



## Self-contained Battery Backup Version Operating Instructions

## LINEAR LED fixture for Hazardous areas.



### **Important Information:**

This apparatus is suitable for use in locations: Class I Division 2 Groups A B C D, Class II Division 1 Groups E F G, Class II Division 2 Groups F G, Class III, or unclassified locations. Temperature Rating: T4, -20°C to +65°C.

These instructions contain important safety information, read and follow them carefully. Dialight will not accept any responsibility for injury, damage or loss which may occur due to incorrect installation, operation or maintenance.



## IMPORTANT SAFEGUARDS READ AND FOLLOW ALL SAFETY INSTRUCTIONS



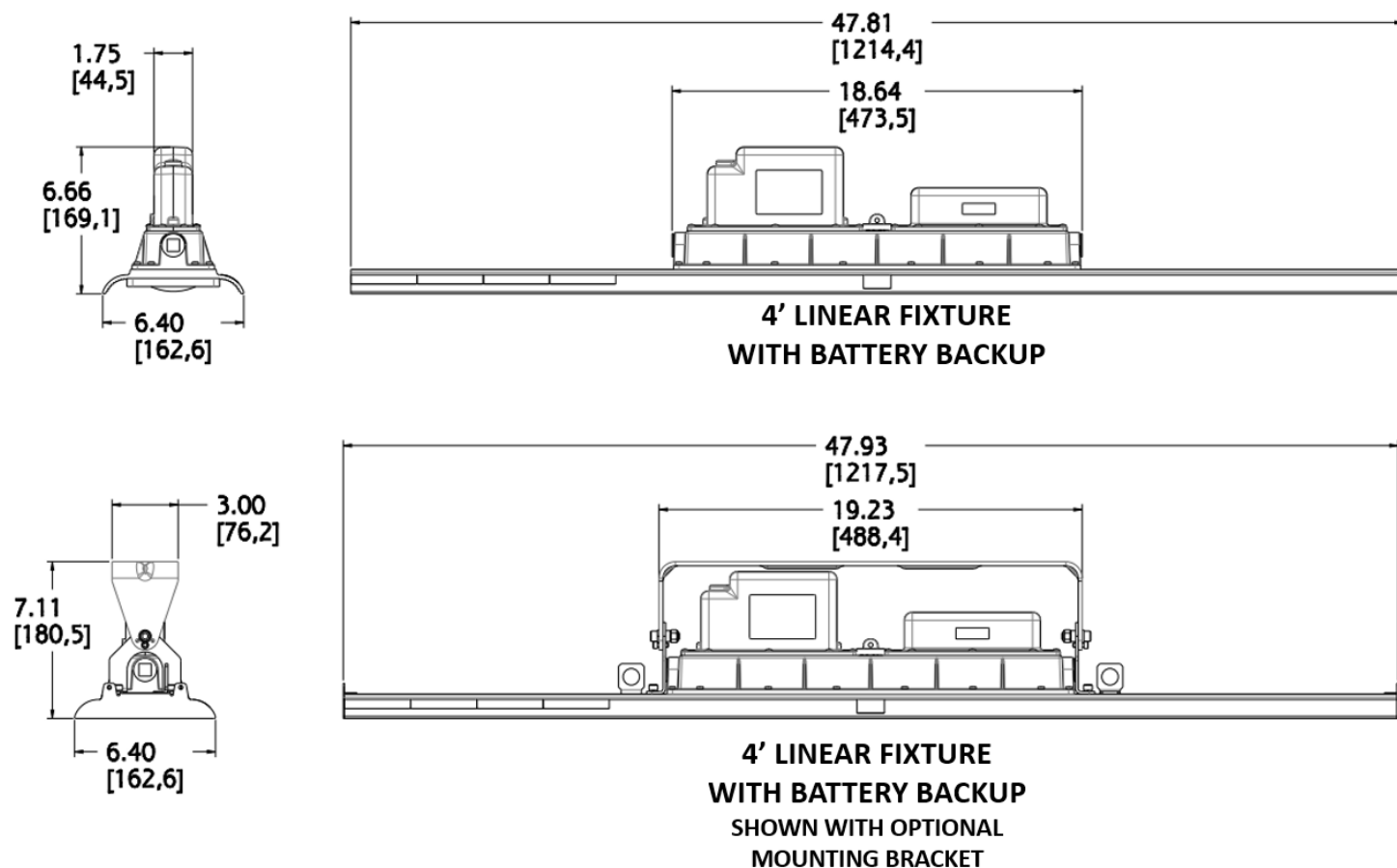
- **Do NOT let power supply cords touch hot surfaces**
- **Do NOT mount near gas or electric heaters**
- **Use CAUTION when servicing batteries. Battery acid can cause burns to skin and eyes. If acid is spilled on skin or in eyes, flush acid with fresh water and contact physician immediately**
- **Equipment should be mounted in locations and at heights where it will not be subjected to tampering by unauthorized personnel.**
- **The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition.**
- **Do NOT use this equipment for other than intended use.**

