

HYL-012R0350G081

Constant current LED driver

Product description

- built-in constant current LED Driver
- Adjustable output current between 200 and 350mA via DIP switch
- Max. output power 12 W
- Up to 86 % efficiency
- For luminaires of protection class II
- Nominal life-time up to 100,000 h
- 5-year guarantee



Benefits

- Application-oriented operating window for maximum compatibility
- Long lasting and high reliability
- PC Plastic material housing 40 x22 mm

Interfaces

- Terminal blocks: 45° push terminals

Applications

- Linear and area lighting
- Office – industrial – shop

Approval marks

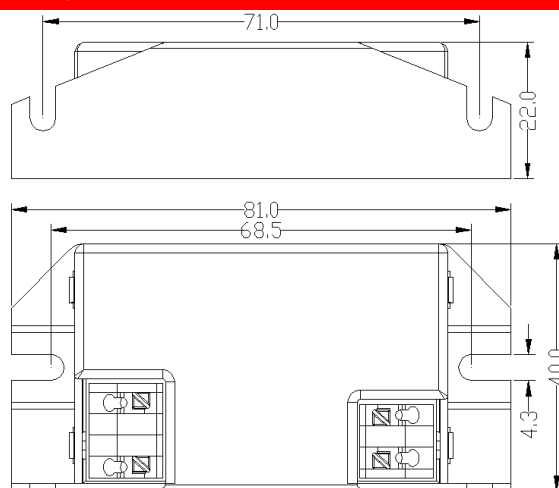


In preparation, if not already printed on product label

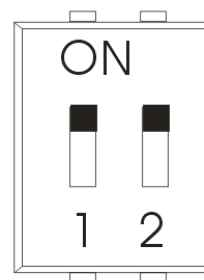


Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
DC voltage range	198 – 264 V
Mains frequency	0 / 50 / 60 Hz
Overvoltage protection	n.a
Typ. current (at 230 V, 50 Hz, full load)	40 – 70 mA
Leakage current (at 230 V, 50 Hz, full load)	< 500 μ A
Max. input power	15 W
Typ. efficiency (at 230 V / 50 Hz / full load)	0.86
λ (at 230 V, 50 Hz, full load)	0.9C
Typ. power input on stand-by	n.a
Typ. input power in no-load operation	n.a
In-rush current (peak / duration)	9A/173 us
THD (at 230 V, 50 Hz, full load)	<15 %
Time to light (at 230 V, 50 Hz, full load)	n.a
Time to light (DC mode)	n.a
Switchover time (AC/DC)	n.a
Turn off time (at 230 V, 50 Hz, full load)	< 4 ms
Output current tolerance	\pm 5 %
Output current ripple	\pm 5 %
Max. output voltage (no-load voltage)	60 V
Dimming range	n.a
Mains surge capability (between L – N)	0.5kV
Mains surge capability (between L/N – PE)	n.a
Surge voltage at output side (against PE)	n.a
Dimensions L x W x H	81x40x22 mm



Units: mm

DIP Switch

Ordering data

Type	Packaging	Weight per
	carton	pc.
HYL-012R0350G081	100 pc(s)	0.60 Kg

Specific technical data

Type	DIP Switch		Output current t(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							
HYL-012R0350G081	●	●	350	18	36	6.3	12.6	14.7	0.070
	●	○	300	18	36	5.4	10.8	12.6	0.060
	○	●	250	18	36	4.5	9	10.8	0.050
	○	○	200	18	36	3.6	7.2	8.7	0.040

1. IEC Standards

- CISPR 15
- IEC 61000-3-2
- IEC 61000-3-3
- IEC 61347-1
- IEC 61347-2-13
- IEC 62384
- IEC 61547
- IEC 62386-101 DALI-2
- IEC 62386-102 DALI-2
- IEC 62386-207 DALI-2

According to EN 50172 for use in central battery systems

EN Standards

- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61347-1
- EN 61347-2-13
- EN 62384
- EN 61547

