



carmanah®

INDUSTRIAL OBSTRUCTION LIGHTING



OL SERIES: SOLAR LED INDUSTRIAL LIGHTING

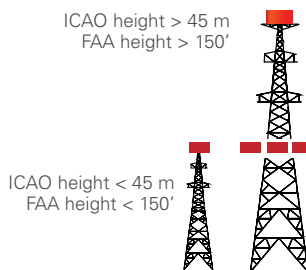


DEPENDABLE ILLUMINATION OF AIR HAZARDS IS NOT AN OPTION; IT'S A NECESSITY

Improve safety anywhere, any time, under any conditions. Operating independently from the grid, Carmanah solar obstruction lights provide reliable illumination without the need for wiring or other external components subject to breakage.

Field-proven and time-tested to perform in conditions ranging from desert heat to arctic cold, Carmanah lights are designed to endure the extreme environmental conditions encountered at tower and crane sites.

- Over 400,000 installations in 110 countries
- Vibration and shock-proof construction
- Immune to power surges and electrical failure
- Up to 5 years of maintenance-free operations (no bulb or battery changes)
- Designed to meet FAA and ICAO obstruction standards
- Scalable solar engines for worldwide coverage
- Visible and infrared (IR) light options



OL800
ICAO Low Intensity Type A/B,
FAA L-810, CASA 10cd compliant

BARRICADES & CONSTRUCTION SITES



MAXIMUM FLEXIBILITY IN A CONSTANTLY CHANGING ENVIRONMENT

Carmanah OL series lights offer a practical and cost-effective alternative for ground hazard marking, fence and barricade lighting, way-finding, equipment marking, and more.

Our unique, portable designs ensure lights can be moved safely and easily within minutes—no specialized tooling or dedicated maintenance crews required. All components are housed in rugged, high-grade enclosures to ensure long-term performance at tough industrial locations.

- No trenching or cabling required
- No external charging pods required
- Easy activation and programming through on-board switches or infrared remote
- Rigorously tested in ambient temperatures from -140 to 60°C
- Steady-on or flashing modes (up to 250 flash patterns)
- Patented energy management systems for consistent performance throughout the calendar year



OL4
Lightweight general purpose hazard marker



OL2A
Small format general purpose hazard marker

 Hazard marking & way-finding
IP68 certification for water ingress



Acceptable at Commercial Part 139
Airports per advisory circular AC
150/5370-2E



LOW-COST SIGNALING ALTERNATIVES WHERE GRID POWER IS WEAK OR INACCESSIBLE

At industrial sites where electrical grid-based solutions are difficult to implement and fuel-powered generators expensive to operate and maintain, Carmanah solar-powered lights ensure safe operation around the clock.

- Reduce hardware and infrastructure costs by up to 50%
- Minimize impact on local environments
- Eliminate outages from brownouts or generator failure



Carmanah offers a variety of industrial-grade lighting solutions to service your entire site.

- Obstruction lights
- Runway, taxiway, and helipad lighting
- Marine signaling lanterns
- Flood lights
- Traffic signaling



OUTPERFORMING THE COMPETITION THROUGH BETTER DESIGN

Carmanah has been an innovator in the solar industry since 1996. We are committed to providing our clients with the best available solar technology on the market. All of our products use premium components and leverage the latest in solar energy management to ensure consistent and reliable performance in demanding environments. Carmanah stands behind our products with multi-year warranties and extensive pre- and post-sales support.

