STLUX385A
100 W LED street lighting

A single IC for digital lighting management discloses new possibilities for high-power LED applications, paving the way to the smart cities

Digitally controlled lighting is the key to saving energy in outdoor lighting installations.
The STLUX385A controller enables excellent performances for 100 W street lighting in terms of efficiency at full load as well as in idle conditions.
LED brightness can be controlled down to very low current levels with maximum precision.
Communication interfaces are available allowing remote control. The solution can support powerline modem and wireless modules for connectivity with the smart grid, paving the way for smart cities.

FEATURES

- STLUX385A digital controller with two stages for power conversion
  - PFC
  - Zero voltage switching (ZVS) LC resonant stage
- Primary side regulation for LED current control
- Analog and digital dimming with 2% precision
- Communication interfaces
  - DALI
  - UART
  - 0-10 V isolated line
  - Can support PLM and wireless modules

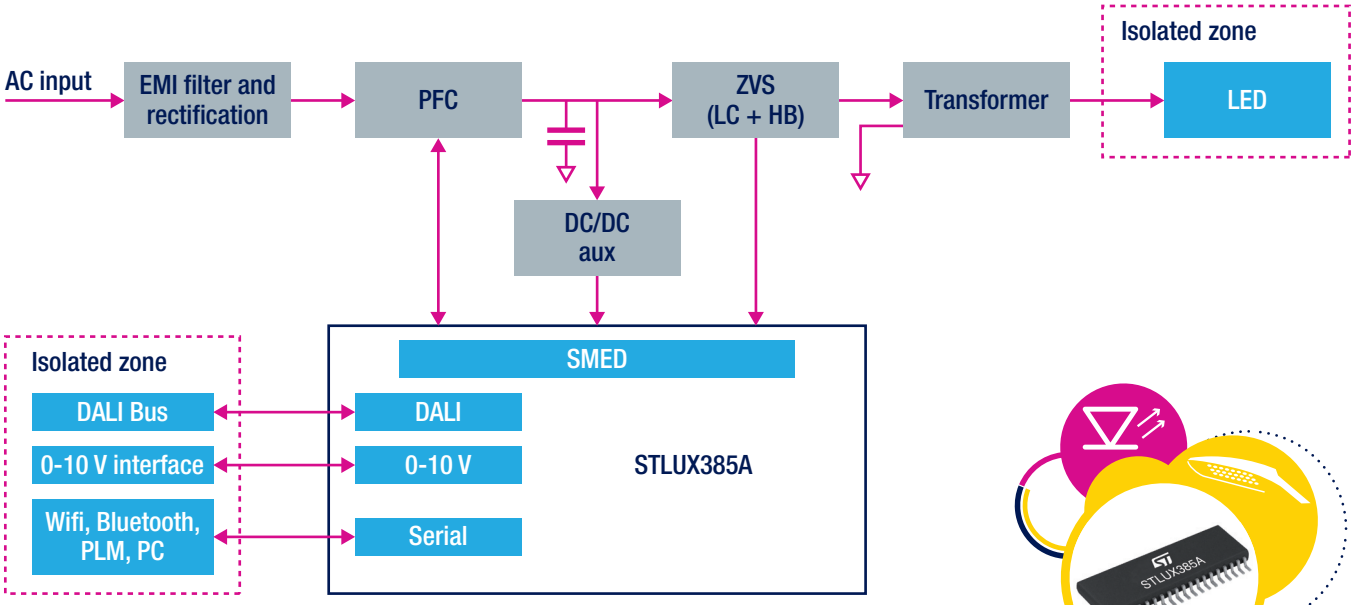
BENEFITS

- Saves energy
  - 92% efficiency at full load
  - <200 mW consumption in idle conditions
- High precision in LED brightness control:
  - 11-bit equivalent current resolution
  - Dimming down to 10 mA current level
- Remote control and connectivity with the smart grid

LIGHT HAS NEVER BEEN SO SMART

The STLUX385A digital controller provides 100 W LED street lighting with a complete and configurable solution that efficiently controls a single dimmable high-brightness LED string.
LED efficiency is high during all steps of dimming and the solution can achieve a 92% efficiency during full load while maintaining a low power consumption, <200 mW, during idle periods.
The STLUX385A handles an all-primary side regulated power conversion stage as well as all supported communication links.
The power conversion stage consists of a PFC regulator followed by a zero voltage switching (ZVS) LC resonant stage. The high precision dimming is adjusted using a primary side regulation (PSR) control technique.
The LED brightness can be dimmed by controlling the LED current down to a very low level.
This solution provides physical communication interfaces such as a DALI, isolated 0-10 and UART. In addition, it can be quickly connected to alternative interfaces such as Wi-Fi, powerline modems, Bluetooth® and ZigBee®.
ST's STLUX385A packs 25 years of experience in power-conversion solutions in a single high-value platform that can used to build intelligent LED street lamps. These, for example, can increase their brightness gradually as daylight fades and, conversely, automatically reduce their brightness as the sun rises, with benefits including, but not limited to, energy saving.
Efficiency based on intelligent lighting management is one step ahead on the way to smart cities.

100 W LED STREET LIGHTING DEMONSTRATION BOARD BLOCK DIAGRAM



Order code	Input voltage range	Application note
STEVAL385LEDPSR	90 to 265 V AC	AN4382