



Manual for installation and maintenance

PYROS Explosion-proof Luminaire **Models: Pyros / Pyros LED TUBES /** **PYROS LED**



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1) Explosion-proof Luminaire



1.1 Description of the Luminaire

The **Pyros** explosion-proof luminaire has been designed to operate in environments where explosive atmospheres may form or are present, in accordance with the ATEX 2014/34/EU Directive .

It consists of a tubular body of 4 mm polycarbonate, which provides high impact resistance, and is closed via aluminium caps at each end.

The **Pyros** explosion-proof lamp is designed for use with 18W, 36W and 58W T8 fluorescent tubes, along with the corresponding electronic ballast. The fluorescent tube can easily be changed via the connection cap. There are available versions with LED tube and integrated last generation LED modules.

The installation of the lamp is carried out using rubber-protected zinc-plated steel clamps.

The **Pyros** lamp has two cable inputs which are ready for the installation of stuffing glands or caps (NOT included) that have the explosion-proof certificates according with following cable glands marking:



II 2GD Ex db IIB+H2 T6 Gb
Ex tb IIIC T85°C Db

To avoid damage during handling and installation it is recommended that the steps described in this manual are followed and the conditions of use are adhered to.

The PYROS light fitting will be accompanied by the following documentation from AIRFAL INTERNATIONAL, S.L. on delivery:

- Explosion-proof luminaire.
- Installation and maintenance manual.
- UE examination Type Certificate.

1) Explosion-proof Luminaire



In the event of any part of this documentation being missing, contact the supplier or distributor of the equipment.

Explosion-proof luminaire

Model **Pyros** fluorescent 18W, 36W, 58W. LED tubes 600/1200/1500mm. LED Modules.

Protection Standard IP66

Fluorescent / LED tube: II 2 GD Ex db IIB+H2 T6 Gb / Ex tb IIIC T85 °C Db



LED module version: II 2 GD Ex db op is IIB+H2 T6 Gb / Ex op is tb IIIC T85 °C Db

“op is” marking is for optic radiation protection.

This luminaire is designed according to the following regulations :

UNE-EN 60079-0:2012+A11:2013 “General rules”.

UNE-EN 60079-1:2014 “Explosion-proof casing” Ex d.

UNE-EN 60079-31:2014 “Casing protection” Ex t

UNE-EN 60079-28:2015 (op is) “Protection of systems that use optic radiation”.

73/23/EC. Low Voltage Directive

89/336/CEE. EMC Directive

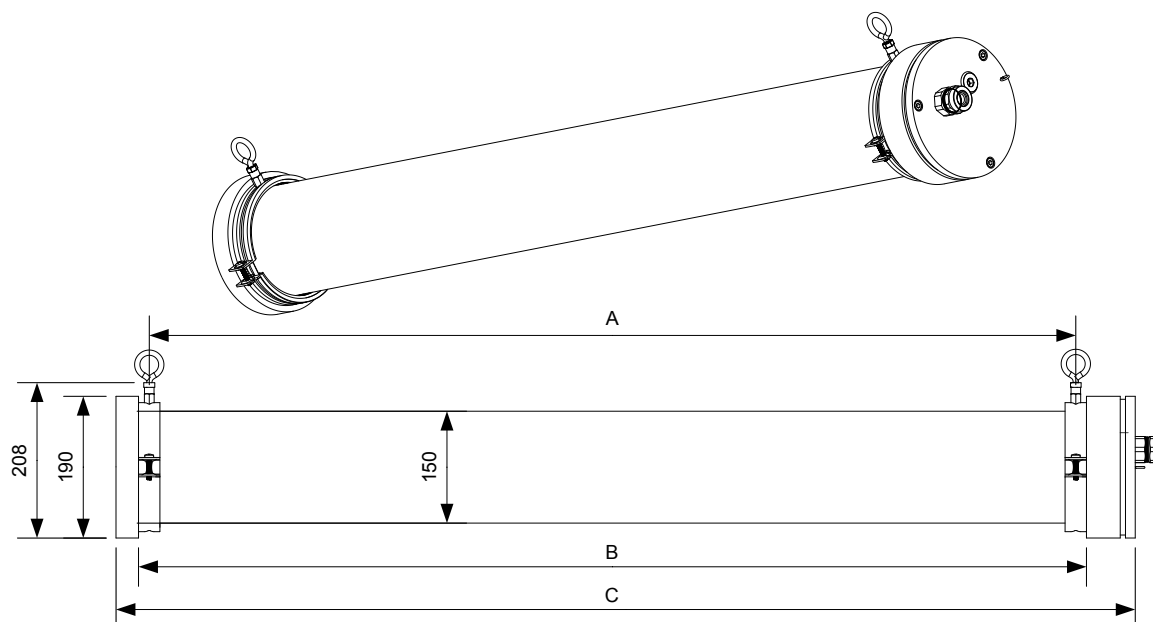
93/68/CEE. EC Mark Directive

2014/34/EU. Directive regarding equipment and protection

Systems for use in explosive atmospheres



1.2 General Dimensions



POWER	A	B	C
18W	626	654	748
36W	1235	1263	1357
58W	1537	1565	1659

1) Explosion-proof Luminaire



1.3 Applications

The **Pyros** explosion-proof light fitting has been designed to operate in environments where explosive atmospheres may form or are present, in accordance with the ATEX 2014/34/EU Directive. This excludes its use for other applications.

It is recommended that this light fitting be used in an ambient temperature of $-20^{\circ}\text{C} < T < 55^{\circ}\text{C}$ for fluorescent version, and $-20^{\circ}\text{C} < T < 50^{\circ}\text{C}$ for LED tube version, LED modules version or fluorescent with optional emergency kit.

The observation of these instructions is considered part of the lamp's designated use.

1.4 Technical specifications

The certification for the **Pyros** explosion-proof light fitting is:



Fluorescent / led tube: II 2 GD Ex db IIB+H2 T6 Gb / Ex tb IIIC T85 °C Db

LED module version: II 2 GD Ex db op is IIB+H2 T6 Gb / Ex op is tb IIIC T85 °C Db

The luminaire complies with the corresponding regulations with reference to materials for explosive environments and protection via explosion-proof casing.

Section 9 gives details of the most significant technical specifications of the luminaire.

1.5 Transport and storage

1.5.1 Transport

- The luminaires must be transported in sufficient packaging. Take appropriate measures and make provisions to avoid knocks.
- Any webbing, sling, rope or chain used during the transport of the luminaire must NOT under any circumstances be attached to the lamp itself.
- Knocks against walls, floors, and any other equipment during transport of the luminaire may cause serious damage to the luminaire or its components.

