



LED-Power Supplies

Edition 1 | 2010

EN





Efficient, bright LEDs are the emerging source of light.

TDK-Lambda is your prime source of reliable, longlife and energy-efficient LED power supply technologies for indoor and outdoor applications.

Our power supplies are particularly characterized by their high efficiencies, operating temperatures from $-20\text{ }^{\circ}\text{C}$ up to $+60\text{ }^{\circ}\text{C}$, outstanding quality, attractive prices with reliable service. The extremely long lifetime of up to 100.000 hours and impressive MTBF values reaching 900.000 hours speaks for itself. With their rugged design and comprehensive compliance to EMC and safety standards, our power supplies are ideal for a wide variety of LED applications, ranging from architectural lighting to traffic information displays.

We offer more than 100 different types with constant current or constant voltage in various power ranges between 12 and 1500 W and output currents between 0.3 and 300 A. Take advantage of our know-how and contact us today!



Display

TDK-Lambda has the perfect power solution to supply your LED marquee sign, display or video wall.

Depending on size, quantity, version and budget, you decide which product is the optimal match for your requirements.



Light

In all cases, where artificial light must not alter the appearance of the illuminated object, e.g. in medical applications, LED lighting is the optimal solution in the industry.

The long lifetime and the low power consumption are important features.

LDC/LDV-Series

Our LED power supplies in a sealed plastic case are available as constant current (LDC) or as constant voltage versions and are approved for safety class 2 lighting according to IEC 61347-1 and IEC 61347-2-13.

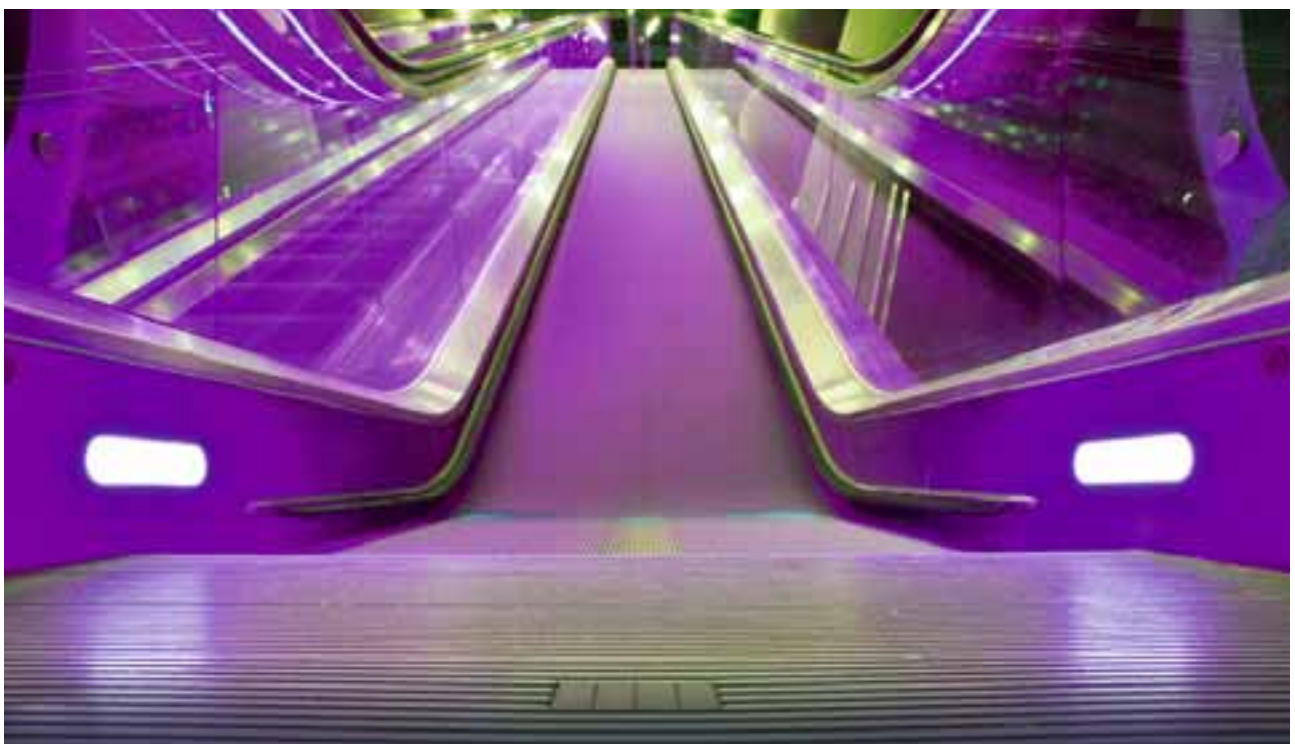
The units have a wide-range input with 90 to 264 V AC and deliver up to 12 W output power. Featuring various output voltages and currents, the modules provide solutions for a wide variety of series and parallel connection combinations.

