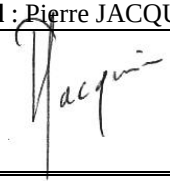
INTERFACE CONTROL DOCUMENT

FORWARD & TAIL POSITION LIGHT SYSTEM

RED/WHITE POSITION LIGHT P/N 6492511

GREEN/WHITE POSITION LIGHT P/N 6492521

Diffusion	**Interne à JPC**			**Externe à JPC**	
	1 ex → RAQ			1 ex → GUIMBAL HELICOPTERS	
Version	**Document**	**Issue**	**Date**	**Last evolution**	**Pages changed**
	649 25 11&21 ICD 01	2	30/11/2018	See page 2	All
Visas	**Author** : Julien BONNEAU		**Technical** : Pierre JACQUIER	**Approbation** : ~~Christian~~ ESCOTO	
					

Aérodrome DIJON/DAROIS 21121 DAROIS – France
☏ (00 33) 03 80 35 63 90 🖷 (00 33) 03 80 35 61 00

LIST OF EVOLUTIONS

Evolution date	Issue	Page modified	Evolution description
13/09/2018	**1**	**/**	**- Creation.**
30/11/2018	**2**	**8**	**- Input current adjustment following first manufacturing.**

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1 Introduction

1.1 Scope

This document defines the electrical, mechanical and thermal interfaces for “Forward & Tail Position Light System”.

Equipment and accessories designation	Supplier	Supplier Part Number	Customer Part Number
RED/WHITE POSITION LIGHT GREEN/WHITE POSITION LIGHT	JPC AVIATION JPC AVIATION	6492511 6492521	

1.2 Destination

Helicopters external light.

1.3 Related documents

See last evolution of Design & Description File 649 25 11&21 DF 01.

1.4 Operation, functional and system interfaces

The “Forward & Tail Position Light System” is an external aircraft equipment.
Position Light are ON when power supply is applied.

The “Forward & Tail Position Light System” is composed of 2 units aims to produce red, green and white light in accordance with CS 27 & AEP-80 requirements.

- *Red/White Position Light:*
  The source of light is made up of 6 red Leds and 2 white Leds.

- *Green/White Position Light:*
  The source of light is made up of 4 green Leds and 2 white Leds.

The Leds diodes type is SMD LED 1 Watt with 120 ° distribution, with high performances, identical to that already used in our others position lights certified FAR29 on helicopters.

Each Position Light includes electronic system with current regulation.

This design offers an extremely high reliability and a high resistance to shocks and vibrations.

2 Mechanical interfaces

2.1 Equipment outlines

- Weight : 62 g +/- 10 % for each position light.
- Dimensions : see 2D drawing in annex.
- Led : Red/White Position Light:
  6 red Leds & 2 white Leds.
  Green/White Position Light:
  4 red Leds & 2 white Leds.
- Lens : Clear Borosilicate glass.
- Mechanical part : Aluminum 2017 with SURTEC 650 protection + paint on external
- Part.

2.2 Mounting

See interface drawing in annex.

2.3 Interfaces connections

2.3.1 Electrical connections

- 2 free end G22 wires:
  Red wire : +Vin
  Black wire : 0 V

2.3.2 Grounding and bounding

Lower surfaces of the equipment are metalized.

2.4 Optical features

2.4.1 Green light

Light Intensity:

Horizontal plan:

0° à 10°	> 40 cd at 55°C
10° à 20°	> 30 cd at 55°C
20° à 110°	> 5 cd at 55°C

Vertical plan:

0°	100% at 55°C
0° à 5°	> 90% at 55°C
5° à 10°	> 80% at 55°C
10° a 15°	> 70% at 55°C
15° a 20°	> 50% at 55°C
20° a 30°	> 30% at 55°C
30° à 40°	> 10% at 55°C
40° a 90°	> 5% at 55°C

Light source description:

- SMI aluminum printed circuit board.
- 4 high power green Leds CREE XP-E2.
  Diffusion angle: 120° - Luminous flux: 122 lumens at 350 mA.

