



LED Flashing System

LED ELEVATED APPROACH
REIL, CGL
LSFL – LIFL - LEFL



COMPLIANCES

ICAO: Annex 14 - Volume I – Part 4-5-6

IEC: TS 61827

FAA: AC 150/5345-51B, 5340-30H, Engineering Brief #67

APPLICATIONS

Flashing light system for Approach, REIL and CGL.

BENEFITS

- Variable number of synchronized flashing lights (TYP. 2/3, 20/22/23 or 30/32/33)
- Variable flash duration (T_{ON}): typically between 16.67ms and 133.3ms
- Two standard flashing frequencies (1-2Hz). Customizable flashing periods also supported
- Different flashing modes supported, such as sequenced flashing, contemporary flashing, clustered flashing
- Three Configurable Luminance Levels: High (100%). Medium (10%), Low (3%)
- Single light monitoring function in any state
- Local Control with Industrial Grade Touch Screen
- Remote Control Integrated in Ocem ALCMS or through Web Interface
- SELV Compliant Power Supply

FEATURES

Flash Master Control Unit (FMCU)

Power supply: Single Phase, 184-240 VAC, 50-60 Hz

Power consumption: 23 W

IP Class: IP43

Electrical Protection: Input and Output Circuit Breaker

Environment Temperature: -10°C to +50°C

Installation: Metal Housing Wall Mounted

Humidity (not condensed): 20-90%

Max Altitude: 2500 m

Dimensions: 50 x 50 x 19 cm

Weight: 22 kg

Flash Field Unit (FFU)

Power supply: Single Phase, 184-240 VAC, 50-60 Hz

Power consumption: 8 W

IP Class: IP67

Environment Temperature: -40°C to +55°C

Max Altitude: 2500 m

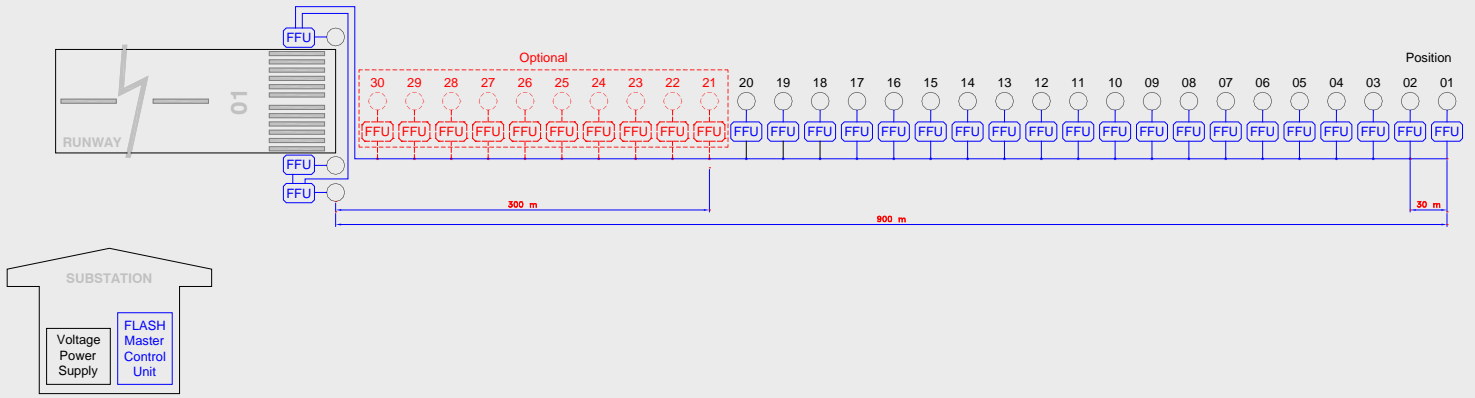
Dimensions: 22 x 25 x 12 cm

Weight: 2,6 kg

Flashing Lights

Both elevated (LEFL) and inset (LIFL) fixtures available.

See following pages.



