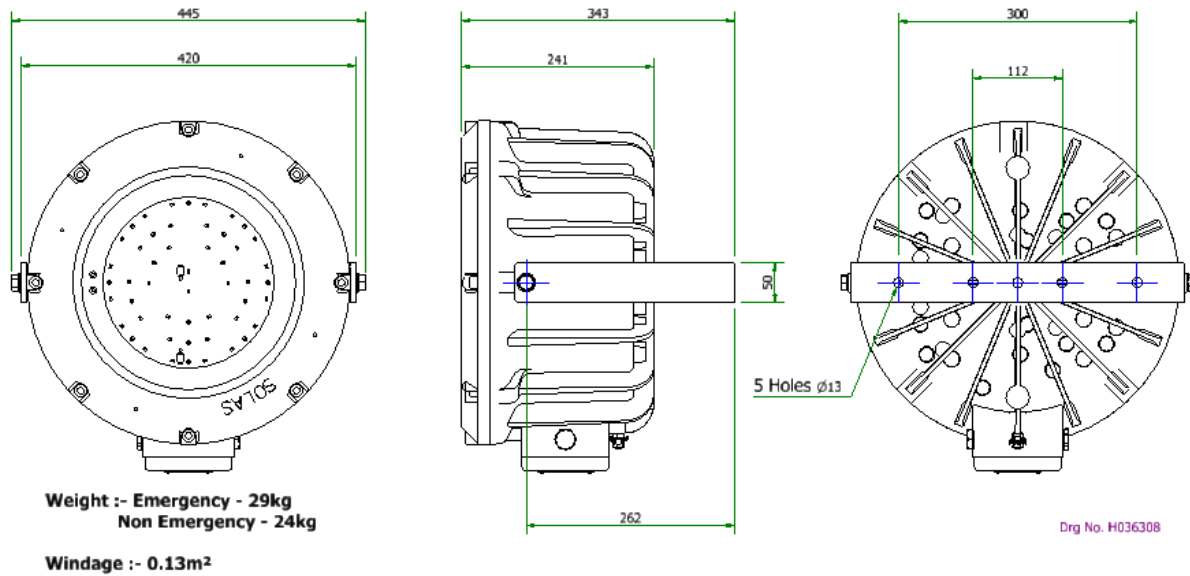




INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

SOLAS – LED Luminaire

Industrial

Important: Please read these instructions carefully before installing or maintaining this equipment. Good electrical practices should be followed at all times and this data should be used as a guide only.



0.0 Specification	
Type of Protection	N/A
Standards	EN 60598-1, EN 60598-2-22
Area Classification	Industrial (Non- Hazardous)
Ambient	-55°C to +55°C (Non- Emergency) -20°C to +55°C (Non- Maintained Emergency) -55°C to +55°C /LT (Non- Maintained Emergency) -20°C to +45°C (Maintained Emergency) -55°C to +45°C /LT (Maintained Emergency)
Ingress Protection	IP66/67 to EN 60529
 	The CE marking of this product applies to "The Electrical Equipment (Safety) Regulations 2006", "The Electromagnetic Compatibility Regulations 2004", the "Waste Electrical and Electronic Equipment Regulations 2006". [This legislation is the equivalent in UK law of EU directives 2014/35/EU, 2014/30/EU, 2012/19/EU respectively]. The UKCA marking of this product applies to "The Electrical Equipment (Safety) Regulations 2016", "The Electromagnetic Compatibility Regulations 2016", the "Waste Electrical and Electronic Equipment Regulations 2012" M Poutney Technical Manager

1.0 Introduction – SOLAS Luminaire

The Solas is designed to be used from mains voltage and as a maintained or non-maintained emergency light. The emergency duration is for 90 minutes on full power or 180 minutes on half power. Situations where an area needs to be lit for escape purposes (life boat stations) 90 minute full power would be used. This is a specialised system which the luminaire incorporates 34 x 1w LED’s, mains driver, emergency inverter and internal battery pack.