1.5.2 Storage

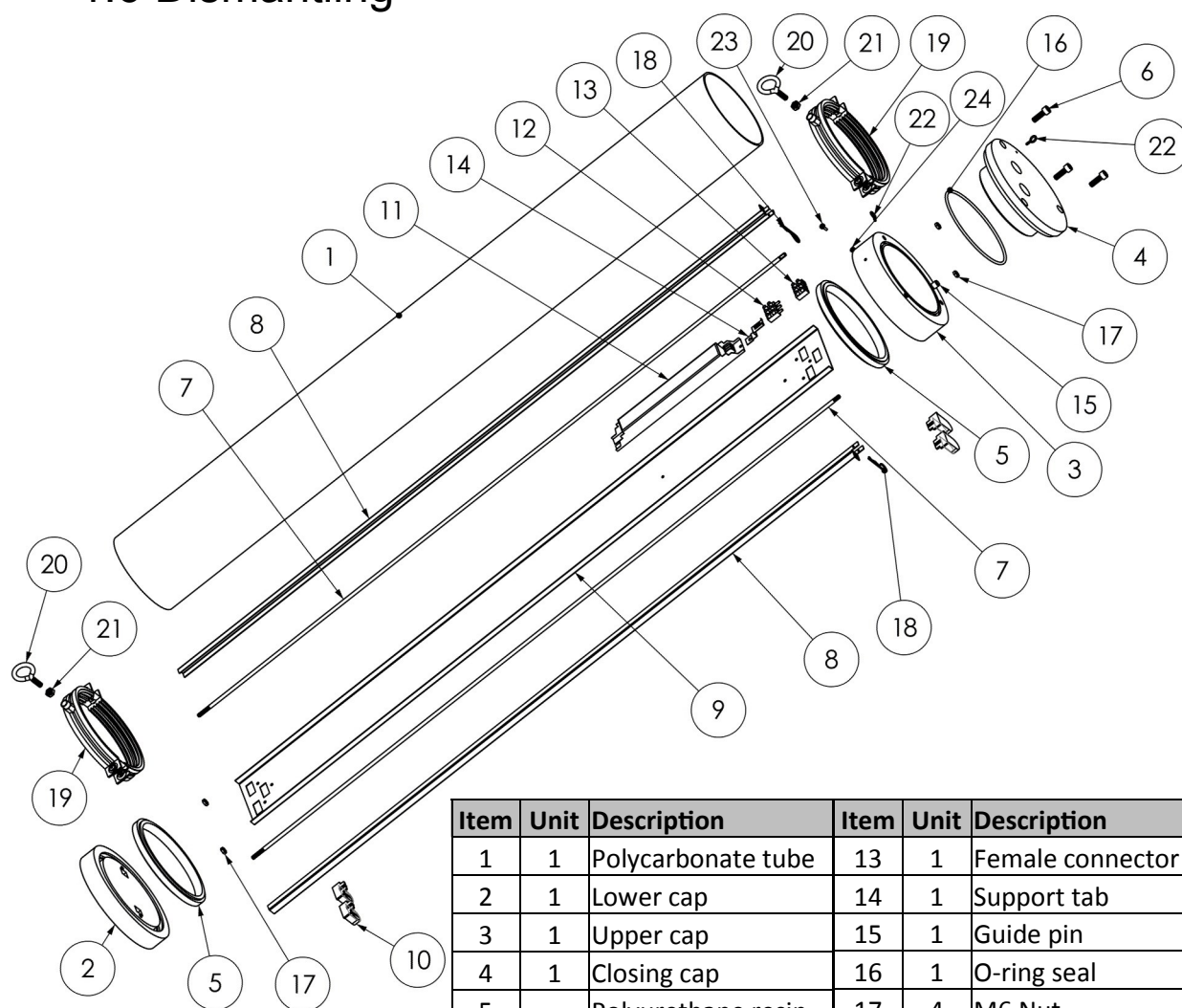
- The luminaires should be stored in dry, well ventilated areas in the original packaging.
- Avoid putting the luminaires directly on the floor. Make appropriate storage arrangements .

1) Explosion-proof Luminaire



- Cover the luminaires to protect them from dust and dirt
- Keep the sealing caps closed that keep the equipment airtight. If these have been interfered with, check that the sealing remains airtight.
- Keep the technical documentation which accompanies each luminaire in a safe place.

1.6 Dismantling



Item	Unit	Description	Item	Unit	Description
1	1	Polycarbonate tube	13	1	Female connector
2	1	Lower cap	14	1	Support tab
3	1	Upper cap	15	1	Guide pin
4	1	Closing cap	16	1	O-ring seal
5	-	Polyurethane resin	17	4	M6 Nut
6	3	M8 Allen screws	18	2	Stop pin
7	2	Fixing bar	19	2	Clamp
8	2	Reflector guide	20	2	Fixing eye bolts
9	1	Reflector	21	2	M8 eye bolt nut
10	4	Lamp holder	22	2	Chain eye bolt
11	1	Ballast	23	1	External Earth screw
12	1	Male connector	24	1	Earth washer

2) Safety Instructions



The applicable Directives and regulations concerning the use of devices, and any work carried out in dangerous areas (Environments with a risk of explosion due to an explosive atmosphere) must be observed during the time the light fitting is being installed.

The classification of dangerous sites into areas is the responsibility of the user whose installations or activities contain or are the origin of the such dangers.



Do not open the light fitting when it is switched on. **Wait 30 minutes before opening the lamp in normal working conditions** ($-20^{\circ}\text{C} < T < 55^{\circ}\text{C}$ for fluorescent version, and $-20^{\circ}\text{C} < T < 50^{\circ}\text{C}$ for LED tube version, LED modules version or fluorescent with optional emergency kit) so that there is no residual electrical charge in the equipment.

Do not open when an explosive atmosphere is present.

Any transformation or interference with the lamp or its components - which is different to that indicated in the maintenance section - is prohibited, unless previously authorized in writing. Improper handling could lead to a reduction or loss in the protection against the risk of explosion afforded by the equipment.

Work on the electrical systems or equipment must only be carried out by a qualified technician or specially instructed personnel under the control and supervision of those technicians, in accordance with the applicable safety regulations. Any qualified personnel must be familiar with all the cautions and warnings described in these instructions. Non-observance of these cautions and warnings could lead to serious personal injury and material damage, for which AIRFAL INTERNATIONAL S.L. will NOT be held responsible.

The width of the flameproof joints between the upper cap and the closing cap is superior than the values of the tables of the standard IEC 60079-1.

The flameproof joint are not intended to be repaired.

The light fitting can only be installed in locations with a low risk of impact.

WARNING: POTENTIAL ELECTROSTATIC HAZARD. SEE CLAUSE 8.1. It is very recommended to use ESD protection clothes and gloves to avoid LED damages because of electrostatic discharges.



3) Electrical connections



Before making electrical connections the safety instructions from the previous section must be observed.



Each PYROS luminaire is accompanied by technical documentation from AIRFAL INTERNATIONAL S.L. on delivery.

Section 9 gives the electrical specifications of the luminaire.

