

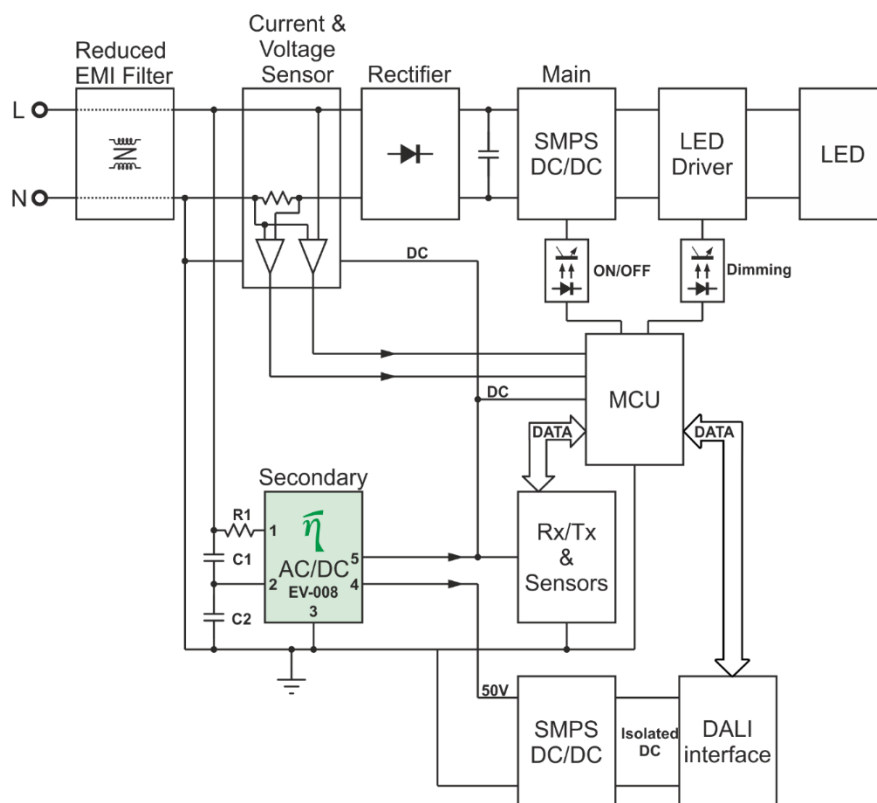
AN005 - Energy Meter Dimmable DALI Smart Streetlight

Abstract

Typical energy-meter dimmable DALI smart streetlights use one or two SMPSs (Switch-Mode-Power-Supply). The first is the main power supply, which converts the mains voltage to DC voltage. The second is a secondary power supply, which powers the energy meter, the sensors, the communication circuitry and the DALI circuitry. The energy meter power supply (the secondary power supply) is a non-isolated type with common ground for the input and the output. In some designs, the main power supply does not exist and the secondary power supply powers all the electronic circuitry. During the standby mode, the secondary power supply continues to consume power. The power consumption by the electronic circuits in standby mode is low. However, most of the power consumed during the standby mode is consumer by the secondary SMPS itself, resulting in overall high power consumption in standby.

When the main power supply does not exist, the power consumption in standby is higher.

Since SMPS generates noise, an EMI (Electro-Magnetic-Interference) filter is required.



* **Zero-Standby** - According to the IEC 62301 Clause 4.5 regards measurements of less than 5 mW as zero power

Eta-Bar's EV-008 is an AC to DC secondary power supply. Its main features are: **Zero-Standby***, non-isolated common ground for the input & output, high efficiency, inductor-less AC to DC converter with two regulated DC outputs:

- DC output for the operation of the communication and its control circuits
- 50 V output to power the SMPS of the DALI standard

The EV-008 is capable of driving high-power demand during the internet connection periods. However, its main contribution to energy saving is during the data collection mode, when minimal power consumption is required.

With EV-008, the number of elements in the EMI (Electro-Magnetic-Interference) filter can be reduced, resulting in a 'Reduced EMI filter'**.

EV-008 operates in wide temperature range and wide AC input voltage range.

Main Features:

- Topology : Capacitive power supply (inductor-less),
Non-Isolated power supply,
Common ground for the input and output
- Input voltage range : 85 to 140 VAC ; 50 to 60 Hz
185 to 265 VAC ; 50 to 60 Hz
- DC output :
 - DC : Regulated voltage: adjustable 0.7 to 5 V DC
Output current capabilities:
 - Peak current: up to 500 mA for less than 500 mSec
 - Average current: up to 5 mA
 - 50 V: Regulated voltage: adjustable 45 output to 65 V DC
Output current capabilities: 20 mA
- Standby power : less than 5 mWatt
- EMI filters : Reduced EMI filter (see AN015 - Reduced EMI Filter)
Not required for the EV-008

** See AN015 - Reduced EMI Filter