

# LED Flashing System

APPROACH SEQUENTIAL FLASH  
RUNWAY THRESHOLD IDENTIFICATION  
CIRCLING GUIDANCE



## COMPLIANCES

**ICAO:** Annex 14, Volume I, Aerodrome Design Manual Part 4-5-6  
**EASA:** CS-ADR-DSN Book1  
**IEC:** TS 61827  
**FAA:** EB-67D  
**STANAG:** 3316  
**CASA:** MOS 139 (AUS)

## APPLICATIONS

Flashing light system for Approach Sequential Flash Light (SFL), Runway Threshold Identification Light (RTIL) and Circling Guidance Light (CGL).

## BENEFITS

- Variable number of synchronized flashing lights
- 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 Airport Lighting Control and Monitoring System (ALCMS) or easily interfaceable with other platforms.

## FEATURES

### Flash Master Control Unit (FMCU)

Power supply: Single Phase, 230 VAC (+/-10%), 50-60 Hz  
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 30 x 25 cm  
Weight: 15 kg

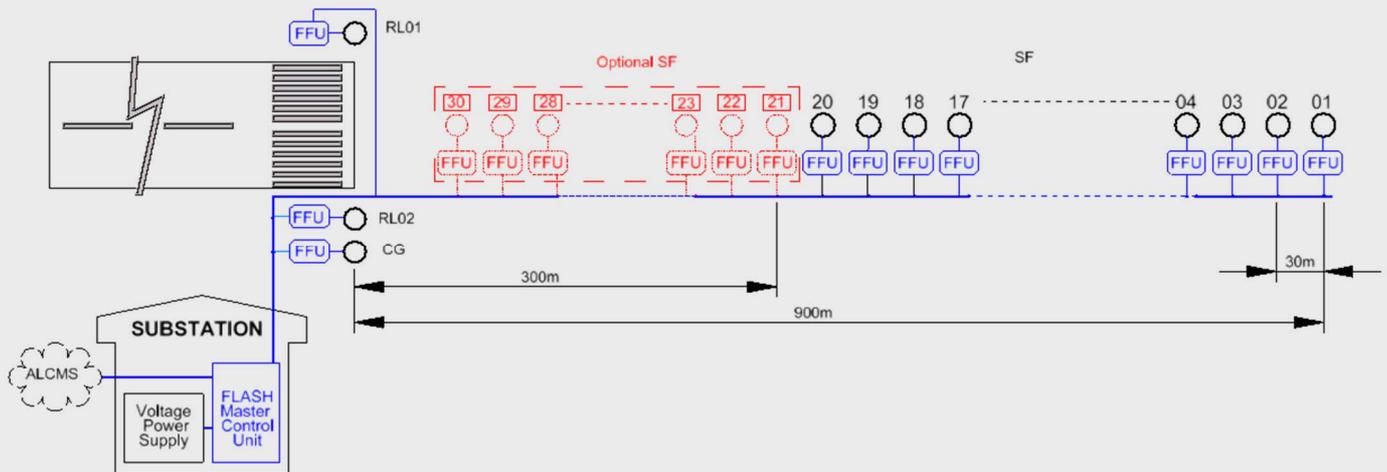
### Flash Field Unit (FFU)

Power supply (from FMCU): Single Phase, 230 VAC(+/-10%), 50-60 Hz  
IP Class: IP67  
Environment Temperature: -40°C to +55°C  
Max Altitude: 2500 m  
Dimensions: 22 x 25 x 12 cm