There is an external earth connection identified with a sticker, via an M4 screw and a toothed washer on the upper cap, next to the cable entry point.

3.1 Connection cable (NOT included)

The explosion-proof luminaire power supply cable will be three-pole, with a maximum section of 2.5 mm².

A suitable cable must be used to connect perfectly both with the luminaire and using the stuffing glands that are to be installed.



The use of an unsuitable cable could render luminaire operation UNSAFE under normal conditions, in addition to causing a loss of the guarantee in the case of any malfunction or fault.

AIRFAL INTERNATIONAL S.L. will NOT be held responsible for any malfunction of the luminaire due to the use of an UNSUITABLE cable.

3.2 Stuffing glands and cap (NOT included)

The **Pyros** luminaire has two cable inputs with an M25 (ISO 965/1) thread on the closing cap.

In cases of installation in a continuous line two stuffing glands must be used, one for the entry cable and one for the exit cable. The glands must be threaded more than 5 threads.



Otherwise it is necessary to use one stuffing gland for the entry cable and a explosion-proof cap to close up the other hole.

Both the stuffing glands and caps must be marked up as follows, in accordance with the 2014/34/EU (ATEX) Directive:



Fluorescent / LED tube: II 2 GD Ex db IIB+H2 T6 Gb / Ex tb IIIC T85 °C Db

LED modules version: II 2 GD Ex db op is IIB+H2 T6 Gb / Ex op is tb IIIC T85 °C Db

The use of unsuitable stuffing glands and/or caps could render light fitting operation UNSAFE under normal conditions, in addition to causing a loss of the guarantee in the case of any malfunction or fault.

AIRFAL INTERNATIONAL S.L. will NOT be held responsible for any light fitting malfunction due to UNSUITABLE stuffing glands and/or caps being use.

3) Electrical connections



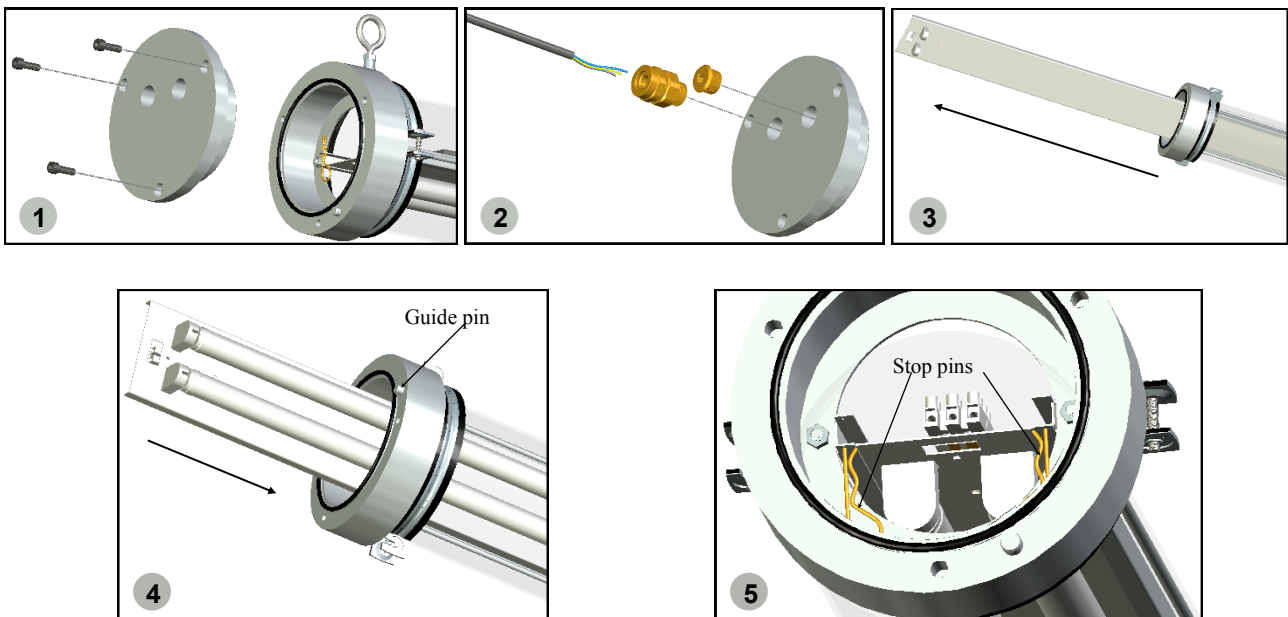
3.3 Connection procedure

It is recommended that the steps for connecting the light fitting are carefully followed to ensure correct operation.

It is recommended that a check is carried out to ensure there is NO electrical charge in the cable before starting the connection work.

The lamp has a rapid connection system in its interior via a plug-in terminal strip connection. The current cable is connected to the strip female terminal. This allows the lamp to be disconnected in order to work safely without any remaining electrical charge when the fluorescent tube is being replaced.

