

2022 Wind Energy Lighting

ICAO BUYER'S GUIDE



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Welcome to Flash Technology

An OEM since 1970, Flash Technology designs and manufactures FAA obstruction lighting solutions in ISO 9001:2015 manufacturing facilities. With more than 20,000 installations, Flash Technology's MET tower and wind turbine lights protect wind farm assets around the world.

Flash Technology's obstruction lights ensure compliance and long-term reliability at cost-effective prices. Systems are third-party certified to FAA, ICAO, Transport Canada and AFAC Mexico standards. Our lighting systems offer solutions for permanent and temporary wind turbine lighting, MET mast tower lighting, solar obstruction solutions, mounting brackets and surge protection systems.

SPX Corporation

Since 2003, Flash Technology has been a member of SPX Technologies. Today, we leverage the strengths of this diversified, global leader in infrastructure technologies, with more than \$1 billion in annual revenues from operations in 15 countries.

SPX Technologies purchased the airfield, marine and obstruction lighting businesses of Carmanah Technologies Corporation in 2019. Two years later, SPX purchased Sealite and associated entities Avlite Systems and Star2M, providing a global footprint for the SPX Aids to Navigation (AtoN) division. The combination of these world-class businesses creates an even stronger organization, capable of meeting needs across a broader range of solutions with greater speed, efficiency and flexibility.



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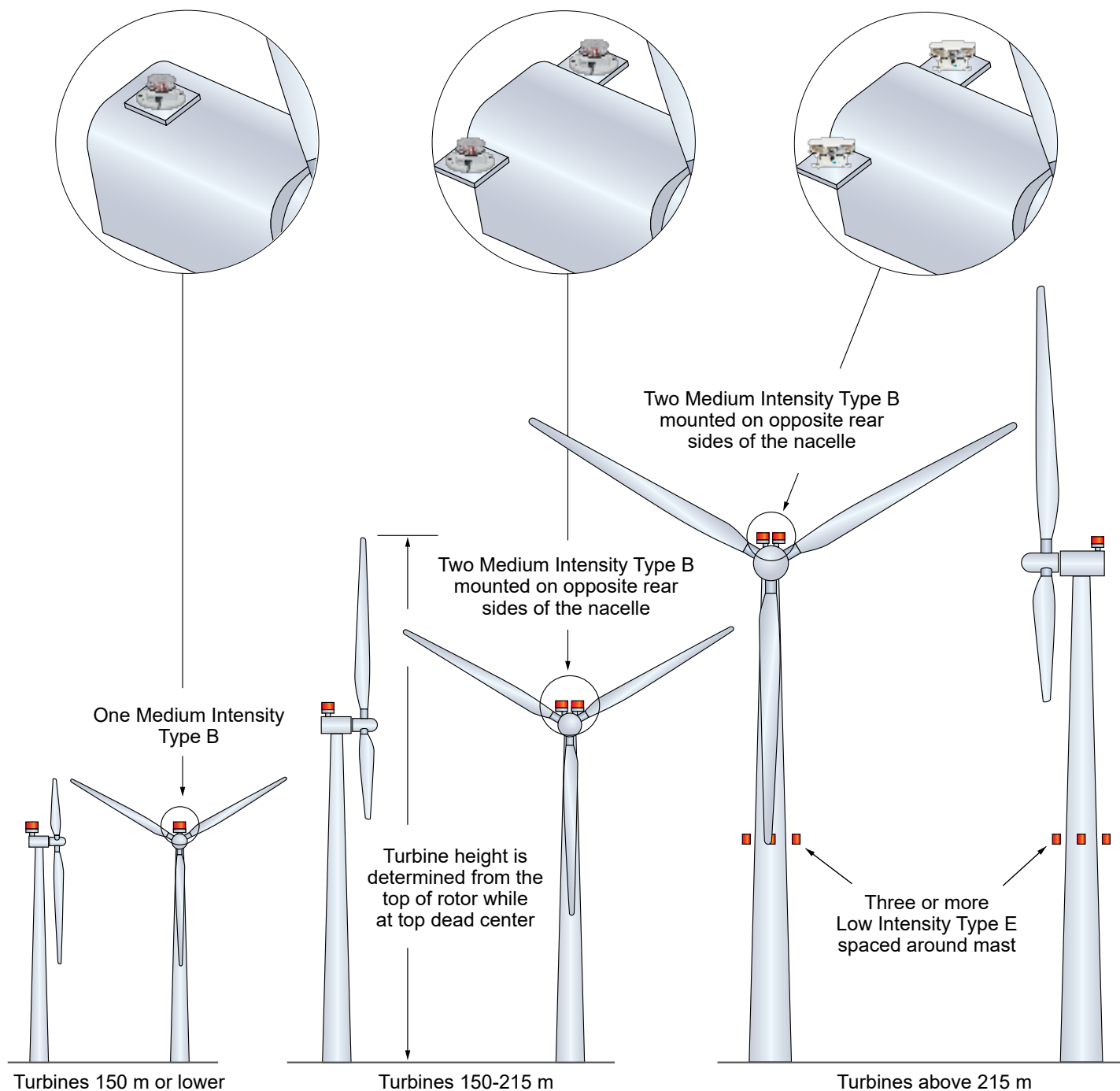


