40W Constant Voltage + Constant Current LED Driver

HLG-40H series

■ Features
- Constant Voltage + Constant Current mode output
- Metal housing with class I design
- Built-in active PFC function
- Class 2 power unit
- IP67/IP65 rating for indoor or outdoor installations
- Function options: output adjustable via potentiometer:
  3 in 1 dimming; Timer dimming
- Typical lifetime > 62000 hours
- 7 years warranty

■ Applications
- LED street lighting
- LED high-bay lighting
- Parking space lighting
- LED fishing lamp
- LED greenhouse lighting
- Type “HL” for use in Class I, Division 2 hazardous (Classified) location.

■ Description
HLG-40H series is a 40W AC/DC LED driver featuring the dual mode constant voltage and constant current output. HLG-40H operates from 90 ~ 305VAC and offers models with different rated voltage ranging between 12V and 54V. Thanks to the high efficiency up to 89.5%, with the fanless design, the entire series is able to operate for -40°C ~ +80°C case temperature under free air convection. The design of metal housing and IP67/IP65 ingress protection level allows this series to fit both indoor and outdoor applications. HLG-40H is equipped with various function options, such as dimming methodologies, so as to provide the optimal design flexibility for LED lighting system.

■ Model Encoding
HLG - 40H - [Series] [Function options]
Rated output voltage (12V/15V/20V/24V/30V/36V/42V/48V/54V)

<table>
<thead>
<tr>
<th>Type</th>
<th>IP Level</th>
<th>Function</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank</td>
<td>IP67</td>
<td>Io and Vo fixed</td>
<td>In Stock</td>
</tr>
<tr>
<td>A</td>
<td>IP65</td>
<td>Io and Vo adjustable through built-in potentiometer</td>
<td>In Stock</td>
</tr>
<tr>
<td>B</td>
<td>IP67</td>
<td>3 in 1 dimming function (1~10VDC, 10V PWM signal and resistance)</td>
<td>In Stock</td>
</tr>
<tr>
<td>AB</td>
<td>IP65</td>
<td>Io and Vo adjustable through built-in potentiometer &amp; 3 in 1 dimming function (1~10Vdc, 10V PWM signal and resistance)</td>
<td>In Stock</td>
</tr>
<tr>
<td>D</td>
<td>IP67</td>
<td>Timer dimming function, contact MEAN WELL for details(safety pending).</td>
<td>By request</td>
</tr>
</tbody>
</table>
40W Constant Voltage + Constant Current LED Driver

**HLG-40H Series**

**SPECIFICATION**

**MODEL**

<table>
<thead>
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<tbody>
<tr>
<td>DC VOLTAGE</td>
<td>12V</td>
<td>15V</td>
<td>20V</td>
<td>24V</td>
<td>30V</td>
<td>36V</td>
<td>42V</td>
<td>48V</td>
</tr>
<tr>
<td>CONSTANT CURRENT REGION Note.4</td>
<td>7.2 ~ 12V</td>
<td>9 ~ 15V</td>
<td>12 ~ 20V</td>
<td>14.4 ~ 24V</td>
<td>18 ~ 30V</td>
<td>21.6 ~ 36V</td>
<td>25.2 ~ 42V</td>
<td>28.8 ~ 48V</td>
</tr>
<tr>
<td>RATED CURRENT</td>
<td>3.33A</td>
<td>2.67A</td>
<td>2A</td>
<td>1.67A</td>
<td>1.34A</td>
<td>1.12A</td>
<td>0.96A</td>
<td>0.84A</td>
</tr>
<tr>
<td>RATED POWER</td>
<td>39.96W</td>
<td>40.05W</td>
<td>40W</td>
<td>40.08W</td>
<td>40.2W</td>
<td>40.32W</td>
<td>40.32W</td>
<td>40.32W</td>
</tr>
<tr>
<td>Ripple &amp; Noise (max.) Note.6</td>
<td>150mVp-p</td>
<td>150mVp-p</td>
<td>150mVp-p</td>
<td>200mVp-p</td>
<td>200mVp-p</td>
<td>200mVp-p</td>
<td>300mVp-p</td>
<td>300mVp-p</td>
</tr>
</tbody>
</table>

**Output Voltage Adj. Range**

Adjustable for A/B-Type only (via built-in potentiometer)

