the ratio.

FM2A (6W/1000 lumens)

The FM2A module produces 5-foot-candles (average) at 10-12 foot spacing.

The directed optics of the FM2A provide up to 30% more light on the ground than a 27W CFL lamp, ideal for fit-outs of smaller rooms.

FM10A (30W/3000 lumens)

The FM10A module produces 5-foot-candles (average) at 20 foot spacing.

The FM10A module is ideal for special applications requiring 20' spacing and/or surface mount (i.e. tunnels).

FM30A (60W/6000 lumens)

The FM30A module produces 5-foot-candles (average) at 30 foot spacing.

The FM30A has an integral uplight, eliminating the cavern effect in projects with high ceilings (above 12'). An ideal replacement for traditional 400W metal halide and high-output fluorescent fixtures.

T-CONNECTOR

The revolutionary second generation T-Connector comprises an injection-molded nut and twist-base assembly that houses piercing teeth. When the bus line is fed into and secured to the connector, an over-molded rubber channel creates an IP66 seal between the LED module and bus line. No more splices required.

Included on all LED Modules [integral on FM2A and FM10A, with optional 10' whip (TE-10). 10' whip standard on the FM30A]

Power Supplies

FPS450 (ON/OFF POWER SUPPLY)

The FPS450 is a 450W supply that accepts a 95-265VAC input and outputs at 24VDC to energize up to (6) FM30, (18) FM10 or (54) FM2A modules or a combination of the three.

- 450W power supply includes secondary surge suppression up to 3KV.

- Max length of bus line is 270' each.

- Supports two independent low voltage bus lines (270' maximum length for each line).

- Optional 90-minute Emergency Battery Backup (50 AH) with Test Switch – FPS450-BB50.

FPS450DT (TIME CLOCK & DIMMER POWER SUPPLY)

The optional FPS450DT includes a dimmer and programmable time clock that enables an additional 75% reduction in power consumption during off-hours (night mode), while providing 1-2 fc module output for emergency egress applications.

- Equipped with a programmable Time Clock and Dimmer.

- Enables an additional 75% reduction in power consumption during off-hours (night mode).

- Provides 1-2 foot-candle module output for emergency egress applications and supports two independent low voltage bus lines (270' maximum length for each line).

FPS450I (INTELLIGENT CONTROL POWER SUPPLY)

The optional FPS450I integrates a Wireless Mesh Network transceiver and relay into each power supply enabling remote programming of light levels on a weekly schedule, as well as an emergency alarm function.

- Equipped with wireless transceiver and external antenna.

- Variable signal strength for the most demanding applications.

- Indicator LEDs report wireless signal strength to eliminate commissioning headaches.
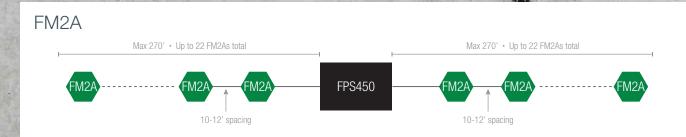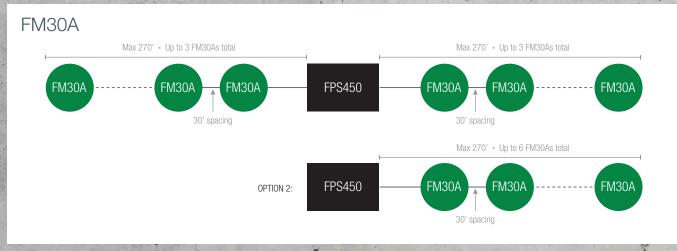
FPS450DT
includes Time
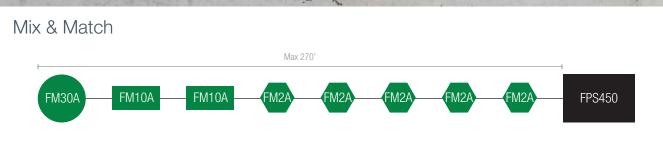Clock and
Dimmer