Design Innovations

- High-performance LEDs and custom energy-efficient optics
- Highest grade shock- and vibration-proof chassis designs
- Premium vented and temperature-monitored battery packs
- Patented Automated Light Control

Customer Benefits

- Consistent chromaticity through all intensities and operating modes
- Better energy efficiency for reliable performance around the globe
- Predictable illumination and reduced battery drain throughout the calendar year
- Reliable performance from the smallest format, self-contained solar engine on the market



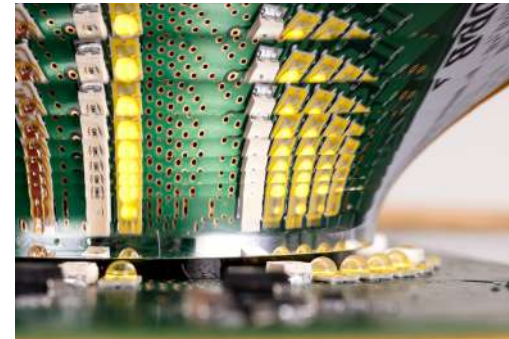
Restriction of Hazardous
Substances Directive
www.rohs.gov.uk



CE Conformité Européenne



Toronto Stock Exchange www.tmx.com





obstructionlights.com



carmanah[®]

OL SERIES

PRODUCT SPECIFICATIONS

PRODUCT SPECIFICATIONS

OL2A SOLAR MARKING LIGHT
OL4 GENERAL PURPOSE HAZARD MARKER
OL800 LOW-INTENSITY OBSTRUCTION LIGHT



OL2A

SOLAR SAFETY LIGHT

A practical, compact and low-maintenance solution for marking barricades, fencing, construction areas, ground obstacles and other hazards. Ideal for remote or hard-to-access locations.

- More than three times the range of the original OL2
- Custom optics, high-efficiency solar panels and premium materials
- Excellent value and extremely reliable operation (5+ years)

Advanced Optics

- Up to 29 cd intensity
- Up to 40 user-adjustable flash patterns with ability to direct enter intensity
- Available in red, white, green, yellow and blue

Easy Installation

- Installs in minutes; "out-of-box" operation
- Flange-mount and pole-mount options
- Automatic dusk-to-dawn operation or optional on/off switch
- Optional mini IR remote accessory

Low Maintenance

- Replaceable batteries: AA NiMH, high-temperature-rated
- Next generation, energy-saving Automatic Light Control; five-day data trending regulates intensities for longer battery life and optimal performance 12-months a year.

Reliable

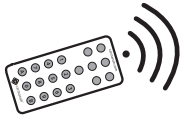
- Premium grade, UV resistant polycarbonate body and lens material
- Waterproof; IP 68 immersion
- Ventilated battery compartment
- Life expectancy over 15 years; 3 year warranty

Trusted

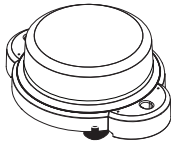
With thousands of installations worldwide, Carmanah solar LED lights operate year-round at permanent and temporary installations.



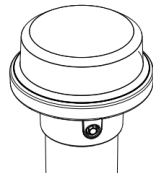
REPRESENTED IN YOUR REGION BY:



OPTIONAL INFRARED PROGRAMMER



FLANGE MOUNT



POLE MOUNT

OL2A

SOLAR SAFETY LIGHT

SPECIFICATIONS

	29 cd peak intensity; see table
Optical	High Power LED
	Red, Green, White, Yellow, Blue
	Proprietary optical design
	40 flash patterns
Energy Collection	Best-in-class high-efficiency solar cells 0.6 W
Battery	Three high-temperature NiMH AA batteries rated for -40 to 185 °F (-40 to 85 °C)
	Designed for 5 year battery life; Replaceable and recyclable
Energy Management System (EMS)	Intelligent, microprocessor EMS
Automatic Light Control 2.0 (ALC 2.0)	When enabled, ALC adjusts output intensity in response to unusually low amounts of sunlight to ensure continued operation
Programming	Programmable with optional infrared programmer
Construction	Premium grade UV resistant, polycarbonate body and lens
	Waterproof battery compartment with Gore® vent
	Colour indicator matches LED colour
Temperature	-22 to 122 °F (-30 to 50 °C) operating
	-40 to 176 °F (-40 to 80 °C) storage
Weight	Flange Mount: 0.8 lbs (0.37 kg), Pole Mount: 0.9lbs (0.40 kg)
Mounting	Flange or pole-mount options. Refer to dimensional diagram for details
Wind Loading	140 knots (72 m/s)
Ice Loading	0.03 psi (22 kg/m ²)
Shock & Vibration	MIL-STD-202G (for Shock and Vibration)
	IP 68 immersion, 24 hrs at 1 m (3 ft)
Ingress	MIL-STD-202G immersion & damp heat cycling
	MIL-STD-810G rain & salt fog
Compliance	RoHS; WEEE
	FCC, CE