China National Standards

- GB/T17743
- GB 17625.1
- GB 17625.2
- GB 19510.1
- GB 19510.14
- GB/T24825
- GB/T18595

2. Thermal details and life-time

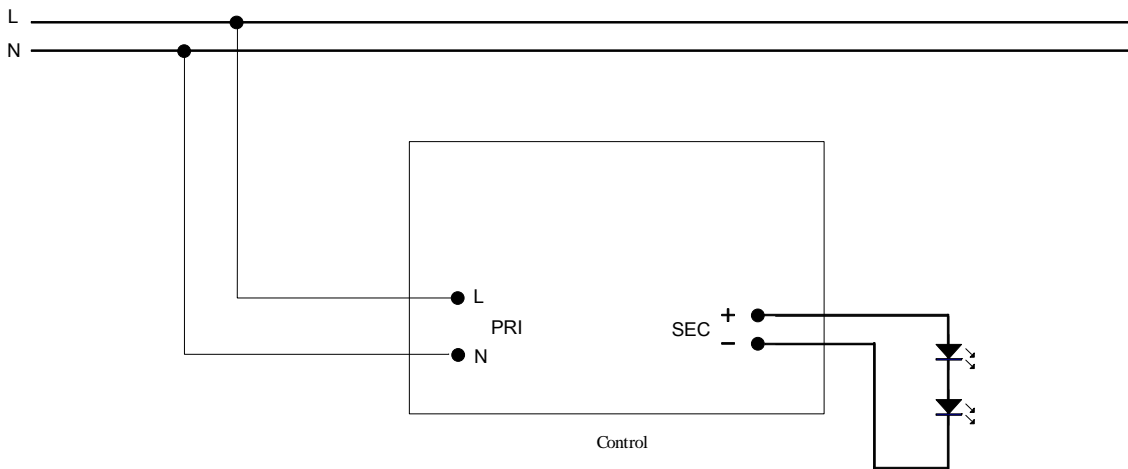
2.1 Expected life-time

Type	Output current	ta	35°C	40°C	45°C	50°C
HYL-012R0350G081	200 - 250 mA	tc	65°C	70°C	75°C	80°C
		Life-time	> 100,000 h	> 85,000 h	> 65,000 h	> 50,000 h
	> 250 - 350mA	tc	70°C	75°C	80°C	85°C
		Life-time	> 100,000 h	> 70,000 h	> 50,000 h	> 30,000 h

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 t_c to t_a temperature depends also on the luminaire design.

3. Installation / wiring

3.1 Circuit diagram

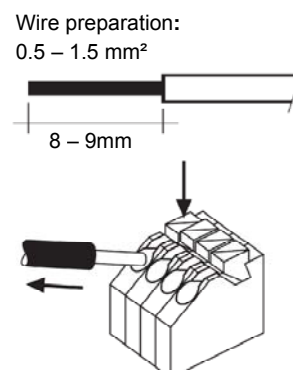


3.2 Wiring type and cross section

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

3.3 Loose wiring

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



3.4 Wiring guidelines

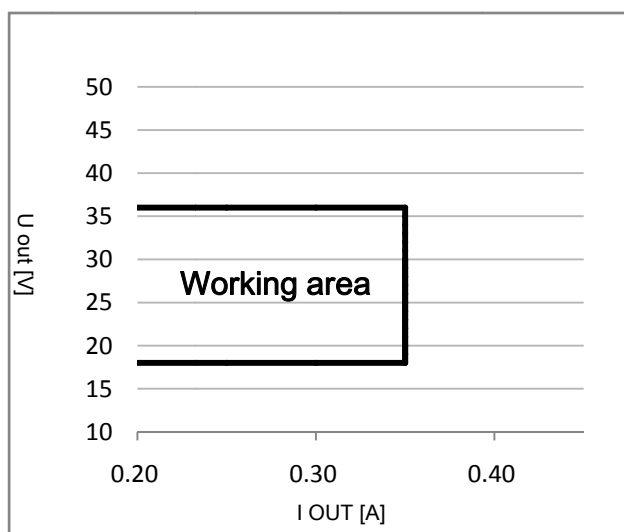
- The cables should be run separately from the mains connections and mains cables to ensure good EMC conditions.
- The LED wiring should be kept as short as possible to ensure good EMC. The max. secondary cable length is 2 m (4 m circuit), this applies for LED output.
- Secondary switching is permitted. 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

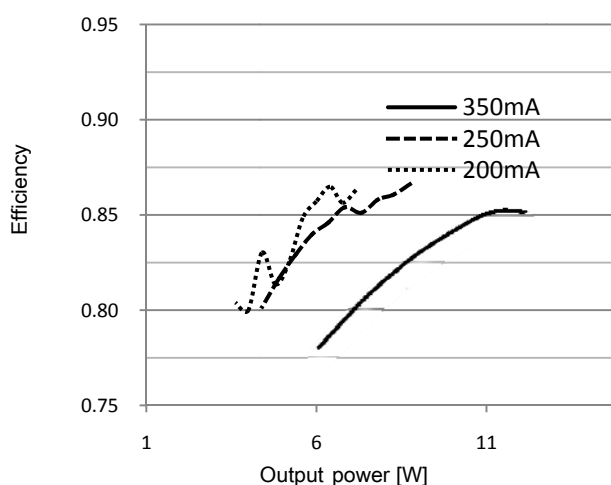
Hot plug-in is supported, but it may damage the LED modules due to residual output voltage is too high.

