

STEVAL-IPE012V1

Single-phase energy meter demonstration board using the STPM10 and STM8L15

Data brief

Features

- Accuracy: Class 1 with dynamic range 200:1
- Nominal voltage: 240 V
- Nominal current : 5 A (I_{TYP})
- Maximum current: 45 A (I_{MAX})
- Operating range: 0.6 V_{BAT} to 1.2 V_{BAT}
- Meter constant: 3200 impulses / KWh
- Power frequency range: 45 Hz to 65 Hz
- Sensor: primary side CT and secondary side shunt
- Communication interface: IrDA
- RoHS compliant

Description

The STEVAL-IPE012V1 demonstration board implements a single-phase energy meter based on the STPM metering IC and STM8L152 microcontroller. The demonstration board is a fully functional single-phase solution with parameter display, tamper management, maximum demand (MD) calculation, EEPROM data logging, and low power management.



March 2011

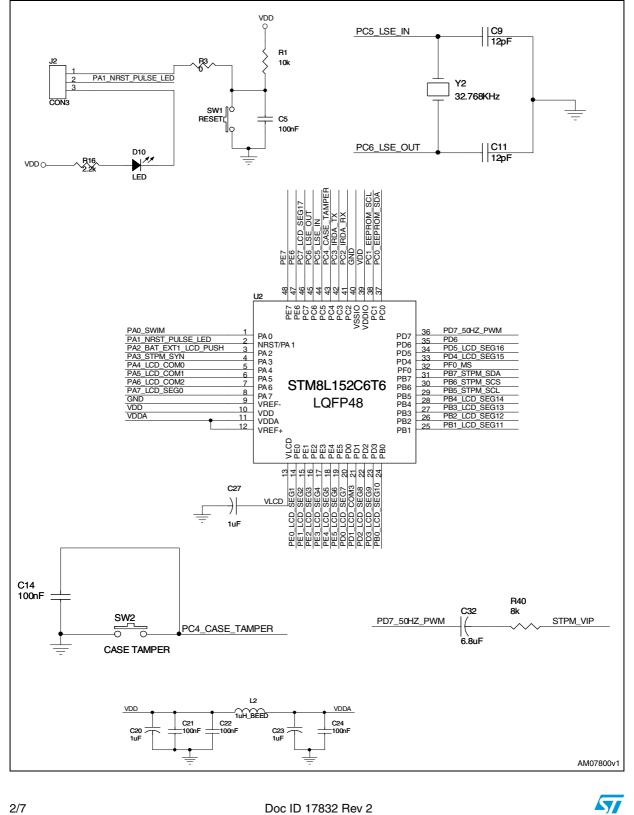
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1 Schematics





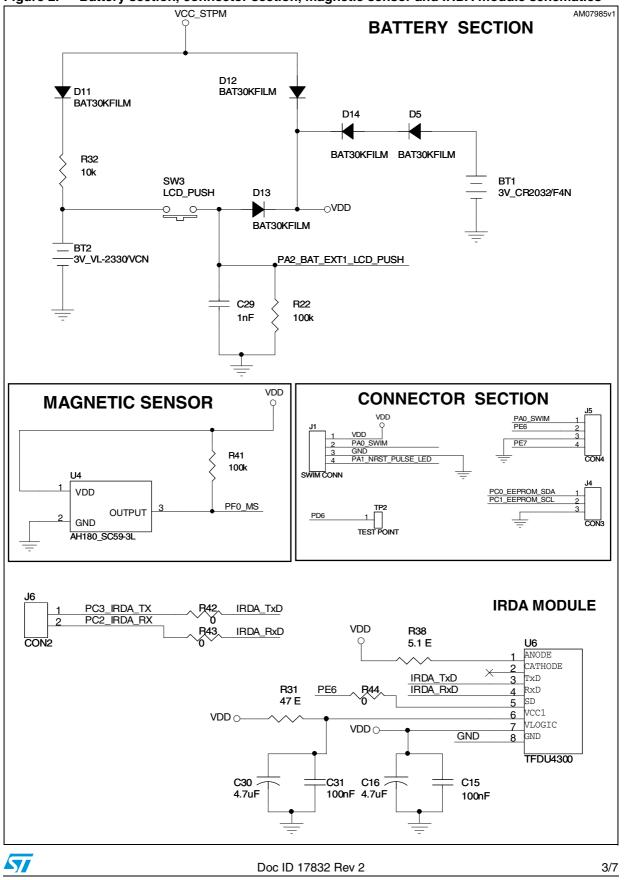


Figure 2. Battery section, connector section, magnetic sensor and IRDA module schematics