### Flashing Lights

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

Power Consumption	
FMCU	25W
LEFL (incl. FFU)	52W
LIFL (incl. FFU)	52W



## 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

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

## 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.

## Flash Master Control Unit

**LSFL - 0 - 1**

Basic P/N: \_\_\_\_\_

Configuration: \_\_\_\_\_

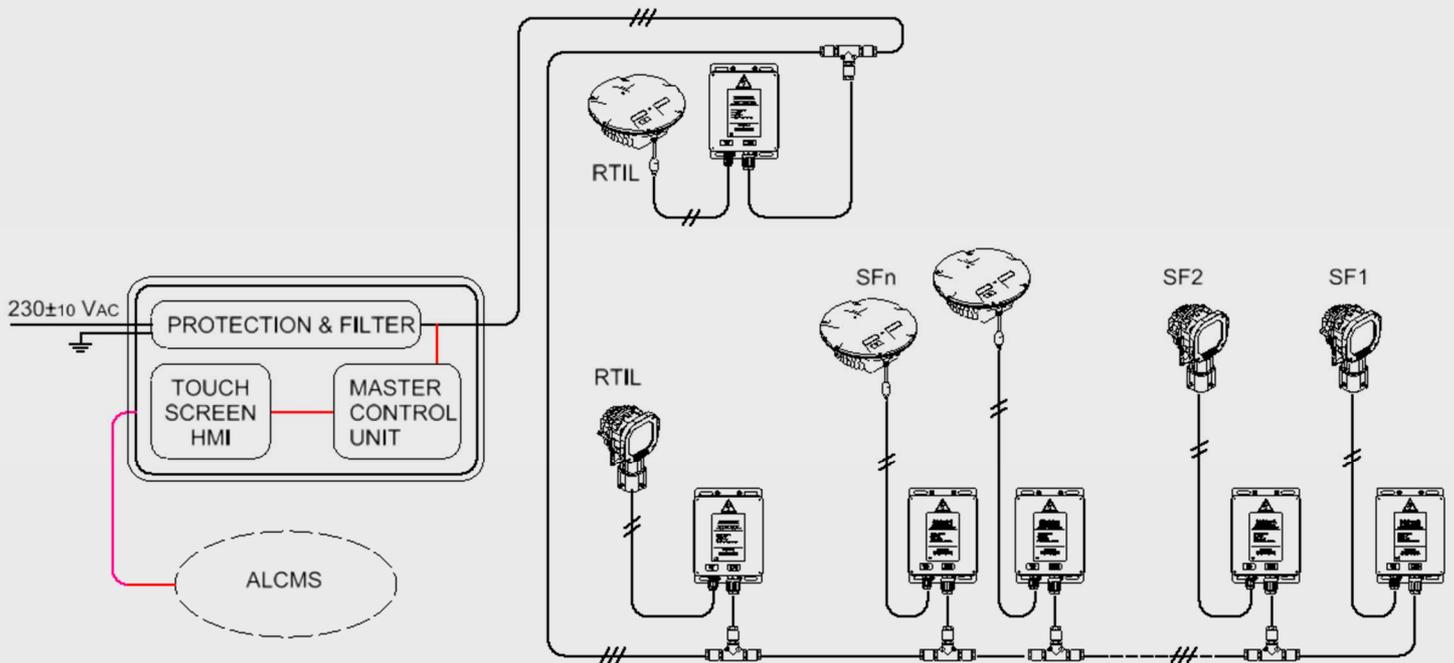
0 No WEB Server

HMI: \_\_\_\_\_

1 Touch Screen

**INTERFACE TO ALCMS**

- Interface: Ethernet (RJ45)
- Protocol: MODBUS over TCP

**COMMUNICATION BETWEEN FMCU AND FFU**

- Echelon Lonworks protocol
- Powerline communications
- Frequency band: CENELEC EN 50065-1 (A and C band)
- Dual-carrier frequency
- Mo-Demodulation: CSMA, BPSK, FEC, DSP enhanced receiver
- Working temperature: -40 to +55 °C