Permanent Wind Turbine Lights



Per ICAO Annex 14 Volume I, 8th Edition, mark all permanent wind turbines as depicted below.

The rotors, nacelle and top two-thirds of the mast must be painted white unless otherwise dictated by an aeronautical study.



FTS 350i-2 LED

A fully integrated system designed for wind turbine operators, the FTS 350i-2 is an ICAO Medium Intensity Type B aircraft warning light. The system also meets FAA L-864, Transport Canada CAR 621 CL-864 and AFAC Type L-864(L). It offers a weather-resistant polymer construction, industry-leading surge protection and Aircraft Detection Lighting System (ADLS) connectivity. Small and light, this stand-alone obstruction light does not have a controller taking up scarce space inside the nacelle.

Standard Features

- Infrared (IR) lighting - NVG and NVIS compatibility
- Aircraft Detection Lighting System (ADLS) interface (lighting control module sold separately)
- Surge immunity of 25kA to withstand 99% of all lightning strikes
- Fresnel optics minimize ground scatter
- GPS synchronization
- Field configurable flash characteristics
- Dry contact relay: beacon, sync and mode status
- 5-year parts warranty



Optional Features

- Adaptor plates that conform to industry-standard brackets

Part Number

F1350200

Lead Time

1-29 units	5 business days after receipt of PO
30-100 units	10 business days after receipt of PO
50 units	Safety stock

Vanguard® Red FTS 371 SMART

The FTS 371 SMART is a low-power ICAO Medium Intensity Types B and C red obstruction lighting system for turbines taller than 315 meters and meteorological (or MET mast) towers. The system also meets FAA L-810/L-864, Transport Canada CAR 621 CL-864 and AFAC Type L-864(L).

Standard Features

- Dry contact relay for integration with Aircraft Detection Lighting System (ADLS) interface
- Red and infrared (IR) LEDs for compliance with FAA AC150/5345-43J and low power consumption
- Patented Fresnel optics minimize ground scatter
- Modbus RTU Serial RS-485 monitoring capability
- 4 dry contact relays (beacon, marker and photodiode alarms and MODE status)
- Field configurable flash rate for 20/30 fpm or steady operation
- Photodiode for mode change
- Impact-resistant polycarbonate enclosure
- 5-year parts warranty



Optional Features

- L-810 LED marker lights
- Negative 24-48VDC ± 10% (isolated DC power supply)
- Powder-coated aluminum enclosure
- Solar power plant to match geographical location

Part Number

F13714S1

Lead Time

1-29 units	5 business days after receipt of PO
30-100 units	10 business days after receipt of PO
50 units	Safety stock



Temporary Wind Turbine Lights



Ensure your wind turbines comply with federal lighting regulations by adhering to these three FAA requirements for lighting wind farm construction sites.

1. The FAA requires a Notice to Airmen (NOTAM) for all unlit turbines at night.

Once turbines reach a height of 200 feet (61 meters) during construction, an FAA L-810 red light must be used. If power is not available, use a self-contained, solar-powered, steady-burning red LED light that meets the photometric requirements of an L-810 lighting system. The advisory circular clearly states that “using a NOTAM to justify not lighting the turbines until the entire project is completed is prohibited.”

Source: FAA AC 70/7460-1M Section 13.8

2. FAA L-810 lights must have a minimum intensity of 32,5 candela at their peak.

The center of the vertical beam spread must be between +4 and +20 degrees. With a minimum vertical beam spread of 10 degrees and at all radials throughout 360 degrees, there must be a minimum intensity of 32,5 candela.