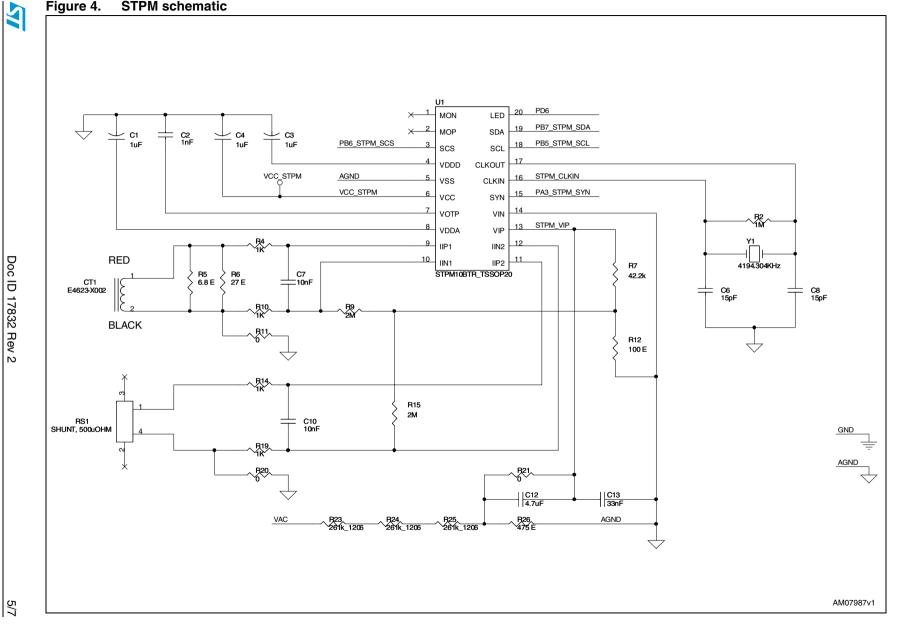
4/7 Figure 3. Power supply section, EEPROM section, LCD section, and neutral missing power supply section schematics POWER SUPPLY SECTION VCC_STPM P1 L1 TP1 Π1 VAC R28 C18 200nF/630V F27 220uH PHASE EXT. SUPPLY D1 1N4007 R29 D4 15k R13 1N4007 10k C33 470uF/35V MOV1 480V C25 1nF/500V C26 U5 TL431_TO92 100uF/50V Q1 C17 C19 BC847B 220uF/16V 100nF R30 D2 22k 1N4007 N1 L3 ΥΥΥ 1uH NEUTRAL + \checkmark Doc ID 17832 Rev 2 NEUTRAL MISSING POWER SUPPLY SECTION CT2 LCD SECTION JЗ PA7 LCD SEG0 PE0_LCD_SEG1 D6 D7 2 NEUTRAL MISSING 丈 1N4007 PE1_LCD_SEG2 3 1N4007 PE2_LCD_SEG3 Δ R39 PE3_LCD_SEG4 5 150 E, 2W OVCC_STPM PE4_LCD_SEG5 6 4 PE5 LCD SEG6 7 PD0 LCD SEG7 D8 D9 8 📥 1N4007 PD2 LCD SEG8 1N4007 9 PD3_LCD_SEG9 10 PB0 LCD SEG10 11 PB1_LCD_SEG11 12 PB2_LCD_SEG12 13 VDD PB3_LCD_SEG13 14 **EEPROM SECTION** Ο PB4_LCD_SEG14 15 U3 16 PD4_LCD_SEG15 R33 PD5 LCD SEG16 17 E0 VCC PC7 LCD SEG17 18 R34 2 PA4_LCD_COM0 19 E1 WC C28 PA5 LCD COM1 20 R36 10k R35 PC1_EEPROM_SCL 100nF 3 PA6 LCD COM2 E2 SCL 21 PD1 LCD COM3 22 PC0_EEPROM_SDA R37 10k 4 5 VSS SDA -LCD GLASS CONN M24C32-RDW6P_SO8 -AM07986v1

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Schematics

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Schematics

2 Revision history

Table 1.Document revision history

Date	Revision	Changes
18-Aug-2010	1	Initial release.
31-Mar-2011	2	Updated title in cover page.

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