

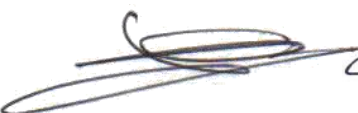
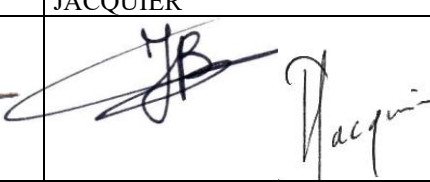


TECHNICAL DOCUMENT

LED FOG LIGHT

« ENERGY SAVING »

P/N : 542 25 00 ES

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1 Généralités

1.1 Introduction

This technical document concern «LED FOG LIGHT » P/N 542 25 00 ES.

This product has been developed for motorways toll area to equip the entry end island with warning lights inserted on the noise island

We use new power leds with PMMA optical collimators, to limit the power consumption with more light performances.

The absorbed energy is 10 times lower than the standard equipment, allowing us to qualify our new fog light « **ENERGY SAVING** ».

Important : This product is directly interchangeable (mechanically and electrically) with the **SAGEM ATLAS** (939 660) product , without any interventions.

1.2 Document mission

The document mission is to find a beacon solution with a high intensity Led flash light and a low intensity LED permanent light (Requirement of NF EN 12 352).

1.3 Customer requierments

We take in consideration the motorways requirements

1.4 Description

The casing is made in waterproof PVC (Differents color paint possibility in accordance with customer).

The front face is realised in 3 mm clear PMMA.

Fog light mode:

- The lighting source is made with 18 amber power led diodes dispatched on a 170 mm area, and powered with a low voltage regulated unit supply. Each led hold a 13.4° conical collimator.
- The distribution angle is 13.4°, to reduce the lateral dazzling.
- The synchronisation of differents light in ajusted on 50 Hertz of 230 V AC supply.

Low light use

The low LED source light in formed by amber power led diodes splited on six PCB and adjusted on Hexagon .Each PCB support 3 LED. Each led hold a 37° conical collimator

The six unit are identicals and independants, and with the sames connectors.

2 Applicables documents

2.1 Reference document

Norme NF EN 12 352

Specifics customer's requirements

3 Definition

3.1 Casing features

- Casing in Black PVC with UV resistance
Front optical in clear 3 mm PPMA
Mounting interface: Fixation on island by 4 points (see drawing)
Possibility of adjustment on horizontal & vertical axis.

- High	:	443 mm
- Diameter of light area	:	250 mm
- External diameter	:	310 mm
- Width	:	205 mm
- Optical axis	:	290 mm from end of holder

3.2 Electronical features

Power supply	:	230 V AC
Absorbed energy	:	
- Fog light mode	:	20 W peak during 0.1s 2 W average
- Fixed light	:	2 W : 230 V AC

3.3 Optical features

3.3.1 Fog light:

- Rating	:	1 Hz synchronized on 50 Hz
- Light time	:	100 ms
- Light color	:	Yellow 587 nm
- Distribution	:	Site : 13.4 ° Azimut : 13.4 °
- Light Intensity	:	Instantaneous : 7500 cd Effective : 2500 cd

$$I_e = \frac{\int_{t_1}^{t_2} I(t).dt}{0.2 + (t_2 - t_1)}$$

$$I(t).dt = 750.4$$

$$(t_2 - t_1) = T_{on} = 0.1$$

3.3.2 Fixed light:

- Light color	:	Yellow 587 nm
- Distribution	:	Site : 37 ° Azimut : 37 °
- Light intensity	:	200 cd

3.4 Connecting

AMP Centerline Metrimate connector

Completely compatible with the SAGEM ASTRON fog light, and all JPC AVIATION other Fog Lights.

