carmanah®

DIRECTIONAL SIGNS

SOLAR LED AIRFIELD SIGNS

CARMANAH SOLAR LED AIRFIELD SIGNS ARE A SIMPLE SOLUTION FOR AIRFIELDS THAT EXPERIENCE DIFFICULTIES WITH GRID ACCESS OR FOR THOSE THAT REQUIRE A QUICK, MINIMALLY DISRUPTIVE ADDITION TO AN EXISTING AIRFIELD.

- Includes an L-858Y, L-858R, L-858L, or L-858B solar-powered sign and a Solar Engine Power Supply (SEPS). The SEPS incorporates the latest technology in solar technology, hardware and software to provide a reliable and sustainable power source.
- High quality LED light source virtually eliminates runway shutdowns. Reduces re-lamping expenses and on-going maintenance costs
- Uniform light distribution eliminates hot spots and shadows
- Battery daily depth of discharge is sized for a minimum of 5 years of service
- Easy installation and re-location: no specialized work crews required. Limited air traffic disruption and functions immediately upon installation
- Optional hand-held wireless control allows for remote operation including mode changes for enhanced visibility in poor weather conditions
- Engineered for reliable performance: Energy Management System (EMS) monitors and adapts the brightness to environmental conditions for consistent operation and long life under the toughest conditions
- Minimum autonomy (operation without solar charging) 7-days. Scalable to meet requirements up to 40 days.
- Clean, renewable energy source with the lightest environmental footprint

Compliance with Standards

FAA: Designed to meet L-858Y, L-858R, L-858L and L-858B AC 150/5345-44 (Current Edition) and the FAA Engineering Brief No. 67 “Light Sources other than Incandescent and Xenon for Airport Lighting and Obstruction Lighting Fixtures.”

CE: Complies with the requirements of the EMC Directive 2004/108/EC

ICAO: Please inquire about ICAO compliant options

Models Available

Type	Purpose	Legend Color	Background Color
L-858Y	Direction, Destination & Boundary	Black	Yellow
L-858R	Mandatory Sign	White with Black Outline	Red
L-858L	Runway/Taxiway Location	Yellow	Black
L-858B	Runway Distance Remaining	White	Black

Operating Conditions

Temperature: -40 °F to +131 °F (-40 °C to +55 °C)

Humidity: 0 to 100%

Wind: Mode 2 signs withstand wind velocities up to 225 mph

Construction

Corrosion-resistant sign construction requires minimal maintenance.

- Aluminum housing
- Acrylic sign legend panels
- Stainless steel hardware
- Retroreflective sheeting

Installation

Each sign is furnished complete with mounting flanges for installation on a concrete pad, which is the recommended method of installation. Contact Carmanah Sales for more information on sign installation hardware.

The Solar Engine Power Supply (SEPS) should be installed on a level concrete pad within 20 feet of the solar sign.

For a temporary application, the wiring between the SEPS and the sign can be above ground. Both the sign and SEPS contain side conduits for cabling access.

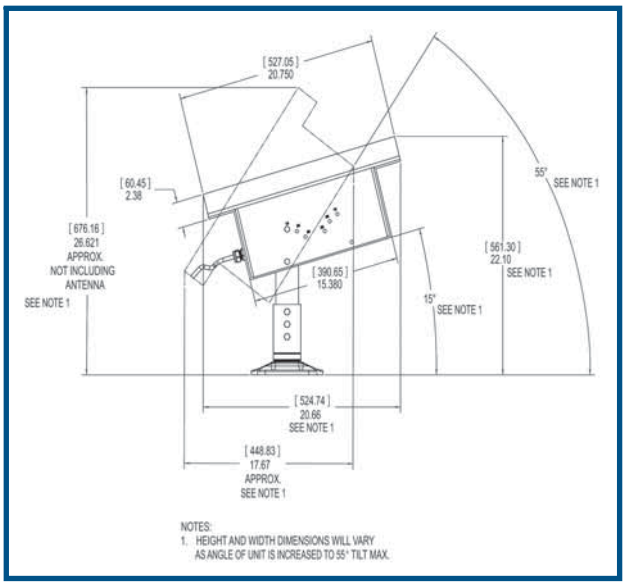
Sign Dimensions

Sign Heights				
Type	Sign Size No.	Sign Face Height	Legend Height	Overall Mounting Height
L-858Y/R/L	1 1	18” (45.7 cm)	12” (30.5 cm)	29.7” (75.5 cm)
L-858Y/R/L	2 2	24” (61 cm)	15” (38.1)	35.7” (90.8 cm)
L-858Y/R/L	3 3	30” (76.2 cm)	18” (45.7 cm)	41.7” (106 cm)
L-858B	4 4	48” (122 cm)	40” (101.6 cm)	58.2” (147.8 cm)
L-858B	5 5	30” (76.2 cm)	25” (63.5 cm)	41.7” (106 cm)