**SAVE THESE INSTRUCTIONS!!**

- **The installation, operation and maintenance must be carried out by an electrician suitably trained in hazardous areas.**
- **The technical data indicated on the LED fixture are to be observed.**
- **Changes of the design and modifications to the LED fixture are not permitted.**
- **Repairs must only be carried out by a qualified electrician with hazardous area knowledge.**
- **Only genuine Dialight replacement parts must be used when unforeseen repairs are required.**
- **Observe the national safety rules and regulations during installation.**
- **Do not keep these operating instructions inside the LED fixture during operation.**
- **Do not open the LED fixture when energized.**
- **Wait 10 minutes before opening after de-energizing the LED fixture.**

**SAVE THESE INSTRUCTIONS!!**

Figure 1. Dimensions in inches [mm]



**Contents Supplied with Luminaire:**

- 1 x LINEAR Luminaire
- Mounting Brackets (optional)

**ELECTRICAL SPECIFICATIONS**

Rated Input Voltage:	120-277VAC 50/60Hz
Power Consumption:	85 W
Operating Temp:	-20°C to +65°C
Ingress Protection:	IP66

**Suitable for Wet Locations**

- Class I, Division 2, Groups A, B, C, D
- Class II, Division 1, Groups E, F, G
- Class II, Division 2, Groups F, G
- Class III

**Temperature Rating: T4, -20°C to +65°C**

**MECHANICAL SPECIFICATIONS**

Housing Material:	Copper free Aluminium.
Housing Colour:	Light Gray, RAL: 7040
Dimensions:	see Figure.1
Lens Material:	Clear Polycarbonate, Anti-Static Coating
Cable Entries:	3 OFF 3/4" NPT
Tightening Torques	See mounting instructions

**NOTE:** For battery replacement, only the battery compartment cover located on the top side of the fixture should be removed.

ALL CONNECTIONS SHOULD BE  
MADE FROM LEFT COVER ONLY



### **Electrical Connections**

**Do not remove the battery housing unless the battery is being replaced.**

**All connections to be made according to location code.**

**When wire nuts are used for installation they need to be sized to fit the rated wire. No more than 3 wires should be in any wire nut connection.**

The AC-1 connection is a permanent live feed. It powers the main normal mode operation, battery charger and is used to activate battery backup mode.

Luminaire Electrical Connections: Connect the black (live) wire to the black AC-1 wire. Connect the white (neutral) wire to the white AC-1 wire. Connect the green (ground) wire to the green AC-1 wire.

**ONLY SINGLE CABLES TO BE USED ON EACH CONNECTION.**

### **Electrical Connection Color Code**

**L1 = LIVE / BLACK**

**N = NEUTRAL / WHITE**

**E = GROUND / GREEN**

**Batteries come with factory fitted connections that should be not removed during battery replacement**

## Conformity with Standards

This equipment conforms to the standards specified in the ATM.

It has been designed, manufactured and tested in accordance with UL844.

## Equipment Application

This lighting equipment is intended for use in locations as listed under Electrical Specifications. The product can be used inside or outside to illuminate areas with potentially explosive atmosphere. This fixture is a sustained battery backup light. All LEDs are illuminated when the fixture is operating under normal A/C power. The internal 3.6V 10Ah battery pack provides a minimum 3 hour emergency duration (reduced light output).

The Linear fixture design incorporates an over-temperature control circuit that reduces input power should internal temperatures reach a maximum level. In this event, light output may be reduced.

## Installation

Ensure that the mains voltage supply is disconnected before connecting the luminaire. Install the equipment in accordance with the manufacturer's instructions as well as any other applicable electric codes.

Always transport and store the equipment in its original packaging and keep in a dry location.

When unpacking check for any cracks or damage in the housing, lens and gasket seal, if in doubt do not install! Contact your local sales rep or Dialight.

*The improper installation, operation and maintenance of these luminaires may result in the invalidation of the warrantee.*

## Mounting Luminaire

There are 2 mounting options for this luminaire, depending on which mounting accessories were supplied on purchase (See Luminaire Mounting Options).

### Option 1. Conduit Mounting

For maximum long term reliability and light output, the light must be installed in free air. The Linear fixture is threaded for 3/4" NPT, at the center and each end of the Power Supply Housing, in order to be assembled to conduit. Use conductive pipe sealant for all fittings and conduit.