10.8 ~ 13.5V
13.5 ~ 17V
17 ~ 22V
22 ~ 27V
27 ~ 33V
33 ~ 40V
40 ~ 46V
44 ~ 53V
49 ~ 58V

**Current Adj. Range**

3 ~ 3.33A
1.6 ~ 2.67A
1.2 ~ 2A
1 ~ 1.67A
0.8 ~ 1.34A
0.67 ~ 1.12A
0.58 ~ 0.96A
0.5 ~ 0.84A
0.45 ~ 0.75A

**Voltage Tolerance**

±2.5%
±2%
±1%
±1%
±1%
±1%
±1%
±1%
±1%

**Line Regulation**

±0.5%
±0.5%
±0.5%
±0.5%
±0.5%
±0.5%
±0.5%
±0.5%
±0.5%

**Load Regulation**

±0.5%
±0.5%
±0.5%
±0.5%
±0.5%
±0.5%
±0.5%
±0.5%
±0.5%

**Setup, Rise Time**

500ms, 80ms/115VAC
500ms, 80ms/230VAC

**Hold Up Time (Typ.)**

16ms / 115VAC, 230VAC

**Input Voltage Range**

90 ~ 305VAC
127 ~ 431VDC

**Frequency Range**

47 ~ 63Hz

**Power Factor (Typ.)**

PF ≥ 0.98/115VAC, PF ≥ 0.95/230VAC, PF ≥ 0.92/277VAC @ full load

**Total Harmonic Distortion**

THD ≥ 20% @ load ≥ 60% / 115VAC, 230VAC, @ load ≥ 75% / 277VAC

**Efficiency (Typ.)**

86.5%
86.5%
88%
88%
88.5%
88.5%
88.5%
89.5%
89.5%

**AC Current (Typ.)**

0.43A / 115VAC
0.24A / 230VAC
0.23A / 277VAC

**Inrush Current (Typ.)**

COLD START 50A (max) is measured at 50% peak at 230VAC; Per NEMA 410

**Max. No. of PSUs on 16A Circuit Breaker**

12 units (circuit breaker of type B) / 20 units (circuit breaker of type C) at 230VAC

**Leakage Current**

<0.75mA / 277VAC

**Protection**

95 ~ 108%
Constant current limiting, recovers automatically after fault condition is removed

**Short Circuit**

Hiccup mode, recovers automatically after fault condition is removed

**Over Voltage**

15 ~ 21V
18 ~ 24V
23 ~ 30V
28 ~ 35V
35 ~ 43V
41 ~ 49V
48 ~ 58V
54 ~ 65V
59 ~ 68V

**Over Temperature**

Shut down o/p voltage, re-power on to recover

**Working Temp.**

Tcase = -40 ~ +80°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)

**Max. Case Temp.**

Tcase = +80°C

**Environment**

20 ~ 95% RH non-condensing

**Storage Temp., Humidity**

-40 ~ +80°C, 10 ~ 95% RH

**Temp. Coefficient**

±0.03%/°C (0 ~ 60°C)

**Vibration**

10 ~ 500Hz, 5G 12in./cycle, period for 72min. each along X, Y, Z axes

**Safety & Emission**

UL8750(type “HL”), CSA C22.2 No. 250.0-08, EN/AS/NZS 61347-1, EN/AS/NZS 61347-2-13 independent, GB19510.1, GB19510.14, EAC TP TC 004, KC61347-1, KC61347-2-13 (except for AB-type), IP65 or IP67 approved; J61347-1, J61347-2-13 (except for B, AB, and D-type); design refer to EN60335-1 (by request)

**Safety Standards Note.**

UL8750(type “HL”), CSA C22.2 No. 250.0-08, EN/AS/NZS 61347-1, EN/AS/NZS 61347-2-13 independent, GB19510.1, GB19510.14, EAC TP TC 004, KC61347-1, KC61347-2-13 (except for AB-type), IP65 or IP67 approved; J61347-1, J61347-2-13 (except for B, AB, and D-type); design refer to EN60335-1 (by request)

**ISOTRAP VOLTAGE**

IP-OF/P.3.75KVAC / IP-OF/2KVAC / IP-OF/1KVAC

**Isolation Resistance**

IP-OF/P, IP-OF/G, IP-OF/G-100M Ohms / 500VDC / 25°C / 70% RH

**EMC Emission**

Compliance to EN65015, EN61000-3-2 Class C @ load ≥ 60% ; EN61000-3-3, GB17743 and GB17625.1, EAC TP TC 020

**EMC Immunity**

Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11; EN61547, EN55024; light level immunity; surge line Earth-4KV, Line-Line 2KV; EAC TP TC 020

**Others**

MTBF

1313.9K hrs min. Telcordia SR-S32 (Bellcore) ; 336.5K hrs min. MIL-HDBK-217F (25°C)

**Dimension**

171.51”×36.8mm (L*W*H)