Source: FAA AC 150/5345-43J

3. Temporary solar lighting systems must have seven (7) days of autonomy and 32,5 candela.

Autonomy refers to how long the light will last if all solar charging is removed. A light with seven days of autonomy should shine for seven consecutive nights if there is no sunlight or charging during those days.

Source: FAA Engineering Brief 76



OL800 Compact

The OL800 is a solar-powered ICAO Medium Intensity Types A and B temporary LED obstruction lighting system for wind turbines under construction. The solar light also meets FAA L-810, Transport Canada CAR 621 CL-810 and Australia CASA Low Intensity.

It's the benchmark for low-intensity solar LED obstruction lighting in an easy-to-install, low maintenance package. Available in two engine sizes with user-friendly features.

Standard Features

- Up to 7 days of autonomy in high sun locations
- Top-mounted LED display with simple “tap-to-activate” functionality
- Battery pack: 63 watt hours, X-cells
- Weight: 9,9 lbs. (4,5 kg)
- 3-year limited warranty on light unit
- 1-year battery warranty

Optional

- Infrared Programmer for remote control

Part Number

F1903711

Lead Time

1-29 units	5 business days after receipt of PO
30-100 units	10 business days after receipt of PO
50 units	Safety stock



OL800 Standard

Standard Features

- 7-10 days of autonomy
- Top-mounted LED display with simple “tap-to-activate” functionality
- Battery pack: 100 watt hours, X-cells
- Weight: 14 lbs. (6,4 kg)
- 3-year limited warranty on light unit
- 1-year battery warranty

Optional

- Infrared Programmer for remote control

Part Number

F1903710

Lead Time

1-29 units	5 business days after receipt of PO
30-100 units	10 business days after receipt of PO
50 units	Safety stock



Mounting Brackets



Flash Technology wind turbine mounting brackets utilize industry-standard hole patterns and dimensions, allowing most manufacturer's FAA lights to be installed on the wind turbine nacelle.

Adjustable Bracket

Standard Features

- Up to +/- 10 degrees of multi-axis adjustment to accommodate angled turbine nacelles
- Integrated weld nuts for enhanced safety during installation
- Slotted bottom to fit multiple turbine models
- Built in ports to accommodate cable routing
- Provision to be clipped to a lanyard to easily carry up the tower
- Includes mounting hardware
- Weight: 23 lbs (10.4 kg)



Compatibility

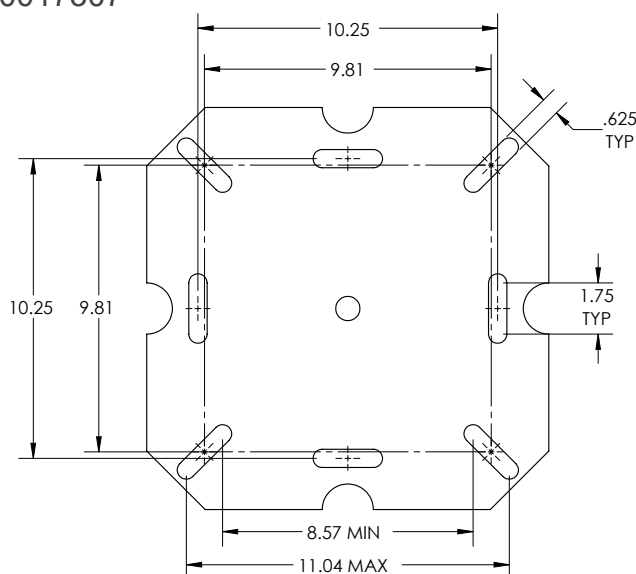
- GE 1.5, 2.3, 2.5 and 2.8 MW turbines
- Vestas V155, V150, V136, V126, V117, V112 and V105 turbines

Optional

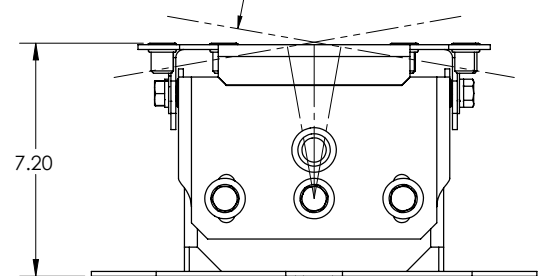
- Mounting plate available for GE turbines (part number F3990310)