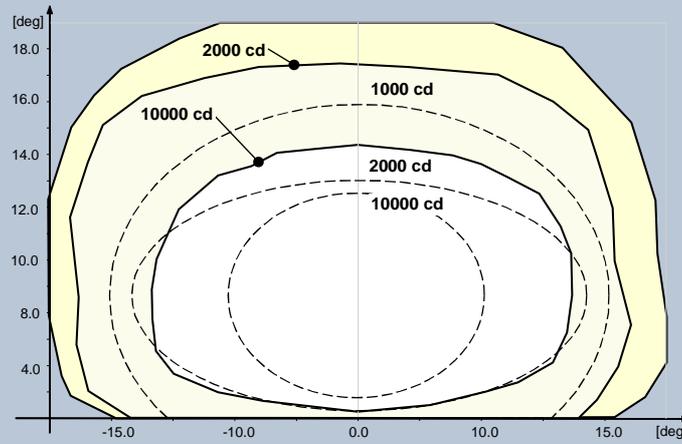
**TOUCH-SCREEN INTERFACE**

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

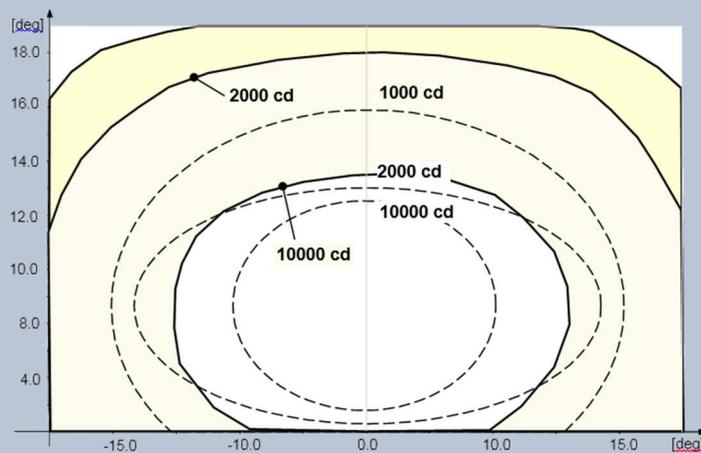
**CHARACTERISTICS**

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

## PHOTOMETRIC PERFORMANCES

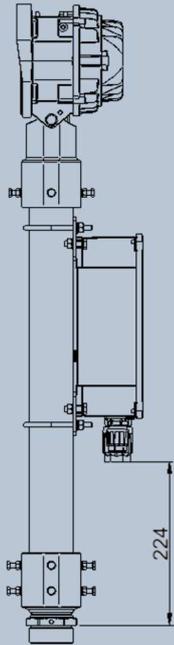


LEFL - Fig. 1 ICAO Fig. A2-1 – White

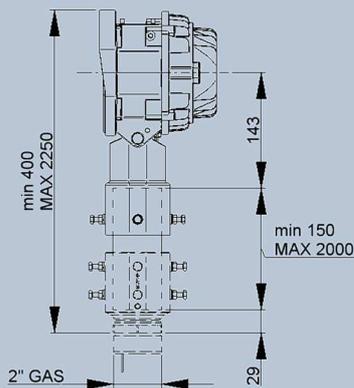


LIFL - Fig. 2 ICAO Fig. A2-1 – White

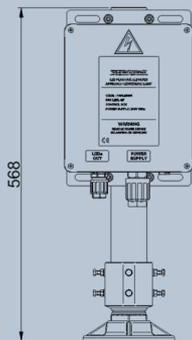
The reported photometric performance refers to the case of **two inset fixtures** used together.



**Combined LEFL-FFU configuration**



**Separate LEFL configuration**



**Separate FFU configuration**

## LEFL - SF

Basic P/N \_\_\_\_\_

Function: \_\_\_\_\_

See Table A.

TABLE A

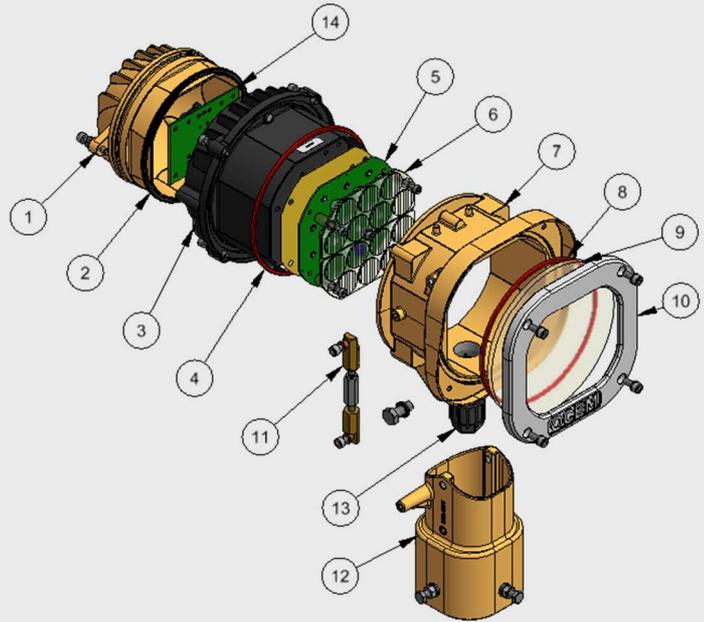
CODE	SEGMENT	COLOR
SF	SFL	WHITE
RL	RTIL	WHITE
CG	CGL	WHITE
00	NOT PROGRAMMED	WHITE

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

**NOTE: every ordered LEFL includes the corresponding FFU**

**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 white)
  - 11 Vertical aiming adjusting device
  - 12 Special support
  - 13 Power connector
  - 14 Electronic interface
- FFU Flash Field Unit

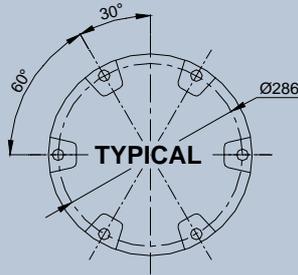
**LIGHT ACCESSORIES**

- 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 (2" - 11 GAS thread)
- 303.6060 Breakable coupling for direct mounting
- 155.7200 Breakable coupling for pole
- 315.3710 Pole dia.60 mm, h 150 mm
- 315.3711 Pole dia.60 mm, h 500 mm
- 315.3712 Pole dia.60 mm, h 1000 mm
- 315.3713 Pole dia.60 mm, h 1500 mm
- 315.3714 Pole dia.60 mm, h 2000 mm
- GMMMN0065 Support for separate FFU configuration
- 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 (13)
- 011.3520 Secondary plug kit L-823 style 5
- 011.3523 Secondary receptacle kit L-823 style 12
- 011.3542 3 pole secondary plug kit
- 011.3545 3 pole secondary receptacle kit
- 169.5340 Double power electric coupling kit
- DECVK0004 L-823 plug kit and cable gland for 303.6060 breakable coupling