Equipment side :

Connector integrated in the support

Island side :

Connector integrated and fitted with a 3 meters cable

- Black or white wire (with red mark)	:	Fog light Phase
- Black wire 2	:	Fog light Neutral
- Yellow & green wire	:	Ground
- Brown wire	:	Fixed light Phase
- Blue wire	:	Fixed light neutral.

3.5 Using mode

The fog light is powered in 230 V AC

- Fog light	Connecting arrangement
Phase	Black or white wire (with red mark)
Neutral	Black wire 2
- Fixed light	Connecting arrangement
Phase	Brown wire
Neutral	Blue wire
- Ground	Yellow/Green wire

The low LED light is used alone without fog to beacon the entry end island in permanent night light.

When there is fog, the two lights sources go together.

The low LED light avoid the « black Hole » between two flashes.

The high intensity Led flash break through the fog

3.6 Environnement features

Climatic environnement

- Low temperature

All the components can be stocked in a – 50 ° C temperature.

At - 40 °C , the components are in service temperature

- Dry Heat

Compatible until 70 ° C

- Humidity

All the parts are tropicalized with spray « DAT V 2 » (rigidité diélectrique : 90 KV et résistivité transversale après 96 h à 25°C et 96 % d'humidité relative : $1 \cdot 10^{14} \Omega \text{ cm}^2/\text{cm}$)

- Fungus

The spray « DAT V 2 » is waterproof and fungicidal.

- Temperature variations

All the parts are compatible at temperature variation and the PCB and components are protected by the spray tropicalization.

- Salt protection

The casing is in PVC -. The electronics cards are tropicalized and the métalic support is in alloid and paint.

- Sand and dust

The casing and the front part resist at dust and sand agressions.

- Rain

Waterproof (IP 64)

- Ice rain

The PVC casing and the matalical support are resistant at ice rain.

The inside warm is suffisant for deicing.

- Fluid sensibility

All parts are compatible with usual petrol, smoke, fuel, grease meeted around road environnement.

- Sun

Casing is UV resistant.

3.7 MTBF of light sources

Fog Led Light : 50 000 H

Fixed Led Light : 150 000 H

3.8 Requirement conformity – Classification and marking

The product is in accordance with NF EN 12352 and will be marked with the « CE » mark.

It will have two marks (for the two light modes)

Fixed Low LED light:

- Light intensity	:	Class L4(F2)
- Light area	:	Class P0
- Color characteristics	:	Yellow C2
- Retro light system	:	Class R0
- Crepuscular commuter	:	Class A0
- Voltage indicator	:	Class I 0
- Light continuity	:	Class F1
- Lightning time	:	Class O0
- Mechanical resistance	:	Class M 0
- Temperature resistance	:	Class T2
- Fixation and security	:	Class S2

Classification Fixed Low LED light mode : L4(F2)P0C2R0A0I0F1O0M0T2S2

Fog Led Light :

- Light intensity	:	Class L8H
- Light area	:	Class P1
- Color characteristics	:	Yellow C1
- Retro light system	:	Class R0
- Crepuscular commuter	:	Class A0
- Voltage indicator	:	Class I 0
- Light continuity	:	Class F3
- Lightning time	:	Class O3
- Mechanical resistance	:	Class M 0
- Temperature resistance	:	Class T2
- Fixation and security	:	Class S3

