



## LED LIGHT SIGNAL E220F

The LED light signal E220F was developed thanks to ENYSE 's over 90 years' experience implementing railway signalling solutions.

With a SIL-4 safety certification, and designed specifically for railway applications, the lamp is able to integrate with different interlocking technologies in the market.

The lamp electricity consumption (18 W) makes it compatible with the actual incandescent lamps, including the functionality of detecting cold fusion.

The LED light E220F is comprised by a metal casing, a control module and a LED module with high brightness and easily adaptable to the different diameters required from the railway market.

### MECHANICAL SPECIFICATIONS

- Manufactured in 4mm blended aluminum coated with RAL 90005 black electrostatic polyester paint.
- Easy access to the inside, where the control module and LED module are properly fixed by mechanical fittings.
- Protection index: IP65
- External Lens: tempered safety glass with anti-vandalism properties.
- Internal Lens: Flat for protection of the LED module.
- Optional plastic screw-on visor in the frontal part.
- Different dimensions to comply with the market requirements.



## OPTICAL SPECIFICATIONS

- Light source comprised by luminescent diodes forming a sole light of 160mm.
- The angle of the LED light emitting diodes for a 50% luminosity is 15°.
- Other angles, color ranges and brightness is possible if required.
- Possibility of two levels of brightness depending on client requirements.
- Available in green, red, white, yellow, blue, and violet.

Color	Wavelength	Intensity	
		High	Low
Yellow	592 nm ± 5	770 cd	270 cd
Red	630 nm ± 5	670 cd	230 cd
Green	520 nm ± 5	450 cd	160 cd
Blue	472 nm ± 5	290 cd	100 cd
Chromaticity Coordinates			
White	x = 0,31 , y = 0,32	414 cd	160 cd
Violet	x = 0,68 , y = 0,28	340 cd	120 cd

## PHYSICAL AND ELECTRICAL SPECIFICATIONS

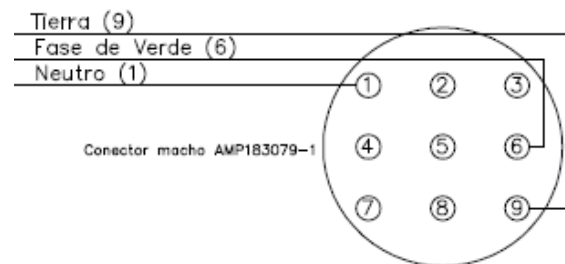
The power feeding to the lamp is mono-tensional of 10 Vac and the nominal consumption is 1,8 A AC, creating a safer system that reduces the changes of on lights for generated tensions not commanded by the control card of the interlocking.

Brightness remains constant between 8 and 12V, disconnecting automatically if the tension is outside this range.

The interlocking verifies the proper functionality of the lamps both, if the signal is on or off service, thanks to a cold fusion controlling system that verifies also the LED diodes.

Each LED light comprises of 132 LEDs with a codification code from the control card to the signal transformer to avoid functionality in case of having another aspect during the maintenance process.

### Green Light codification example



## TECHNICAL SHEET

**Safety Level:** SIL - 4

**Transformer signal** 110 Vac ± 20% (Primary)

**Tension Range:** 10 Vac ± 20% (Secondary)

**Power Consumption:** 18 W

**Temperature Range:** From -40° C to +75 ° C

**Galvanic Isolation:** >500 MΩ to 500 Vdc

**Dielectric Strength:** > 1 min. 2000 Vac

**Electromagnetic Regulations:** UNE-EN-50121-4 Standard

**MTBF:** > 16 years

**Availability:** 99,9997%

**Design Regulations:** UNE-EN-60068-2-1  
 UNE-EN-60068-2-2  
 UNE-EN-60068-2-78  
 UNE-EN-60068-2-11  
 UNE-EN-ISO-9227  
 UNE-EN-50121-4  
 EN-61000-4-6  
 EN-50155

