



## E220B LED LAMP (COMPACTLED) FOR RAIL SIGNALING

The E220b LED lamp was designed by ENYSE to allow direct and simple replacement of incandescent lamps widely used in railway signaling projects. With a SIL-4 safety certification, this equipment is fully compatible with different interlocking technologies.

The E220B lamp is made up of two subsystems:

- Control and Support Module (E220bSC) with direct mounting which can be integrated with the existing signal transformer.
- LED Subsystem (E220bSL) consisting of the LED lamp itself.

The E220bSC control card monitors the lamp's energy consumption and ensures compatibility with incandescent lamps.

Control module specifications:

- Easy connections between the transformers and the LED subsystem, with no need for additional components for heat dissipation.
- LED does not need any codification. LED light color is white (similar to incandescent light) and color of the lights is due to the existing lens.
- Protected against voltage injection and polarity reversal problems.
- Three different modes of operation: high brightness, low brightness (35%) and day/night mode (dynamic brightness control)
- "Fail-Safe" functionality: If any problem is detected the lamp turns off and interlocking can detect it as a blown bulb.
- Led Pilot indicating the self-diagnosis of the system: "on" means it is functioning properly, "off" means there is an issue placing the lamp in safe mode.

It is compatible with interlocks that feature cold fusion detection: the interlock checks if it is functioning, whether the signal is turned on or off through the cold check system of the interlocking itself, and checks the status of the LEDs.

The lamp is powered by single nominal voltage of 10 Vac with nominal consumption 1.94 A AC, making the system much more immune as it reduces the range of operating voltage and therefore the possibility of ignition by voltages not sent by the interlock control card.

**SPECIFICATIONS**

- Light source comprised of white LED luminescent diodes
- 16-LED matrix
- Standards BA15S and BA20S bulb lamp socket. Any other socket type can easily be used.
- Incandescent lamps can be easily changed
- 100% compatible with the existent rail signalization mechanism.
- 2 brightness levels depending on the customer's requirements
- Transparent or color option by placing a filter on the CompactLED.



**Other features:**

- Luminous flux through 10Lm (total flow) and 5Lm (main flow) color/collimated lens. 100% higher than an incandescent lamp
- Brightness remains constant with voltage ranging from 8 to 12V. It is automatically disconnected (0A consumption) if voltage is outside of this range.



**TECHNICAL SPECIFICATIONS**

<b>Safety level:</b>	SIL-4
<b>Transformer signal voltage range:</b>	110 Vac ±20% (main) 10 Vac ±20% (primary)
<b>Operating temperature:</b>	-40°C to +75°C
<b>Humidity:</b>	95% (without condensation)
<b>Day/night:</b>	Night 35% Day
<b>Electromagnetic compatibility:</b>	UNE-EN-50121-4
<b>MTBF:</b>	> 16 years (worst case scenario using red light)
<b>Availability:</b>	99.9997%
<b>Standards:</b>	CENELEC 50126 CENELEC 50129 UNE-EN-50124-1 UNE-EN-50125-3 UNE-EN-60060-1 UNE-EN-60068-2-1 UNE-EN-60068-2-2 UNE-EN-60068-2-6 UNE-EN-60068-2-11 UNE-EN-60068-2-14 UNE-EN-60068-2-66 UNE-EN-61000