FLEX SLS
SITE LIGHTING SYSTEM

FPS450-BB50
90-minute emergency
battery backup

INSTALLATION CONFIGURATIONS

FM2A

Max 270' · Up to 22 FM2As total

Max 270' · Up to 22 FM2As total

FM2A - - - - - FM2A — FM2A — FPS450 — FM2A — FM2A - - - - - FM2A

10-12' spacing

10-12' spacing

FM10A

Max 270' · Up to 9 FM10As total

Max 270' · Up to 9 FM10As total

FM10A - - - - - FM10A — FM10A — FPS450 — FM10A — FM10A - - - - - FM10A

20' spacing

20' spacing

Max 270' · Up to 18 FM10As total

OPTION 2: FPS450 — FM10A — FM10A - - - - - FM10A

20' spacing

FM30A

Max 270' · Up to 3 FM30As total

Max 270' · Up to 3 FM30As total

FM30A - - - - - FM30A — FM30A — FPS450 — FM30A — FM30A - - - - - FM30A

30' spacing

30' spacing

Max 270' · Up to 6 FM30As total

OPTION 2: FPS450 — FM30A — FM30A - - - - - FM30A

30' spacing

Mix & Match

Max 270'

FM30A — FM10A — FM10A — FM2A — FM2A — FM2A — FM2A — FM2A — FPS450
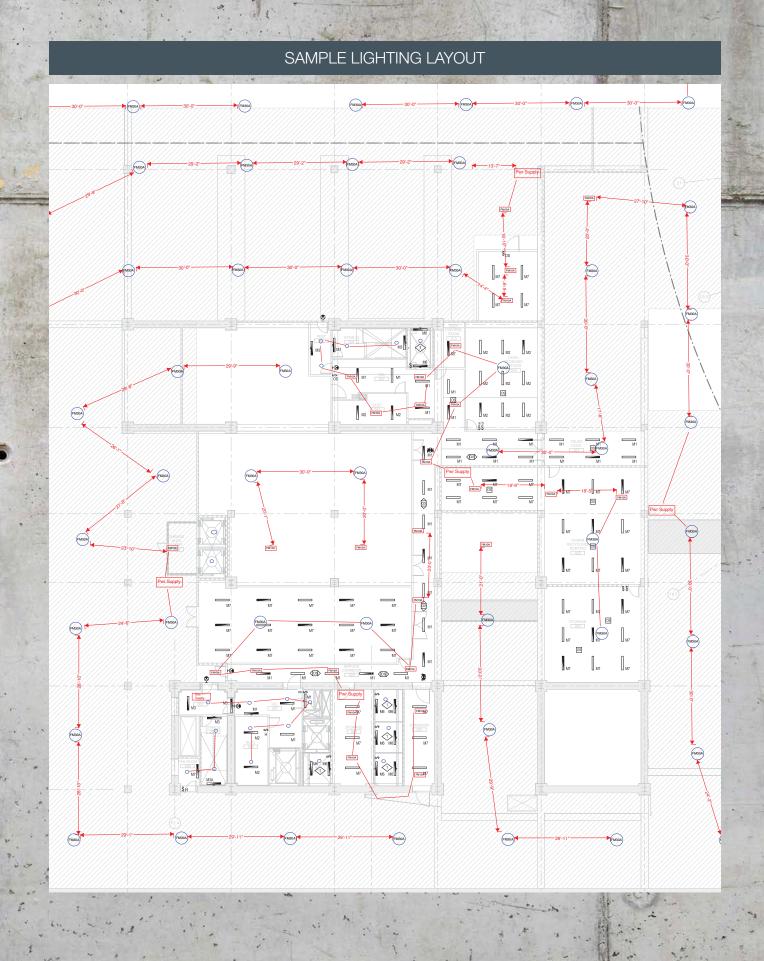
Intelligent Control System

PROJECT-WIDE CONTROL FROM A SINGLE ACCESS POINT

Most construction sites are too dark during workinghours and too bright during nonworking hours. The end result is wasted energy and unsafe lighting conditions. The FLEX SLS Intelligent Control System allows project-wide control of temporary low-voltage LED construction site lighting from a single access point—operate at full power for working hours, low power or off during non-working hours, and alarm mode for emergency situations. With the FLEX SLS Intelligent Control System, optimal lighting conditions for your project are simple and easy to program, manage and reconfigure to meet the ever-changing needs of your construction site.

Create and manage your energy strategy from a single access point

Push button initiates alarm mode

Features:

- Create daily or weekly schedule programs
- Four modes of control: full power, low power, alarm and off
  - Full power mode meets OSHA's 5-foot-candle requirement for working hours*
  - Low power mode meets IES's recommended 1-foot-candle level for non-work hour security lighting*
  - Off for non-work areas that do not require security lighting
  - Alarm mode provides a slow strobe effect to supplement air horns and radios
- Manual Override Button overrides programmed modes to full power

*At recommended spacing.