Part Number

11000017307



BRACKET MOUNTING SURFACE TILTS UP TO 10° IN ANY DIRECTION TO LEVEL FLASHHEAD ON ANGLED SURFACES

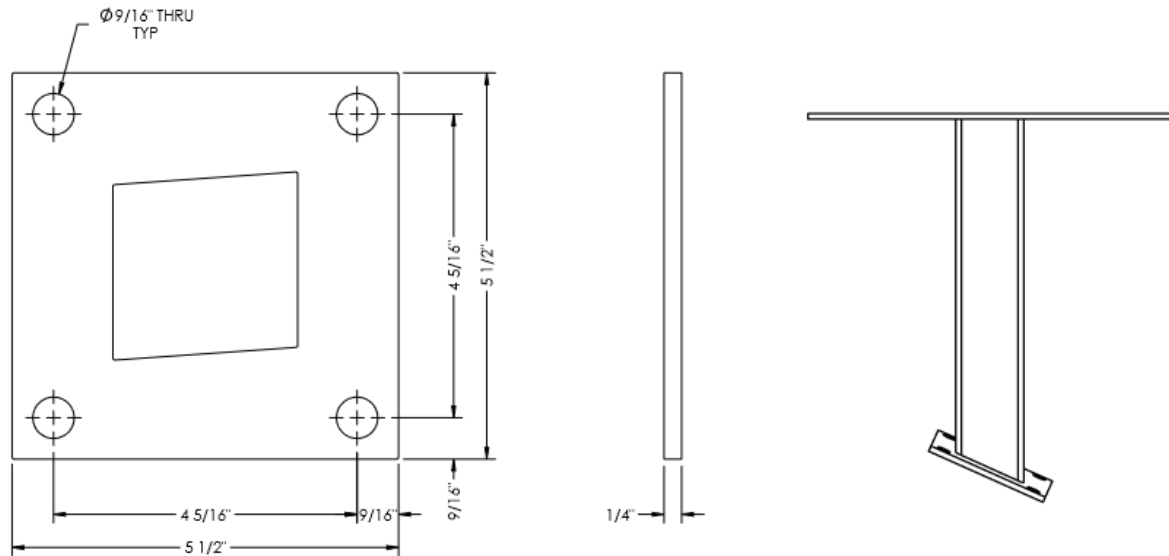


Siemens Brackets

- Fixed position
- Fits most Siemens turbines
- Includes mounting hardware and installation guide
- Weight: 8 lbs (3.6 kg)