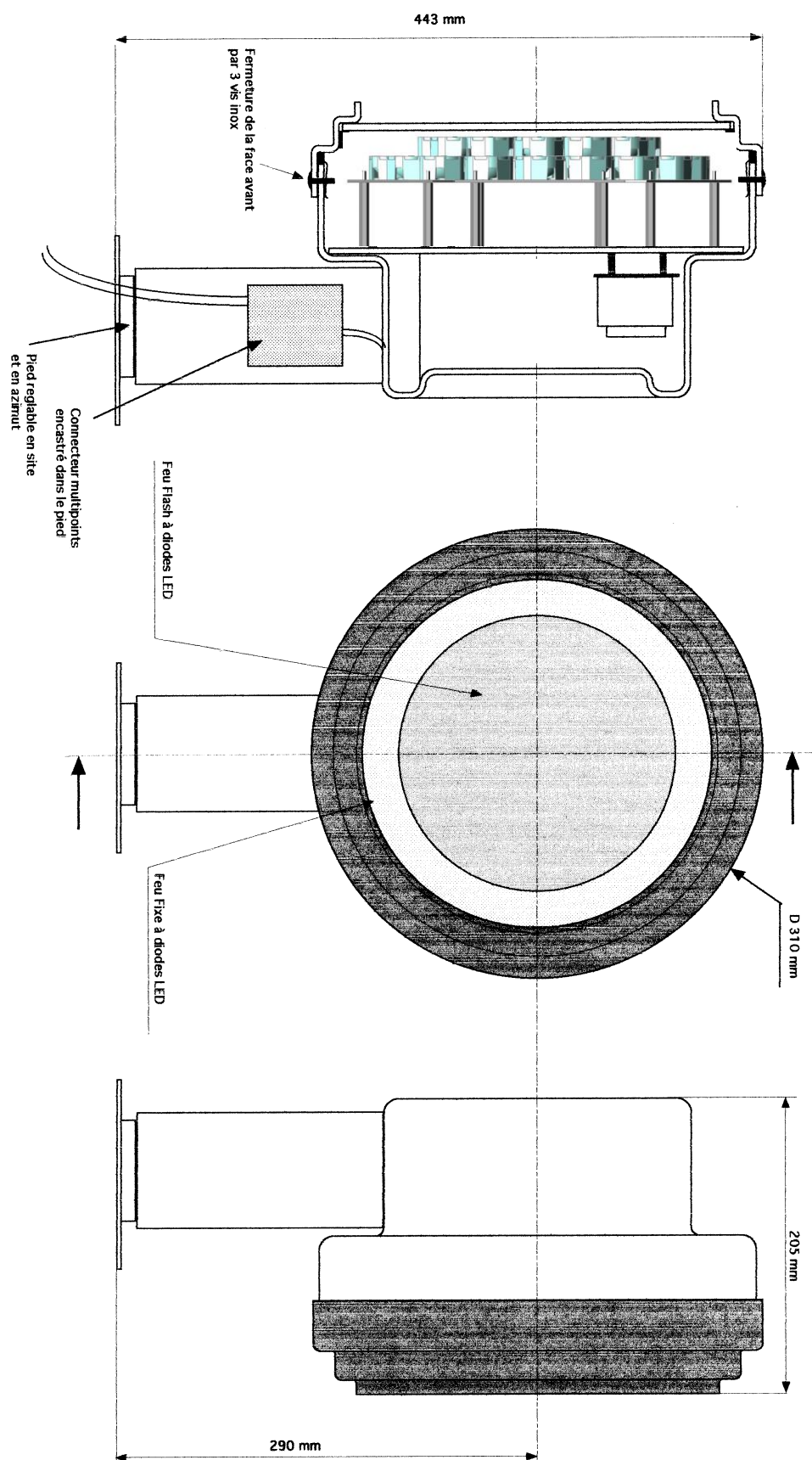
Classification Fog Led Light mode : L8HP1C1R0A0I0F3O3M0T2S3

Description of marking :

- Name of manufacturer
- Designation of product
- Manufacturer référence
- Serial number
- Voltage supply
- Average current and peak current
- Number of norme EN 12352 :2000

