

HYL-080D1750G358_DALI 2

Constant current LED driver
DALI Dimmable

Product description

- Dimmable built-in constant current LED Driver
- Adjustable output current between 1,050 and 1,750mA via DIP switch
- Max. output power 80 W
- Up to 91 % efficiency
- Power input on stand-by < 0.5 W
- Dimming range 1 – 100 %
- For luminaires of protection class I and protection class II
- Nominal life-time up to 100,000 h
- 5-year guarantee



Benefits

- Application-oriented operating window for maximum compatibility
- Best energy savings due to low stand-by losses and high efficiency
- Long lasting and high reliability
- Slim white metal housing 30 x 21 mm
- Double output connectors (parallel connection)
- Suitable for emergency lighting units

Interfaces

- DALI
- SwitchDIM (with memory function)
- Terminal blocks: 45° push terminals

Applications

- Linear and area lighting
- Office – industrial – shop

Approval marks



In preparation, if not already printed on product label

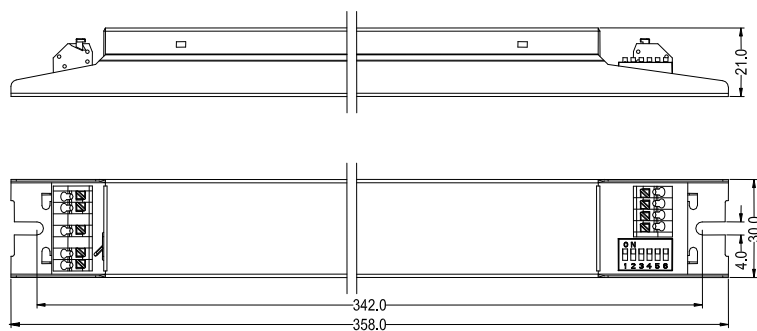


Technical data

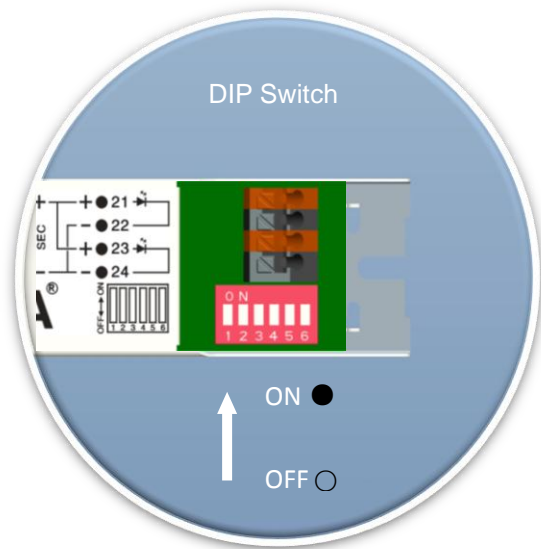
Datasheet V2.0 5/2017
Subject to change without notice

HYL-080D1750G358

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
DC voltage range	176 – 280 V
Mains frequency	0 / 50 / 60 Hz
Overvoltage protection	320 V AC, 48 h
Typ. current (at 230 V, 50 Hz, full load)	299 – 407 mA
Leakage current (at 230 V, 50 Hz, full load)	< 550 μ A
Max. input power	90 W
Typ. efficiency (at 230 V / 50 Hz / full load)	0.9
λ (at 230 V, 50 Hz, full load)	0.98
Typ. power input on stand-by	< 0.5W
Typ. input power in no-load operation	n.a ^①
In-rush current (peak / duration)	37A/168 μ s
THD (at 230 V, 50 Hz, full load)	< 5 %
Output current tolerance	\pm 5 %
Output current ripple ^②	< 5 %
Max. output voltage (no-load voltage)	60 V
Dimming range	1 – 100 %
Mains surge capability (between L – N)	1 kV
Mains surge capability (between L/N – PE)	2 kV
Surge voltage at output side (against PE)	< 500 V
Dimensions L x W x H	358x30x21 mm
Ambient temperature range	-20...50 °C
Max. temperature at Tc test point	75°C
Environmental rating	Indoor



