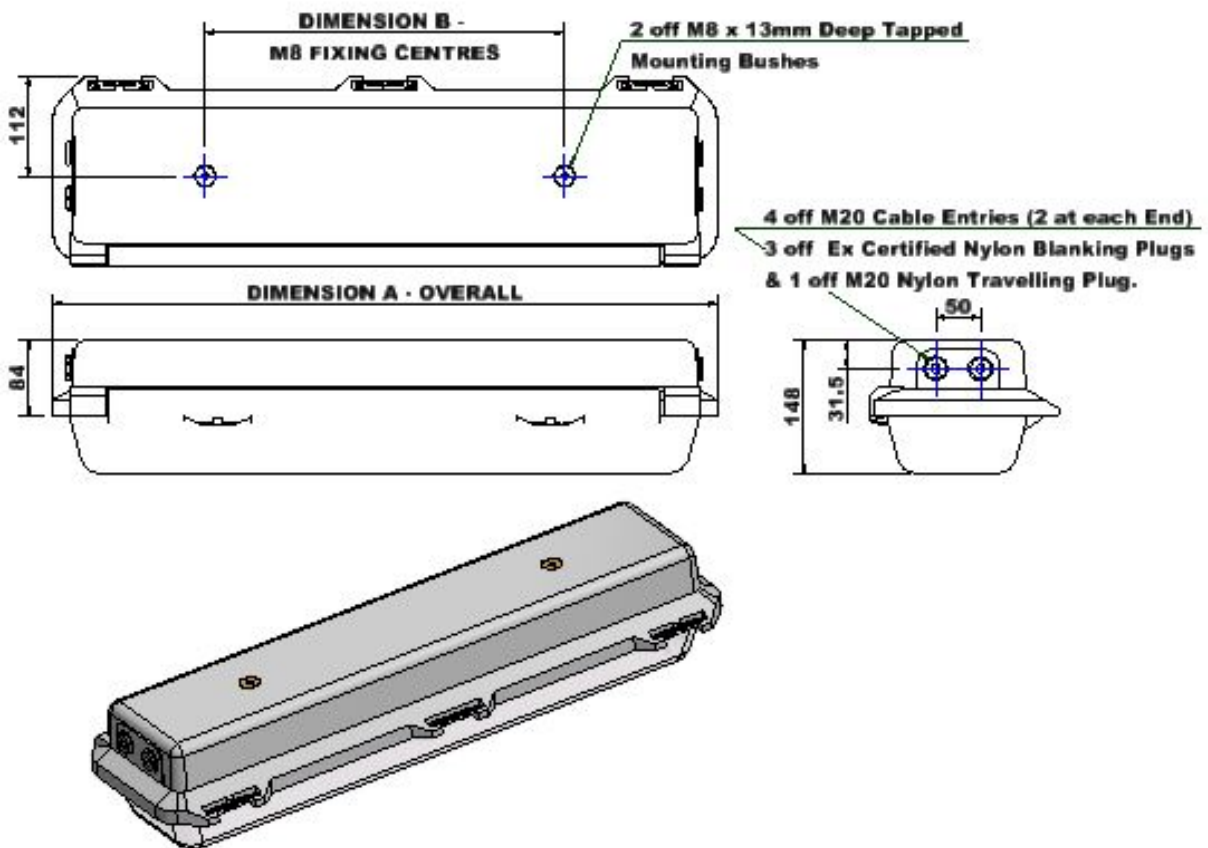


INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS



Protecta – Industrial LED Emergency Luminaires

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

MODEL SIZE	DIMENSION 'A'	DIMENSION 'B'
02L	742	400
04L	742	400
07L	1352	700





0.0 Specification	
Type of Protection	N/A
Standards	EN 60598-1, EN 60598-2-22
Area Classification	Industrial, (Non- Hazardous)
Ambient	-25°C to +50°C Emergency
Ingress Protection	IP66/67 to EN 60529
 	<p>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].</p> <p>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</p> <p>M Poutney Technical Manager</p>

Luminaire is supplied with Battery plug/Socket disconnected, just prior to switching power on, connect battery plug and socket.