ORDER KEY

MODEL	OUTPUT ▼	MOUNT ▼
OL2A	RED GREEN WHITE YELLOW BLUE	FLANGE MOUNT FLANGE MOUNT - WITH SWITCH POLE MOUNT



The management system governing the manufacture of this product is ISO 9001:2008 certified.

Specifications subject to local environmental conditions. Specifications may be subject to change.

US and International patents apply. "Carmanah" and Carmanah logo are trademarks of Carmanah Technologies Corp.

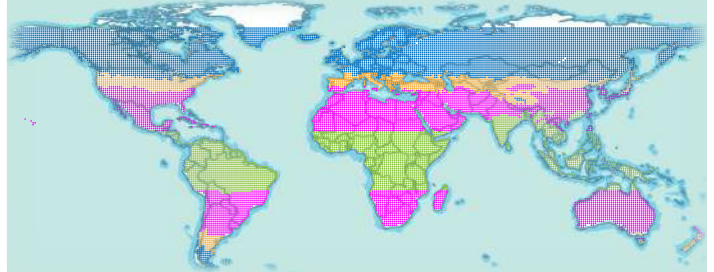
PEAK INTENSITY

COLOUR	INTENSITY
Red	18 cd
Green	23 cd
White	29 cd
Yellow	25 cd
Blue	8 cd

Note: Peak intensity dependent on location and flash pattern. To view performance in your installation location visit www.carmanah.com

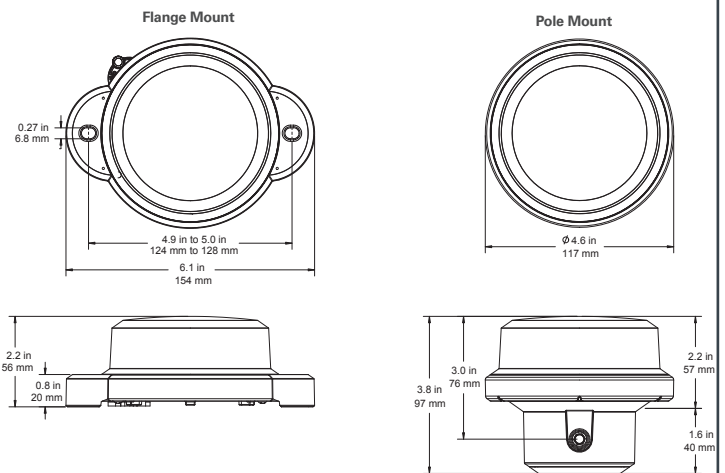
OL2A RED: TYPICAL PERFORMANCE

Flash Code 001: Steady-on Dusk-to-Dawn, 6 days autonomy min.



Effective Intensity	Intensity Code	Effective Intensity	Intensity Code
0.4 cd	600	2 cd	602
1 cd	601	3 cd	603

DIMENSIONS



With sleeve: 1.9 in (48 mm) pole ID
 Without sleeve: 2.4 in (61 mm) pole ID
 Overtop mount: 2.8 in (71 mm) pole OD

Carmanah is a Canadian public corporation - TSX:CMH
 © 2015, Carmanah Technologies Corp.
 Document:OL2A_Spec_Sheet_RevC_RevC



OL4

SOLAR WARNING LIGHT

The OL4 is a high-performance light designed to perform reliably at tough industrial locations including rail yards, construction zones, mining operations and more. Suitable for permanent, temporary or emergency installations, the OL4 is unrivalled by any other hazard marking or barricade light currently available.

