

STEVAL-IHP001V2

SmartPlug demonstration board based on the STM32, SN260 (ZigBee[®] transceiver) and STPM01

Data brief

Features

- Energy consumption monitoring
- Time-band configuration
- Network/standalone modes
- ZigBee[®] well suited for home automation application
- Ground fault detection (in the "safety" version)
- Dimming (in the "dimming" version)
- RoHS compliant

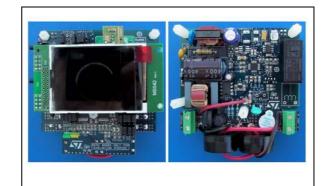
Description

The STEVAL-IHP001V2 is a SmartPlug board based on an STM32F10x microcontroller, an SPZB260 ZigBee[®] module, and an STPM01 energy metering IC.

It implements a ZigBee[®] metering node which allows the final user to monitor and manage energy consumption.

The board has been developed to provide a guideline to build a home/building automation subsystem for energy management. In a typical home system implementation, the board is plugged into an electrical wall socket and supplies a home appliance or other generic electrical load.

The current, power, energy and other information related to the electrical load connected to the SmartPlug board can be displayed locally on an LCD screen, or send to a ZigBee[®] data concentrator through the home/building ZigBee[®] network.



STEVAL-IHP001V2

Schematics diagram STEVAL-IHP001V2

Schematics diagram 1

Figure 1. AC load driver page

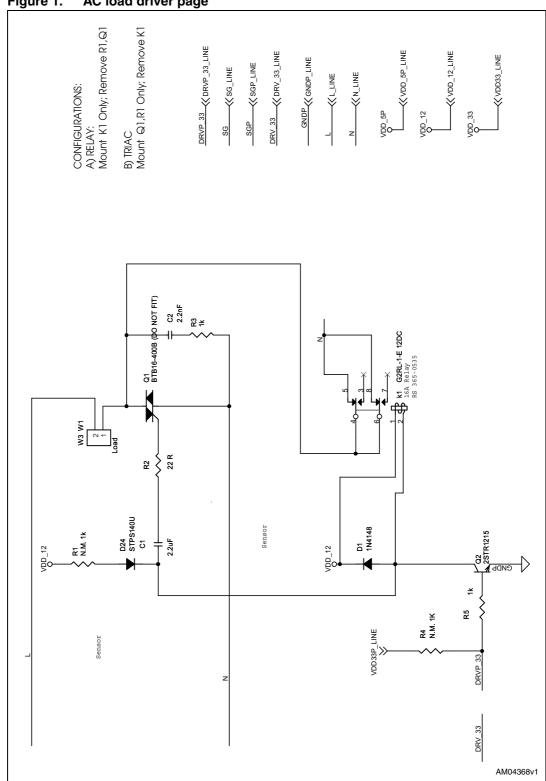


Figure 2. **Jumpers configuration** VOTP0 {\ VDDOTP0_LINE ₹ DRV_33_LINE VDD_IO#99KVDD33_LINE SCLK1_LINE SCLK_LINE P001 MCO KMCO_LINE - XZCR0_LINE STPM01_SDA KSDA_LINE SCS1_LINE - ZCR1_LINE GND_LINE KLED1_LINE SYN_LINE VOTP1 ZCR0 ZCR1 SCLK SYN SCS1 GND LED0 LED1 SBG 85 5 SCS1 CAL ₽\$ SW5 VOTP0 VOTP1 ED LED1 84 74 SPI Option. ZERO CROSSING PO.10 PO.14 P1.09 (P1.10) GPIO_EXT_INT_4 3.3 V STR75 MODE SCS «STR75 MODE RFA ZCR_LINE SPIO_CS1_LINE of R_nW_LINE of MODE_LINE SCLK_CAL SPI0 CS1 split digital from analog (RIFAP, RIFA). Analog part close to U4 SYN CAL ZCR0 ZCR1