The battery is a 7Ah Ni-Cd with 18 cells. The battery is split into three sections which are individually monitored for voltage, in order to control over voltage and low voltage cut-off in a safe manner.

Two versions of the LED arrangement are provided. The circular arrangement provides a narrow spot beam. The array provides a wider beam. For details contact our lighting design section.

2.0 Storage

Luminaires are to be stored in cool dry conditions preventing ingress of moisture and condensation.

Any specific instructions concerning emergency luminaires must be complied with.

Battery Packs have a maximum shelf life of 1 year without a charging/discharge cycle.

Therefore if the fittings are to be stored for longer than 6 months, we recommend that the procedure listed should be followed to ensure full battery capacity is maintained and operation of the fitting every 6 -9 months during storage

Open Terminal Chamber and remove link comb between R1 & R2, connect mains power and energise the mains for 24 hours.

Switch off the mains and the LED’s will go on, the duration should be 90 or 180 minutes minimum depending on version. Re energise the mains voltage for 24 hours to fully charge batteries.

Isolate mains supply and remove mains cable, immediately fit link comb between R1 & R2, and close terminal chamber.

3.0 Installation and Safety

3.1 General

There is no health hazards associated with this product whilst in normal use. However, care should be exercised during installation.

In the UK the requirements of the "Health and Safety at Work Act" must be met.

Handling and electrical work associated with this product to be in accordance with the "Manual Handling Operations Regulations" and "Electricity at Work Regulations, 1989". Your attention is drawn to the paragraphs (i) 'Electrical Supplies', (ii) 'Electrical Fault Finding and Replacement' and (iii) 'Inspection and Maintenance'.

The luminaires are quite heavy and suitable means of handling on installation must be provided.

The company reserves the right to make specification changes as required.

3.2 Tools

5mm A/F socket keys. 4mm flat blade screwdriver. 19mm A/F spanners. Suitable spanners for installation of cable glands. Pliers, knife, wire strippers/cutters.

3.3 Electrical Supplies

The charging system will accept rated voltages of 220 to 254V or for alternative version 100 to 130V, 50 or 60Hz.

A maximum nominal variation from this is +/-6%. The safety limit for T rating is +10%.

3.4 Light Source

This product is fitted with LED's that can last 80,000 hours depending on ambient temperatures. Therefore depending on the functionality of the fitting replacement of LED's will be rare /unnecessary. If the LED assembly needs replaced refer to

3.5 Emergency Operation

When the mains voltage is on, the battery is charged. Indicator LED's will tell if the fitting is charging or is fully charged.

The fitting can be either maintained or non-maintained with a 90 minute fully power emergency duration or 180 minute half power emergency duration (both when specified can't retrospectively be changed).

Emergency inhibition is standard to allow the emergency light to be used only when required.

i.e. as an abandonment light.

3.5.1 Emergency Operation at -40 to -55 deg C

If the fitting is left without mains voltage after battery discharge (emergency function) for 12 hours or more it will result in a time delay to the charging regime when the mains voltage is available.

At -40 deg C there will be a delay of approx 45 minutes.

At -55 deg C there will be a delay of approx 65 minutes.

This is allowing the battery heater to raise the temperature of the batteries to accept the charge this is further indicated with the green LED starting to flash indicating that the batteries are charging, a further 24 hours will be required to achieve full charge.

3.6 Mounting

Luminaires should be mounted where it is possible to gain access for maintenance and in accordance with any lighting design information provided for the installation. This will usually consist of aiming points and aiming angles.

The top mounting or trunnion mounting arrangements should be secured with lock washers or self-locking nuts and bolts.

3.7 Cabling and Cable Glands

3.7.1 Cable Glands

The installer and user take responsibility for the selection of cables, cable glands and seals.

The cable and gland assembly when installed must maintain the IP66/67 rating of the luminaire.

