

# Application note



Subject:

**Compact power supply design  
for EV charging stations**

Industry:

**EV charging stations**

Product:

**SPME series**

Customer:

**OEMs**

## CUSTOMER ISSUE

Electric car sales are on the rise and as a consequence, there is a higher demand for charging stations. The components within the charging station need a power supply with a voltage output of 24 VDC, and a power output of 100 W with a high level of safety for the final user. Space within the charging station is at a premium and therefore components need to be as compact as possible to facilitate installation. The maximum width allowed for a 100 W power supply is < 80 mm. Since EV chargers are typically installed outdoors, the power supplies used in these applications need to have a wide operating temperature range.

The main requirements of power supplies are, therefore:

- Compact footprint
- High efficiency
- High degree of reliability during operation
- 4 kVAC isolation voltage

## OUR SOLUTION

The SPME power supply series is extremely compact facilitating its installation in tight spaces. The 100 W models have a width of only 70 mm.

The SPME models have an ultra-slim body, from 15 W in 17.5 mm (1 DIN), up to 100 W in only 70 mm (4 DIN) of space.

The built-in protection functions of Over-current, Over-voltage, and, Short circuit ensure a high degree of reliability during the operations.

The SPME series has a universal input voltage range of 85 VAC to 264 VAC or 120 VDC to 370 VDC, and a wide operating temperature range (-40°C to +70°C / -40°F to 158°F) with derating starting from 50°C (122°F) for most of the models.

The SPME series comes with an efficiency of up to 91.5%, and it is also compliant with the 4kVAC isolation voltage that is mandatory for automotive battery charger applications.

## BENEFITS

- Occupies less space in the panel
- Wide selection of power outputs (15/24/36/54/60/90/100 W)
- 4 power ranges in housing:
  - 15 W in 17,5 mm (1 DIN)
  - 24/36 W in 35 mm (2 DIN)
  - 54/60 W in 52 mm (3 DIN)
  - 90/100 W in 70 mm (4 DIN)
- Wide selection of voltage outputs (12/24 VDC)
- Over Current, Over Voltage, Short Circuit output protections, and Over Temperature available for SPME 150 series
- Efficiency up to 91.5%
- 4 kVAC isolation voltage
- Overvoltage category III
- Wide operating temperature range (-40°C to +70°C / -40°F to 158°F)
- Derating starting from 50°C
- Green LED for status indication
- Voltage output adjustment
- Operates on different supply voltages (85 VAC to 264 VAC or 120 VDC to 370 VDC)
- CE, UKCA, UL 62368-1 approvals