Sign Lengths		
Size No.	1 Module	2 Module
1	29.4” (75 cm)	58.6” (149 cm)
2	35.9” (91 cm)	71.6” (182 cm)
3	42.4” (108 cm)	84.6” (215 cm)
4	47.9” (122 cm)	N/A
5	42.4” (108 cm)	N/A

Note: Sign depth is 9.39 in (23.85 cm).

SEPS Dimensions



Packaging Data

Signs are shipped with L-823 cord set(s), frangible couplings, and floor flanges–ready for installation.

Description	Gross Weight[1] (lb)	(kg)	Carton Dimensions (in)	(cm)
Size 1, Module 1	46	21	34 x 34 x 13	87 x 86.4 x 33
Size 1, Module 2	78	35	34 x 63 x 13	87 x 160 x 33
Size 2, Module 1	71	32	40 x 40 x 13	102 x 102 x 33
Size 2, Module 2	104	47	40 x 76 x 13	102 x 193 x 33
Size 3, Module 1	81	37	46 x 46 x 13	117 x 117 x 33
Size 3, Module 2	131	60	46 x 89 x 13	117 x 226 x 33
Size 4, Module 1	120	561	62 x 52 x 13	158 x 132 x 33
Size 5, Module 1	85	39	46 x 46 x 13	117 x 117 x 33

[1] Estimated weight

Additional Equipment Data

Solar Engine Power Supply (SEPS)	
Installed weight	132 lb (59.8 kg)
Shipping weight	Box 1 (SEPS) - 76 lb (34.4 kg) Box 2 (battery) - 68 lb (30.8 kg)
Installed dimensions*	29.9 H x 42.9 W x 17.4 D in (75.9 H x 108.9 W x 44.1 D cm) * with wireless antenna at 55° tilt
Shipping dimensions	
Box 1 (SEPS)	25.5 H x 46.9 W x 14.0 D in (64.7 H x 119.1 W x 35.56 D cm)
Box 2 (battery)	8.3 H x 13.1 W x 7.4 D in (21 H x 33.2 W x 18.8 D cm)
Temperature	
Operating: Storage:	-22 °F to +122 °F (-30 °C to +50 °C) -40 °F to +176 °F (-40 °C to +80 °C)
Type	Replaceable and recyclable, absorbent glass mat (AGM) SLA. Standard with one battery.
Lifetime	4,000 cycles to 20% depth of discharge at +68 °F
Charger	Temperature-compensated, maximum power point tracking (TC-MPPT)
LED Driver	
Channel A:	18 – 38 VDC from 0.3 – 1.4 A and 5 – 100% duty cycle, constant current
Channel B:	18 – 38 VDC from 0.3 – 1.4 A and 5 – 100% duty cycle, constant current
Automatic Light Control (ALC)	ALC dynamically reduces brightness in response to unusually low amounts of sunlight to ensure continued autonomous operation. Available on Channels A and B.
Control, Autonomous Mode	Dusk-to-dawn, steady on
Load Cabling	22 ft. (6.7 m) cable can exit onto the surface or down into a ground pot
PV Panel	
Power	95 W
Type	High Efficiency Monocrystalline, IEC 61215
Lifetime	10 years at 90% output
Wireless	
Range	2.5 miles (4 km) minimum with 1 W wireless hand-held controller
Frequency	900 MHz ISM Band, FHSS
Encryption	256-bit AES
Control, On-demand Mode	- Seamless integration with existing Carmanah wireless solar products. - Up to 8 independent groups. - Flash Mode, Emergency Mode, Autonomous Mode - On-demand Temporary Mode (High, Medium, and Low) - Configuration Mode, ARCAL