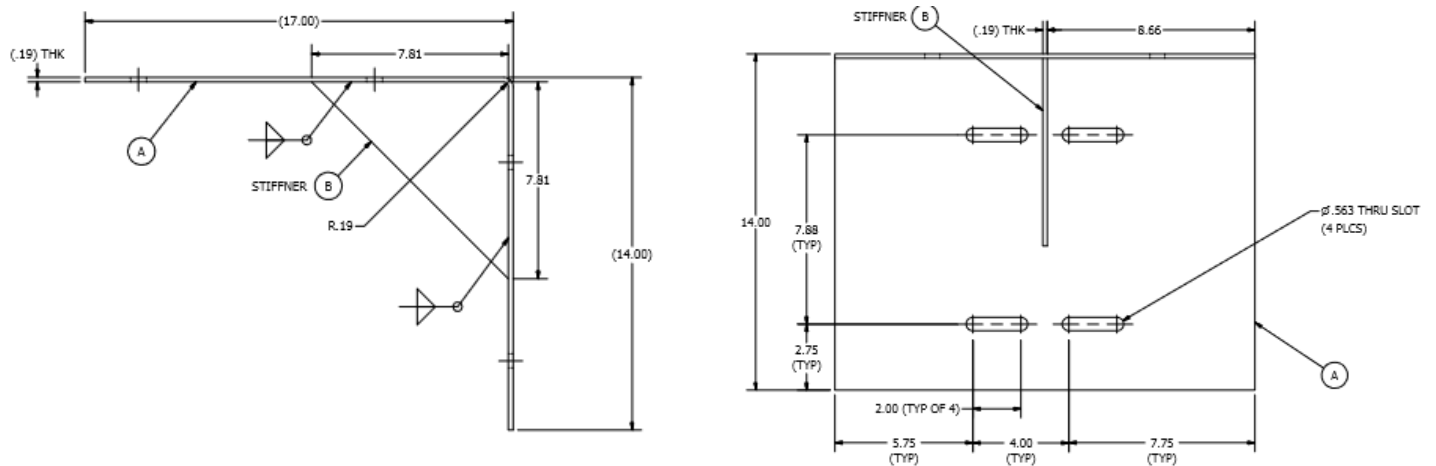
Model G108

Part Number F3991225



Model G120

Part Number F3991190



Nordex Bracket

Standard Features

- Designed to mount FTS 350i and FTS 370i obstruction lights on Nordex N155 turbines
- Includes mounting hardware
- Weight: 23 lbs (10.4 kg)

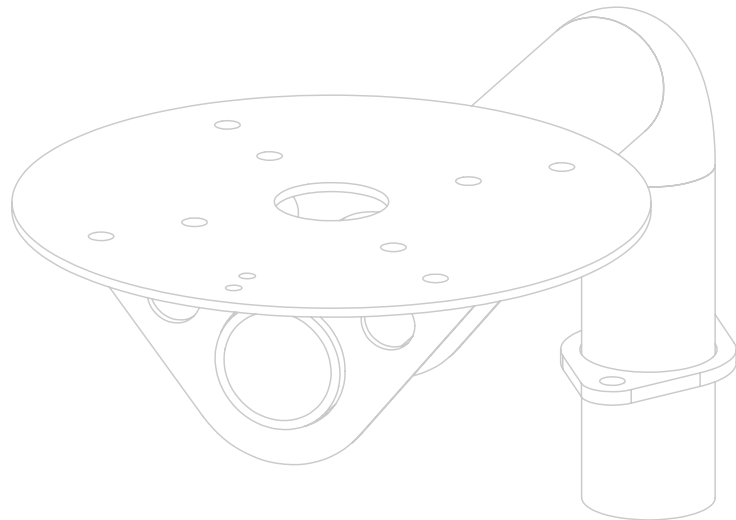
Part Number F3991252



Vestas Bracket

Designed to facilitate the mounting of obstruction lights on Vestas 2 MW turbines.

Part Number F3991252



Accessories



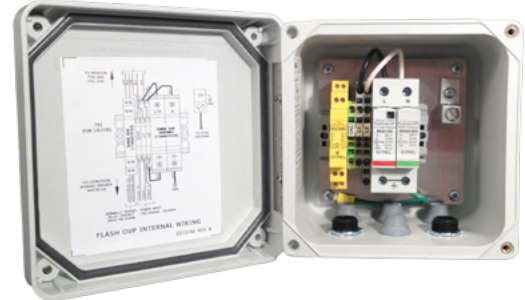
Overvoltage Protection (OVP) FOR SIEMENS TURBINES

- OVP enclosure protects wind turbine lighting systems from surges and overvoltage
- Usually a requirement on Siemens turbines

Part Number
F1390190

Lead Time

1-29 units	4 business days after receipt of PO
30-100 units	10 business days after receipt of PO
20 units	Safety stock



Dual Lighting Junction Box FOR TURBINES OVER 150 m

Turbines exceeding 150 meters require two FAA obstruction lights. The dual lighting junction box combines the wiring of both lights into one set of wires to simplify the connection to the SCADA or ADLS system.

Part Number
F1390200

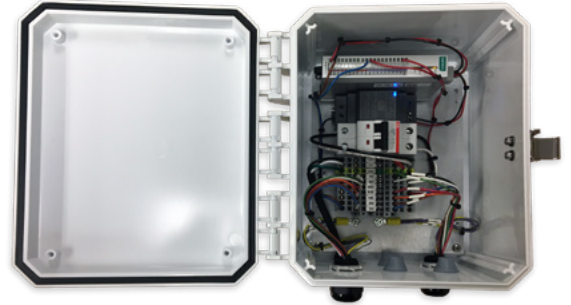


ADLS Equipment



FTC 370 with ADLS Interface

Flash Technology's new FTC 370 LCM (Lighting Control Module) provides Ethernet connectivity of our wind turbine obstruction light(s) to an Aircraft Detection Lighting System (ADLS) utilizing standard Modbus TCP protocol. The FTC 370 is currently compatible with the Detect Harrier and the Terma Scanner ADLS systems.