- Dusk to dawn operation
- Lightweight, self-contained
- Sophisticated solar energy management
- Intuitive on-board user interface
- Intelligent deployment settings for reliable performance in a wide-range of locations
- Proven technology platform

Easy installation and relocation

Lights are immediately operational following a simple installation process. No specialized work crews required.

Self-contained and low-maintenance

All components are safely encased in a durable, rugged enclosure. The OL4 includes a replaceable battery pack that extends the total cost of ownership beyond five years and offers significant cost savings.

Intelligent deployment settings

The OL4 has the unique ability to be tuned to its precise installation location, protecting it against improper configuration.

Unprecedented reliability

Microprocessor Energy Management System (EMS) monitors and adapts to environmental conditions for consistent operation and long life under the toughest conditions.

Designed and tested to tough industrial standards

MIL-STD-202G: Humidity, Immersion, Vibration, Shock; MIL-STD-810G: Solar Radiation, Salt-Fog; EN 60945: ESD, EMI, EMC; IP68; L70. The OL4 is acceptable for barricade and construction applications at Commercial Part 139 Airports under FAA Advisory Circular AC 150/5370-2E. The OL4 Blue is compliant with the requirements of ICAO Annex 14, Volume 1, Fourth Edition dated July 2004.

User-friendly design

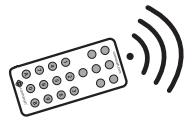
On-board user interface, optional infrared remote and USB device manager software offer easy configuration and programming.

Green solution

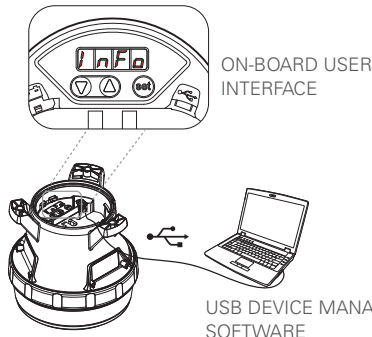
Recyclable batteries and a RoHS compliant design combined with natural solar charging ensure the lightest environmental footprint.



REPRESENTED IN YOUR REGION BY:



OPTIONAL INFRARED PROGRAMMER



ON-BOARD USER INTERFACE
USB DEVICE MANAGER SOFTWARE

OL4

SOLAR WARNING LIGHT

SPECIFICATIONS

Solar Panel	High-efficiency cells with bypass and blocking diode function Maximum power point tracking (MPPT) for optimal energy collection
Battery	Tool-less replaceable and recyclable best-in-class battery pack with extreme temperature range Battery status feedback of Good, Charge or Bad (Replace)
Light Source	High power LED, colour-specific temperature corrected LED drivers provide consistent intensity under all operating conditions
Intensity	Greater than 10 cd intensity, steady-on (see photometric plots) 18 cd peak intensity, flashing, 12.5% duty cycle (Red LEDs)
Flash Patterns	256+
Construction	Premium grade UV resistant, polycarbonate/polysiloxane co-polymer body and lens material Double O-ring sealing with waterproof vent
Colours	Red, blue, yellow, green, white ICAO and SAE25050 (FAA) compliant chromaticity
Colour Indicator	Yes, FAA Eng. Brief 67 compliant
Temperature	-45 to 124 °F (-43 to 51 °C) operating -45 to 176 °F (-43 to 80 °C) storage
Weight	3.5 lbs (1.58 kg)
Wind Loading	400 mph (180 m/s)
Automatic Light Control (ALC)	When enabled, ALC will dynamically reduce brightness in response to unusually low amounts of sunlight to ensure continued operation.

ORDER OPTIONS

MODEL ▼	OUTPUT ▼	SWITCH ▼	CONTROL ▼
OL4	RED BLUE GREEN WHITE YELLOW	SWITCHED NON-SWITCHED	NONE GPS

ACCESSORY ORDERING CODES

Additional Bird Deterrent (1 ships with each light)	57003
Bottom Cover Replacement Kit	57392 (With Switch) 57393 (Without Switch)
Battery Replacement Pack	72835
Battery Charger (includes multiple ends for int'l use)	59188 (100 - 240 VAC)
USB Cable	57394
Device Manager Software	Contact Customer Support
Infrared Programmer	69899
Magnetic Mounting Kit (3 x magnets and hardware)	76296

Additional accessories and mounting options available. For a complete list consult our accessories specification sheet.