SYSTEM ARCHITECTURE

- 1 Flash Master Control Unit (FMCU), typically placed in a substation
- N Flash Field Units (FFU), one for each elevated/inset light
- Max distance between FMCU and FFU: 5 km (approx)
- Max distance between FFU and light fixture: 50 m
- FFU power supply: from FMCU

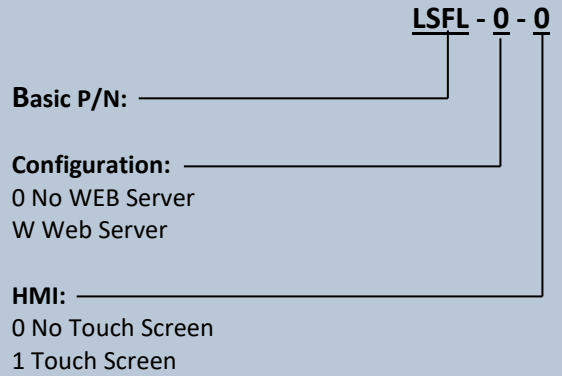
CONTROL AND MONITORING

- LED status monitored by each FFU
- Monitoring and control functions from both local interface and remote system (AGLCMS)
- Communication FFU => FMCU
 - Powerline communications through the power cables
 - LED status information
 - Diagnostic information (state, faults, etc.)
- Communication FMCU => FFU
 - Powerline communications through the power cables
 - Synchronization messages
 - Control messages
 - FW update (optional)
- Communication TLC <==> FMCU
 - Modbus TCP

DIAGNOSTICS

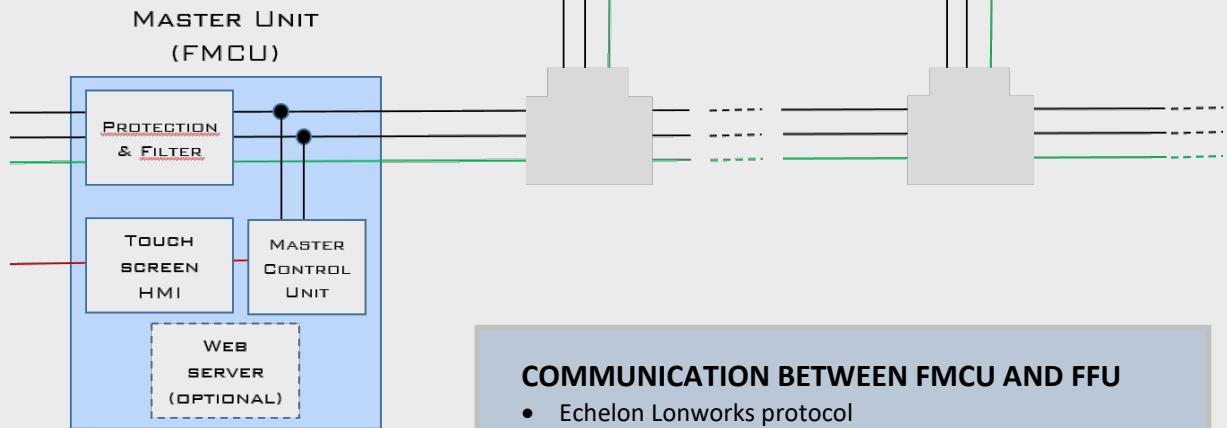
- The diagnostic algorithm is always on to detect possible malfunctions.
- The system is designed to be very fast at start-up and in the recovery phase after a potential power shortage.
- The monitoring procedure can be specialized and complex sequences of actions can be personalized.
- Time to detect a malfunction: approx. 5s

Flash Master Control Unit



INTERFACE TO AGLCMS

- Interface: Ethernet (RJ45)
- Protocol: MODBUS over TCP, Echelon LonWorks (optional)
- Optional Interface to third-part remote control systems

**COMMUNICATION BETWEEN FMCU AND FFU**

- Echelon Lonworks protocol
- Powerline communications
- Max throughput: 5.4kbps (approx)
- Frequency band: CENELEC EN 50065-1 (A and C band)
- Dual-carrier frequency
- Mo-Demodulation: BPSK, FEC, DSP enhanced receiver
- CSMA
- Working temperature: -40 to +85 °C