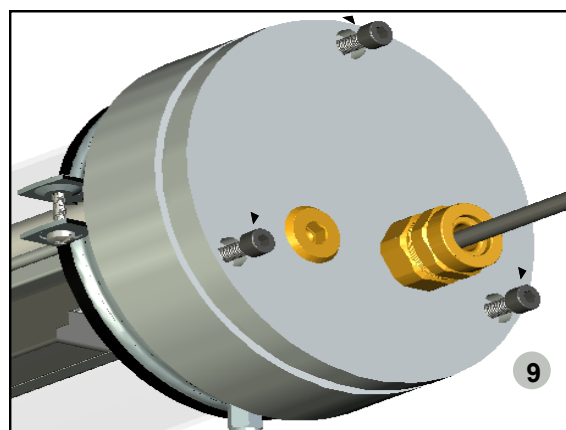
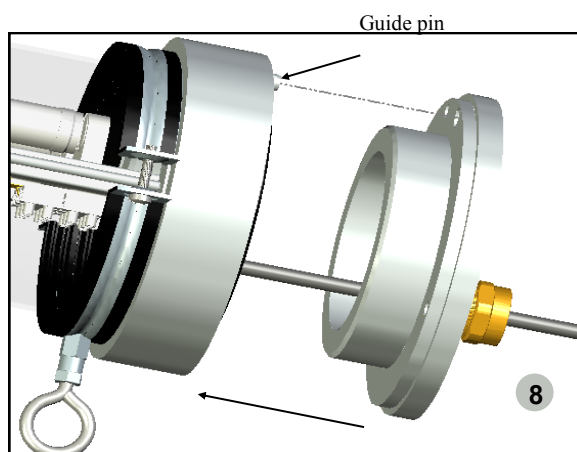
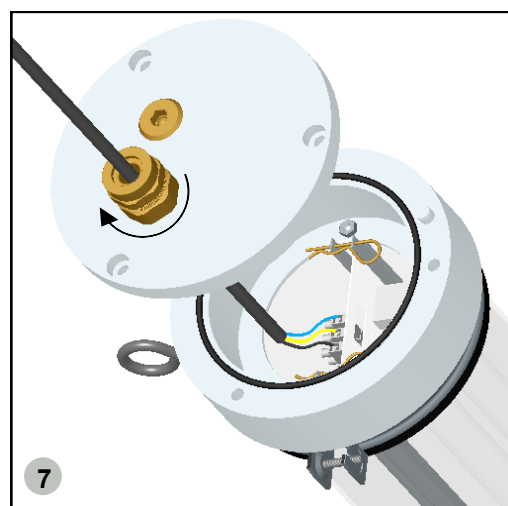
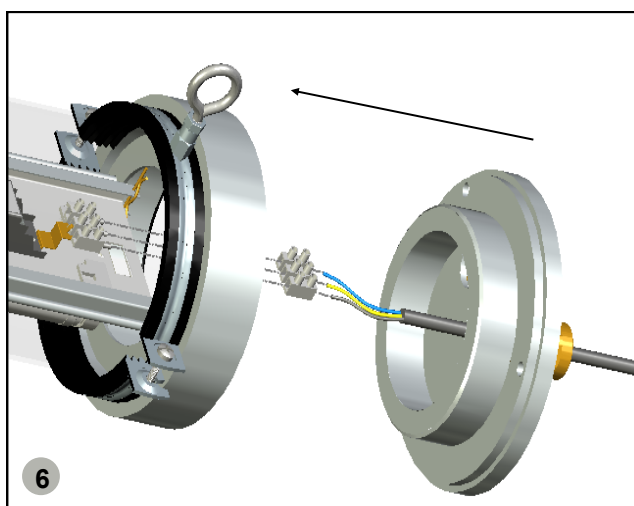
1. Use a 6 mm Allen key to remove the three screws that hold the closing cap, as seen in the figure. Then remove the closing cap, keeping it perpendicular with respect to the fitting axis in order to facilitate its removal.
2. Insert the stuffing gland(s) and/or caps in the corresponding holes. Make sure they are correctly fixed to the closing cap (At least 5 threads). Thread the cable(s) through the stuffing gland(s).
3. Remove the stop pins from the reflector guide and remove the reflector from the fitting.
4. Insert the fluorescent tubes in the fitting holders and replace the reflector in the same position in the fitting (ensure that the guide pin is on the same side as the fluorescent tubes).
5. Replace the two stop pins in the reflector guides.
6. DO NOT TOUCH WITH FINGERS the LED modules in the luminaires with this option.



3) Electrical connections



6. Connect the supply cables to the female plug (first remove the female plug). Once the plug has been connected replace it in its original position.
7. Ensure that the supply cables are correctly attached through the stuffing glands using a 35 spanner (or a wrench).
8. Close the fitting, making sure that the guide pin on the upper cap fits into the hole of the closing cap.
9. Use a 6 mm Allen key to tighten the three screws which hold the closing cap. The screws are **M8 Allen DIN 912 stainless steel property class A2-70**. If this screws are replaced, the new ones **MUST** be exact model and class.



10. Turn on the power, and make sure the lamp tubes are working correctly.



Check that all components are correctly fitted in their respective positions and that all fastenings have been fully tightened.

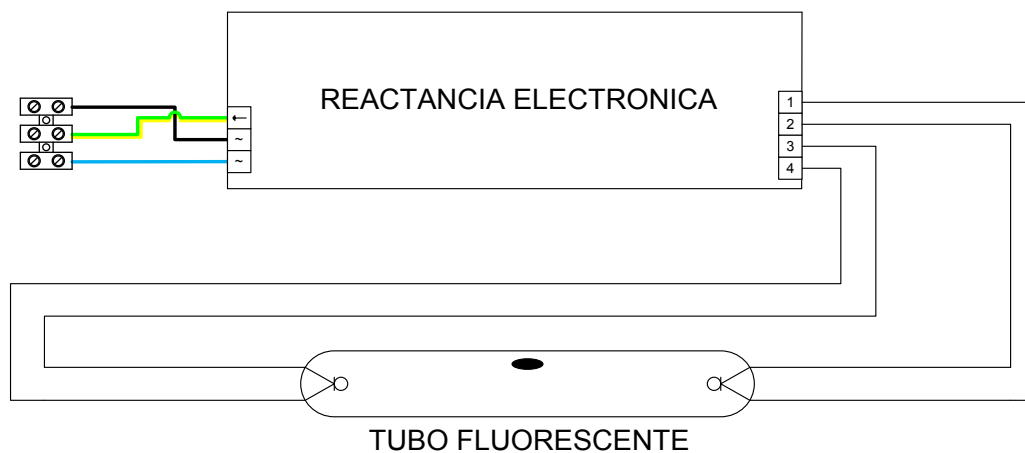
AIRFAL INTERNATIONAL S.L. will not be held responsible for any problem resulting from incorrect or incomplete assembly and connection.

3) Electrical connections

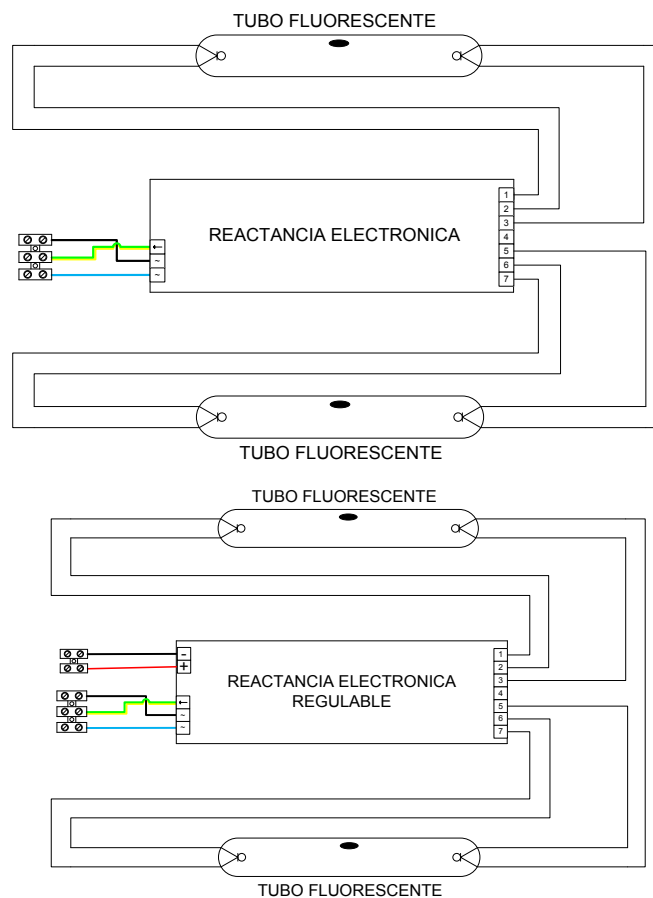


3.4 Circuit diagram

One-tube Luminaire



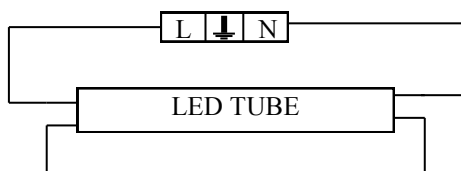
Two-tube Luminaire



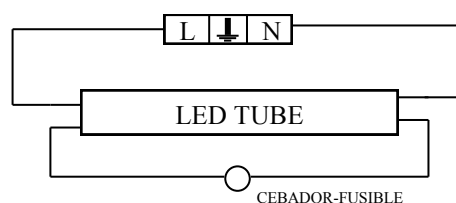
4) LED TUBE Version



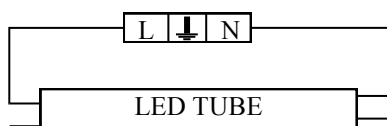
Possible LED Tube connections:



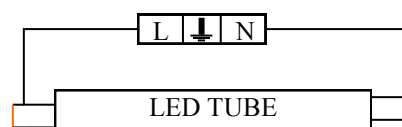
TYPE 1



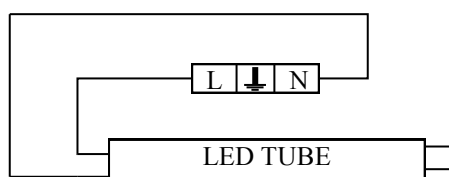
TYPE 2



TYPE 3



TYPE 4



TYPE 5

5) Fluorescent Emergency Version



Stand to the essential requirements of the directives :

- Low Voltage Directive: 2006/95/EEC.
- EMC Directive: 2004/108/EEC.
- 2014/34/UE Directive.

And agrees the following harmonized documents:

- UNE-EN6347-2-7: Lamp control gear -- Part 2-7: Particular requirements for d.c. supplied electronic ballasts for emergency lighting.
- UNE-EN 60598-1: Luminaires-specification for general requirements and test.
- UNE-EN 60598-2-22: Luminaires for emergency lighting.
- UNE-EN 55015-1: Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
- EN 61547: Equipment for general lighting purposes. EMC immunity requirements.
- UNE EN 61000-3-2: Limits for harmonic emissions.
- EN 60079-0 : 2012/A11: 2013 : Explosive atmospheres - Part 0: Equipment - General requirements.
- EN 60079-31: 2014: Explosive atmospheres. Equipment dust ignition protection by enclosure "t".
- EN 60079-1: 2014. Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d".

Technical characteristics:

Voltage: 220-240V / 50-60Hz - **Consumption:** 3W – **Line current:** 15mA – **Power factor (cosΦ):** 0,87
Efficiency:

		
18W	36W	58W
27%	22%	20%

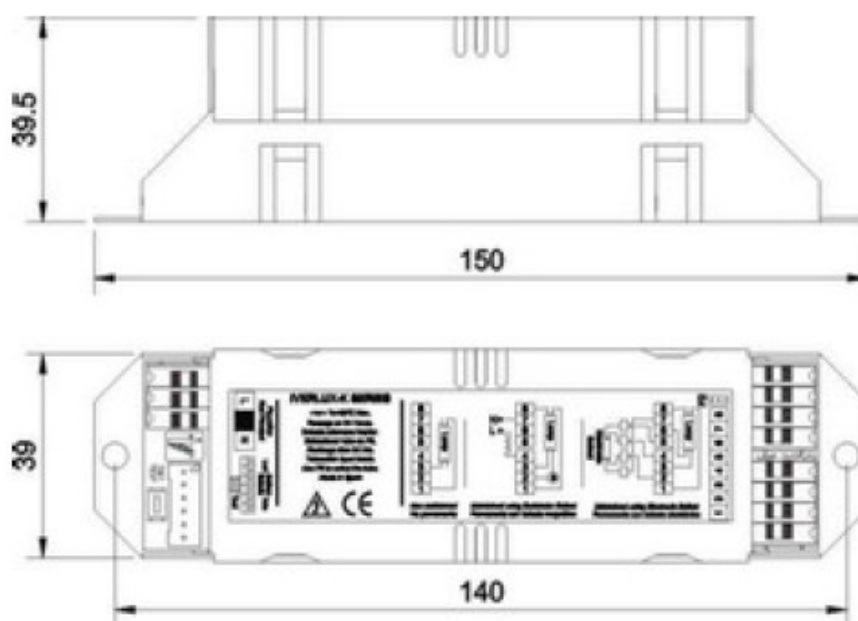
5) Fluorescent Emergency Version



- **Battery charging time:** 24 Hours.
- **Autonomy nominal:** 180 minutes.
- **Battery:** 3,6V (3 Ni-Cd 1.2V cells) Capacity: 4Ah.

Useful life estimated at 4 years with a frequency of one month discharge.
24 hours charge period. Charge current: 200mA.

- **Indication**
Charging process indicator LED.
- **Protections**
Protected against the entrance of liquids and solids: IP20.
- **Envelop:** grey polycarbonate (RAL 7035)



6) LED module versión with optional emergency.



There are available a LED module light source versión. This version mounts last generation integrated in the internal structure, controlled by constant current electronic driver.

Available versions:

PYROS LED MODULES		
POWER (W)	LIGHT EMISSION (lm)	LED ROWs
14	2150	1
28	4300	2
28	4300	1
55	8600	2
35	5370	1
70	10740	2

This version is designed to be used in big heights in industrial zones, because of their high light emission, low power and very low maintenance.

There is available a 3 hours emergency version.

- **Battery charging time:** 24 Hrs.
- **Battery life:** up to 180 minutes.
- **Battery:** 6V (5 NiMH 1.2V cells) Capacidad: 4Ah.

Estimated battery life: 4 years with a monthly discharging frequency.
Charging time: 24 hours.

- **Charging indicator:**
LED.
- **Protection against liquid and solid penetration, IP20.**

7) Installing the Luminaire



The installation must be carried out by qualified professionals and according to the manufacturer's instructions. Incorrect installation could cause damage to persons, animals and assets for which the manufacturer would not be considered responsible.

The installation of the luminaire will be carried out once the electrical supply has been installed and checked, and the luminaire has been completely sealed in accordance with the connection procedure.

The installation is carried out using the two zinc-plated steel clamps with rubber protection, and the hooks screwed to them. Make sure that the luminaire is not in contact with – nor that it scrapes against – any other elements during fitting.

The luminaire must be maintained at a safe distance from other elements in the area.

The explosion-proof luminaire must be installed in places away from sources of heat or cold that could significantly vary the luminaire working temperature.

LED modules versión must be installed in the same way that the fluorescent way, but beignd very careful of not touch LED modules with fingers. It is very recommended to use ESD protection clothes and gloves to avoid LED damages because of electrostatic discharges.