Units: mm



Ordering data

Type	Packaging carton	Weight per pc.
HYL-080D1750G358	20 pc(s)	290 g

Specific technical data

Type	DIP Switch						Output current (mA)	Min. forward voltage (V)	Max. forward voltage (V)	Min. output power (W)	Max. output power (W)	Typ. power consumption (at 230 V, 50 Hz, full load) (W)	Typ. current consumption (at 230 V, 50 Hz, full load)(A)
	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6							
HYL-080D1750G358	●	●	●	●	●	●	1750	20	46	35	80.5	88.1	0.407
	●	●	●	○	●	●	1700	20	47.5	34	80.75	88.4	0.407
	●	●	●	●	○	●	1650	20	48.5	33	80.03	87.8	0.407
	●	●	●	○	○	●	1600	20	50.5	32	80.8	88.4	0.407
	●	●	●	●	●	○	1550	20	52	31	80.6	88.5	0.407
	●	●	●	○	●	○	1500	20	54	30	81	88.7	0.407
	●	●	●	●	○	○	1450	20	54	29	78.3	86.1	0.399
	●	●	●	○	○	○	1400	20	54	28	75.6	82.8	0.386
	○	●	●	○	○	○	1350	20	54	27	72.9	80.8	0.374
	●	○	●	○	○	○	1300	20	54	26	70.2	77.1	0.361
	○	○	●	○	○	○	1250	20	54	25	67.5	74.9	0.350
	●	●	○	○	○	○	1200	20	54	24	64.8	71.9	0.334
	○	●	○	○	○	○	1150	20	54	23	62.1	69.1	0.320
	●	○	○	○	○	○	1100	20	54	22	59.4	66.5	0.308
	○	○	○	○	○	○	1050	20	54	21	56.7	63.3	0.299

①Load switching on output side is safe but not permitted

②Valid at 100 % dimming level

1. Standards

- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61347-1
- EN 61347-2-13
- EN 62384
- EN 61547
- EN 62386-101 (according to DALI standard V1)
- EN 62386-102
- EN 62386-207
- According to EN 50172 for use in central battery systems
- According to EN 60598-2-22 suitable for emergency lighting installations

2. Thermal details and life-time

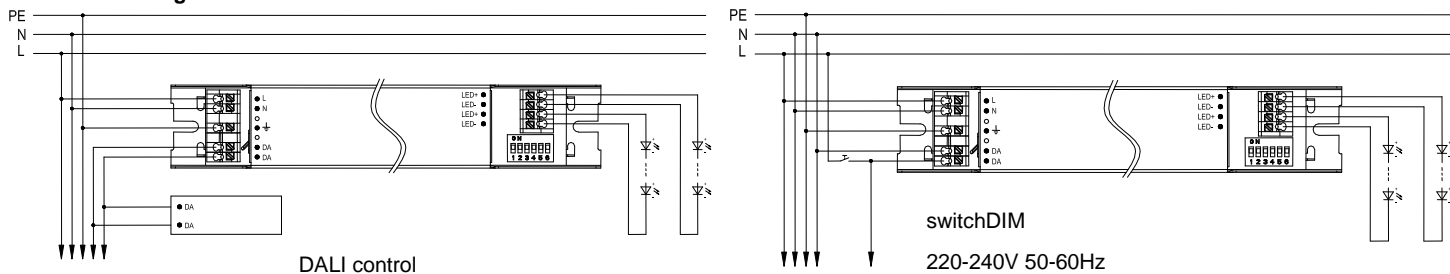
2.1 Expected life-time

Type	Output current	ta	40°C	45°C	50°C	55°C	60°C	65°C
			tc	60°C	65°C	70°C	75°C	80°C
HYL-080D1750G358	1,050-1,100 mA	Life-time	> 100,000 h	> 100,000 h	> 100,000 h	> 80,000 h	> 75,000 h	> 50,000 h
		tc	60°C	65°C	70°C	75°C	80°C	-
	> 1,100-1,400 mA	Life-time	> 100,000 h	> 100,000 h	> 80,000 h	> 75,000 h	> 50,000 h	-
		tc	60°C	65°C	70°C	75°C	-	-
> 1,400-1,750 mA	Life-time	> 100,000 h	> 100,000 h	> 80,000 h	> 50,000 h	-	-	
	tc	60°C	65°C	70°C	75°C	-	-	

The LED Driver is designed for a life-time stated above under reference conditions and with a failure probability of less than 10%.
The relation of tc to ta temperature depends also on the luminaire design.