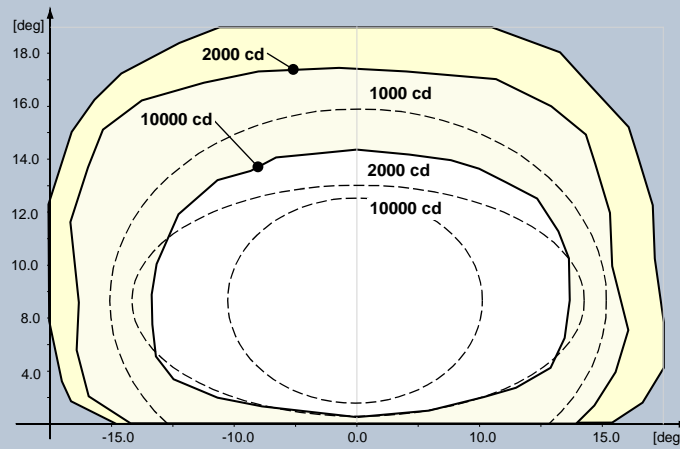
**TOUCH-SCREEN INTERFACE**

- Installation and configuration of a new unit
- Replacement of an existing unit
- Communication hub through the AGL
- Visual representation of the flash system topology

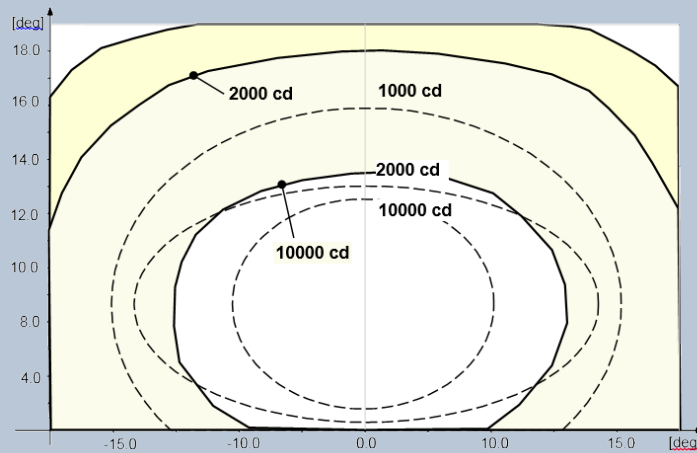
CHARACTERISTICS

- Typically mounted in the cabinet in which the FMCU unit is placed
- Customizable interface
- Used to install and configure the FFUs and the FMCU directly in the field or remotely
- With Modbus TCP communication protocol built-in, it can be potentially interfaced to any compatible control system

PHOTOMETRIC PERFORMANCES

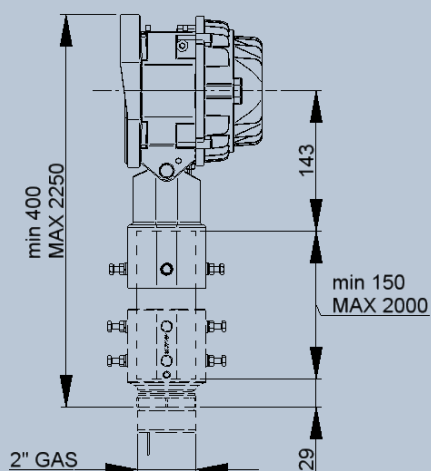


LEFL - Fig. 1 ICAO Fig. A2-1 – White



LIFL - Fig. 2 ICAO Fig. A2-1 – White

The reported photometric performance refers to the case of two inset fixtures used together.



LEFL - P - SF

Basic P/N _____

Configuration: _____

C = Common (field unit box and light fixture mounted on the same support)

S = Separate (field unit box mounted on separate support) (*)

Function: _____

See Table A.

