External Dynamic Leveler - Lin Bus Driver

EDL Lin 1.2

Characteristics:

Main function 1 :
The EDL leveler adjusts the headlamp light beam vertical position by translation of a shaft. It communicates with the vehicle system via single wire LIN BUS (LIN SPEC rev. 1.3). The motor is a linear stepper.

Main function 2 :
The EDL has a manual aiming for vertical adjustment of the headlamp.

Performance:

Performance (typical, other requirements can be passed)	
Electrical stroke	10 mm+/-0.2 between hard stops. 9.6mm available for leveling
Manual stroke	4.5mm up and down
Nominal axial force	10 N (Max force = 70N at ambient temperature)
Temperature range of operation	-40° to +85°
Noise level	60 dBA (with micro at 400mm)
Speed	10 mm /s min (at 13.5V, room T°, 10N, 300 Full Step/s)
Initialization	In or out for bottom or top position on headlamp
Axial Assembly strength	>250 N for headlamp reflector assembly by clipping (at in stop)
Axial play	0.2 mm max (10N 23°C)
Weight	162g
Vibration	To be tested on headlamp, reflector weight max 1kg with gravity center distance 30mm max from fixation plane
Durability	> 5 million movements (dynamic leveling + motorway + high beam up)

Electrical connexion and control	
Voltage range / Nominal	10 to 16V / 13.5V
Connexion	Yazaki Eh 4 pins 0.64x0.64
Lin motor Driver	Onsemi NCV 70627
Resolution	30 steps / mm
Solder	Leadfree
EMC	To be checked according to car maker specifications.
Lin protocol	Lin 1.3, 19.2 kbit baud rate
Typical driving parameters	673mA peak running current, 59mA holding current
Recommended driving speeds	200 Full Step/s Vmax, 29 Full Step/s Vmin
Winding resistance / inductance	7.5 W ± 10% / 10 mH ± 10%
Duty cycle	30% max

Design features (see drawing for details)	
Fixation on headlamp	By bayonet 4 lugs Φ 22mm, locking angle 16.5°
Sphere diameter	Φ 8mm
Location	External to headlamp on top or bottom position
Manual aiming interface	Hex 6mm or cross Phillips Nr2
Dimensions x y z	66 x 47 x 70 mm
Protection	IP 66, 100% line control under 50mbar, air leak 10cc/mn max