The compact vibration and shock absorbing IP66 enclosure provides reliable protection from water ingress. Input and output are directly connected via fixed wires.

Additional higher power models will be released during 2010.



Series	LDC	LDV
	Constant current	Constant voltage
Power ranges	12 W	12 W
Output voltage	3 to 36 V 3 to 18 V	12 V 15 V 24 V
Output current	350 mA 700 mA	1 A 0,8 A 0,5 A
Input voltage	90 to 264 V AC, 47 to 63 Hz	90 to 264 V AC, 47 to 63 Hz
Design	sealed IP66 housing with fixed wires at input and output	sealed IP66 housing with fixed wires at input and output
Temperature range	-20 °C to +60 °C	-20 °C to +60 °C
Warranty	3 years	3 years

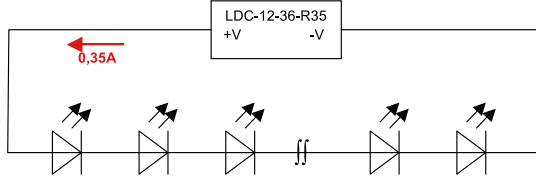


Operation-mode

LED-circuit with CC-source

no additional components such as driver or resistors needed.

Circuit diagram



With 1W LED's, 3V/350mA each, use of 1 to 12 LED's possible

Calculation

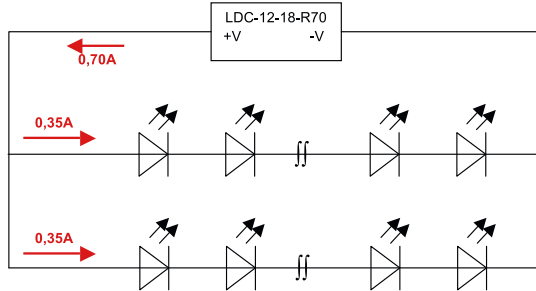
Typical High Brightness-LED's operate with a current of 350 mA. At a typical operating voltage of 3V per LED, the wide output voltage range from 3 – 36V enables the use of 1 to 12 LED in series with just one LDC12-36-R35.

Benefit:

No need for additional components. Selection of the powersupply depends on the requirements of the LED.

LED-circuit with CC-source (multiple branches)

no additional components such as driver or resistors needed.



With 1W LED's, 3V/350mA each, use of 1 to 6 LED's in 2 separate branches possible

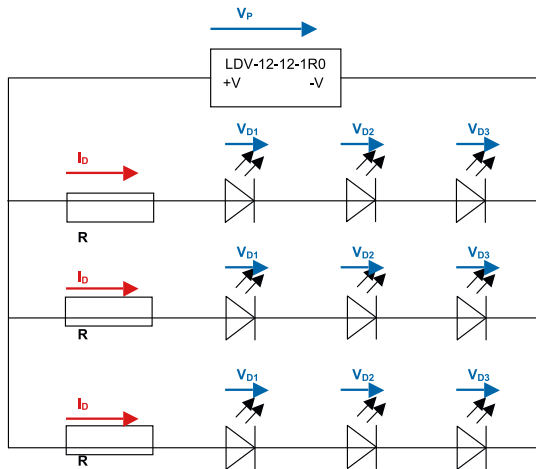
If the LED's are located on multiple branches, the current is divided by the number of branches. By using 1W Highpower-LED's with an operating current of 350 mA it is possible to power 2 branches with 1 to 6 units of LED's with one LDC12-18-R70.

Note:

All branches should be symmetrical otherwise an imbalance in current will occur between branches and the brightness of the LED's will vary.