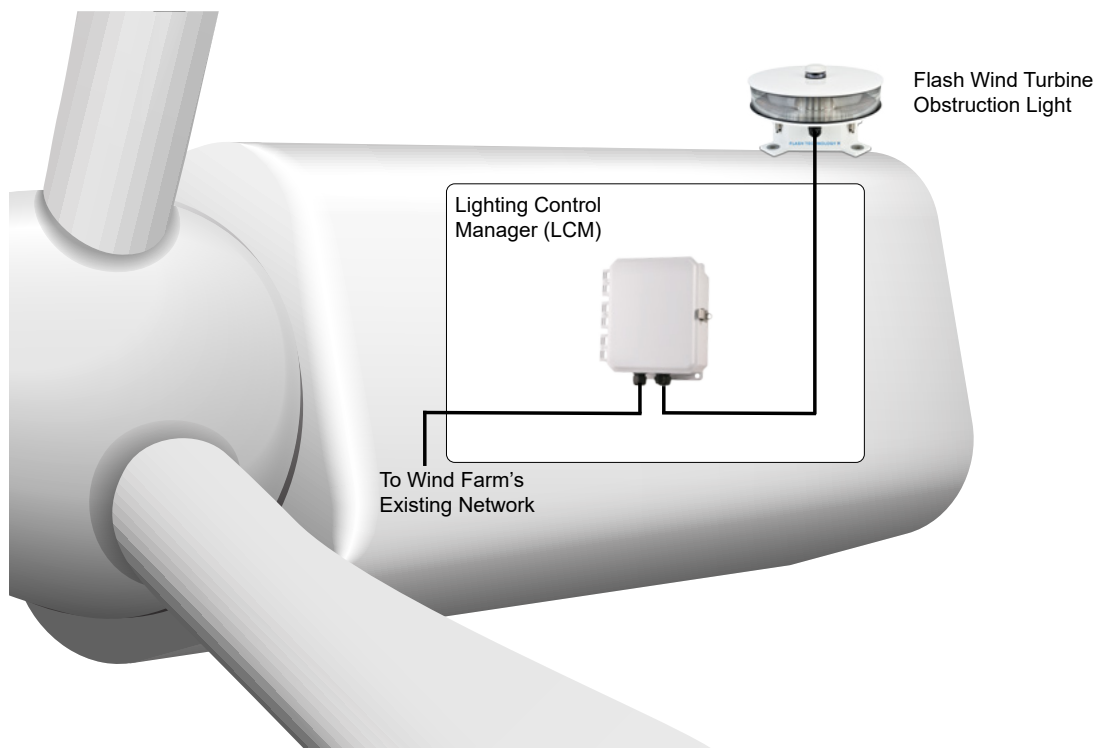


Features

- Controls up to 2 new or existing Flash wind turbine obstruction lights
- Modbus TCP communication protocol
- Failsafe feature if communication error occurs with ADLS
- 5-year warranty

Part Number

F1371500



MET Tower Lights



Per FAA AC 70/7460-1M - Obstruction Marking and Lighting, marking of meteorological (MET) towers varies based on the height of the structure.

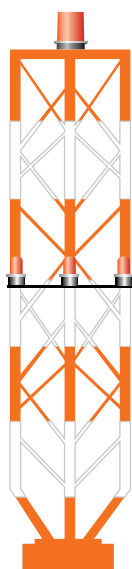
METs Under 200' (60 m) AGL

- Monopole METs — aviation orange and white paint
- Guyed METs — aviation orange and white paint plus high-visibility sleeves and spherical markers on guyed wires

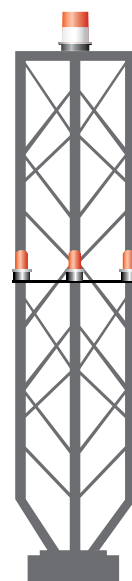
METs Over 200' (60 m) AGL

METs taller than 200' (60 m) should follow FAA lighting regulations for red or dual towers based on their FAA filing and total height.