TABLE A

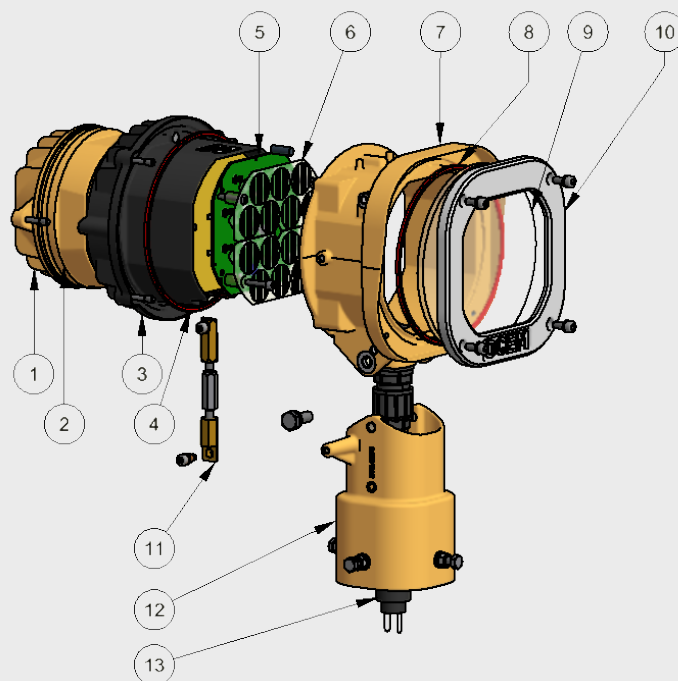
CODE	SEGMENT	COLOR
SF	SFL	WHITE
RL	REIL	WHITE
CG	CGL	WIHTE

(*) Supporting pole and breakable coupling must be ordered separately

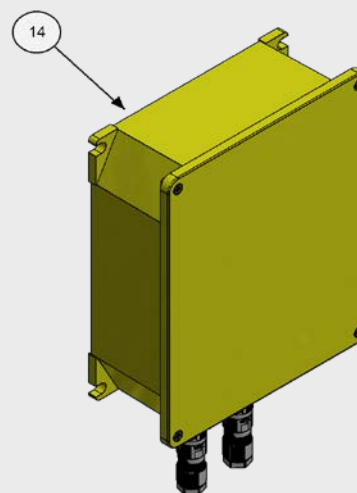
RENEWAL PARTS FOR LIGHT UNIT

- 1 Cover with electronic
- 2 Cover gasket
- 3 LED module support
- 4 LED module support gasket
- 5 LED module
- 6 Lens array for LED module
- 7 Body
- 8 Transparent front protection gasket
- 9 Transparent front protection
- 10 Transparent front protection holder plate (painted in the colour of the emitted light)
- 11 Vertical aiming adjusting device
- 12 Special support
- 13 Power connector
- 14 FFU

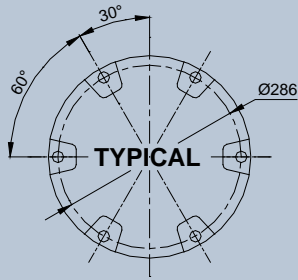
Refer to the relevant technical manual for the complete list of the available spare parts

**ACCESSORIES**

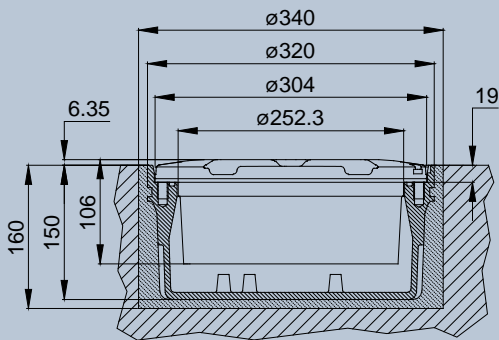
- | | |
|----------|---|
| 013.0010 | Set of two ryton rings for receptacle support inside pipe elbow |
| 013.0008 | Galvanized steel pipe elbow with upper threaded end only (2" - 11 GAS thread) |
| 315.3210 | Galvanized steel pipe elbow with both threaded ends (2" - 11 GAS thread) |
| 315.1228 | Base L-867, Class IA, Size B, 24" Deep |
| 315.1062 | Baseplate for L-867 base with gasket and cable clamp (2" - 11 GAS thread) |
| 155.7200 | Breakable coupling for LERA configuration C-050 or C-250 |
| 315.3710 | Supporting pole (H = 150 mm) |
| 315.3711 | Supporting pole (H = 500 mm) |
| 315.3712 | Supporting pole (H = 1000 mm) |
| 315.3713 | Supporting pole (H = 1500 mm) |
| 315.3714 | Supporting pole (H = 2000 mm) |
| 332.4560 | Levelling and alignment device for light on supporting pole |
| 332.3240 | Levelling and alignment device for light on frangible mast |
| 332.4571 | Support for device P/N 332.3240 |
| 798.0006 | Special tubular wrench 22 mm for bulkhead connector |

**Shipping Weights and Volumes**

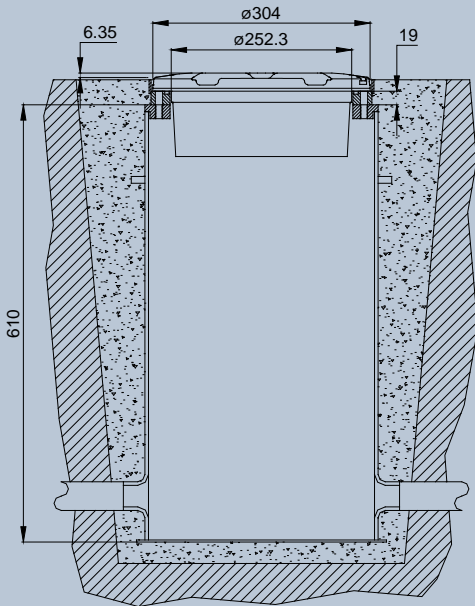
	Light Type C	Light Type S
Weight (kg)	10	8
Volume (m ³)	0.1	0.06



Light Fixture 12" dia.



