

# Product Specifications

## SOLAR LIGHTING FOR BILLBOARDS

Powered by ZeroSUN™ Controller Technology

### Why Solar

- Upplands ZeroSUN™ intelligent controller technology
- Low voltage (12-24VDC) system, simple plug-and-play installation
- Off-grid, no usage of AC power
- Longest lasting battery system in the industry
- 100000 hrs of life expectancy of LED lights, 10 years on Solar Panels
- Outstanding 120-140lm/W illumination efficacy
- Reduced maintenance costs (no bulb replacements)
- Ideal for shopping plazas, rural and remote locations
- No limitation on size of billboard
- Contains no hazardous mercury, no recycling required

The ultimate Cost effective Billboard Lighting Solution



The Upplands ZeroSUN™ controller ensures continuous illumination, regardless of the amount of daily sunlight

**Battery Vaults** for below ground installations in extreme cold environment  
Alternative battery boxes are also available

### Product features

Uniform light distribution using wide beam angle LED lights  
Operating Temperatures: -50C to +55C  
Control Enclosure for pole or ground mounting  
Optional Battery Vault for below ground installation for protection against theft and vandalism  
Optional remote monitoring system available for multiple sign installations



Battery-Controller Enclosure

### External Illumination

Using high efficient modular LED lights for bottom up or from top down illumination  
Easy installation of lights on 1.5" tubular frames  
Mounting hardware, wiring and conduits provided by UPPLANDS.



Mounting locations of solar panels and batteries as per site requirements



Battery Vault

### Internal Illumination

Light box illumination by high efficiency LED strips or LED bars mounted internally  
Cost effective, visually pleasing uniform light distribution  
High brightness LED strip bars



### ZeroSUN™ Intelligent Solar Controller

Automatic power adjustment to extend battery life  
Six time periods load (dim) control by IR Remote  
Intelligent system for environmental monitoring  
Automatic 12/24VDC detection  
3-stage PWM battery charge mode  
Max output efficiency: 96%

Working temperature range: -40 to 55C  
RS485 communication port - OPTIONAL  
Mounted in NEMA4 enclosure



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## LED Light Fixtures

Surge Protection 10KV

IP67

Based on the measurements of billboards we offer a combination of the following high performance LED lights:

**SFL Series**  
20W; 30W; 50W



**FL-C Series**  
24W; 36W; 48W



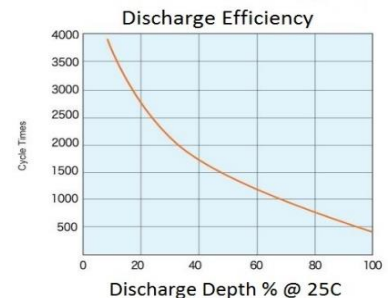
FL Series Ground Mounted

## Batteries

### Colloidal GEL Totally Sealed

- Rating: 12 VDC; 60 to 200AH - application dependent
- Super ABS shell sealed with polymer resin epoxy
- Partition: Special alloy partition for controlled low self-discharge
- Ultra fine glass fiber separators
- Low resistance and controlled discharge rate
- Tested and fully compliant to Upplands' ZeroSUN™ Controllers
- Installation: Batteries can be mounted either in IP67 Enclosure with controller or in a Battery Vault for below ground installation

High performance with excellent reliability



## Solar Panels

- Type: High efficiency monocrystalline PV Panels with 20-22% conversion rate, 18VDC
- Panel support frames provided for ease of installation

## Standard System Packages

Preliminary systems selection for External Illumination

	System 1	System 2	System 3	System 4
for other billboard sizes please inquire				
Size of Billboard	6' x 6'	10' x 10'	15' x 10'	20' x 12'
LED Power	40W	2x40W	2x90W	3x90W
PV Panels 18VDC	80W	2x80W	2x100W	3x100W
Batteries 12VDC	80AH	2x80AH	2x100AH	3x100AH
ZeroSUN™ Controller	1 req'd	2 req'd	2 req'd	3 req'd

## Internally Illuminated Billboards

Custom designed to meet project requirements.