IMPORTANT NOTICE: REPLACEMENT OF THE BATTERY PACK, please contact the manufacturer.

8.1 Cleaning the luminaire

Clean the luminaire with a damp cloth only, after first ensuring that there is no explosive atmosphere present.

8.2 Replacing fluorescent tube



Before opening the light fitting, ensure that there is no explosive atmosphere present.

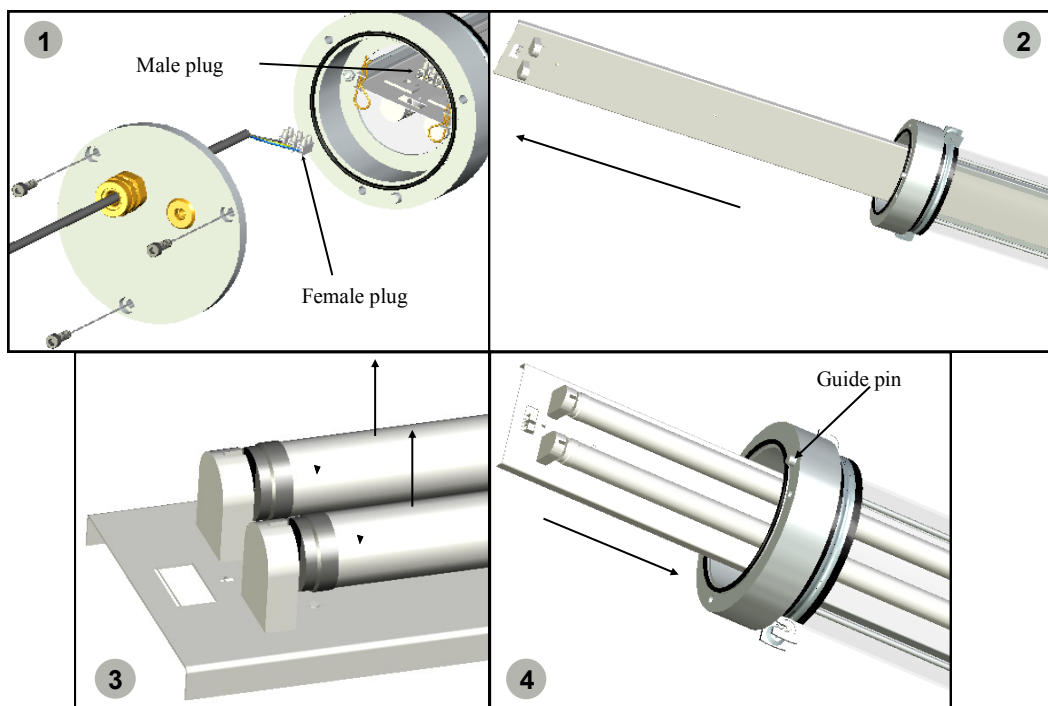
After switching off light fitting, wait for 30 MINUTES before opening the light fitting.

1. Use a 6 mm Allen key to remove the three screws that hold the closing cap, as seen in the figure. Then remove the closing cap, keeping it perpendicular with respect to the light fitting axis in order to facilitate its removal and disconnect the female plug by hand (**do not pull the power supply cable !!**).
2. Remove the stop pins from the reflector guide and remove the reflector from the light fitting.
3. Replace the fluorescent tubes by inserting them in the lamp holders and turning them through 90°.



The fluorescent tubes must be replaced with others of the same specifications and power rating.

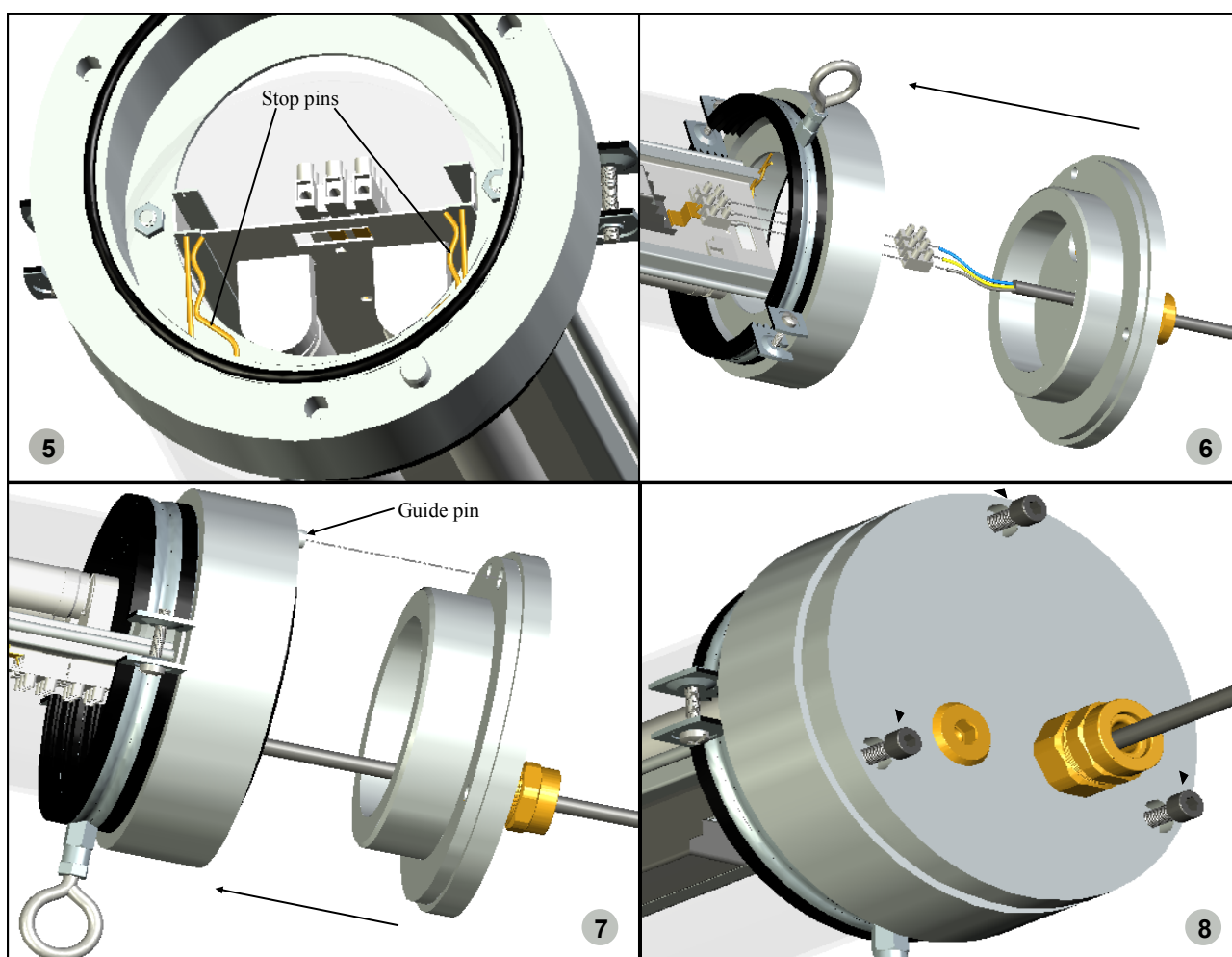
4. Replace the reflector in its original position in the light fitting (ensure that the guide pin is on the same side as the fluorescent tubes).