1.0 Introduction - Protecta Safe Area LED Luminaire

The Protecta Safe Area LED Luminaires are surface mounted or suspended, utilising the two tapped holes on base of body, with the facility of an integral battery back-up for emergency use. Normal operation is mains supply LEDs full on, switching to reduced LED power on battery back-up, local switching of the mains LEDs, the emergency output only being energised on mains failure. Emergency duration: to BS EN 60598 2.22, as per order. They are mainly used in harsh environments and are constructed using a corrosion resistant glass reinforced polyester body attached to an injection moulded polycarbonate diffuser by hinges and a special clamp. The control gear and LED strips are mounted on a removable tray which for maintenance has hanging straps. Note: The ratings are listed in Tables A & B

2.0 Storage

To optimise lifetime, luminaires and control gear boxes are to be stored in cool dry conditions preventing ingress of moisture and condensation between +5°C and +25°C. Any specific instructions concerning emergency Luminaires must be complied with.

Battery packs in storage should be cycled charged/discharged/charged every 9 months, as per instructions below. **Always disconnect battery plug and socket for storage.**

Any specific instructions concerning emergency luminaires must be complied with.
(Warning: Battery packs not cycled and stored for a year may not be recoverable)

3.0 Installation and Safety

3.1 General

There are no health hazards associated with this product whilst in normal use. However, care should be exercised during the following operations.

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 Class 1 and should be effectively earthed.

The information in this leaflet is correct at the time of publication. The company reserves the right to make specification changes as required.

3.2 Tools

12mm, 5mm and 3mm flat blade screwdriver. Pozi number 2 screwdriver

Suitable spanners for installing cable glands. Pliers, knife, wire strippers/cutters.



3.3 Electrical Supplies and Control Gear

Luminaires fitted with electronic control gear are suitable for a rated supply from 220-240V 50/60Hz for emergency. The safety limits are +10% of this. The supply would normally be expected to lie within +/-6% of rated. The LED supply is regulated, therefore the light output over the range is substantially unchanged. Electronic gear has integrated power factor correction to >0.90.

Warning: *Luminaires are assessed and/or tested for EMC requirements. This is based on the disposition of entry cables and, where appropriate, through wiring arrangements as supplied or specified. Users must take care not to introduce wiring into parts of the apparatus materially different to that which could be reasonably inferred from the disposition of fixed supply terminals and specified wiring.*

3.4 Light Emitting Diodes (LED)

LED's are supplied in either 02L, 04L or 07L options with the colour temperature of 3000K,4000K or 5000K.

3.4.1 Dimming Option

If the product has a /DM suffix this means it comes fitted with a dali dimmable ballast and DALI EM functionality. 2 additional cable cores are needed to run the DALI data cable to DALI switch or PC with compatible software and hardware. EM light output levels cannot be altered through DALI.

3.5 Mounting

Luminaires should be installed where access for maintenance is practical and in accordance with any lighting design information provided for the installation. The standard suspension is via two M8 tapped holes in Stainless Steel bushes moulded into the top of the body, the recommended torque for the fixing bolts is 10-15Nm. (at 400mm centres for 02L and 04L and 700mm centres for the 07L model).

Various adaptors, pole clamps and suspension brackets are available to order.

3.6 Cable Connection

3.6.1 Cables

The temperature conditions of the supply cable entry point are such that 70°C (ordinary PVC) cable can be used. 300/500V cable ratings are adequate and no special internal construction is necessary. Where MCB's are used, the type with the higher short time tripping current ratio used for motor starting and lighting should be specified. The standard maximum looping size is 4mm² termination with 2.5mm² through wiring – rated 16A max

3.6.2 Cable Glands

Cable glands when installed should maintain the desired IP rating of the enclosure.