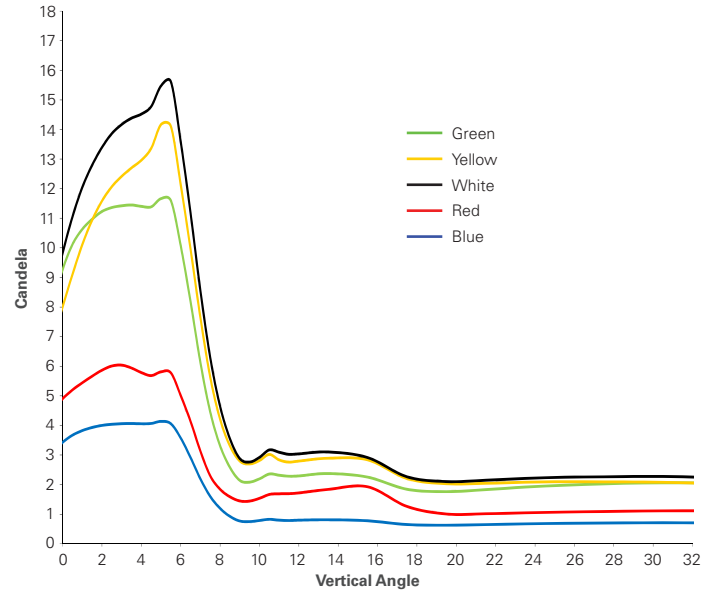


All Carmanah products are manufactured in facilities that are certified to ISO quality standards.

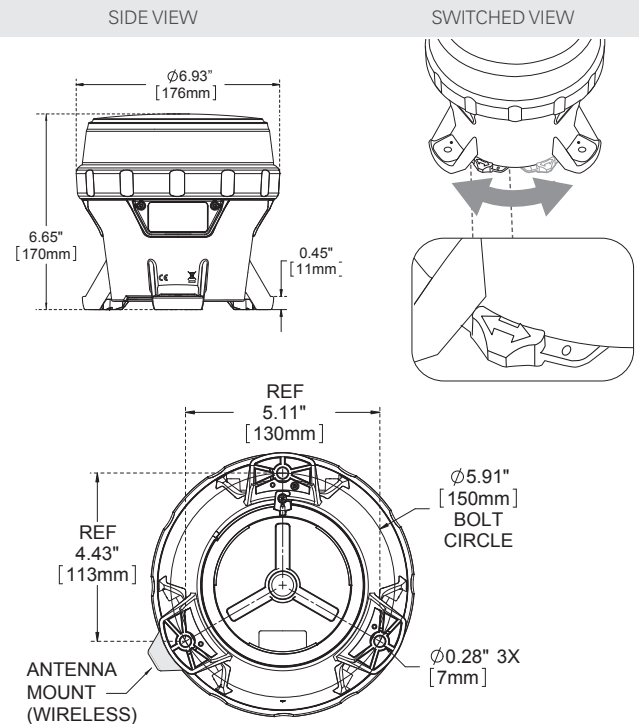
Specifications subject to local environmental conditions.
Specifications may be subject to change.

US and International patents apply. "Carmanah" and Carmanah logo are trademarks of Carmanah Technologies Corp.

PHOTOMETRICS



TECHNICAL DRAWINGS AND DIMENSIONS



Carmanah is a Canadian public corporation - TSX:CMH
© 2016, Carmanah Technologies Corp.
Document: SPEC_OBS_OL4_RevG



OL800

SOLAR OBSTRUCTION LIGHT

The new benchmark for low-intensity solar LED obstruction lighting in an easy-to-install, low-maintenance package. Available in three engine sizes with user-friendly features, and optional remote monitoring.