3. Installation / wiring

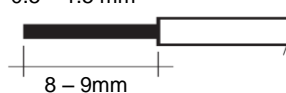
3.1 Circuit diagram



3.2 Wiring type and cross section

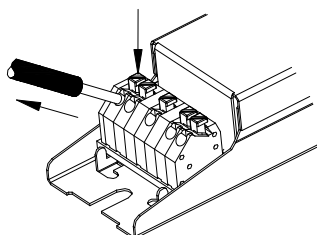
Solid wire with a cross section of 0.5 – 1.5 mm². Strip 8 – 9 mm of insulation from the cables to ensure perfect operation of terminals

Wire preparation:
0.5 – 1.5 mm²



3.3 Loose wiring

Press down the “push button” and remove the cable from front.



3.4 Wiring guidelines

- The cables should be run separately from the mains connections and mains cables to ensure good EMC conditions.
- The LED wiring should be kept as short as possible to ensure good EMC. The max. secondary cable length is 2 m (4 m circuit), this applies for LED output.
- Secondary switching is permitted. But the secondary switch may damage the LED modules, so it is not recommended to do so.
- The LED Driver has no inverse-polarity protection on the secondary side. Wrong polarity can damage LED modules with no inverse-polarity protection.
- Wrong wiring of the LED Driver can lead to malfunction or irreparable damage.

3.5 Hot plugging

Hot plug-in is supported, but it may damage the LED modules due to residual output voltage is too high.

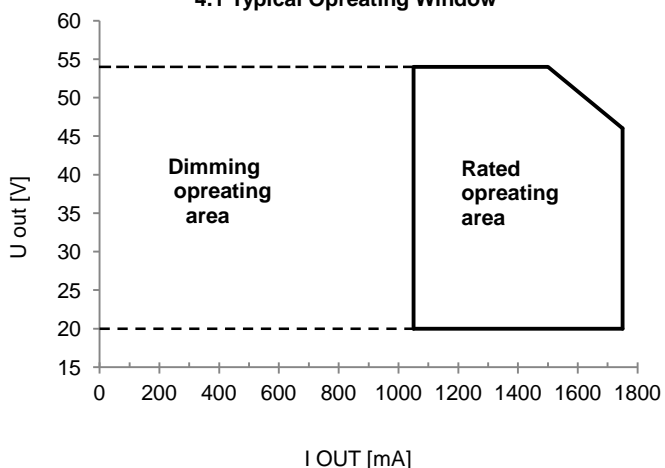
3.6 Earth connection

The earth connection is conducted as protection earth (PE). The LED Driver can be earthed via earth terminal or metal housing. If the LED Driver will be earthed, protection earth (PE) has to be used. There is no earth connection required for the functionality of the LED Driver. Earth connection is recommended to improve following behavior:

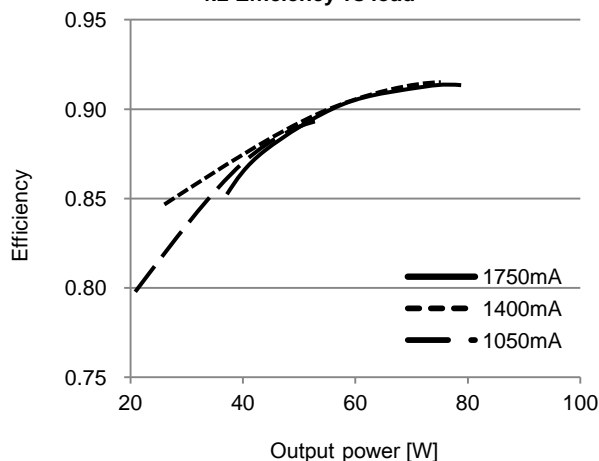
- Electromagnetic interferences (EMI)
- LED glowing at stand-by
- Transmission of mains transients to the LED output in general it is recommended to earth the LED Driver if the LED module is mounted on earthed luminaire parts respectively heat sinks and there by representing a high capacity against earth.