HMI BUZZER <<p>BUZZER

DRVP_33 KDRVP_33_LINE

DRV_33 KDRV_33_LINE

RifAP KRIFAP_LINE RifA KRifA_LINE

BZP KBZP_LINE

V33P (VDD33P_LINE

GNDP (GNDP_LINE

VDD_33 KVDD33_LINE

AM04369v1

ZCR

Schematics diagram STEVAL-IHP001V2

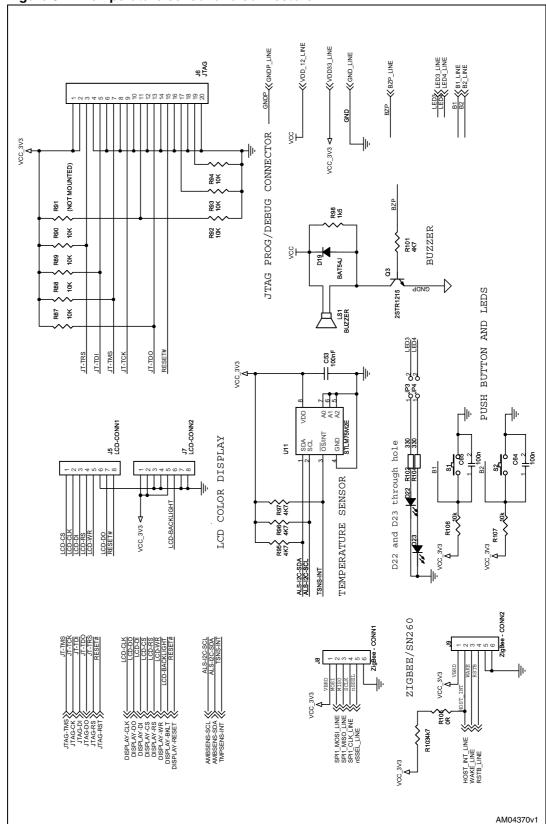


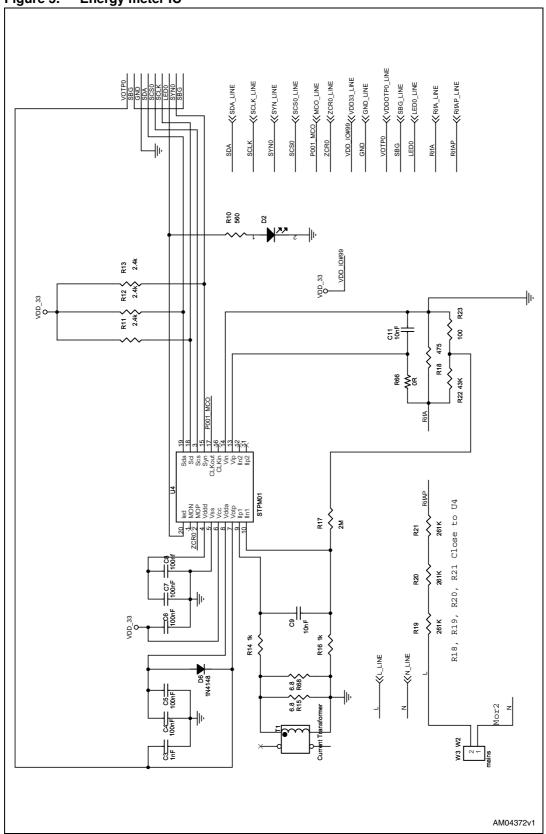
Figure 3. Temperature sensor and connectors

Figure 4. Microcontroller VDD_IO#99(\VDD33_LINE →>HMI BUZZER GND_LINE GND J10 ANALOG_CONN (DO NOT FIT) STM32F103RBT6 NRST VDDA 112 \$110 \$100K VCC_3V3 ▲ 100nF 10nF C57 100nF SYN TRIAC DRIVE 88 P SW1 1984 1994 1994 \$⁵6 85₹ \$ 2g⊊