Two tapped cable entries are provided, one with a plug and seal suitable for permanent use, the other has a travelling plug. M20 x 1.5 entries are standard, M25 x 1.5 entries optional.

3.7.2 Cable

The temperature ratings of the entries are suitable for ordinary PVC cable (70°C). Users may wish to use fire resistant cables of 1.5mm².

3.7.3 Cable Connection

The cable connections are made by removing the terminal chamber cover. The retaining screws are captive and should be re-greased as required. The cores must be identified and connected in accordance with the terminal markings. Before re-fitting the cover, a final check on the correctness of connections should be made. Terminal cover bolt torque 6Nm.

4.0 Commissioning

The luminaire has the option for connection to a remote switch for control of the emergency operation. Inside the terminal box you will see two (white sleeved) cables connected into the terminal block these are the inhibition wires, supplied and fitted will be a comb or link (fitted for transit only). **The comb or link must be removed to**

allow the fitting to work in emergency mode when mains voltage fails. If the inhibition function is to be used connect to a remote inhibition switch. **This is a signal connection to and from control unit, no power should be connected to the R1 & R2 terminals.** If one switch is to operate a number of fittings, then wires connected to R1 & R2 terminals must not be crossed.

Following the wiring up and checking of the equipment, the operation is checked when the mains supply becomes available. Energise the mains for 24 hours. Switch off the mains and run fitting till it goes out. Re-energise the mains supply for 24 hours. Switch off the mains and the LED's will go on (unless fitted with inhibition switch). The duration should be 90 or 180 minutes minimum depending on what was specified. If the mains voltage is still available re-energise the mains supply for 24 hours to fully charge batteries.

Once commissioning is complete with fully charged batteries and if the fitting is to be de energised (no mains present) for a period greater than a month, then a link should be fitted across terminals R1 & R2, unless an inhibition switch is connected across terminals - then the switch should be closed. This will prevent the battery pack from discharging, therefore will maintain a sufficient charge to avoid deep discharge occurring.

5.0 LED Replacement

The need and frequency of replacing LED's be dependent on the functionality of the fitting. If it is running as a maintained or non-maintained unit and if it is continually running at high ambient temperatures these will affect the frequency of LED replacement. If it is necessary to replace the LED's, all the LED's will be replaced as an assembly mounted on an aluminium back plate. The full assembly supplied by Chalmit Lighting.

The area should be gas free, (this is because there are un-assessed electronic components in the unit and these could retain stored energy). Release the front cover, before letting the cover hang check that the securing chain is secure and in good condition.

Removal of LED assembly is as follows:

1. Unscrew 6 off M3 screws that secure the aluminium plate to the case.
2. Carefully remove the red and green indicating LED's from the plate (retain as these will be used).
3. Disconnect the LED + and – wires from the terminal block.

Replacement of LED assembly is the reverse of the removal. Take care that the + and – wires from the assembly are connected correctly into the terminal block.

The mating surface should have a generous coat of silicone (*Dow Corning Molykote III* or similar), or other protective non-setting grease. Replace all bolts and fully tighten. Torque to 16Nm.

6.0 Electrical fault finding and Replacement

Any fault finding must be done by a competent electrician with the luminaire isolated and if carried out with the luminaire in place, under a permit to work. Fault finding is by substitution with known good components.

7.0 Inspection and Maintenance

Maintenance work and fault finding must be performed by competent personnel.

