



# STEVAL-ISS001V1

Line interactive 450 W  
UPS reference design - 120 V / 60 Hz model

Data Brief

## Features

- Output rating power: 700 VA / 450 W
- Input voltage: 83 Vac  $\pm$  3% - 153 Vac  $\pm$  3%
- Input frequency: 60 Hz
- Output voltage: 96 - 138 Vac  $\pm$  3 Vac
- Output frequency: 60 Hz  $\pm$  0.1 Hz
- On battery output waveform: quasi-sine (square wave)
- Transfer time: Class 3 [EN62040-3]
- Typical recharge time: 8h
- Backup time (full load): 2.5 - 3 min.
- Battery quantity: 2 pieces
- Battery nominal voltage: 12 V
- Battery capacity: 7.2 Ah
- Battery recharge: two steps
- Operating temperature: 0 °C to + 40 °C
- Storage temperature: - 20 °C to + 60 °C
- Size (H x W x D): 175 mm x 120 mm x 430 mm
- Weight: 11 kg
- Shipping weight: 11.5 kg
- EMI classification: EN 62040-2



The UPS was designed with RS-232 joint signal and USB interfaces (USB for RS-232 converter). It is possible to connect the UPS to a PC using an RS-232 or USB cable and control the UPS status through the "UPS Monitor 3.0x" software that must be installed on the same PC.

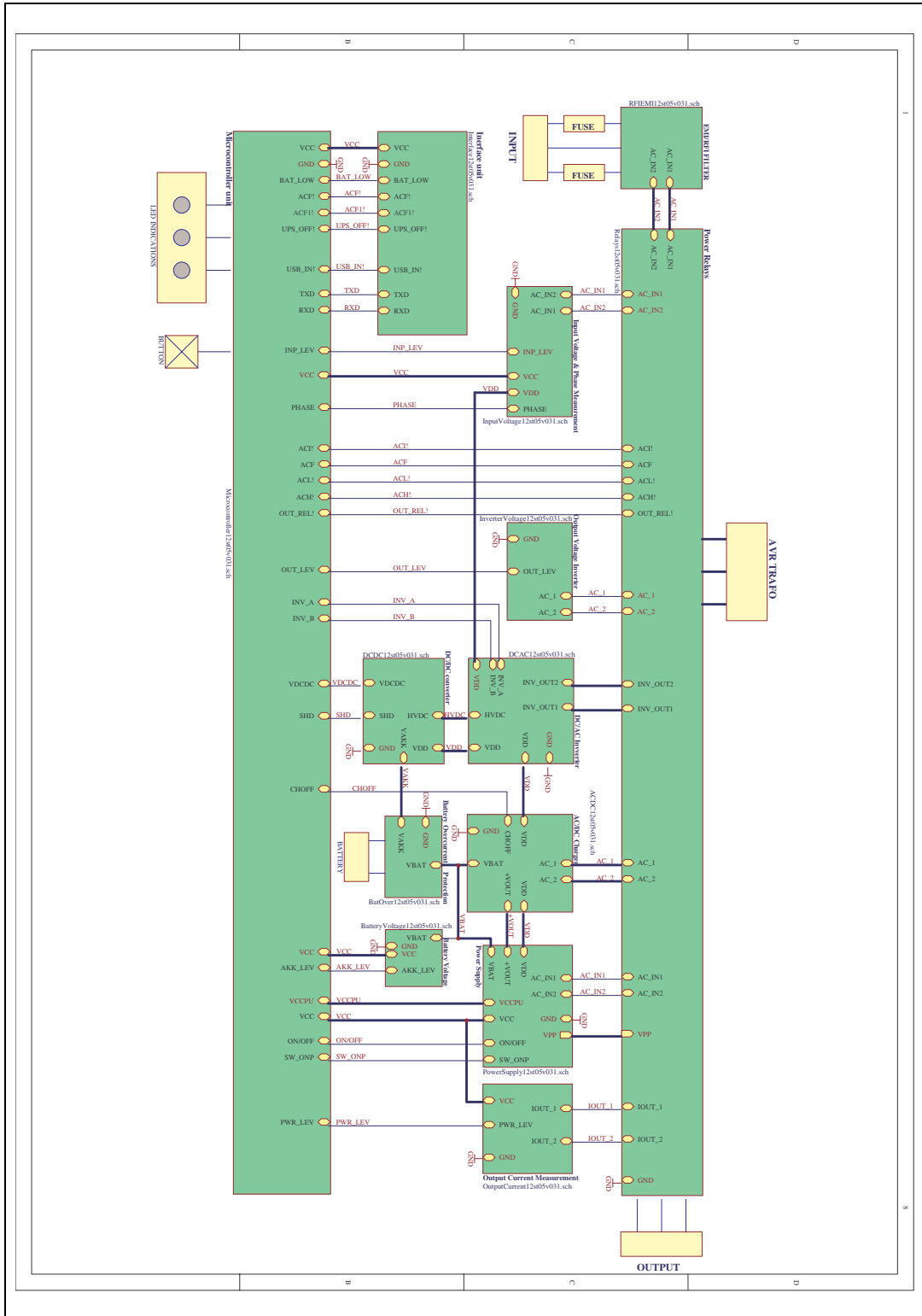
## Description

This UPS reference design was built employing off-line topology with AVR boost and buck regulation of the mains. The inverter module contains the push-pull DC-DC converter and the DC-AC output full bridge generating a quasi-sine waveform.

A microcontroller controls all UPS functions. It monitors the mains parameters (input/output mains voltage and phase, output inverter voltage, battery voltage, output current and output power) in order to ensure the proper level of the output voltage.

# 1 Board schematic

Figure 1. Schematic



## 2 Revision history

Table 1. Document revision history

| Date        | Revision | Changes          |
|-------------|----------|------------------|
| 14-Apr-2008 | 1        | Initial release. |

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