3.7 Electrical Connections

Luminaires are available for looping and through wiring. The through rating is 16A. Terminals for 4mm² standard and 6mm² are available upon request. State which on order. If work is to be done on any Luminaire which has already been connected to the electrical system, it must be isolated from the system. The diffuser cover is swung down and removed if convenient by swivelling back as far as possible and the reflector tray is then slid out after releasing the locking screws. This gives access to the mains terminals

Mains terminal blocks on the emergency luminaires are marked Lc Ls N Earth.

Switching the voltage on the Ls connection enables the luminaire to be switched on and off without the emergency function being activated. The Ls connection is insulated from Lc and has a signal function only drawing a very small current.

The emergency units can be connected as switched or un-switched as standard, and non-maintained units on request. The switching facility is to allow the luminaire to be switched off whilst still charging the battery. Where switching is required, the un-switched line (Lc) is connected to the continuous mains supply. A link is fitted during assembly between Lc and switched line (Ls); this is removed for the switch-able mode. If the link is removed and Ls not supplied, the unit will only operate on emergency.



3.7.1 Installation of HF and Emergency

Following the mounting of the apparatus and the connection of the supply cable the unit **cannot** be insulation tested. When the unit is ready for operation the mains and the battery connections must be made, the unit is supplied with the battery disconnected. After commissioning the unit can be shut down for a long period without loss of function. However, with emergency versions the battery should be disconnected to ensure battery life is maintained.

3.8 Servicing and Operation

3.8.1 Opening and Closing the Cover

The procedure for opening the cover is as follows:

Insert the tool into one of the slots in the clamping bar with the end of the tool located into the outer flange of the body as a fulcrum point, a wide blade screwdriver is recommended. Gently lever the tool away from the diffuser, the clamping bar will begin to open. Insert the tool in the other clamping bar slot and gently lever away from the diffuser the clamping bar will open and the cover will be retained by the hinge. Should difficulty be experienced, reinsert the tool in the first slot and repeat the procedure.

The procedure for closing and securing the cover is as follows:

Ensure the hinge mechanism is clear of any obstruction and then swing the diffuser into the closed position. Support the diffuser in position whilst pushing the clamp bar over the edge of the diffuser. Apply even pressure at both ends of the bar and press the bar over centre.

3.8.2 Removal and Replacement of Clamping Bar (if required)

Open the luminaire as above and remove the diffuser or let it swing down. Press the clamping bar towards the closed position, tip forward beyond the closed position and the clamping bar will be released from the body. To replace the clamping bar, put in position on the body with the front edge pointing as far inwards as it will go. Click the bar outwards and bring back to the normal closed position. The clamping bar should then be secured in position, open the clamping bar fully by using hand or screwdriver pressure (avoid damaging the gasket), the clamping bar is then ready to accept the normal closure of the diffuser.

3.8.3 Releasing the LED Tray / Gear Tray

Loosen the four fixing screws retaining the LED / Gear tray and slide over keyhole slots. The tray will hang on the retaining cords without stressing the wiring between body and tray. Replace in reverse order.

3.8.4 Retro Fitting Lamps to LED's

Before opening the front cover ensure that the luminaire is isolated from the mains supply. Access for retro fitting is via the front cover, care is to be taken as there is limited suspension of the cover. Make sure that the correct ESD protection is taken during LED replacement to avoid electric discharge to the PCB.

3.8.5 Commissioning

Energise the mains and check that LED's light when the supply is energised.

Emergency luminaires are supplied with the Battery plug/Socket disconnected. Just prior to switching power on, connect battery plug and socket.

Emergency luminaires will require battery packs to be cycled to obtain the full duration/capacity of the Ni-Cd battery cells. It is recommended that the unit is charged for a minimum period of 24 hours, then permitted to discharge via emergency operation (power OFF), and then charged again for a minimum period of 24 hours.

If checking battery duration at this time it may be necessary to repeat the cycle to obtain the full 3-hour duration.

3.8.6 Post Commissioning Storage

It is assumed that during commissioning the battery plug and socket are connected.