4. Electrical values

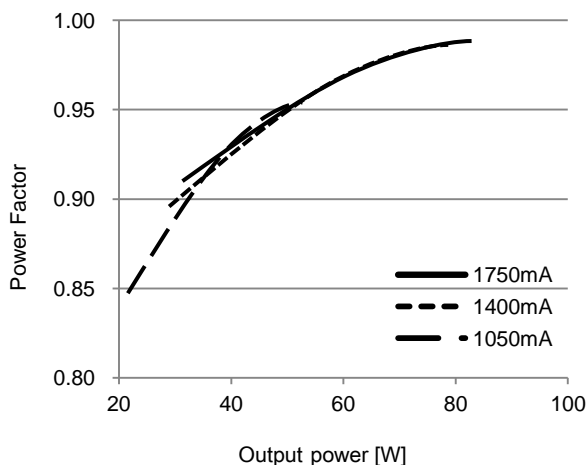
4.1 Typical Operating Window



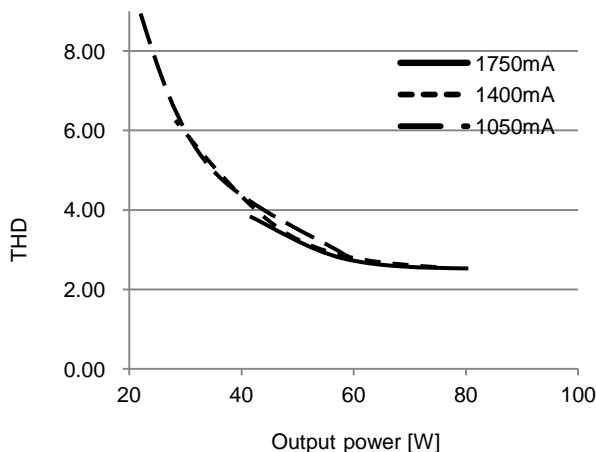
4.2 Efficiency vs load



4.3 Power Factor vs load



4.4 THD vs load

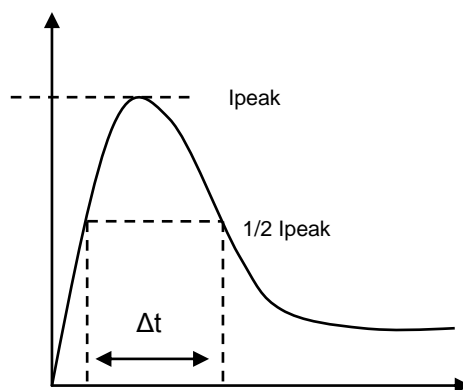


4.5 Maximum loading of automatic circuit breakers

Type	typ. I _{peak} / Δt	Number of ECG at one singlepole				
		circuit breaker (CB)				
		10 A	16 A	20 A	25 A	
HYL-080D1750G358	37A/168us	CB-Typ				
		B	7	9	12	15
		C	11	15	20	25

Data for U_{supply} = 230 VAC, mains impedance = 1 Ω

- In case of multi-polar CB the maximum number is reduced by 20 %
- The max. number may differ depending on CB manufacturer.
- Please consider the specifications of the manufacturer.
- Basically, CB with C-characteristics are recommended to be used in lighting groups.