Leds current regulation: 200 mA.

2.4.2 Red light

Horizontal plan:

0° à 10°	> 40 cd at 55°C
10° à 20°	> 30 cd at 55°C
20° à 110°	> 5 cd at 55°C

Vertical plan:

0°	100% at 55°C
0° à 5°	> 90% at 55°C
5° à 10°	> 80% at 55°C
10° a 15°	> 70% at 55°C
15° a 20°	> 50% at 55°C
20° a 30°	> 30% at 55°C
30° à 40°	> 10% at 55°C
40° a 90°	> 5% at 55°C

Light source description:

- SMI aluminum printed circuit board.
- 6 high power red/orange Leds CREE XP-E2.
  Diffusion angle: 120° - Luminous flux: 107 lumens at 350 mA.

Leds current regulation: 200 mA.

2.4.3 White light

Horizontal plan:

-70° to +70°	> 20 cd at 55°C

Vertical plan:

0°	100% at 55°C
0° to 5°	> 90% at 55°C
5° to 10°	> 80% at 55°C
10° to 15°	> 70% at 55°C
15° to 20°	> 50% at 55°C
20° to 30°	> 30% at 55°C
30° to 40°	> 10% at 55°C
40° to 90°	> 5% at 55°C

Light source description:

- FR4 printed circuit board.
- 2 high power white Leds CREE XT-E into each position light.
  Diffusion angle: 120° - Luminous flux: 139 lumens at 350 mA and at 85°C.
  Color: Cool White 5000°K to 8300°K.

Leds current regulation: 200 mA.

2.5 Operating temperature

Positive temperature : +71 °C.
Negative temperature : - 45 °C.

3 Electrical interfaces

3.1 Power supply interface

2 free end G22 wires:

Red wire : +Vin
Black wire : 0 V

- Supply Voltage : 11 V to 32 V
- Leds current : Internal regulation at 200 mA.

3.1.1 Red & White position light P/N 6492511

- Power : 5 Watt (at 28 VDC)
- Current : 0.33 A at 14V - 0.18 A at 28V

Performances In other situations (11 V, 14 V, 16 V, 24 V and 32 V):

Power supply level (in Volts)	Current	Performances
11 V	0.24 A	Preserved
14 V	0.335 A	Normal
16 V	0.3 A	Preserved
24 V	0.21 A	Preserved
28 V	0.18	Normal
32 V	0.16 A	Preserved

3.1.2 Green & White position light P/N 6492521

- Power : 4.8 Watt (at 28 VDC)
- Current : 0.32 A at 14V - 0.17 A at 28V

Performances In other situations (11 V, 14 V, 16 V, 24 V and 32 V):

Power supply level (in Volts)	Current	Performances
11 V	0.24 A	Preserved
14 V	0.32 A	Normal
16 V	0.285 A	Preserved
24 V	0.2 A	Preserved
28 V	0.17	Normal
32 V	0.15 A	Preserved