4. Electrical values

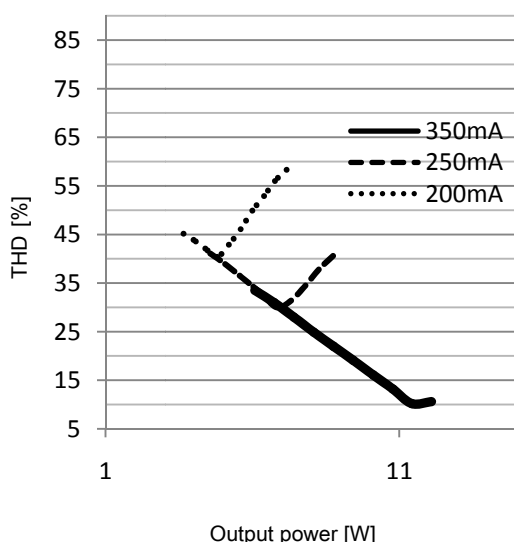
4.1 Typical Operating Window



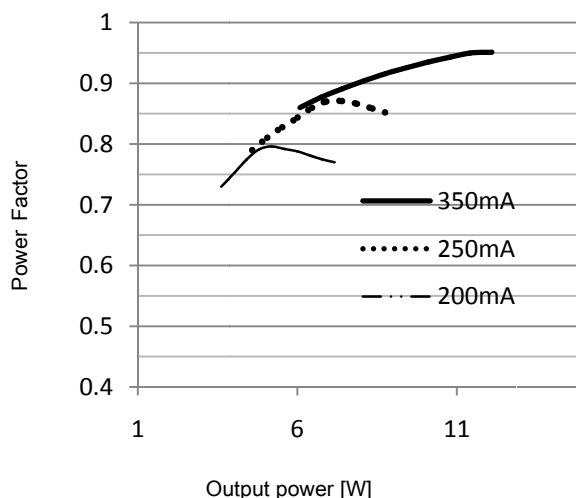
4.2 Efficiency vs load



4.3 THD vs load



4.4 Power Factor vs load

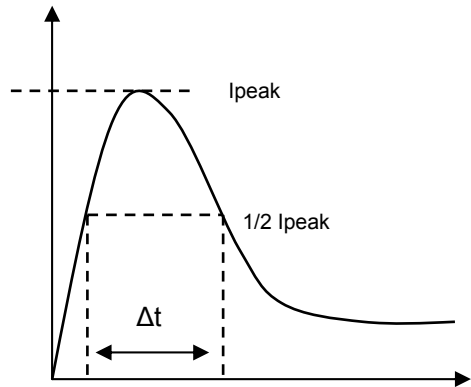


Note: In section "4.1 Typical Operating Window", Make sure that the LED Driver is operated within the given window under all operating conditions. Special attention needs to be paid at dimming and DC emergency operation as the forward voltage of the connected LED modules varies with the dimming level, due to the implemented amplitude dimming technology. Coming below the specified minimum output voltage of the LED Driver may

cause the device to shut-down.

4.5 Maximum loading of automatic circuit breakers

Type	I _{peak} /Δt	circuit breaker (CB)				
		10 A	16 A	20 A	25 A	
HYL-012R0350G081	9A/173us	CB-Typ				
		B	42	62	72	88
		C	60	102	112	132



Typical current - time profile when switching on

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.

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

	THD	3.	5.	7.	9.	11.
HYL-012R0350G081	< 15	< 5	< 5	< 5	< 3	< 3

5. Miscellaneous

5.1 Function: adjustable current

Adjustable output current between 200 and 350mA via DIP switch.

5.2 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.

5.3 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.

5.4 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.

5.5 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. Miscellaneous

6.1 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 MΩ. 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).

6.2 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 (ta)before they can be operated.

6.3 Additional information**● China**

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