Typical current - time profile when switching on

4.6 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

	THD	3.	5.	7.	9.	11.
HYL-080D1750G358	< 5	< 3	< 2	< 3	< 2	< 2

4.7 Dimming

Dimming range 1 % to 100 % Digital dimming value

Digital control with:

DALI signal: 16 bit Manchester Code

Speed 1 % to 100 % in 0.2 s

Programmable parameter:

Minimum dimming level

Maximum dimming level

Default minimum = 1 %

Programmable range 1 % ≤ MIN ≤ 100 %

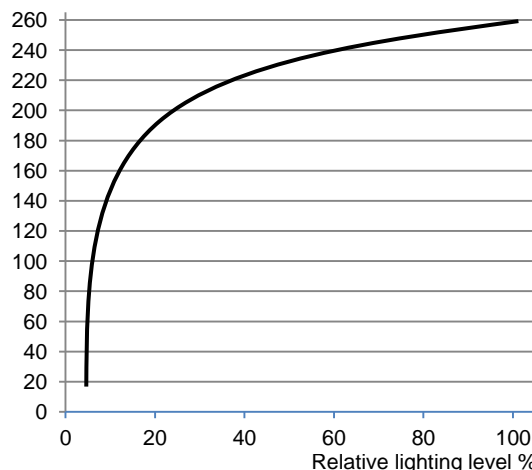
Default maximum = 100 %

Programmable range 100 % ≥ MAX ≥ 1 %

Dimming curve is adapted to the eye sensitiveness.

Dimming is realized by amplitude dimming.

4.5 Dimming characteristics



Dimming characteristics as seen by the human eye

5. Interfaces / communication

5.1 Control input (DA/N, DA/L)

Digital DALI signal or switchDIM can be wired on the same terminals (DA/N and DA/L). The control input is non-polar for digital control signals (DALI). The control signal is not SELV. Control cable has to be installed in accordance to the requirements of low voltage installations. Different functions depending on each module.

5.2 SwitchDIM

Integrated switchDIM function allows a direct connection of a pushbutton for dimming and switching. Brief push (< 0.6 s) switches LED Driver ON and OFF. The dimming level is saved at power-down and restored at power-up. When the pushbutton is held, LED modules are dimmed. After repush the LED modules are dimmed in the opposite direction. In installations with LED Drivers with different dimming levels or opposite dimming directions (e.g. after a system extension), all LED Drivers can be synchronized to 50 % dimming level by a 10 s push. Use of pushbutton with indicator lamp is not permitted.

6. Functions

6.1 Function: adjustable current

Adjustable output current between 1,050 and 1,750 mA via DIP switch.

6.2 Short-circuit behavior

In case of a short circuit on the output side (LED) the LED Driver switches off. After elimination of the short-circuit fault the LED Driver will recover automatically.

6.3 No-load operation

The LED Driver works in burst working mode to provide a constant output voltage regulation which allows the application to be able to work safely when LED string opens due to a failure.

6.4 Overload protection

If the output voltage range is exceeded the LED Driver will protect itself and LED may flicker. After elimination of the overload, the nominal operation is restored automatically.

6.5 Over temperature protection

The LED Driver is protected against temporary thermal overheating. If the temperature limit is exceeded, the Driver switch off. It restarts automatically. The temperature protection is activated typically at 10 °C above t_c max.

6.6 Software / programming

Programming of ECG is done via the DALI interface by using the Interface DALI USB and the PC Software. Tridonic DALI-USB Interface and Software masterCONFIGURATOR are recommended.

7. Miscellaneous

7.1 Isolation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production. According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an isolation test with 500 V DC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The isolation resistance must be at least 2 M Ω . As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V AC (or 1.414 x 1500 V DC).

7.2 Storage conditions

Environmental conditions: 5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)

Storage temperature: -40 °C up to max. +80 °C

The devices have to be acclimatized to the specified temperature range (t_a) before they can be operated.

7.1 Additional information

● China

Add.: Shenzhen Hengyao Lighting Technology Co., Ltd.
3rd floor east and 4th floor, Building D, the third Tangtou
industrial zone, Shiyan town, Baoan district, Shenzhen, China
Tel: +86 755 2777 2329
E-Mail: hygd@hengyao.com

● Germany

Add.: Hengyao European Office
Amperestr. 7-11
63225 Langen
Tel: +49 (0) 6103 8706 550
E-Mail: zm.yang@3aaa.com

3AAA and the 3AAA logo are trademarks or registered trademarks of hengyao.

Information in this document supersedes and replaces all information previously supplied.

The 3AAA logo is a registered trademark of Hengyao. All other names are the property of their respective owners.

©2017 Hengyao - All rights reserved