If the power is to be removed after commissioning for a period, our recommendations, along with guidance from the battery manufacturer, are:

- Up to 6 months – No action required. Mains power can be reapplied during this time and the battery will accept a charge.
- 6 to 12 months – Disconnect battery plug and socket to maintain charge in the battery. Before re-connection of mains power re-connect the battery plug and socket. Mains power can be re-applied, and the battery will accept a charge.
- Longer than 12 months – Disconnect battery plug and socket. Approximately every 6 months carry out a charging/discharging cycle, 24 hours charging followed by 3-hour discharge and another 24-hour

charge, then isolate power and disconnect battery plug & socket. This is to avoid deep discharge of cells, which is caused by a trickle discharge or by long term storage. This could lead to the cells not accepting a charge from the inverter or not achieving full expected duration.

- If the battery is to be checked separately, it should be charged using a **constant current charger** at 200/400mA for 30/15 hours for the 4Ah. Discharge measurement is not easy as the current is proportional to the voltage for resistance loads, so it must be averaged. Discharge the battery at 1 to 2A and multiply current by time. Do not discharge below 1 volt per cell, which is 5V. The capacity should be 75% or more of normal.

3.9 Inspection and Maintenance

On battery models, we recommend that the battery duration is checked periodically.

Important: *Isolate the mains supply and disconnect the battery terminal before carrying out any work.*

3.9.1 Replacement of Electronic Ballast and EM converter Unit

The electronic ballast and EM converter contain no replaceable parts. Should it be found necessary to replace these parts, the following procedure should be adopted:

Ensure that the Luminaire is isolated from both mains and battery supplies, otherwise a risk of shock may occur. Disconnect the leads on the ballast at the terminal block. Undo the ballast securing screws and washers and withdraw the ballast from the gear body. Replace in reverse order. Replacement of the EM converter is identical.

3.9.2 Routine Examination

The Luminaire must be de-energised before opening. Individual organisations will have their own procedures. What follows are guidelines based on our experience:

- 1 Ensure LED's are lit when energised by mains supply.
- 2 Visually check diffuser cover for damage, this should only be cleaned using a damp cloth to avoid static, and only use recommended detergents for polycarbonate. If the polycarbonate is discoloured or damaged a new diffuser cover must be fitted.
- 3 When de-energised and left to cool, there should be no significant sign of internal moisture. If there are any signs of water ingress, the Luminaire should be opened, dried and any likely ingress points eliminated by re-gasketing or other replacements.
- 4 Check cable glands for tightness and nip up if required.
- 5 Check any external and internal earths.
- 6 Check all terminations are firmly screwed down, tighten if necessary.
- 7 Check clips visually for any damage and replace, if necessary.
- 8 If it has been suspected that the Luminaire has suffered mechanical damage, a stringent workshop check on all components should be made. All components can be removed from the Luminaire for inspection.

4.0 Electrical Fault Finding and Replacement

The supply must be isolated before opening the Luminaire.

Any live fault finding must be done by a competent electrician and, if carried out with Luminaire in place, under a permit to work.

The control gear can be tested for continuity of connections with a low voltage tester.

If LED's go out repeatedly, and replacement components do not work or expected life is reduced, the control gear should be returned for replacement / testing.

On re-assembly all faulty / damaged wiring should be replaced, and connections checked.

5.0 Disposal of Material

The unit is made from combustible materials. The control gear contains plastic parts and polyester resin. All electrical components and the body parts may give off noxious fumes if incinerated. Take care to render these fumes harmless or 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.

5.1 LED's

LED's in modest quantities are not "special waste". They should be broken up in a container to avoid injury. Avoid inhaling dust.

5.2 Battery Disposal

Nickel cadmium batteries are defined as 'controlled waste' under the hazardous waste regulations and disposer needs to observe a 'duty of care'.

Batteries can be returned to the manufacturers for re-cycling. 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.