**Packing**

0.73Kg; 20pcs/15.6Kg/0.9CUFT

**Note**

1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25°C of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12” twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance includes set up tolerance, line regulation and load regulation.
4. Please refer to “DRIVING METHODS OF LED MODULE”.
5. HP-rated may be needed under low input voltages. Please refer to “STATIC CHARACTERISTIC” sections for details.
6. Length of setup time is measured at first cold start. Turning ON/OFF the driver may lead to increase of the set up time.
7. The driver is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must take quality EMC Directive on the complete installation again.
8. To fulfill requirements of the latest E&I regulation for lighting fixtures, this LED driver can only be used behind a switch without permanently connected to the mains.
9. This series meets the typical life expectancy of >62,000 hours of operation when Tcase, particularly <0°C point (or TMP, per DILC), is about 75°C or less.
11. The ambient temperature derating of 3.5%/1000m with lensless models and of 5%/1000m with fan models for operating altitude higher than 2000m (6000ft).
12. For any application note and IP water proof function installation caution, please refer our user manual before using.

In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems.

Should there be any compatibility issues, please contact MEAN WELL.

Typical output current normalized by rated current (%)
**DIMMING OPERATION**

- **3 in 1 dimming function (for B/AB-Type)**
  - Output constant current level can be adjusted by applying one of the three methodologies between DIM+ and DIM-:
    - 1 ~ 10VDC, or 10V PWM signal or resistance.
  - Direct connecting to LEDs is suggested. It is not suitable to be used with additional drivers.
  - Dimming source current from power supply: 100mA (typ.)

- Applying additive 1 ~ 10VDC

- Applying additive 10V PWM signal (frequency range 100Hz ~ 3KHz):

- Applying additive resistance:

*DO NOT connect “DIM- to -V”*

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**DIMMING SOURCE CURRENT FROM POWER SUPPLY: 100mA (typ.)**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Current (%)</th>
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<tbody>
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</table>
Note: In the case of turning the lighting fixture down to 0% brightness, please refer to the configuration as follow, or please contact MEAN WELL for other options.

Using a switch and relay can turn ON/OFF the lighting fixture.

1. 10K/N~100K/N Ohms resistance
2. 1~10V DC Voltage
3. 10V PWM Signal
HLG-40H series

40W Constant Voltage + Constant Current LED Driver

**OUTPUT LOAD vs TEMPERATURE (Note.10)**

- AMBIENT TEMPERATURE, Ta (°C)
- LOAD (%)
- 230VAC Input only

**STATIC CHARACTERISTICS**

- INPUT VOLTAGE (V) 60Hz
- LOAD (%)
- 90 100 125 150 175 200 230 305

**POWER FACTOR(PF) CHARACTERISTIC**

- Constant Current Mode
- PF
- 277VAC
- 230VAC
- 115VAC

- Tcase at 70°C

**TOTAL HARMONIC DISTORTION (THD)**

- 48V Model, Tcase at 70°C
- THD(%)
- 50% 60% 70% 80% 90% 100%

**EFFICIENCY vs LOAD**

- HLG-40H series possess superior working efficiency that up to 89.5% can be reached in field applications.
- 48V Model, Tcase at 70°C

※ De-rating is needed under low input voltage.
LIFE TIME

40W Constant Voltage + Constant Current LED Driver
HLG-40H series

LIFETIME (Khr)

Tcase (℃)

File Name: HLG-40H-SPEC  2020-07-24
40W Constant Voltage + Constant Current LED Driver

HLG-40H series

MECHANICAL SPECIFICATION

※ Blank/D-Type

※ A-Type

File Name: HLG-40H-SPEC   2020-07-24
### WATERPROOF CONNECTION

※ Waterproof connector

Waterproof connector can be assembled on the output cable of HLG-40H to operate in dry/wet/damp or outdoor environment.

<table>
<thead>
<tr>
<th>Size</th>
<th>Pin Configuration (Female)</th>
<th>Size</th>
<th>Pin Configuration (Female)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12</td>
<td>4-PIN 5-PIN 5A-PIN 5A-PIN</td>
<td>M15</td>
<td>2-PIN 12A-PIN</td>
</tr>
<tr>
<td>Order No.</td>
<td>M12-04 M12-05</td>
<td>Order No.</td>
<td>M15-02</td>
</tr>
<tr>
<td>Suitable Current</td>
<td>10A max. 10A max.</td>
<td>Suitable Current</td>
<td>12A max.</td>
</tr>
</tbody>
</table>

※ Cable Joiner

CJ04 cable joiner can be purchased independently for user's own assembly.
MEAN WELL order No.: CJ04-1, CJ04-2.

Up to four wires can be connected through this cable joiner by soldering or clamping by tools.

### INSTALLATION MANUAL