8) Maintenance



5. Replace the two stop pins in the reflector guides.
6. Reconnect the female plug to the male plug.
7. Close the light fitting, ensuring that the upper cap guide pin fits into the hole on the closing cap.
8. Use a 6 mm Allen key to tighten the three screws which hold the closing cap.
9. Turn on the power and make sure the light fitting tubes are working correctly.



Check that all components are correctly fitted in their respective positions and that all fastenings have been fully tightened.

AIRFAL INTERNATIONAL S.L. will not be held responsible for any problem resulting from incorrect or incomplete assembly and connection.

8.3 Replacing LED tube.

Before opening the light fitting, ensure that there is no explosive atmosphere present.

After switching off light fitting, wait for 30 MINUTES before opening the light fitting.



1. Use a 6 mm Allen key to remove the three screws that hold the closing cap, as seen in the figure. Then remove the closing cap, keeping it perpendicular with respect to the light fitting axis in order to facilitate its removal and disconnect the female plug by hand (**do not pull the power supply cable !!**).

2. Remove the stop pins from the reflector guide and remove the reflector from the light fitting.

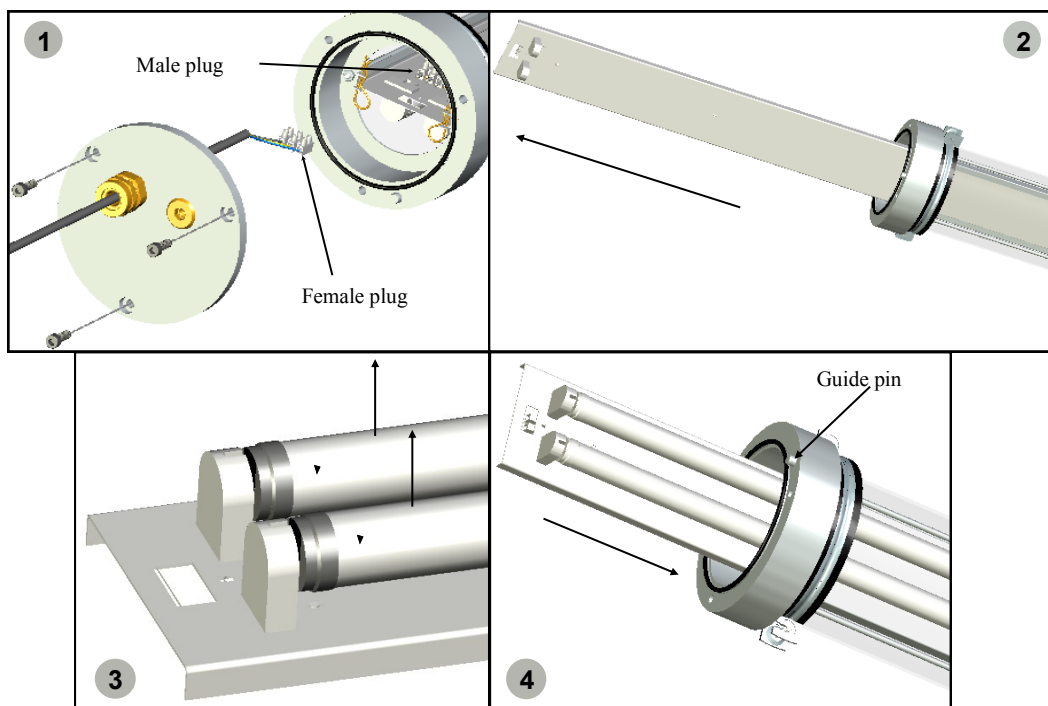
3. Replace the LED tubes by inserting them in the lamp holders and turning them through 90°.

The LED tubes must be replaced with others of the same specifications, same connections and power rating.

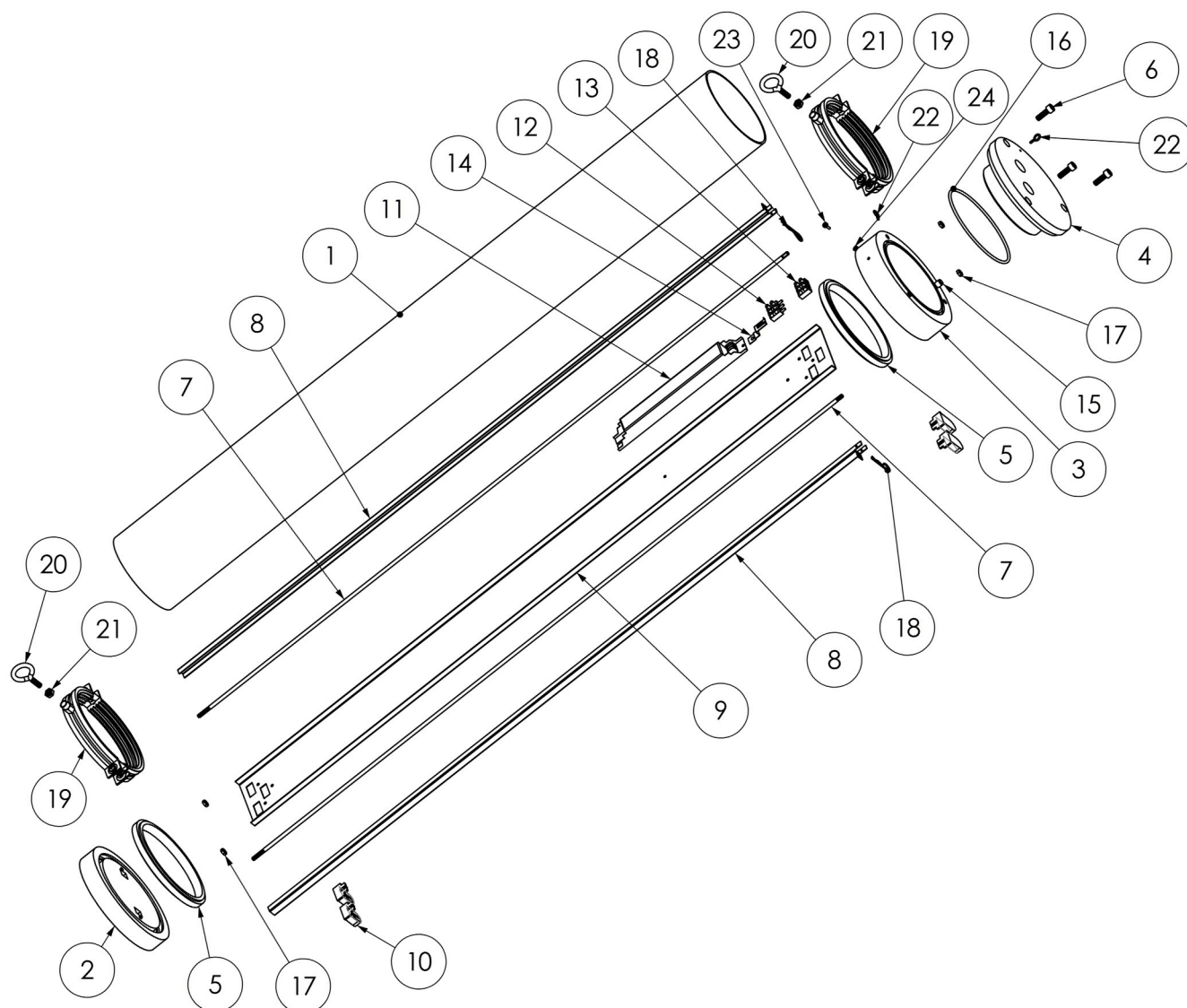
4. Replace the reflector in its original position in the light fitting (ensure that the guide pin is on the same side as the LED tubes).



