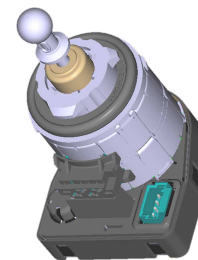


Characteristics:

Main function:

The leveler adjusts the headlamp light beam vertical position by translation of a shaft.

It communicates with the vehicle auto leveling system via single wire LIN BUS (LIN SPEC rev.1.3). The motor is a linear stepper.



Performance:

Performance (typical, other requirements can be passed)

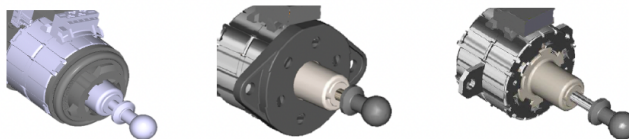
Electrical stroke	12 mm between stops
Nominal axial force	20N
Min axial force	> 22N at 10V/-40°C/607Hz/s
Temperature Range Of Operation	-40 to +105°C
Noise level	45dBA (with micro at 500mm)
Speed	5 to 15.2 mm / s
Initialization	In or out for bottom or top position on headlamp
Axial Assembly Force	max 200 N at full in position
Axial Play	< 0.15 mm under 15N
Holding force	150N @100mA @23°C
Weight	115 g
Durability	>10 million movements (dynamic leveling + motorway + high beam up)

Electrical connection and control

Motor driver	OnSemi NCV 70627
Lin protocol	Physical Layer Compliant to LIN 2.0. Data-link Layer Compatible with LIN 1.3
Motor design	2 phase bipolar stepper motor
Voltage range / Nominal	10 to 16V / 13.5V
Connection	Molex Duraclik 5600200420
Resolution	1/30 mm / full step
Solder	Leadfree
EMC	Customized to customer specification See test plan
Typical driving current	500 – 800 mA / phase
Step mode	Full step (1/1), Half step (1/2), Microstep (1/8, 1/16)
Recommended driving speeds	200 Full Step/s Vmax, 76 Full Step/s Vmin
Ramp	8848 HS/s ²
Winding resistance / inductance	6.9 Ohm +/-10%, 12mH +/-10%
Duty cycle	40% max @ Tmax +120°C

Design features (see drawing for details)

Fixation on headlamp	Bayonet diam 22mm. Option : Flange or Metal brackets
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Fixation to module	Sphere Ø10mm or 8mm
Location	Internal to headlamp on top or bottom position
Manual aiming	Optional
Dimensions x y z	74 x 43 x 51 mm (see drawing)
Protection	IP 30