CONTROL PANEL (FIS1)

The FIS1 Control Panel is comprised of a graphical user interface and keypad, and a network coordinator. There is a simple to understand manual to take you through every step of the programming process.
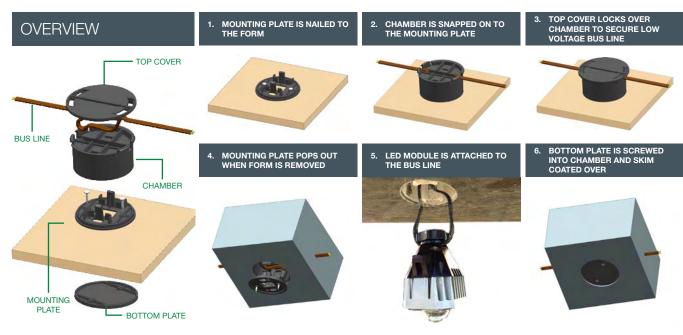
Accessories

CONCRETE DECK BOX (CDB1)

The Concrete Deck Box is the latest FLEX accessory to make temporary lighting installations faster and easier to install, maintain, and remove. A 3-piece system that is installed prior to the pour, the Concrete Deck Box enables the low voltage bus line to be integrated into the deck, leaving it out of harm's way during construction. Upon completion of a project, the modules are simply removed and all evidence of the temporary boxes vanishes behind a skim-coat.

Features:

• Enables the temporary stringer system to be buried in the slab/deck.

• Makes installation of FLEX SLS System faster and easier for the electrical contractor.

• Keeps the work environment safer with less wires in the way.

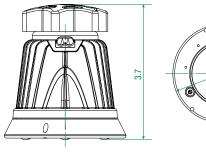• Leaves no trace—the bottom cover can be Kadex or Skim Coated.

OVERVIEW	1. MOUNTING PLATE IS NAILED TO THE FORM	2. CHAMBER IS SNAPPED ON TO THE MOUNTING PLATE	3. TOP COVER LOCKS OVER CHAMBER TO SECURE LOW VOLTAGE BUS LINE

TOP COVER

BUS LINE

CHAMBER

MOUNTING PLATE

BOTTOM PLATE

	4. MOUNTING PLATE POPS OUT WHEN FORM IS REMOVED	5. LED MODULE IS ATTACHED TO THE BUS LINE	6. BOTTOM PLATE IS SCREWED INTO CHAMBER AND SKIM COATED OVER

LOW VOLTAGE BUS LINE (NOT PICTURED)

• Proprietary #10 – 2 conductor direct burial-rated cable interfaces with T-Connector on modules

• Standard configuration is 1000' spool

Specifications

LED MODULES

FM2A – 10' SPACING

Side View

Bottom View

OPTIC
- 1000 lumens: 10' spacing for OSHA 5 fc compliance
- Color Temperature: ~4000K
- Lamp Life: –L70 @ 80,000 Hours
- LM79, LM80

ELECTRICAL
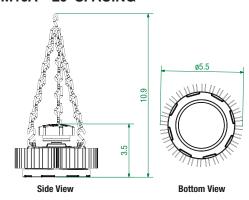- Input Voltage: 21-28VDC
- Input Power: 6W

MECHANICAL
- Operating Temperature: -30 – 50°C
- Weight: 0.8lbs
- IP66

ACCESSORIES
- TE-10 – 10' Bus Line Extender

FM10A – 20' SPACING

Side View

Bottom View

OPTIC
- 3000 lumens: 20' spacing for OSHA 5 fc compliance
- Color Temperature: ~5000K
- Lamp Life: –L70 @ 80,000 Hours
- LM79, LM80

ELECTRICAL
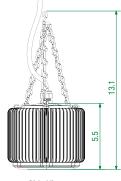- Input Voltage: 21-28VDC
- Input Power: 21W

MECHANICAL
- Operating Temperature: -30 – 50°C
- Weight: 3.3lbs
- IP66

FM30A – 30'+ SPACING

Side View

Bottom View

OPTIC
- 6000 lumens: 30' spacing for OSHA 5 fc compliance
- Color Temperature: ~5000K
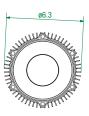- Lamp Life: –L70 @ 80,000 Hours
- LM79, LM80