TABLE A - SCHEDULE – LED CONTROL GEAR – EMERGENCY – 220 to 240Vac			
Product code	Body Type	Nominal Volts	Power Consumption Watts
PR3I/02L/LE/EM	2ft Twin	220-240Vac 50/60Hz	20
PR3I/04L/LE/EM	2Ft Twin	220-240Vac 50/60Hz	27
PR3I/07L/LE/EM	4Ft Twin	220-240Vac 50/60Hz	49

Table B		Series Emergency circuit		Refer to Section: 1.0
No. of LED strips	Lumens	Driver Current	Line Current	Inrush Current/ Duration
02L 1 x 560mm	2296	400mA	0.1 – 0.09A	31A (1.7 μs)
04L 2 x 560mm	3526	300mA	0.13 - 0.12A	31A(1.8 μs)
07L 2 x 1120mm	6596	600mA	0.24 - 0.22A	36A (2.7 μs)



6.0 Emergency Self-Test or Battery Monitoring Versions

As standard this version can test the performance of the emergency Luminaire in accordance with IEC 62034. Unless the /NST (Non Self-Test option has been purchased)

Commissioning

After installation of the Luminaire and initial connection of the mains supply will initiate commissioning where the battery will remain on charge for an uninterrupted 24 hours. At this time the module will conduct a commissioning test for the full duration.

The 24 hours recharge occurs also if a new battery is connected or the module exits the rest mode condition. The following automatic commissioning duration test is only performed when a battery is replaced and fully charged (after 24 hrs) and the interval time is not set to zero, otherwise the system is expected to perform the testing.

If the mains supply is to be interrupted for more than 7 days, then the battery **MUST** be disconnected.

Functional test

The default setting is a 5 second test on a weekly basis.

Duration test

The default setting is a duration test conducted every 52 weeks.

6.1 Versions with option of DALI dimming and controls

If the /DM version of this fitting has been ordered, this comes with the additional ability of monitoring and tailoring test features.

Functional test

The time of day and frequency of the 5 second function test can be set by the DALI controller. The default setting is a 5 second test on a weekly basis.

Duration test

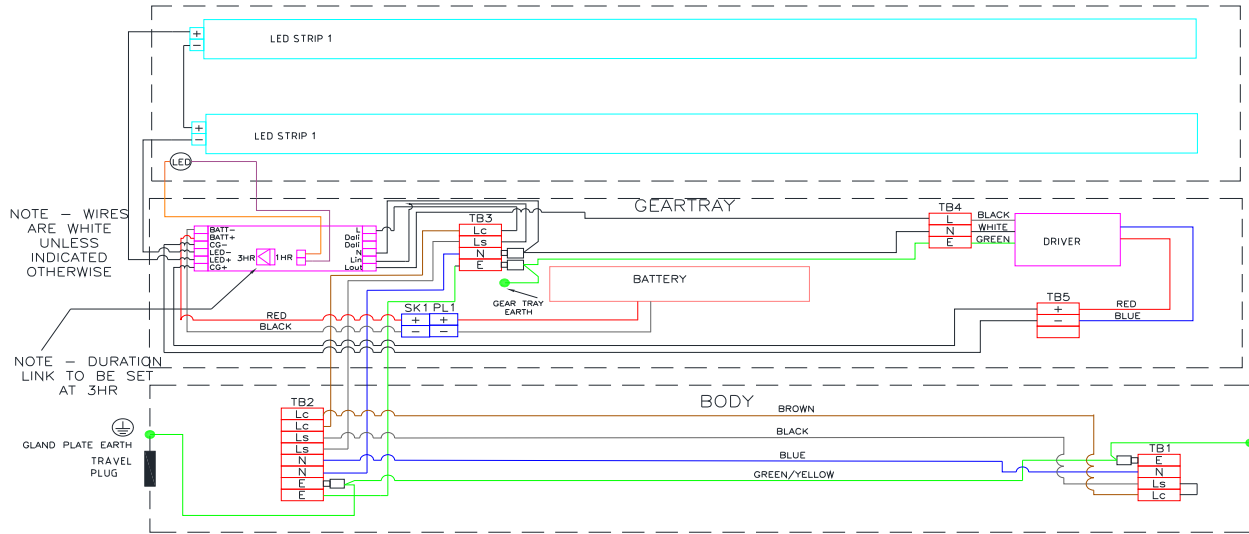
The time of day and frequency of the duration test can be set by the DALI controller. The default setting is a duration test conducted every 52 weeks.

