EVALSTPM32

Single-phase energy metering evaluation board with shunt current sensor based on the STPM32

Data brief

Features

- 0.2% accuracy single-phase meter
- $V_{\text{nom}}(\text{RMS}) = 140 \text{ to } 300 \text{ V, } I_{\text{nom}}/I_{\text{max}}(\text{RMS}) = 5/100 \text{ A, } f_{\text{lin}} = 50/60 \text{ Hz ± 10\%}$
- Connector for USB isolated hardware programmer tool STEVAL-IPE023V1 and PC GUI
- RS232 and UART isolated connectors to PC GUI
- SPI/UART switch for device peripheral selection
- 2 programmable LEDs on board
- Digital expansion to external system-on-chip or MCU
- 3.3 V power supply: external or through STEVAL-IPE023V1 isolated USB board
- IEC61000 standard compliant
- RoHS compliant

Description

The STPM32 energy metering evaluation board is a class 0.2, single-phase meter with shunt current sensor for power line systems with $V_{\text{nom}} = 140$ to $300 \text{ V}_{\text{RMS}}, I_{\text{nom}}/I_{\text{max}} = 5/100 \text{ A}_{\text{RMS}}, f_{\text{lin}} = 50/60 \text{ Hz ± 10\%}$ and $T_{\text{amb}} = -40 \text{ to } +85 \text{ °C}$.

Measured active/reactive power can be output from two programmable LEDs on the board.

The board can be interfaced with a PC running evaluation software through an isolated RS232 port, or through the STEVAL-IPE023V1 USB isolated interface tool for configuration and data reading.

The board also has SPI/UART pins available to interface a microcontroller for application development.
1 Schematic diagrams

Figure 1. RS232/UART circuit schematic

GALVANIC ISOLATION

NOTE: always provide supply for both RS232 and UART

ALL SWs OFF SELECT SPI AT POWER UP
ALL SWs ON SELECT UART AT POWER UP

GIPG025032014D11545
Figure 2. Metrology circuit schematic
2 Revision history

Table 1. Document revision history

<table>
<thead>
<tr>
<th>Date</th>
<th>Revision</th>
<th>Changes</th>
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<tbody>
<tr>
<td>31-Mar-2014</td>
<td>1</td>
<td>Initial release.</td>
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