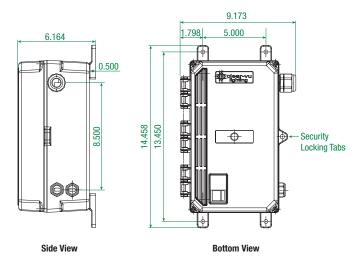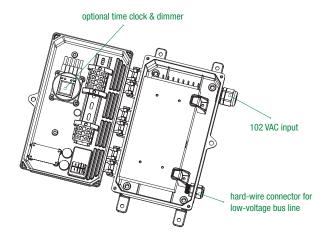**ELECTRICAL**
- Input Voltage: 21-28VDC
- Input Power: 60W

MECHANICAL
- Operating Temperature: -30 – 50°C
- Weight: 6lbs
- IP66

FPS450, FPS450I, FPS450DT

6.164

9.173

1.798 5.000

0.500

8.500

14.458
13.450

→ Security Locking Tabs

Side View

Bottom View

optional time clock & dimmer

102 VAC input

hard-wire connector for low-voltage bus line

HOUSING

- Impact resistant, cold weather/outdoor suitable .125" thick injection molded polycarbonate
- Triple hinged
- Security locking tabs
- Four-point mounting

ELECTRICAL/INPUT

- 2-position input switch – 90-132VAC position 1; 180-264VAC position 2

ELECTRICAL/POWER

- 450 watts
- Supports up to (54 FM2A, (14) FM10A or (6) FM30A LED modules

ELECTRICAL/OUTPUT

- 27.5VDC for full power mode
- 18.75VDC for low power mode
- 27.5VDC/18.75VDC for alarm mode
- Supports 2 independent bus lines (270' each direction)

ELECTRICAL/PROTECTION

- Overload, over-voltage (2-level) and over-temperature protected (fan cooled)

LISTINGS/WARRANTY

- UL 2108 listed (FPS450 & FPS450DT only)
- 3-year warranty

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OPTIONS

FPS45I

- Proprietary wireless mesh network enabled with integral transceiver

FPS450DT

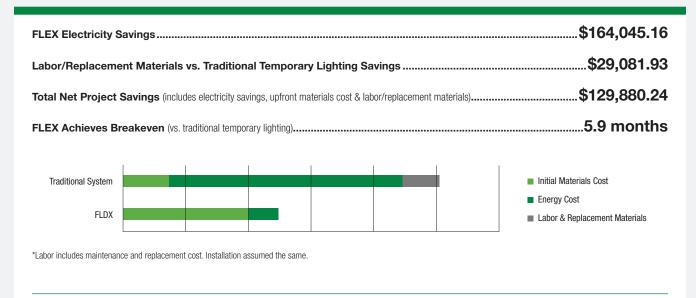- Time Clock Enables automatic programming for dimmer circuit

FPS450-BB50

- Optional 90-minute Emergency Battery Backup (50 AH) with Test Switch

*Cost comparison versus metal halide and CFL on a 250,000 sq. ft. project

Sample Project Inputs:

What is the total size of your project?	250,000 sq. ft.
Do you use 100W incandescent bulbs or 27W CFL equivalent?	27W CFL
What percentage of your project will be illuminated by 100W incandescent/CFL bulbs?	20%
What percentage of your project will be illuminated by metal halide bay lights?	80%
What is the electricity cost where the project is located (kWh)?	$0.12
What is the expected duration of temporary lighting on the project?	18 months
What is the hourly rate for bulb-changing electrician?	$60.00
How much does a metal halide replacement bulb cost?	$24.00
How long does it take to replace a metal halide bulb?	20 minutes
How much does an incandescant/CFL replacement bulb cost?	$2.00
How long does it take to replace an incandescant/CFL bulb?	8 minutes

FLEX Electricity Savings **$164,045.16**

Labor/Replacement Materials vs. Traditional Temporary Lighting Savings **$29,081.93**

Total Net Project Savings (includes electricity savings, upfront materials cost & labor/replacement materials) **$129,880.24**

FLEX Achieves Breakeven (vs. traditional temporary lighting) .... **5.9 months**

Legend:
- ■ Initial Materials Cost
- ■ Energy Cost
- ■ Labor & Replacement Materials

*Labor includes maintenance and replacement cost. Installation assumed the same.

Calculate *your* project savings by contacting us at 516.941.3737 or info@clearvulighting.com.

Contact Us

- For more detailed information regarding your specific project applications
- To learn more about the FLEX SLS 3.0 System
- For ordering information

Please call Clear-Vu Lighting's Sales Department at 516.941.3737.

clear-vu lighting

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