## WARRANTY

Extended 10 year complete systems warranty available

- LED Luminaire: 7 Years
- PV Panels: 10 Years
- Batteries: 3 Years
- ZeroSUN™ Controller: 10 Years

**PLEASE CONTACT US FOR A QUOTE**



# Product Specifications

## Installation Alternatives

Local winter temperatures shall be considered when selecting equipment and method of installation. The operating efficiency and longevity of battery systems depends on effective protection from extreme cold.

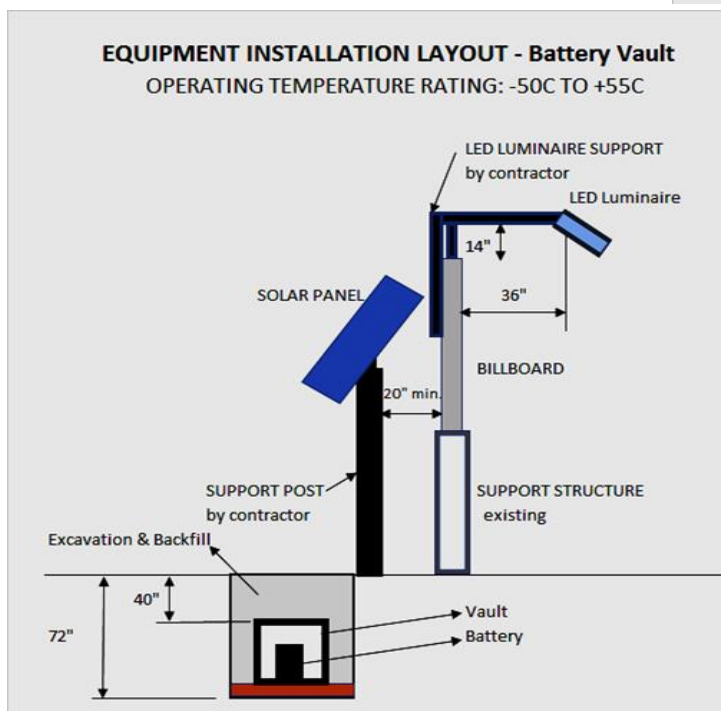
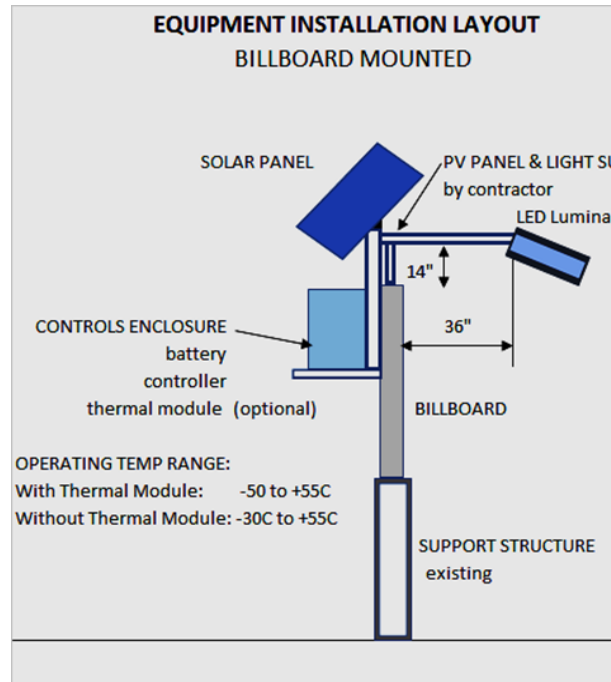
UPPLANDS offers three different ways of protecting the batteries, based on local winter ambient conditions. Our batteries are rated at -40C owerer the charge and discharge efficiencies will drop noticeably when ambient temperatures reach -20C and below, yet the complete system must funtion reliably in regions of extreme low winter temperatures.

Alt 1. Operating temperatures -50 to +55C

**Pole or Billboard mounted Battery Enclosure with integral thermal module.** The thermal module is thermostatically adjusting the temperatures inside the Enclosure thus maintaining proper conditions for efficient cycling during Charge and Discharge

Alt 2. Operating temperatures -30 to +55C

**Pole or Billboard mounted Battery Enclosure without integral thermal module.**



Alt 3. Operating temperatures -50C to +55

The battery vault is mounted below ground and provides not only an excellent protection for the batteries but just as importantly ensure a safe location for the batteries against theft and vandalism.