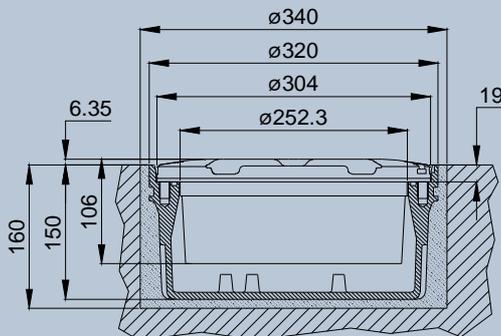
**FFU**  
Flash Field Unit

**Shipping Weights and Volumes**

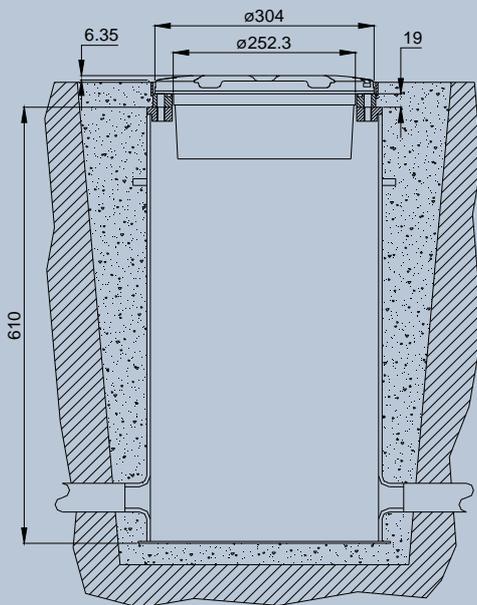
	Light Unit	FFU
<b>Weight (Kg)</b>	2.2	2.6
<b>Volume (m<sup>3</sup>)</b>	0.006	0.007



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 used, flashing synchronously) (\*)

L = low intensity (a single inset fixture and a single field unit is used)

Function: \_\_\_\_\_

See Table A.

TABLE A

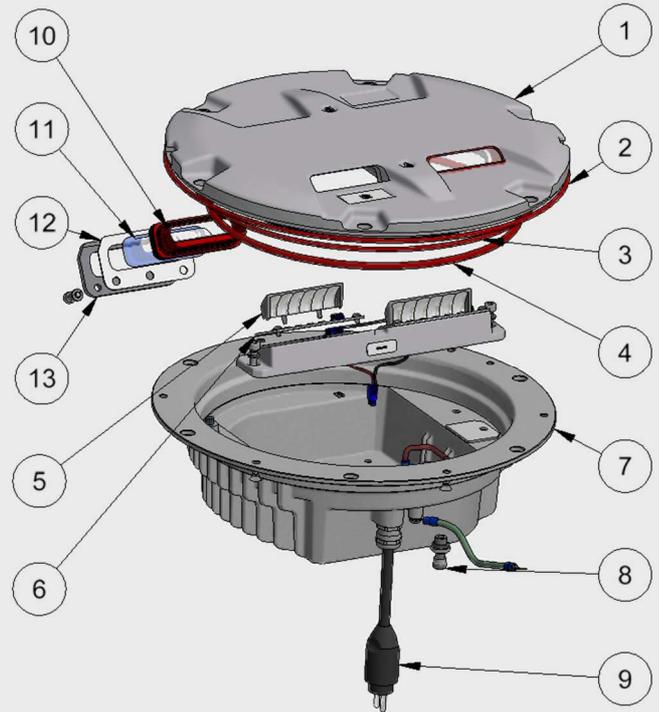
CODE	SEGMENT	COLOR
SF	SFL	WHITE
RL	RTIL	WHITE
CG	CGL	WHITE
00	NOT PROGRAMMED	WHITE

(\*) Note that for Full Compliance with ICAO Requirements inset fixtures must be installed in pairs.

**NOTE: every ordered LIFL includes the corresponding FFU**

**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 Reflector
  - 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
  - 12 Prism holder gasket
  - 13 Mounting plate
- FFU Flash Field Unit

**LIGHT 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
- PABAJ0003 Shallow base, 12" dia., with gasket and hardware
- GMMMMN0065 Support for FFU
- 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

**FFU**  
Flash Field Unit

**SYSTEM ACCESSORIES**

- CEGNV0002 H Distributor for cable ext.dia. of 12...20mm
- CEGNV0003 T Distributor for cable ext.dia. of 12...20mm

**Shipping Weights and Volumes**

	Light Unit	FFU
<b>Weight (kg)</b>	6.1	2.6
<b>Volume (m<sup>3</sup>)</b>	0.006	0.007

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

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