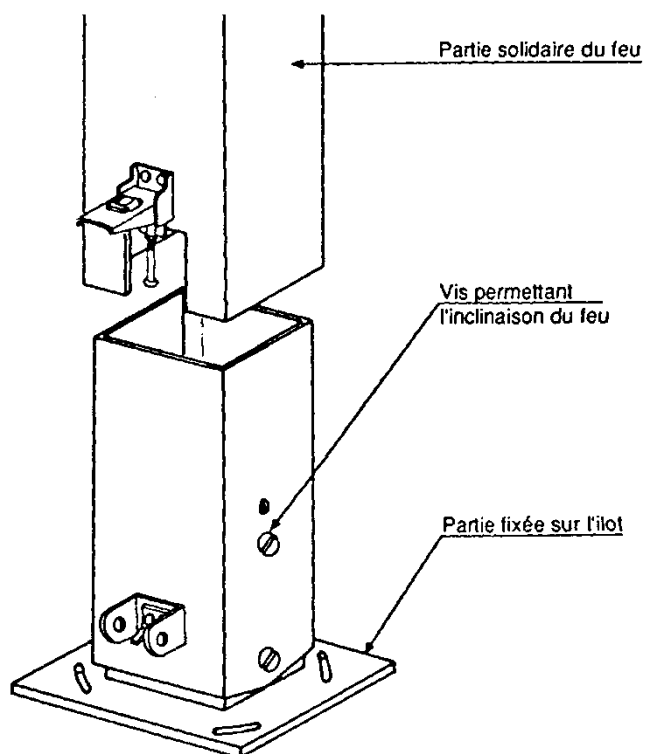
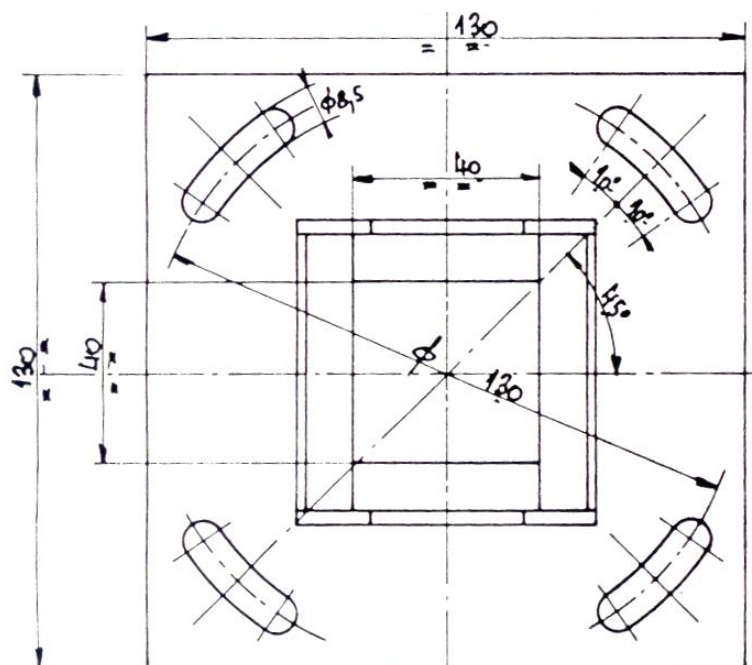
-Classification code : - Fixed Low LED light: L4(F2)P0C2R0A0I0F1O0M0T2S2
- Fog Led Light : L8HP1C1R0A0I0F3O3M0T2S3