LED Indicator - A bi-colour LED indicates the status of the module as follows:

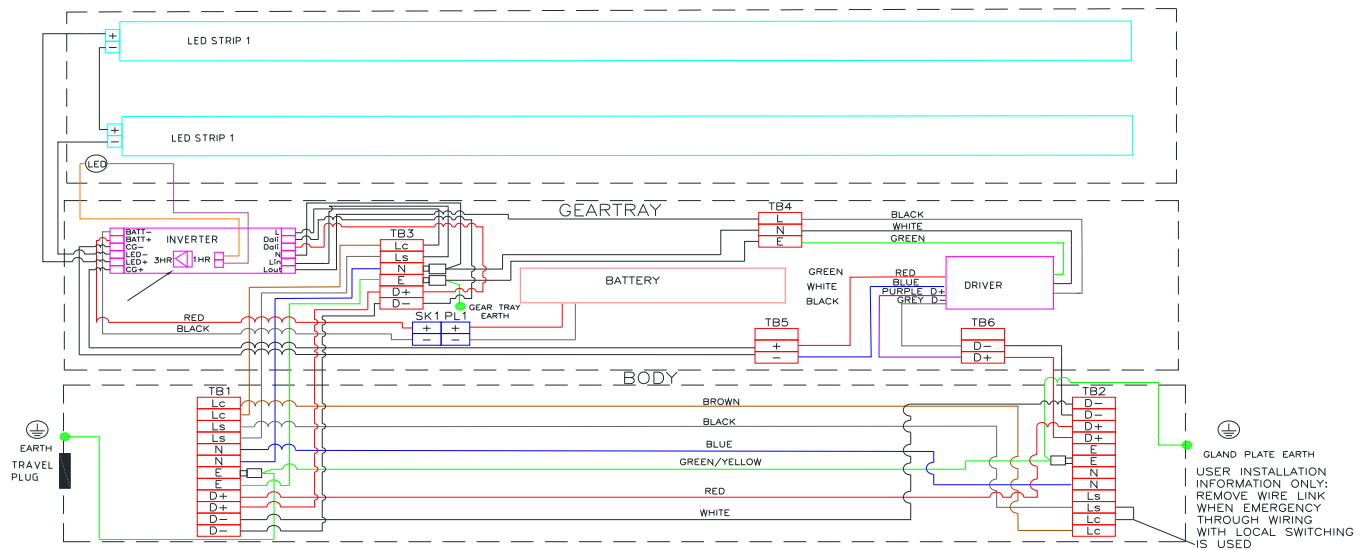
LED Indication	Status	Comment
Permanent green	System OK	AC mode
Fast flashing green (0,1 sec on – 0,1 sec off)	Function test underway	
Slow flashing green (1 sec on – 1 sec off)	Duration test underway	
Red LED on	Load failure	Open circuit / Short circuit / LED failure
Slow flashing red (1 sec on – 1 sec off)	Battery failure	Battery failed the duration test or function test / Battery is defect or deep discharged/ Incorrect battery voltage
Fast flashing red (0,1 sec on – 0,1 sec off)	Charging failure	Incorrect charging current
Green and red off	DC mode	Battery operation (emergency mode)



Typical 07L Emergency LED Wiring Diagram





Typical 07L Emergency Dimming LED Wiring Diagram





Chalmit Lighting is a leading supplier of Hazardous Area lighting products

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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	Protecta LED Industrial Emergency		
Catalogue	PR3I/***/**/EM Example: PR3I/02L/LE/EM		
Area Classification	Industrial, (Non- Hazardous)		
Ingress Protection	IP66/67		
Ambient	Emergency -25°C to +50°C		
Terms of the directive:		Standard & Date Certified to	Standards Date Declared to
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 09/11/2021
 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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