LED-circuit with CV-source

Resistor for every branch necessary.



If a CV-powersupply is used, the LED current per branch has to be limited by resistors to stay within the LED's specifications.

Calculation of resistors:

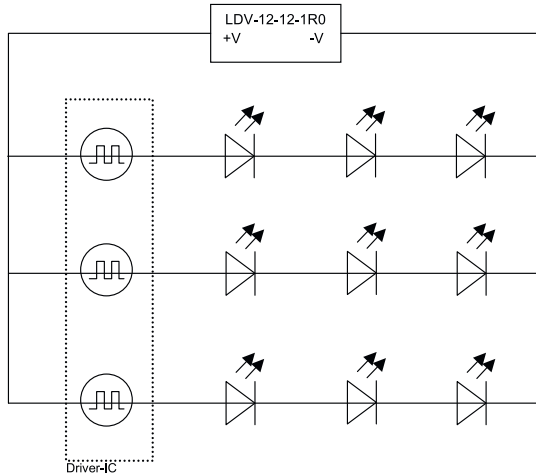
$$R = [V_P - (V_{D1} + V_{D2} + V_{D3})] / I_D$$

R: resistor
 V_P : output voltage of the powersupply
 I_D : current per branch
 V_{Dn} : voltage per diode

The use of a CV-powersupply to power LED applications is simple and cost-effective. The resistors generate additional power losses and can result in variation in brightness between branches.

LED-circuit with CV-source and additional driver

The driver operates as a CC-source for each branch.



The driver regulates a constant current for each LED-branch. The supplied current for each LED is very accurate in this case. There are no differences in brightness between the LED's. All LED's are operated under optimum operating conditions. The additional driver IC adds cost to the application.

LS-Series

Our low-cost LS-series is the first choice for high volume applications.

TDK-Lambda technology balances low cost with high life expectancy achieving MTBF values over 900.000 hours and 3 years warranty. Providing all relevant output voltages between 3.3 V and 48 V in the power ranges between 25 W and 150 W, and featuring a three-year warranty, it is unbeatable in its price class.

Even at a temperature down to $-25\text{ }^{\circ}\text{C}$ and up to $+50\text{ }^{\circ}\text{C}$, the power supplies deliver the full rated power and provide a long lifetime.

An optional PCB coating protects the board from environmental conditions and contamination.



Series	LS
Power ranges	25 W to 150 W
Output voltage	3.3 to 48 V
Input voltage	85 to 265 V AC
Design	Enclosed housing, convection-cooled
Approvals	UL60950-1, EN60950-1; IEC60950-1, CE
Special features	Low-cost, yet high-reliability power supply
Warranty	3 years



SWS-L Series

The low-profile SWS-L series with 600 and 1000 W output power are well suited for space-saving mounting at the back of video displays.

Output voltages between 3.3 and 60 V supply the right voltage for all combinations of LED architecture.

For outdoor applications, an optional PCB coating is available to protect the board from environmental conditions and contamination.

The high temperature rating of up to 74 °C especially suits large installations in harsh environments.



HWS-Series

The design of the HWS series, rated for 15 to 1500 W, is focused on high reliability, which is backed by a lifetime warranty.

The series provides a wide range of output voltages between 3.3 V and 60 V, each of which can be adjusted by +/- 20 % using a potentiometer.

The units are convection-cooled up to 150 W and have a built-in fan at higher ratings.

The -HD type was particularly optimized for outdoor video displays, featuring a guaranteed start-up at -40 °C and a PCB protection coating.



Series	SWS-L	HWS
Power ranges	600 W and 1000 W	15 W to 1500 W
Output voltage	3.3 to 60 V	3.3 to 60 V
Input voltage	85 to 265 V AC	85 to 265 V AC
Design	Enclosed housing with fan	Enclosed housing Up to 150 W: convection-cooled 300 W and above: built-in fan
Approvals	UL/CSA/EN60950-1, EN50178, CE IEC61010-1 (600W only)	UL/CSA/EN60950-1, EN50178, CE
Specialties	only 61 mm high Option -CO ₂ with double-sided protection coating	Option /HD with double-sided protection coating
Warranty	3 years	Lifetime

Please contact your local sales office to find the best solution to your application.



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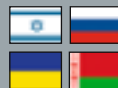
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