Further advantages of the LED Tube

Low self-heating - because
- the power loss is very low
- the LEDs are optimally cooled through the connecting wires

Long service life - because
- the temperature is very low
- the LED current is set lower than allowed by the manufacturer

Uniform illumination - because
- the LED Tube can be supplied with different LED spacings
- the LED Tube can be installed flexibly for an optimum visual result

Simple and quick installation - because
- the mounting procedure is simple and easy to learn even for beginners
- the installation of the LED Tube within channel letters is very easy

Very safe system - because
- WAGO connectors are easy to use and extremely reliable
- no soldering is required

Only small conductor cross-secions required - because
- the current in the series connection is very low and there is no risk of overloading

No damage by corrosion - because
- no galvanic oxidation can occur in the LED Tube
- the electrical components are well protected by the heat shrink tubing

Subsequent delivery possible any time - because
- the type and classification of the LEDs are laser-engraved on each LED circuit board

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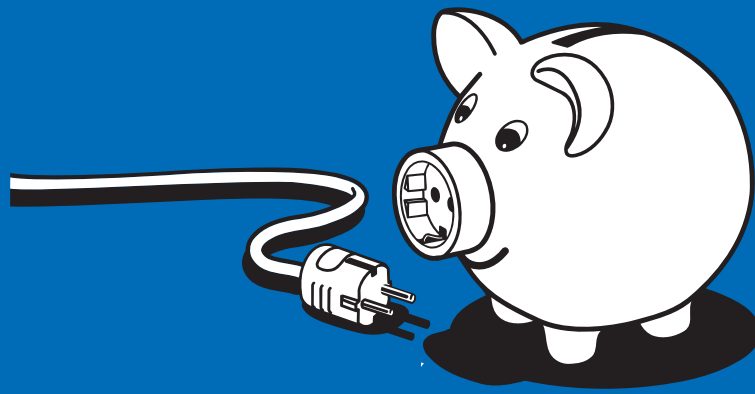
hansen technologie LED

A most effective solution

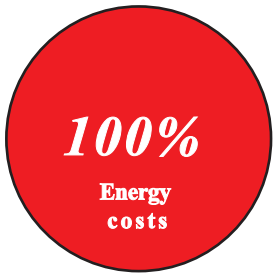
Save energy with the LED Tube™



It is a matter of fact

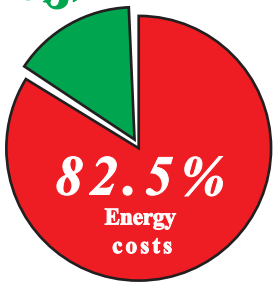
Series connection is the most effective mode of operation for LEDs.
The LEDs in the Hansen LED Tube are always connected in series to the converter.

If the energy expense using a 12 V system with LEDs in parallel connection is 100% ...



17,5% Savings

... you will receive the same light output with a series connection and use only 82.5% of the energy!



A comparison between the LED Tube and a 12 V LED circuit board clearly shows:

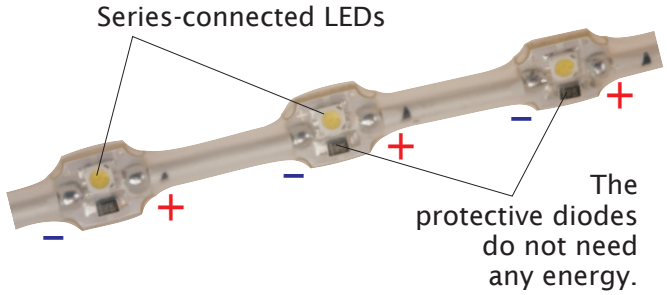
The energy consumption (operating costs) of the LED Tube is at least 17.5% lower.

This pays off ...
... and helps to protect the environment!

Why is that?

If a number of LEDs are connected to a voltage source along a single path (i.e. in daisy chain fashion), this is called a series connection.
In the LED Tube the current along this path is kept constant by the converter.

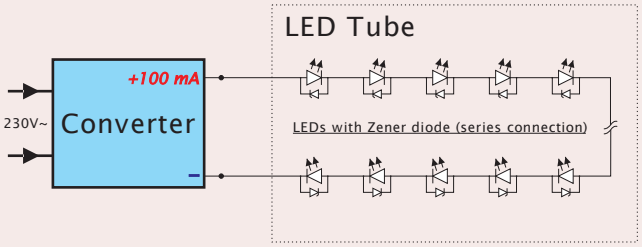
The series connection does *not* contain any additional elements which consume energy.
Thus, the entire energy can be fed to the LEDs.



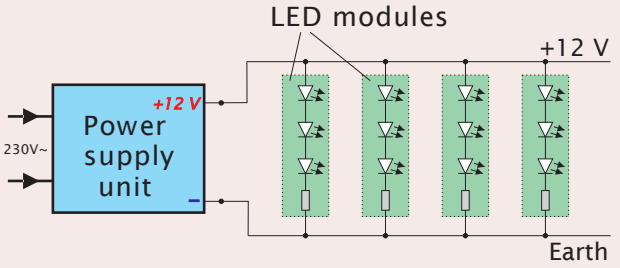
In a 12 V system, an LED module usually consists of three LEDs and an electronic stabilizer (or a resistor).
The modules are connected to a power supply unit in parallel.

The electronic stabilizer (or resistor) on each module is necessary to control and limit the LED current. The disadvantage is, however, that a power loss is generated.

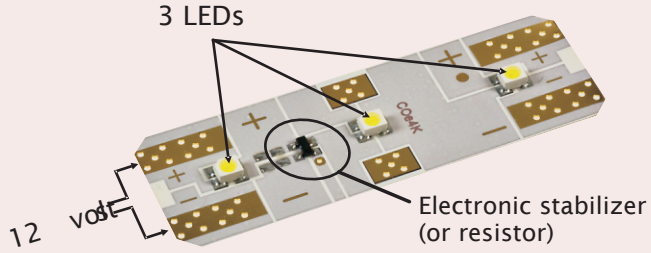
The parallel connection of LED modules in a 12 V system requires some means of current stabilization to keep the current constant, which in turn is associated with an energy loss of at least 17.5%.

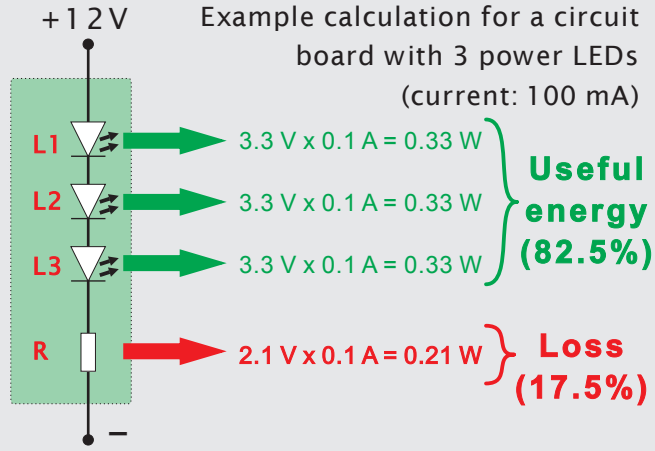


Series connection



Parallel connection





Example calculation for a circuit board with 3 power LEDs (current: 100 mA)