FAA Tower Type A1



FAA Tower Type E1



- | | |
|--|--|
| <ul style="list-style-type: none"> ➤ Over 150' (45 m) but not more than 350' (106 m) including any appurtenances ➤ 1 L-864 red/IR medium intensity beacon ➤ 2 or more L-810 red/IR marker lights configured to flash in sync with L-864 at 30 fpm | <ul style="list-style-type: none"> ➤ Over 200' (60 m) but not more than 350' (106 m) including any appurtenances ➤ 1 L-864/865 dual medium intensity beacon ➤ 2 or more L-810 red/IR marker lights configured to flash in sync with L-864 at 30 fpm |
|--|--|

Vanguard® Medium FTS 370d

The Vanguard Medium FTS 370d is a dual (white, red and infrared) ICAO Medium Intensity Types A and B aviation obstruction lighting system. The system also meets FAA L-864/L-865 and Transport Canada CAR 621 CL-864/CL-865. It is suitable for towers between 200' (60 m) and 700' (213 m) AGL (FAA E-type towers) including meteorological (or MET mast) towers.

Standard Features

- Aircraft Detection Lighting Systems (ADLS) interface
- Red and infrared (IR) LEDs for compliance with FAA AC150/5345-43J and low power consumption
- Patented Fresnel optics minimize ground scatter
- Interleaved LEDs and by-pass circuitry for longer life
- Surge immunity of 25kA to withstand 99% of all lighting strikes
- Powder-coated aluminum top plate, base and controller box prevents corrosion and damage from flying debris
- 4-line OLED backlit on-board user interface for diagnostics and programming
- Photodiode uses ruggedized metal housing and is equipped with shielded cable to prevent EMI interference and crosstalk
- 6 dry contacts for monitoring
- 5-year parts warranty



Optional Features

- SMART card for advanced monitoring and GPS synchronization, allowing MET lights to flash in sync with wind turbine lights
- Solar power plant to match geographical location

Part Number

F1402010

Lead Time

1-29 units	5 business days after receipt of PO
30-100 units	10 business days after receipt of PO
50 units	Safety stock

Vanguard® Red FTS 371 SMART

The FTS 371 SMART is a low-power ICAO Medium Intensity Types B and C red obstruction lighting system for turbines taller than 315 meters and meteorological (or MET mast) towers. The system also meets FAA L-810/L-864, Transport Canada CAR 621 CL-864 and AFAC Type L-864(L).

Standard Features

- Dry contact relay for integration with Aircraft Detection Lighting System (ADLS) interface
- Red and infrared (IR) LEDs for compliance with FAA AC150/5345-43J and low power consumption
- Patented Fresnel optics minimize ground scatter
- Modbus RTU Serial RS-485 monitoring capability
- 4 dry contact relays (beacon, marker and photodiode alarms and MODE status)
- Field configurable flash rate for 20/30 fpm or steady operation
- Photodiode for mode change
- Impact-resistant polycarbonate enclosure
- 5-year parts warranty



Optional Features

- L-810 LED marker lights
- Negative 24-48VDC \pm 10% (isolated DC power supply)
- Powder-coated aluminum enclosure
- Solar power plant to match geographical location

Part Number

F13714S1

Lead Time

1-29 units	5 business days after receipt of PO
30-100 units	10 business days after receipt of PO
50 units	Safety stock

Solar Solutions

Flash Technology delivers complete solar-powered solutions for use where grid power is unavailable. The solar power plants are sized to the available sunlight in various zones. This provides 7-days of autonomy and plug and play capability for FTS 371 factory integrated and FTS 370 lighting systems in remote installations.

Standard Features

- FAAAC 70/7460-1M compliant lighting
- FTS 371 based red light systems are integrated into solar power plant
- Easy installation
- Robust systems, reliable operation in adverse weather
- Patented optics for enhanced visibility
- Charge controller to maximize battery life and performance
- Minimal maintenance system
- 5-year warranty for system, 1-year battery warranty

Optional Features

- ICAO compliant lighting
- OL2 mounting bracket to elevate double L-810 unit 12" above appurtenances
- Monitoring options are available on each system



ADLS Integrations

Integrate Flash Technology's MET tower lights with your Aircraft Detection Lighting System (ADLS).

- Ethernet Modbus (RTU / TCP) connects via Ethernet to an external monitoring device on site or to a server connected to the network that is able to monitor Modbus devices.
- Radar Input allows an external device, such as an ADLS system, to inhibit the output of the beacon.
- Heartbeat – Auxiliary Input is controlled by Modbus to provide a fail-safe in the event of a communications failure between the lighting system and the external control device.

The FTS 370d requires a SMART card for ADLS interface.

The FTS 371 SMART requires a FTC 370 LCM for ADLS interface.





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flashtechnology.com/wind

