

The text reproduced below was prepared by the Task Force on Substitutes and Retrofits (TF SR) to modify GRE/2018/40, where the information for the 24V version was missing, and to implement editorial corrections. GRE/2018/40 was adopted by GRE during its 80th session as part of a package which also includes amendments to UN Regulation No. 128.

All modifications are highlighted in yellow.

I. Proposal

Sheet PY21W/LED/1, amend to read:

The drawings are intended only to illustrate the essential dimensions (in mm) of the LED light source.

Figure 1
Main drawing

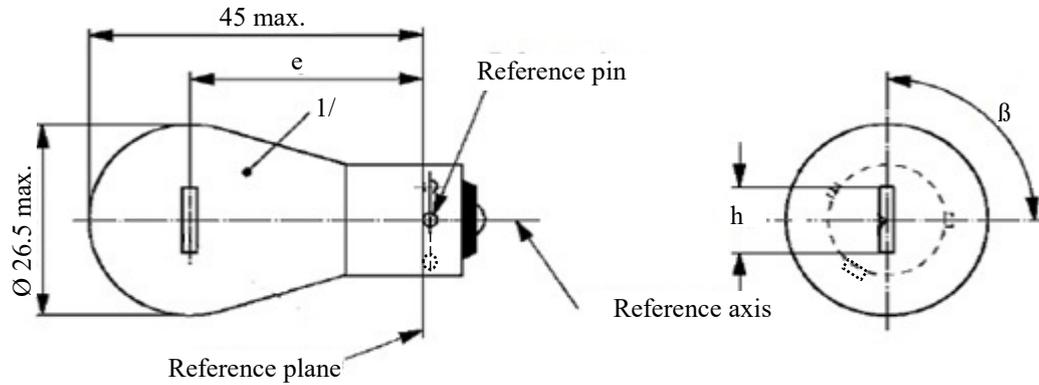


Table 1
Essential electrical and photometric characteristics of LED light sources

Dimensions in mm		LED light sources of normal production			Standard LED light source
		min.	nom.	max.	nom.
e ^{2/}			31.8		31.8
h ^{2/}			9.0		9.0
β ^{2/}		75°	90°	105°	90° ± 10°
Cap BAU15s-3(110°) in accordance with IEC Publication 60061 (sheet 7004-19A-1)					
Electrical and photometric characteristics		5/	6/	5/	
Rated values	Volts	12	24	12	
	Watts ^{3/}	7			7
Test voltage	Volts	13.5	28.0	13.5	
Objective values	Watts ^{3/}	9 max.	10 max.	9 max.	
	Electrical current (in mA) ^{3/}	(at 9-16V DC) 150 min. 750 max.	(at 16-32V DC) 75 min. 375 max.	(at 9-16V DC) 150 min. 750 max.	
	Luminous flux ^{3/, 4/} (in lm)	280 ± 20 %	280 ± 20 %	280 ± 10 %	
	Luminous flux ^{3/} (in lm)	(at 9 V DC) 56 min.	(at 16 V DC) 30 min.	(at 9 V DC) 56 min.	

¹ The light emitted from the LED light source shall be amber.

² To be checked by means of a "Box-System"; sheet PY21W/LED/2.

³ Operated in flashing mode for 30 minutes (frequency = 1.5 Hz, duty cycle 50 per cent ON, 50 per cent OFF) and measured in the ON-state of flashing mode after 30 minutes of operation.

⁴ The value measured at elevated ambient temperature of 80°C shall be at least 65% of this value.

⁵ In case of a failure of any of the light emitting elements, the LED light source shall either still comply to the requirements concerning luminous flux and luminous intensity distribution or stop emitting light whereby in the latter case the electrical current draw, when operated between 12 V and 14 V, shall be less than 50 mA.

⁶ In case of a failure of any of the light emitting elements, the LED light source shall either still comply to the requirements concerning luminous flux and luminous intensity distribution or stop emitting light whereby in the latter case the electrical current draw, when operated between 24 V and 28 V, shall be less than 25 mA.

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II. Justification

This proposal is motivated by missing information with respect to the 24V version of a PY21W/LED light source. In the proposal GRE/2018/40 the following three parameters were given only for the 12V version and are completed for the 24V version in the present proposal:

1. Minimum and maximum limits for the electrical current
 - i) The typical range representing voltage fluctuations in a vehicle are given in ISO 16750-2. While a 12V system ranges from 9V to 16V the corresponding range for a 24V system is from 16V to 32V.
 - ii) The values limiting the electrical current of a 24V system are half of the values of a 12V system, as they are related to the power consumption, which is the product of voltage and current.

2. Minimum luminous flux limit at the corresponding voltage drop level

The minimum luminous flux at the lowest voltage drop level (at 9V of a 12V system, at 16V at a 24V system) reflects the light emission of the corresponding filament light source category under the same voltage drop. As the relative voltage drop in the 24V system (16V versus 28V) is lower than in the 12V system (9V versus 13.5V), the resulting minimum flux value is correspondingly lower.

3. Footnote describing the failure behavior

The maximum value of the electrical current in case of failure in a 24V version is half of the corresponding value in a 12V system, as it is related to the power consumption, which is the product of voltage and current. This is given in the new footnote 6 for the 24V system.

In the context of adding the missing information of the 24V system, two editorial improvements are proposed as follows:

4. Removing tolerance values of angle β

While the category sheet of the PY21W filament light source contains a rotational tolerance of $\pm 15^\circ$ for the angle β (see “screen projection requirements” of sheet P21W/2), this rotational tolerance has been included in the dimensions of the box system of the corresponding LED Substitute light source PY21W/LED (see sheet PY21W/LED/2) and the tolerances of angle β has no meaning anymore.

5. Moving footnotes 2 and 3 to a more general position

After the insertion of the full 24V information, the footnotes have been moved to the most “general” position, i.e. to the left column of table 1, for a better readability.