



# SIGNS

SOLAR 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).
- 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
- Battery life: 5+ years
- Easy installation and relocation: no specialized work crews required
- Limited air traffic disruption and functions immediately upon installation
- Optional Handheld Controller allows for remote, wireless operation including mode changes for enhanced visibility in poor weather conditions
- Engineered for reliable performance, the Energy Management System (EMS) monitors and adapts the brightness to environmental conditions for consistent operation and long life under the tough conditions
- Minimum autonomy (operation without solar charging) 7+ days - scalable to meet requirements up to 40 days

### 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

### 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 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.

### MODELS AVAILABLE

TYPE	PURPOSE	LEGEND COLOR	BACKGROUND COLOR
L-858Y	Direction, Destination & Boundary	1490 mm (58.6 in)	Yellow
L-858R	Mandatory Sign	1820 mm (71.6 in)	Red
L-858L	Runway/Taxiway Location	Yellow	Black
L-858B	Runway Distance Remaining	White	Black

### REPRESENTED IN YOUR REGION BY:



## OPERATING CONDITIONS

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

Humidity: 0 to 100%

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

## Sign Dimensions

### SIGN HEIGHTS

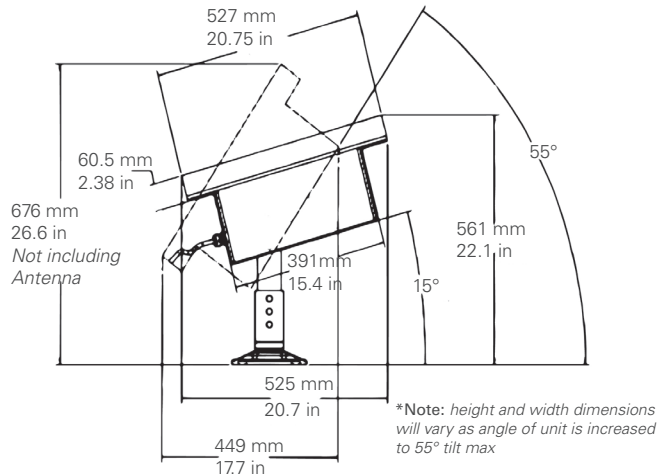
TYPE	SIGN SIZE NO.	SIGN FACE HEIGHT	LEGEND HEIGHT	OVERALL MOUNTING HEIGHT
L-858Y/R/L	1	457 mm	305 mm	755 mm
	1	18 in	12 in	29.7 in
L-858Y/R/L	2	610 mm	381 mm	908 mm
	2	24 in	15 in	35.7 in
L-858Y/R/L	3	762 mm	457 mm	106 mm
	3	30 in	18 in	41.7 in
L-858B	4	1220 mm	1016 mm	1478 mm
	4	48 in	40 in	58.2 in
L-858B	5	762 mm	635 mm	1060 mm
	5	30 in	25 in	41.7 in

### SIGN LENGTHS

SIZE NO.	1 MODULE	2 MODULE
1	750 mm (29.4 in)	1490 mm (58.6 in)
2	910 mm (35.9 in)	1820 mm (71.6 in)
3	1080 mm (42.4 in)	2150 mm (84.6 in)
4	1220 mm (47.9 in)	N/A
5	1080 mm (42.4 in)	N/A

**Note:** Sign depth is 238.5 mm (9.39 in).

### SEPS DIMENSIONS



### PACKAGING DATA

Signs are shipped with frangible couplings, and floor flanges—ready for installation

DESCRIPTION	GROSS WEIGHT <sup>1</sup> KG (LB)	DIMENSIONS (MM)	CARTON (IN)
Size 1, Module 1	21 (46)	870 x 864 x 330	34 x 34 x 13
Size 1, Module 2	35 (78)	870 x 1600 x 330	34 x 63 x 13
Size 2, Module 1	32 (71)	1020 x 1020 x 330	40 x 40 x 13
Size 2, Module 2	47 (104)	1020 x 1930 x 330	40 x 76 x 13
Size 3, Module 1	37 (81)	1170 x 1170 x 330	46 x 46 x 13
Size 3, Module 2	60 (131)	1170 x 2260 x 330	46 x 89 x 13
Size 4, Module 1	54 (120)	1580 x 1320 x 330	62 x 52 x 13
Size 5, Module 1	39 (85)	1170 x 1170 x 330	46 x 46 x 13

<sup>1</sup> Estimated weight

**Specifications subject to local environmental conditions.**

**Specifications may be subject to change.**

US and International patents apply. Other patents pending.

"Carmanah" and Carmanah logo are trademarks of Carmanah Technologies Corp.

# SIGNS

## SOLAR AIRFIELD SIGNS

### Additional Equipment Data

#### SOLAR ENGINE POWER SUPPLY (SEPS)

Installed Weight	59.8 kg (132 lb)
Shipping Weight	Box 1 (SEPS) - 34.4 kg (76 lb) Box 2 (battery) - 30.8 kg (68 lb)
Installed Dimensions*	759 H x 1089 W x 441 D mm 29.9 H x 42.9 W x 17.4 D in *with wireless antenna at 55° tilt

#### Shipping Dimensions

Box 1 (SEPS)	647 H x 1191 W x 355.6 D mm (25.5 H x 46.9 W x 14.0 D in)
Box 2 (Battery)	210 H x 332 W x 188 D mm (8.3 H x 13.1 W x 7.4 D in)

#### Temperature

Operating:	-30 °C to +50 °C (-22 °F to +122 °F)
Storage:	-40 °C to +80 °C (-40 °F to +176 °F)

Type	Replaceable and recyclable, absorbent glass mat (AGM) SLA. Standard with one battery.
------	---

Lifetime	4,000 cycles to 20% depth of discharge at +20°C (+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	6.7 m (22 ft) 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	4 km (2.5 m)
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, Low) - Configuration Mode, ARCAL



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

Carmanah is a Canadian public corporation - TSX:CMH

© 2015, Carmanah Technologies Corp.

Document: AVIA\_Signs\_Spec\_Sheet\_RevB