AM04371v1

8g 8g

Figure 5. **Energy meter IC**



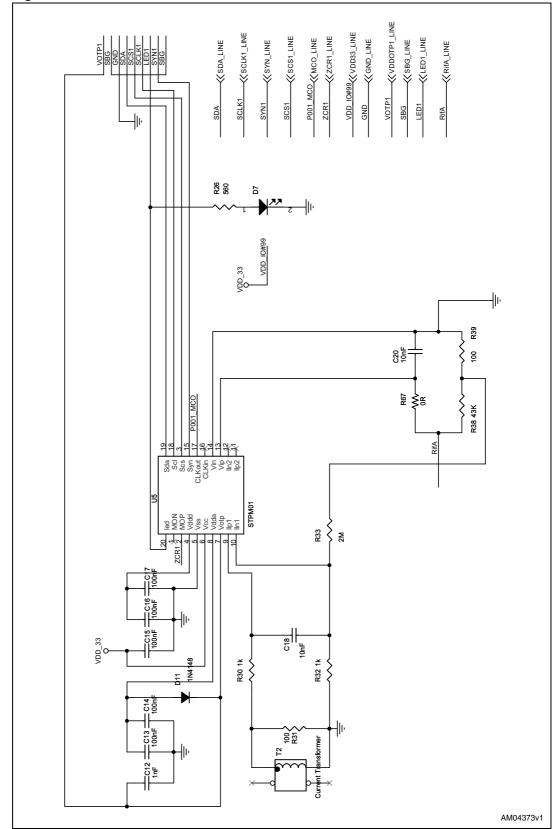


Figure 6. Differential current meter

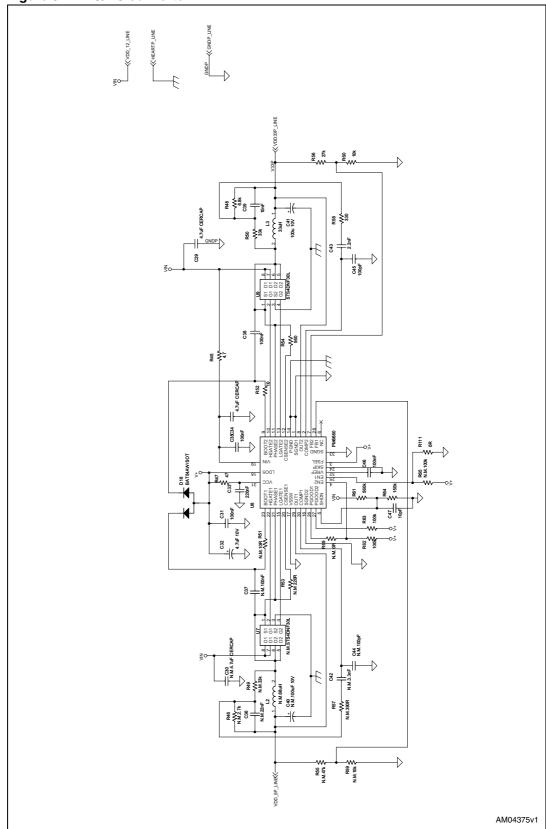
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\$\text{VDD_12_LINE}\$ COUT1 7-470u 25V Irms 1A ESR=170mohm D13 STPS1H100 D16 ■ BAT46 TRANSFORMER C27 47nF 2.2n 400V 13 8D17 12V ZENER _ C25 220pF 400V 8 % STTH1L06 4 R42 470K 1W D15 7 SOURCE2 DRAIN1 1N4007 C24 47u 400V SOURCE1 DRAIN2 R43 10 БПАЯП C28 47 nF ΛDD EВ C26 10u 50V 90 VIPER12A 10n 400V X2 C23

Figure 7. AC/DC converter

AM04374v1

Figure 8. DC/DC converter



Revision history STEVAL-IHP001V2

2 Revision history

Table 1. Document revision history

Date	Revision	Changes
01-Jul-2009	1	Initial release.

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