Meets ICAO requirements for Low-Intensity Obstacle Lights Type A and Type B, according to ICAO Annex 14, Volume 1, 5th Edition, July 2009 and 6th Edition, July 2013 (Red).

Compliant with Obstruction Light Type L-810 as per FAA Advisory Circular AC 150/5345-43G 09/26/12 (Red).

Intertek compliance test reports and global simulation maps available upon request.

Intuitive Setup & Programming

- Top-mounted LED display with simple “tap to activate” functionality
- Easily check light settings without external controller
- Programmable with optional IR remote

Scalable, Cost-effective Design

- Customizable for best value-for-performance
- Multiple battery pack options

Intelligent Energy Management

- Best-in-class, high-efficiency solar panels
- Maximum Power Point Tracking (MPPT)
- Patented Energy Management System (EMS)
- Ensures maximum battery life and light performance in even the harshest of environments

Durable, Low Maintenance

- Compact, stand-alone, maintenance-free unit
- Integrated solar panels, battery, electronics and LED light source
- Replaceable battery extends life beyond five years

Trusted

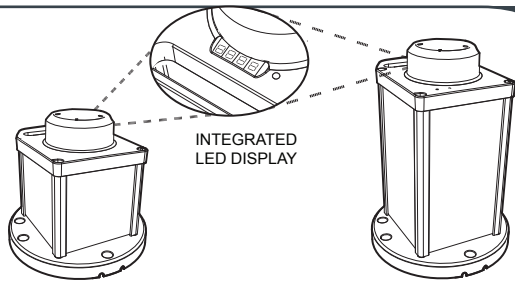
- Thousands of installations worldwide
- Carmanah solar LED lights operate year-round at permanent and temporary installations



REPRESENTED IN YOUR REGION BY:



OPTIONAL INFRARED PROGRAMMER



INTEGRATED LED DISPLAY

OL800

SOLAR OBSTRUCTION LIGHT

SPECIFICATIONS

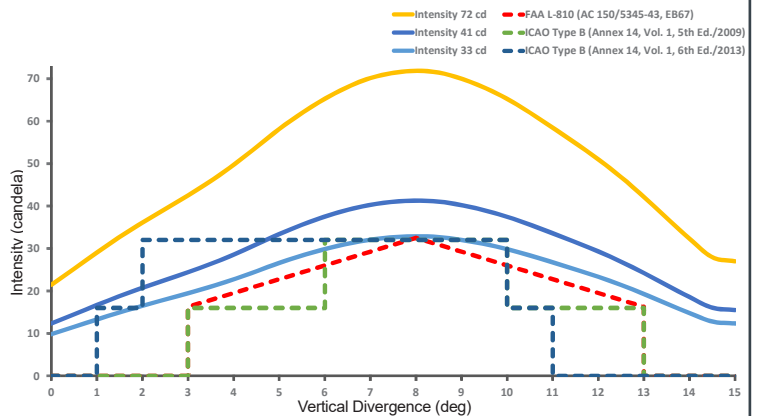
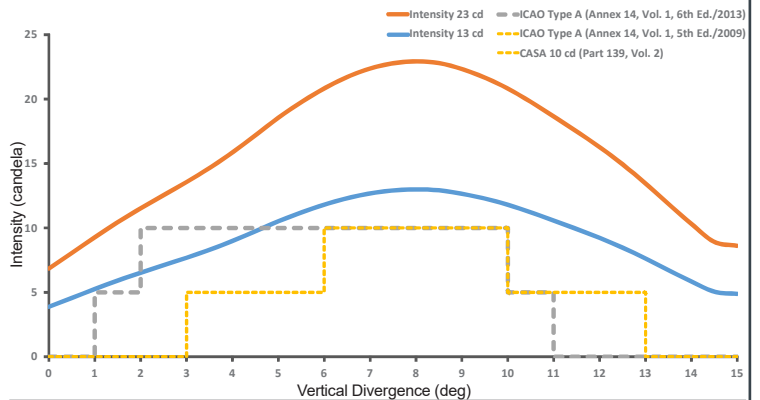
Optical	High powered LEDs meet IES LM-80 lumen maintenance ensuring consistent photometrics for life of product
	FAA: Meets Obstruction Light Type L-810 as per FAA Advisory Circular AC 150/5345-43G 09/26/12 (Red).
	Complies with ICAO Low-Intensity Obstacle Light Type A & B - Annex 14, 5th Edition, July 2009 (Red) and 6th Edition, July 2013 (Red).
	Meets requirements for CASA 10 cd (Part 139, Vol.2)
Energy Collection	Meets requirements for CASA 10 cd (Part 139, Vol.2)
	ICA0, SAE25050 (FAA) and FAA EB 67 compliant chromaticity: Red, Green, White and Yellow
Energy Storage	Steady-on and 250+ flash patterns
	Best-in-class high-efficiency solar cells with blocking diodes
	Maximum power point tracking with temperature compensation (MPPT-TC) for optimal energy collection
Energy Management System (EMS)	EnerSys CYCLON pure-lead VRLA AGM battery -85 to 176°F (-65 to 80°C) manufacturers operating range
	On-board battery status; Optional port for battery charging
Automatic Light Control (ALC)	Designed for 5 year battery life; Replaceable and recyclable
	Intelligent, microprocessor
Programming	On-board diagnostics and datalogger
	Adjusts output intensity in response to unusually low amounts of sunlight to ensure continued operation
GPS Synchronization	Programmable with optional infrared programmer
	Integrated 4-character LED display
Construction	Optional GPS enables two or more lights to flash in unison
	Premium grade UV resistant, polycarbonate lens/head
	Polycarbonate/polysiloxane co-polymer base
	Environmentally friendly, durable powder coated aluminum chassis (applied by trivalent chromate process)
	Thermoplastic gaskets
	Waterproof, vented battery compartment
Temperature	Top colour indicator matches LED colour
	Integrated handle
Mounting	Bird deterrent included
	-22 to 122 °F (-30 to 50 °C) optimal
Wind Loading	-40 to 176 °F (-40 to 80 °C) maximum
	3 or 4, 7.87" (200 mm) bolt circle mounting pattern
Ice Loading	140 knots (72 m/s)
	0.03 psi (22 kg/m ²)
Shock & Vibration	MIL-STD-202G (for Shock and Vibration)
	MIL-STD-202G immersion & damp heat cycling
Ingress	MIL-STD-810G rain & salt fog
	FAA-STD-0193, EN61000-4-2
Electrostatic Discharge (ESD)	

DIMENSIONS AND WEIGHTS

STANDARD		COMPACT	
Weight	14 lb (6.4 kg)	Weight	9.9 lb (4.5 kg)
Battery	E-cells (100 Wh)	Battery	X-cells (63 Wh)
LARGE			
Weight	22.4 lb (10.2 kg)		
Battery	BC-cells (210 Wh)		

PEAK INTENSITY

COLOUR	INTENSITY
Red	209 cd
Green	287 cd
White	374 cd
Yellow	319 cd



ORDER OPTIONS

MODEL ▼	OUTPUT ▼	SOLAR ENGINE ▼	CONTROL ▼	CHARGE PORT ▼	CHASSIS ▼
OL800	RED GREEN WHITE YELLOW	COMPACT STANDARD LARGE	NONE GPS SYNC	NONE CHARGE PORT	YELLOW



The management system governing the manufacture of this product is ISO 9001:2008 certified.

Specifications subject to local environmental conditions. Specifications may be subject to change.

Carmanah is a Canadian public corporation - TSX:CMH

US and International patents apply. "Carmanah" and Carmanah logo are trademarks of Carmanah Technologies Corp.

© 2016, Carmanah Technologies Corp.

Document:OL800_Spec_Sheet_RevF



carmanah®



obstructionlights.com
obstruction@carmanah.com
1.844.412.8392