4 Global drawing



5 Mounting interface

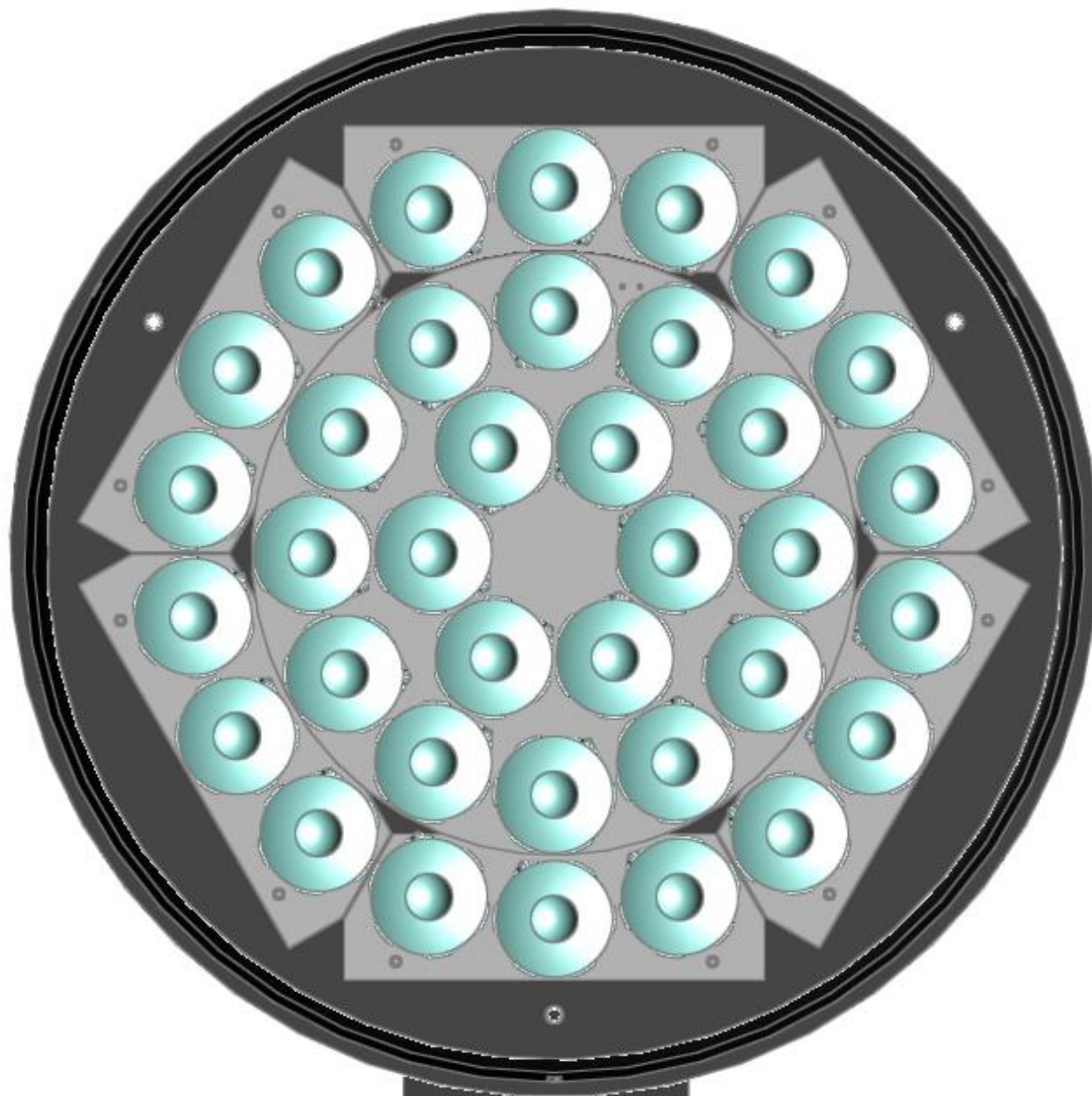
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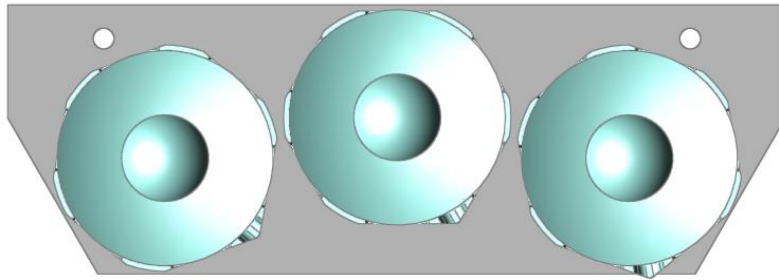


6 Fog Light picture



7 Internal view



8 Fixed led light segment view**9 Fog led light board view**