5. LED MODULE REPLACING: Contact with Factory. LED modules not REPLACEABLE.



9) Parts list



Item	Units	Description	Item	Units	Description
1	1	Polycarbonate tube	13	1	Female connector
2	1	Lower cap	14	1	Support tab
3	1	Upper cap	15	1	Guide pin
4	1	Closing cap	16	1	O-ring seal
5	-	Polyurethane resin	17	4	M6 nuts
6	3	M8 Allen screws	18	2	Stop pin
7	2	Fixing bar	19	2	Clamp
8	2	Reflector guide	20	2	Fixing eye bolts
9	1	Reflector	21	2	M8 eye bolt nut
10	4	Lamp holder	22	2	Chain eye bolt
11	1	Ballast	23	1	External Earth screw
12	1	Male connector	24	1	Earth washer

10) Guarantee conditions



10.1 Guarantee conditions

AIRFAL INTERNATIONAL S.L. guarantees that the **Pyros** luminaire will work correctly for a period of 24 months from the date of purchase. LED module version have 5 years warranty (see General Warranty Conditions).

10.2 Cover

The repair of all manufacturing defects or the substitution of defective parts will be free at our installations, including parts and labour.

This guarantee does NOT cover damage or imperfection caused by the improper use of the equipment (see details in the following section).

10.3 Exceptions

The guarantee and other rights recognized here will be void in the event of damage and/or deterioration produced as a result of:

- a) Force Majeure (Atmospheric or geological phenomena, fire, etc.)
- b) Incorrect or non-regulatory installation and/or connection. Incorrect connection/cabling for electrical and electronic elements.
- c) Intervention by unauthorized personnel.
- d) Handling and/or modification of luminaire elements without prior authorization.
- e) Manipulation of data on the rating plates of the light fitting, or in this document.
- f) Incorrect transportation or storage conditions.
- g) Service conditions which are inappropriate for the specifications and technical performance of the lamp:
 - Unstable power supply.
 - Inappropriate atmospheric conditions: ambient temperature range, humidity, condensation, aggressive atmospheres, etc.
- h) Incorrect assembly and installation conditions for the light fitting and its operation.

All conditions NOT represented in this document must be previously accepted in writing by AIRFAL INTERNATIONAL S.L. Likewise AIRFAL INTERNATIONAL S.L. reserves the right to modify this document without prior notification.

11) Technical support



11.1).– SPECIFIC CONDITIONS OF USE:

- The equipment is intended to be used in an ambient temperature range of:

From –20°C up to +50°C when mounting T8 lamps of 36W or 58W with the optional emergency kit.

From –20°C up to +55°C for standard fluorescent versions and LED tubes.

From –20°C up to +50°C for LED MODULES versions.

- The width of the flameproof joints between the upper cap and the closing cap is superior than the values of the tables of the standard IEC 60079-1.

- The flameproof joint are not intended to be repaired.

- During the installation, the user will take into consideration that the equipment underwent only a shock corresponding to an energy of a low risk.

- For the risk from electrostatic discharge, the user shall read this instructions, section 8.1.

11.2.– Technical Support.

Each luminaire is accompanied by technical documentation on supply by AIRFAL INTERNATIONAL S.L. In the event of any part of this documentation being missing, contact the supplier or distributor of the equipment.

For any information request or enquiry regarding a supplied luminaire, the **Serial Number** of the said equipment must be given, which can be found on its rating plate.

Address of the manufacturer and technical support is:

AIRFAL INTERNATIONAL, S.L.
C/ Rio Esera Nº 4
E-50830 VILLANUEVA DE GALLEGO
ZARAGOZA – ESPAÑA
Tel.: +34 976 185 809
Fax: +34 976 186 086
e-mail: tecnico@airfal.com
web: www.airfal.com

12) Technical specifications



Power supply:	230V. 50Hz
Degree of protection:	IP-66
Certificate of EC Type:	INERIS 14ATEX0064X under directive 2014/34/EU
Mode of protection:	Fluorescent and LED TUBE versions:



II 2 GD

Ex db IIB + H2 T6 Gb

Ex tb IIIC T85 °C Db

LED module versions:



II 2 GD

Ex db op is IIB + H2 T6 Gb

Ex op is tb IIIC T85 °C Db

Cable:	Not included
Stuffing glands:	Not included
Cap:	Not included
Range: 18W model	Fluorescent T8, 18W Luminaire length: 748 mm. Approx. weight: 9.68 Kg. General diameter: 190 mm .
36W model	Fluorescent T8, 36W Luminaire length: 1357 mm. Approx. weight: 11.38 Kg. General diameter: 190 mm.
58W model	Fluorescent T8, 58W Luminaire length: 1659 mm. Approx. weight: 12.23 Kg. General diameter: 190 mm.
LED TUBES model	LED Tube (1 or 2 tubes) 600 mm, 1200 mm, 1500 mm

Fluorescent control equipment: Electronic ballast with preheat starter

LED modules control equipment: Electronic driver.

Assembly accessories: 2 zinc-plated steel clamps with rubber protection and two steel eye bolts

Ambient work temperature:

From -20°C up to +50°C when mounting T8 lamps of 36W or 58W with the optional emergency kit.

From -20°C up to +55°C for standard fluorescent versions and LED tubes.

From -20°C up to +50°C for LED MODULES versions.

Materials

- End caps in aluminium. Tube of 4 mm thickness impact-resistant polycarbonate.
- Steel screws. Rubber O-ring seal. Zinc-plated steel clamps.
- Steel fixing bars. Steel reflector guides.
- Painted steel reflector
- Each fixing screw for the closing. Cap in nickel-steel.