If fixture is pendant mounted, a locknut must be used to prevent rotation of fixture.

Connect incoming power as described under "Electrical Connections". All connections to be made according to location code.

**Warning:** If there is moisture present or chance of it in the conduit system than necessary precautions



should be taken by the installer to prevent the moisture from entering thru the cable or conduit and entering the fixture. Failure to comply with the above could void factory warranties.

**Warning:** All cable entries must be sealed with either a certified blanking plug, conduit, or a certified cable gland.



NOTE: The Certified blanking plugs located on the power supply enclosure are factory installed but should be verified for tightness before finishing the installation. Questions in regards to installation should be directed to your local sales rep or Dialight.com.

### Option 2. Ceiling or Flat Wall Mounting

Assemble the mounting brackets to the luminaire with the screws supplied in the optional mounting bracket kit.

Connect incoming power as described under "Electrical Connections". All connections to be made according to location code.

**Warning:** All cable entries must be sealed with either a certified blanking plug, conduit, or a certified cable gland.



NOTE: The Certified blanking plugs located on the power supply enclosure are factory installed but should be verified for tightness before finishing the installation. Questions in regards to installation should be directed to your local sales rep or Dialight.com.

## Cable Entries and Cables

### **IMPORTANT:**

***The cable glands used with this fixture must be certified to the classifications listed in Electrical Specifications.***

***The cable used must be suitable for the site application and/or the site requirements.***

When assembling the cable entries for the mains connection, always observe the manufacturer's specifications for the glands used.

Unused cable entries must be closed and sealed by a certified blanking plug.

The cable entries should be securely tightened to ensure that the minimum protection rating is achieved. The cable entry should be rated to minimum of IP66 to maintain the protection level of the fixture.

***Do not over tighten as the protection rating may be compromised.***

***Always refer to gland manufacturers data for torque settings.***

**Warning:** All cable entries must be sealed with either a certified blanking plug, conduit, or a certified cable gland.



## Special Conditions for Safe Use

Suitably certified cable entries must be used which include a sealing washer to maintain the IP66/67 rating of the enclosure.

The glands must be suitable for use within an operating temperature range of -40°C to +80°C.

The gland must be suitable for the classifications listed in Electrical Specifications to maintain protection, the entry thread shall also be suitably sealed to maintain the ingress protection rating of the fixture.

When used with steel basket weave armour or braided (screened) cable the basket weave armour or braid is unable to carry the cable load without fracture therefore the cable must be clamped and cleated to prevent pulling on the cable being transmitted to the cable terminations.

## Electrical Connection

When connecting the conductors extra care should be taken in order to maintain the hazardous protection. The insulation of the conductors shall reach up to any connectors. The conductor itself shall not be damaged. The connectible minimum and maximum conductor cross sections shall be observed (see electrical connection data).

All connections to be made according to location code.

The AC-1 connection is a permanent live feed. It powers the main normal mode operation, battery charger and is used to activate battery backup mode.

In sustained operating mode a single live feed is connected to AC-1. All LEDs are illuminated

## Taking into operation

Prior to operating, check the luminaire for its correct installation in compliance with these operating instructions and other applicable regulations.

**Attention: Only fully certified equipment may be put into operation.**

Improper installation and operation of this luminaire may invalidate the warranty.

Upon applying power, confirm the operation of battery circuits by observing the green status LED located under the lens cover. The green status LED will light only if

- The battery is connected
- The battery is charging and within acceptable voltage limits

If the green Status LED is not lit with power applied to the AC-1 feed, disconnect power and rectify any faults.

## In Service, Battery Charging and Condition Monitoring

When power is applied (initially or after an outage), the battery should be charged for 30 hours. Thereafter, in order to maximize battery life while maintaining emergency capacity, the battery charging operates for 1 minute in every hour.

The battery is continually monitored for voltage limits and charge current acceptance (during charge pulses).

If the mains power supply is interrupted, the fixture will switch to battery Backup mode operation at reduced light output. Expected battery backup mode duration exceeds 3 hours.

If, during an battery backup mode cycle, the battery capacity has deteriorated to the point that 3 hours is not achieved, then when power is restored this battery "failure" will be signalled by flashing the green status LED once every 8 seconds. The fault indication will be automatically reset when the battery pack is replaced.

## Maintenance and Battery Replacement



### WARNING:

WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS.  
AVERTISSEMENT - RISQUE D'EXPLOSION - AVANT DE DECONNECTER L'EQUIPEMENT, COUPER LE COURANT OU S'ASSURER QUE L'EMPLACEMENT EST DESIGNÉ NON DANGEREUX.