- 1 Check if any LED's have failed (do not light).
- 2 If there is 7 or more not working the light output will have dropped to a level the LED assembly may need replaced. Refer to 5.0 LED Replacement.
- 3 Check the luminaire terminal chamber bolts for tightness. Torque to 6Nm.
- 4 Check the cable glands for tightness and nip if necessary.
- 5 Check any external earthing.
- 6 Examine the lamp glass for any signs of damage and for any signs of sealant damage. If thought necessary, the silicone weather seal can be re-sealed with a proprietary brand of clear RTV silicone. Any damage to the glass the front glass cover assembly must be replaced. Check luminaire cover bolts for tightness. Torque to 16Nm.
- 7 Check for signs of corrosion between the front glass cover and main housing. A damaged or non resilient cover gasket must be replaced and bonded into groove. The cord diameter is 3mm.
The cover should be re-greased with silicone (*Dow Corning Molykote III* or any non-setting grease) and all bolts fully tightened. Any replacement bolts must be identical with the original.
All are 18/8 stainless steel with a minimum of ISO262 Grade A 2-70.
- 8 Examine the batteries for any signs of leakage or corrosion and if this has taken place the battery packs must be replaced. Refer to 5.0 LED Replacement (which will allow you to examine the batteries). Use only replaceable batter pack, SAFT battery pack Part No: 6VT FH 70 EX.

- 9 The terminal chamber should be opened periodically and checked for moisture ingress. The cable connections should be checked for tightness. The gasket should be checked for lack of elasticity and if necessary replaced and bonded into groove (it may well be practical to replace the gasket on each occasion if this is 2-3 year interval). Torque to 6Nm.
- 10 Check the mountings are secure.
- 11 Cover the bolt heads with silicone grease to prevent corrosion and the accumulation of dirt and screw threads.
- 12 Clean the glass.

7.1 LED Indicator Logic

Condition	LED Status
Charging (Boost Charge)	Flashing Green
Fully Charged (Constant Trickle Charge)	Constant Green
Low Battery	Alternating Red & Green
Unable to Charge	Flashing Red
Battery Pack Unable to accept Charge	Flashing Red
Battery Fault	Flashing Red
Inhibition Function Activated & Charging	Red Flashing every 4 Secs & Flashing Green
Inhibition Function Activated & Fully Charged	Red Flashing every 4 Secs & Constant Green
Inhibition Function Activated & Power Off	Red & Green not Illuminated

8.0 Current Ratings

The power drawn by luminaire when charging:

Solas Emergency	Watts Boost charge No heater	Watts Constant charge No heater	Watts Boost charge with heater	Watts Constant charge with heater
maintained	83	75	119	114
Non-maintained	23	12	62	52
Normal Operation Non Emergency Version				
Solas	62	-	-	-

- Battery charging regime:
- a. 0.5 hours at C/20 (350mA)
 - b. 5 hours boost at C/10 (700mA)
 - c. constant charge C/20 (350mA)

Solas Emergency	Mains current. Amps	During 5 hour boost charge
Maintained with heater	0.6 – 0.46A	0.6 – 0.52A
Non-maintained with heater	0.28 – 0.21A	0.37 – 0.32A
Maintained without heater	0.39 – 0.33A	0.41 – 0.36A
Non-maintained without heater	0.07 – 0.06A	0.11 – 0.1A
Solas non-emergency	0.32 – 0.28A	-

For voltages between 100-130V 50/60Hz power values remain as shown, current values increase by x 2.

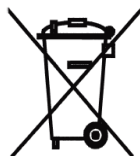
Fuse & MCB Rating:- Inrush current 60A - 100µs.

9.0 Disposal of Material

The units are chiefly made of incombustible material. The control gear contains electronic components and synthetic resin. All these may give off noxious fumes if incinerated. Care must be taken to render these fumes harmless and avoid inhalation. Any local regulations concerning disposal must be complied with. Any disposal must satisfy the requirements of the WEEE directive [2012/19/EU and Regulations 2012] and therefore must not be treated as commercial waste. The unit is mainly made from incombustible materials. The control gear contains plastic, resin and electronic components. All electrical components may give off noxious fumes if incinerated.



9.1 Battery Disposal

Nickel cadmium batteries are defined as 'controlled waste' under the hazardous waste regulations and the disposer needs to observe a 'duty of care'. Batteries can be returned to the manufacturers for recycling. They must be stored and transported safely and any necessary pollution control forms completed prior to transportation. Take care to fully discharge batteries before transporting or otherwise ensure that there can be no release of stored energy in transit. For further details refer to our Technical Department.