3.2 Power dissipation

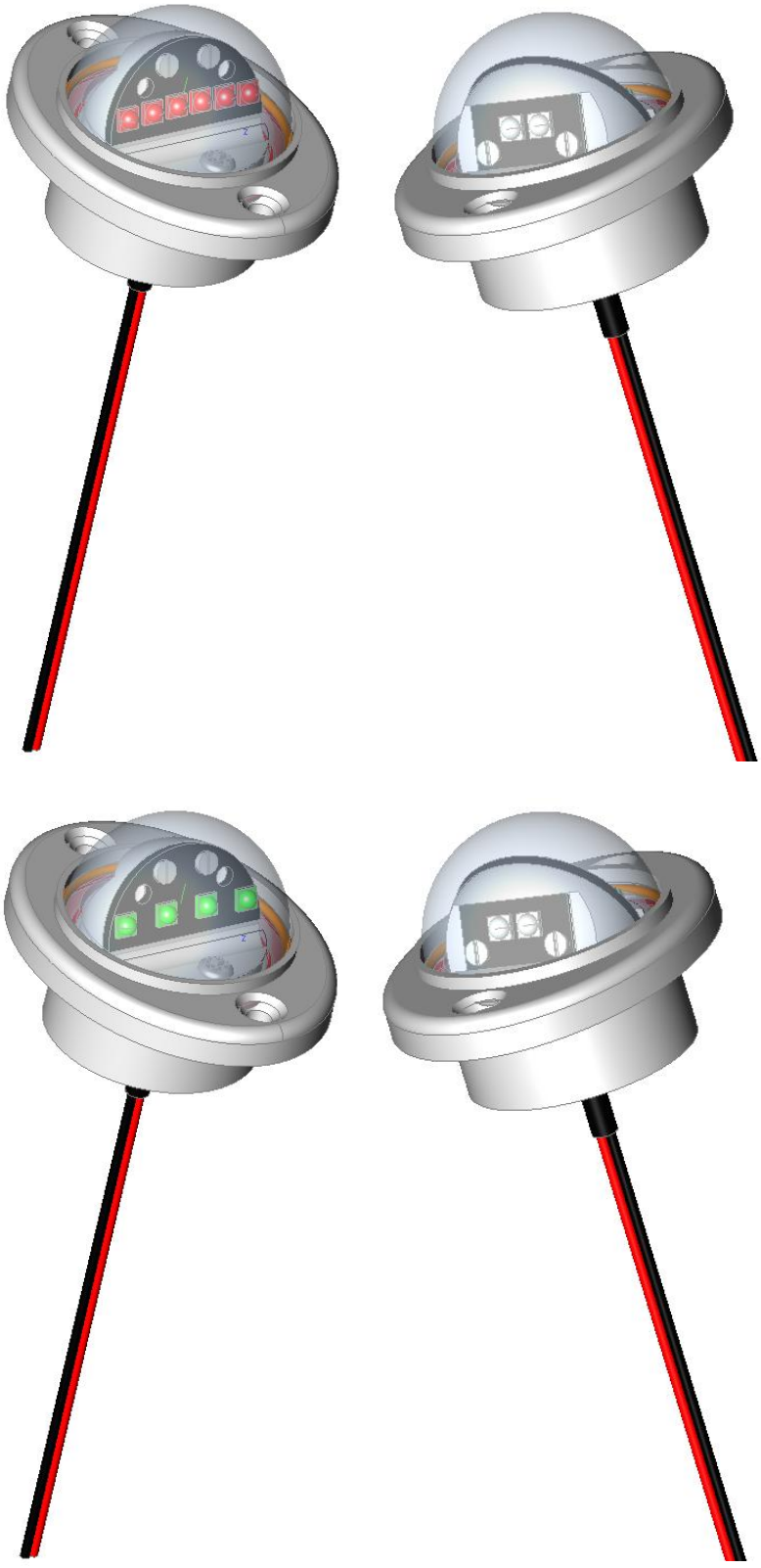
Operating Mode	Power dissipation MAX
ON	2.7 W
OFF	0 W