**Disconnect the power supply to the luminaire before maintenance or repair.**

**Wait at least 10 minutes before opening the LED luminaire after de-energising.**

The battery pack should be replaced every 3 years for continued reliable operation. To replace the battery:

- 1) Disconnect the mains power – Battery Backup mode will operate.
- 2) Unscrew the battery compartment housing.
- 3) Disconnect the two pole battery connector.
- 4) Remove the battery pack
- 5) Unpack the new battery pack and inspect for damage.
- 6) Install new battery pack and secure in place
- 7) Reconnect the battery connector.
- 8) Re-install the compartment ensuring seals are not damaged, and cable or straps are not trapped.
- 9) Tighten all screws to 16-20 in/lbs.
- 10) Re-energise the circuits and check the green status LED illuminates. Allow 24 hours charging before expecting full emergency duration.

Dispose of old batteries in accordance with local regulations.

If any unforeseen repairs are required then always observe explosion protection regulations and requirements.

Do not drop or use batteries that appear to have been damaged.

Connections supplied on the battery must be used and should not be replaced.

NOTE: Shorting of the battery will result in an unsafe condition and could cause the battery to explode.

## Inspection

Within the scope of the maintenance or inspection routine the following should be included.

Cable entries must be free from corrosion.

Status LED must be illuminated and not flashing.

## Repairs / Overhaul / Modification

***The relevant national regulations which apply to the maintenance/servicing of electrical apparatus in explosive atmospheres shall be observed.***

WARNING - EXPLOSION HAZARD –  
SUBSTITUTION OF COMPONENTS MAY IMPAIR  
SUITABILITY FOR CLASS I, DIVISION 2.

AVERTISSEMENT - RISQUE D'EXPLOSION - LA  
SUBSTITUTION D'E COMPOSANTSP EUTR ENDRE  
CE MATERIEL INACCEPTABLE POUR LES  
EMPLACEMENTS DE CLASSE I, DIVISION 2.

Any unforeseen repairs or overhaul may only be carried out with genuine Dialight spare parts.

***Should the luminaire enclosure be damaged, only a replacement will be permitted. In case of doubt, the equipment should be returned to Dialight for inspection/repair.***

***\*\*Modifications to the device or changes of its design are not permitted.***

This equipment must be operated according to the intended purpose in a perfect and undamaged condition.

If covers are removed, close covers according to the steps below

- 1) Remove any foreign bodies from the fixture
- 2) Pay attention when fitting the covers to the enclosure, make sure the seals are clean and undamaged.
- 3) Do not allow any cables to become trapped between the cover and the housing.
- 4) Tighten all screws to 16-20 in/lbs.

## Disposal/Recycling

When the apparatus is disposed of, the respective national regulations on waste disposal should be observed.

## Ordering Spare Parts

### Replacement Batteries:

Models: Use 3.6VDC, 10 Ah NiMH rechargeable battery, Dialight p/n **LSXBATREP1**, only.

WARNING - EXPLOSION HAZARD - BATTERIES  
MUST ONLY BE CHANGED IN AN AREA KNOWN  
TO BE NON-HAZARDOUS.

AVERTISSEMENT- RISQUE D'EXPLOSION- AFIN  
D'EVITER TOUT RISQUE D'EXPLOSION,  
S'ASSURER QUE L'EMPLACEMENT EST DESIGNE  
NON DANGEREUX AVANT DE CHANGER LA  
BATTERIE.

Should any unforeseen spares be required then please contact your local sales rep or Dialight for availability.

WARNING - EXPLOSION HAZARD –  
SUBSTITUTION OF COMPONENTS MAY IMPAIR  
SUITABILITY FOR CLASS I, DIV 2.

AVERTISSEMENT - RISQUE D'EXPLOSION - LA  
SUBSTITUTION D'E COMPOSANTSP EUTR ENDRE  
CE MATERIEL INACCEPTABLE POUR LES  
EMPLACEMENTS DE CLASSE I, DIVISION 2.

## Chemical Compatibility Guide

Footnote on Chemical Compatibility Guide:

The chemical compatibility data referenced in this manual was supplied by the raw material manufacturers and is intended as a general guide. The data represents the basic material properties and does not necessarily represent the performance of the final product due to manufacturing process and design variations for each final product. Chemical compatibility is highly dependent on concentration, temperature, humidity, and other environmental conditions and therefore the customer assumes responsibility for evaluation of gaseous or direct contact chemical compatibility at their site prior to product installation.

For general guidelines describing chemical compatibility, visit us at:

[www.dialight.com/pubs/MDTFCHEMRFLX001.pdf](http://www.dialight.com/pubs/MDTFCHEMRFLX001.pdf)