To comply with the Waste Electrical and Electronic Equipment directive 2012/19/EU and Regulations 2012 the apparatus cannot be classified as commercial waste and as such must be disposed of or recycled in such a manner as to reduce the environmental impact.

Chalmit Lighting is a leading supplier of Hazardous Area lighting products

	<p>CHALMIT LIGHTING PO Box 5575 Glasgow, G52 9AP Scotland</p>	
<p>Telephone: +44 (0) 141 882 5555 Fax: +44 (0) 141 883 3704 Email: info@chalmit.com Web: www.chalmit.com</p>	<p>Registered No: 669157 Registered Office: Cannon Place 78 Cannon Street London EC4N 6AF UK</p>	

For technical support, please contact: techsupport@chalmit.com

Note: Chalmit Lighting reserves the right to amend characteristics of our products and all data is for guidance only.

	EU/UK-Declaration of conformity		
	UE-Déclaration de conformité		
	EU-Konformitätserklärung		
Manufacturer	Chalmit	Address	388 Hillington Road, Glasgow. G52 4BL Scotland UK
Product	Solas Floodlight Industrial		
Catalogue	SOLI/034/LE/**/** Example: SOLI/034/LE/EM/NB/		
Area Classification	Industrial, (Non- Hazardous)		
Ingress Protection	IP66/67		
Ambient	-55°C to +55°C (Non- Emergency) -20°C to +55°C (Non -Maintained Emergency) -55°C to +55°C /LT (Non- Maintained Emergency) -20°C to +45°C (Maintained Emergency) -55°C to +45°C /LT (Maintained Emergency)		
Terms of the directive:	Standard & Date Certified to	Standards Date Declared to	
Prescription de la directive:	Standard & date certifiée à	Normes date Déclaré	
Bestimmungen der Richtlinie:	Standard & Datum Zertifiziert nach	Standards Datum erklärt	
2014/30/EU Regulations 2016	Electromagnetic compatibility	EN 55015 : 2019	
2014/30/UE	Compatibilité électromagnétique	EN 61547 : 2009	
2014/30/EU	Elektromagnetische Verträglichkeit	EN 61000-3-2 : 2019	
2014/35/EU Regulations 2016	Low voltage equipment	EN 60598-1 : 2015	
2014/35/UE	Équipements électriques à bas voltage	EN 60598-2-5 : 2015	
2014/35/EU	Niederspannungsgeräte / -systeme	EN 60598-2-22 : 2014	
		EN 60529 : 1992+A2:2013	
2012/19/EU Regulations 2012	Waste of electrical and electronic equipment		
2012/19/UE	Déchets d'équipements électriques et électroniques		
2012/19/EU	Entsorgung der elektrischen und elektronischen Geräte / Systeme		
2011/65/EU Regulations 2012	RoHS II Directive		

On behalf of the Chalmit, I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms to all technical and regulatory requirements of the above listed directives.

En tant que représentant du fabricant Chalmit, je déclare qu'à la date où les équipements accompagnant cette déclaration sont mis sur le marché, ceux-ci sont conformes à toutes les dispositions réglementaires et techniques des directives énumérées ci-dessus.

Hiermit bestätige ich, im Namen von Chalmit, dass am Tag der Lieferung des Produkts/der Produkte zusammen mit dieser Erklärung das Gerät/die Geräte alle technischen und regulativen Anforderungen der oben aufgeführten Direktiven erfüllt.

Name and Date Mark Poutney 10/11/2021
 Nom et Date
 Name und Datum

Technical Manager
 Directeur technique
 Technischer Leiter



Quality Management System Accreditation:
 Système de Management Qualité Accréditation:
 Qualitätsmanagementsystem Akkreditierung:
 Environmental Management System.
 Système de gestion de l'environnement.
 Umwelt kontroll system.
Certificate No./Certificat N°/Zertifikat Nr.

ISO 9001

ISO 14001
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