3.3 Signals and wires definition

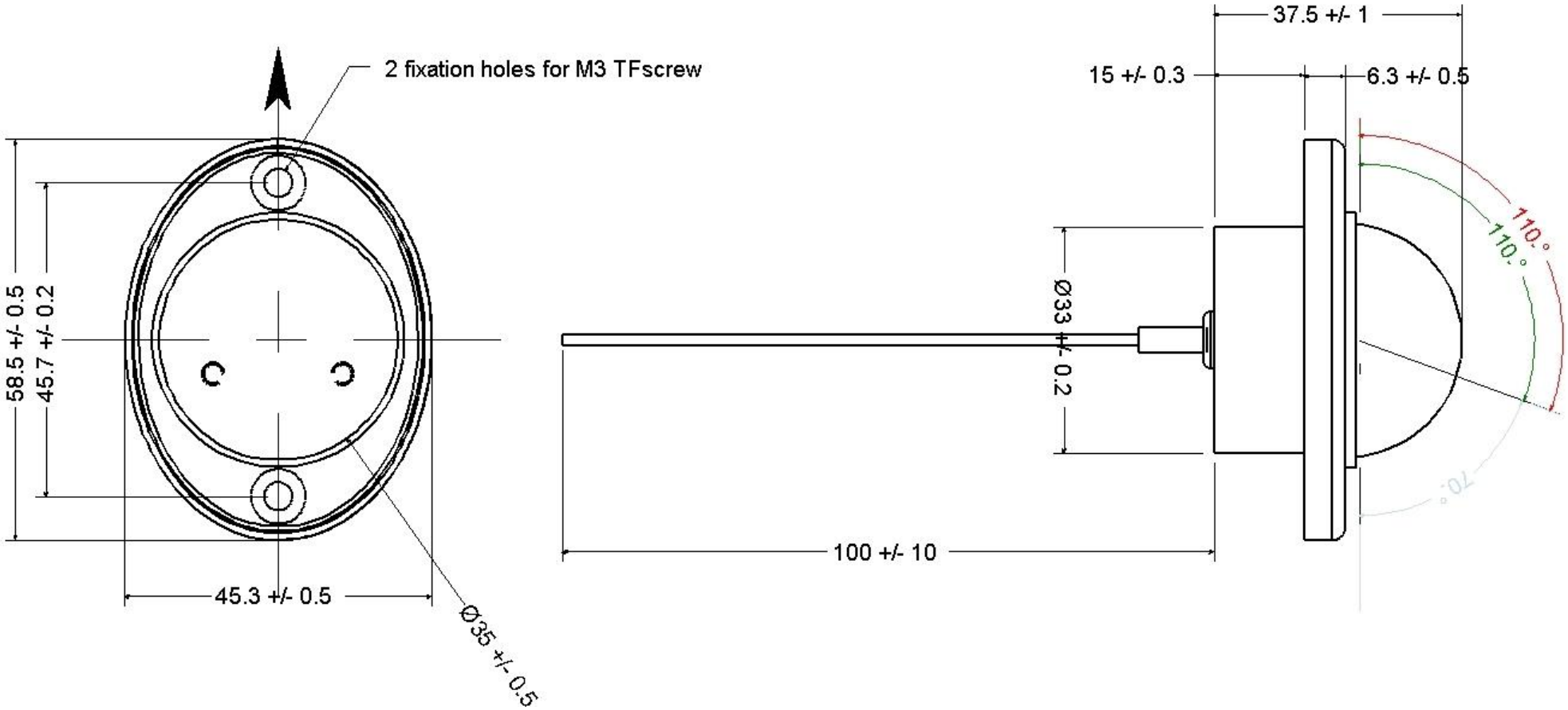
2 free end G22 wires:

Red wire : +Vin
Black wire : 0 V

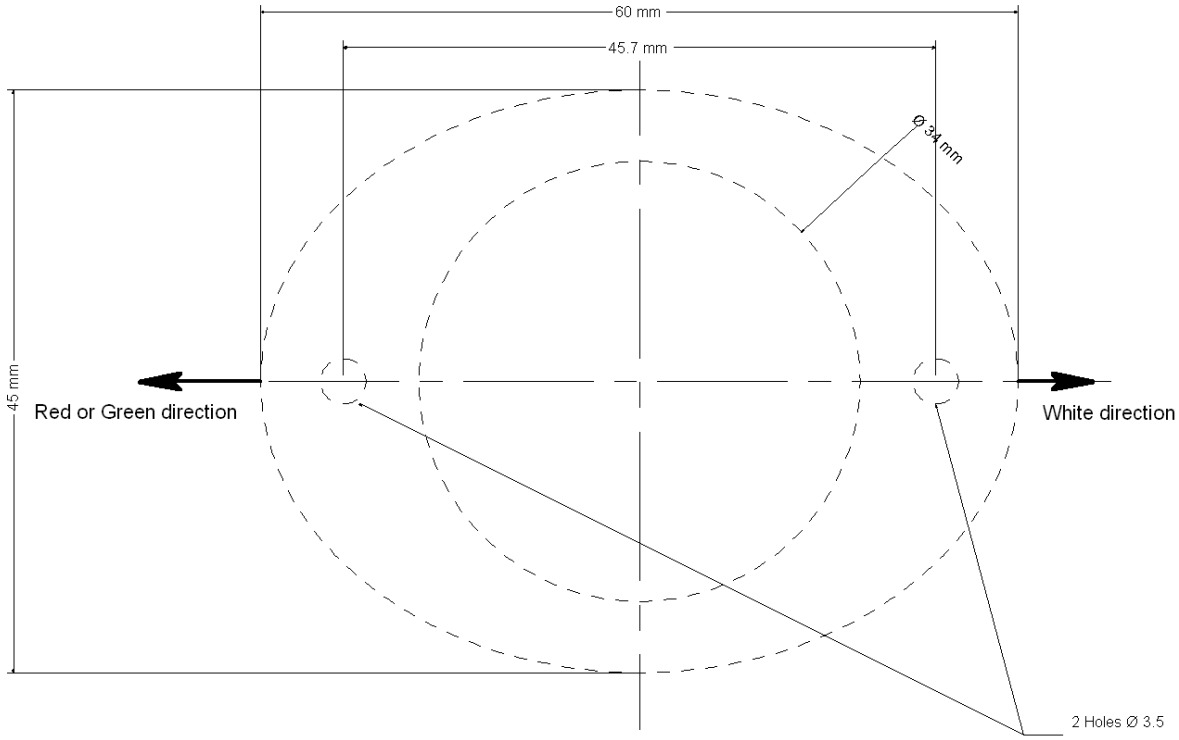
4 Annex 1 - 3D views



5 Annex 2 – 2D drawing

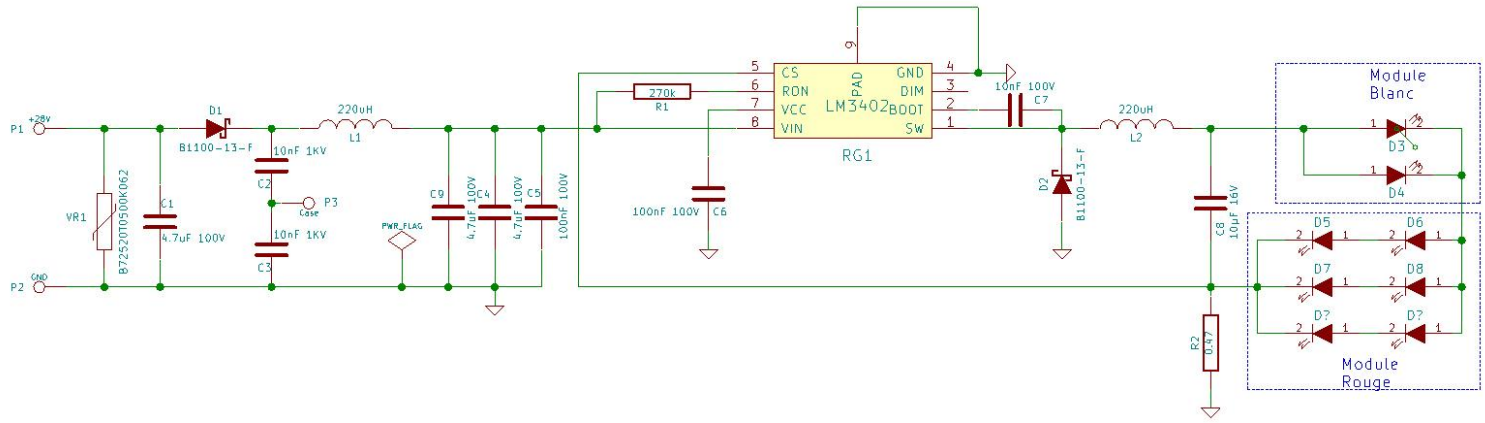


6 Annex 3 – Interface drawing



7 Annex 4 – Electrical drawings

7.1 Red/White position light P/N 6492511 electrical drawing



7.2 Green/White position light P/N 6492521 electrical drawing