Shallow Base 12" dia.



L-868 Deep Base 12" dia.

LIFL - I - SF

Basic P/N _____

Configuration: _____

I = ICAO compliant (two inset fixtures and two field unit boxes are provided flashing synchronously) (*)
L = low intensity (a single inset fixture and a single field unit are provided)

Function: _____

See Table A.

TABLE A

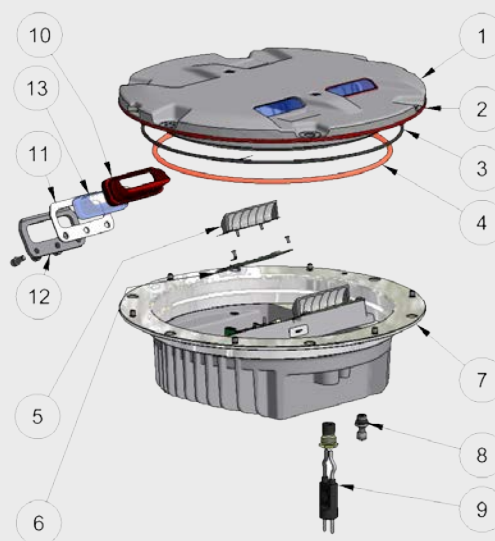
CODE	SEGMENT	COLOR
SF	SFL	WHITE
RL	REIL	WHITE
CG	CGL	WIHTE

(*) Note that for Full Compliance with ICAO Requirements inset Fixtures are supplied in Pairs.

RENEWAL PARTS FOR LIGHT UNIT

- 1 Dome with prisms and gaskets
- 2 O-Ring for dome (external)
- 3 O-Ring for dome (internal)
- 4 O-Ring for lower cover
- 5 Lens array
- 6 LED module
- 7 Lower cover with electronic, plug and valve
- 8 Valve for watertightness test
- 9 FAA L-823 plug
- 10 Prism Gasket
- 11 Prism holder gasket
- 12 Mounting plate
- 13 Prism
- 14 FFU

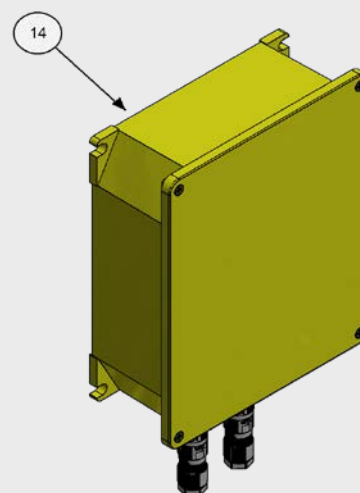
Refer to the relevant technical manual for the complete list of the available spare parts

**ACCESSORIES**

- 315.1230 Base L-868 type, class IA, size B, 24" deep *
- 315.1420 Flange ring with pavement dam for L-868 base, size B, with O-Ring and bolts
- 152.8110 Shallow base, 12" dia., one cable lead, with gasket and hardware
- 712.1034 Setting material for shallow base, 10 lt
- 712.1035 Quartz for shallow base, 25 kg
- 332.4301 Positioning jig for 8"-12" dia. shallow base, without optical device
- 332.4351 Optical device for positioning jig to allow a very precise light unit orientation
- 332.4330 Watertight/shockproof plastic case complete with positioning jig for base and optical device
- 332.4140 Lifting tool (2 pieces to work properly)

* Sectional bases may be required depending upon the paving technique

For any information about isolating transformers and connectors, please see the specific catalogue pages



Shipping Weights and Volumes		
	Light Unit	Shallow Base
Weight (kg)	14.5	7.3
Volume (m ³)	0.05	0.022

We reserve the right to change the design or specification data without notice

UC-PU- _EN Rev.A