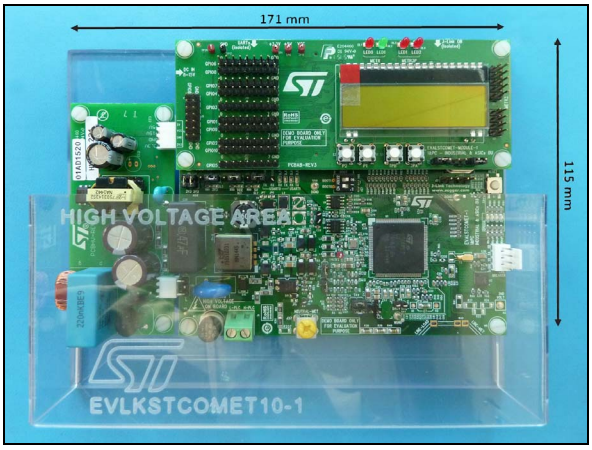
EVLKSTCOMET10-1

STCOMET smart meter system-on-chip development kit

Data brief



Features

- Full single phase meter development kit based on the STCOMET smart meter system-on-chip
- Complete power line communication (PLC) reference design suitable to implement several PLC protocols in CENELEC, ARIB and FCC bands
- Metering in compliance with EN 50470-1, EN 50470-3, IEC 62053-2x, up to class0.2
- Up to 3 independent measurement channels for mains voltage and input/output current
- Two LEDs for active and reactive energy signaling
- Two tamper buttons
- ARM® 32-bit Cortex®-M4F CPU embedded in the STCOMET device for system management and application host controller
- 86 available GPIOs, general purpose LEDs and buttons and LCD on strip module
- Digital connector for 3-phase metering extension with the EVALSTPM34
- Relay driving circuit for unipolar and bipolar relay based on ST L2293Q monolithic driver device
- Off-line switching mode power supply based on ST VIPER26H isolated flyback reference design (+ optional 8 - 15 V input available for laboratory tests)
- JTAG debug over isolated USB host interface for connecting to a PC (J-Link OB)
- Dual UART over isolated USB host interface for connecting to a PC
- Suitable for CENELEC EN50065 and FCC part 15 compliant applications.

For further information contact your local STMicroelectronics sales office. www.st.com

1 Description

The EVLKSTCOMET10-1 is a development kit for the STCOMET platform, exploiting the performance capability of the full-feature STCOMET10 device. The STCOMET10 is a single device integrating a flexible power line communication (PLC) modem with a fully embedded analog front end (AFE) and a line driver, a high performance 3-channel metrology function and a Cortex®-M4 application core.

The kit is made of three modules: the STCOMET main board, the LCD module and the power supply board based on the VIPER26H.

With this development kit, it is possible to evaluate a complete single phase smart meter with PLC connectivity. The performance of the metering and application functions could be evaluated along with the PLC transmitting and receiving performance.

The PLC line coupling interface is designed to allow the STCOMET device to transmit and receive on the AC mains line using any narrow-band PLC modulation (single carrier or OFDM) up to 500 kHz, mainly for automatic meter reading (AMR) applications.

The default configuration of the PLC line coupling targets the G3-PLC (ITU G.9903) and PRIME (ITU G.9904) CENELEC A-band protocol standards. With a few BOM modifications, the STCOMET development kit can be adjusted to fit other narrow-band PLC protocols in CENELEC A-band or FCC band (e. g.: S-FSK IEC61334-5-1, IEEE 1901.2, G3-PLC FCC, METERS AND MORE).

If necessary, a specific customer's module can be designed and placed instead of the LCD module, for a different peripherals configuration.

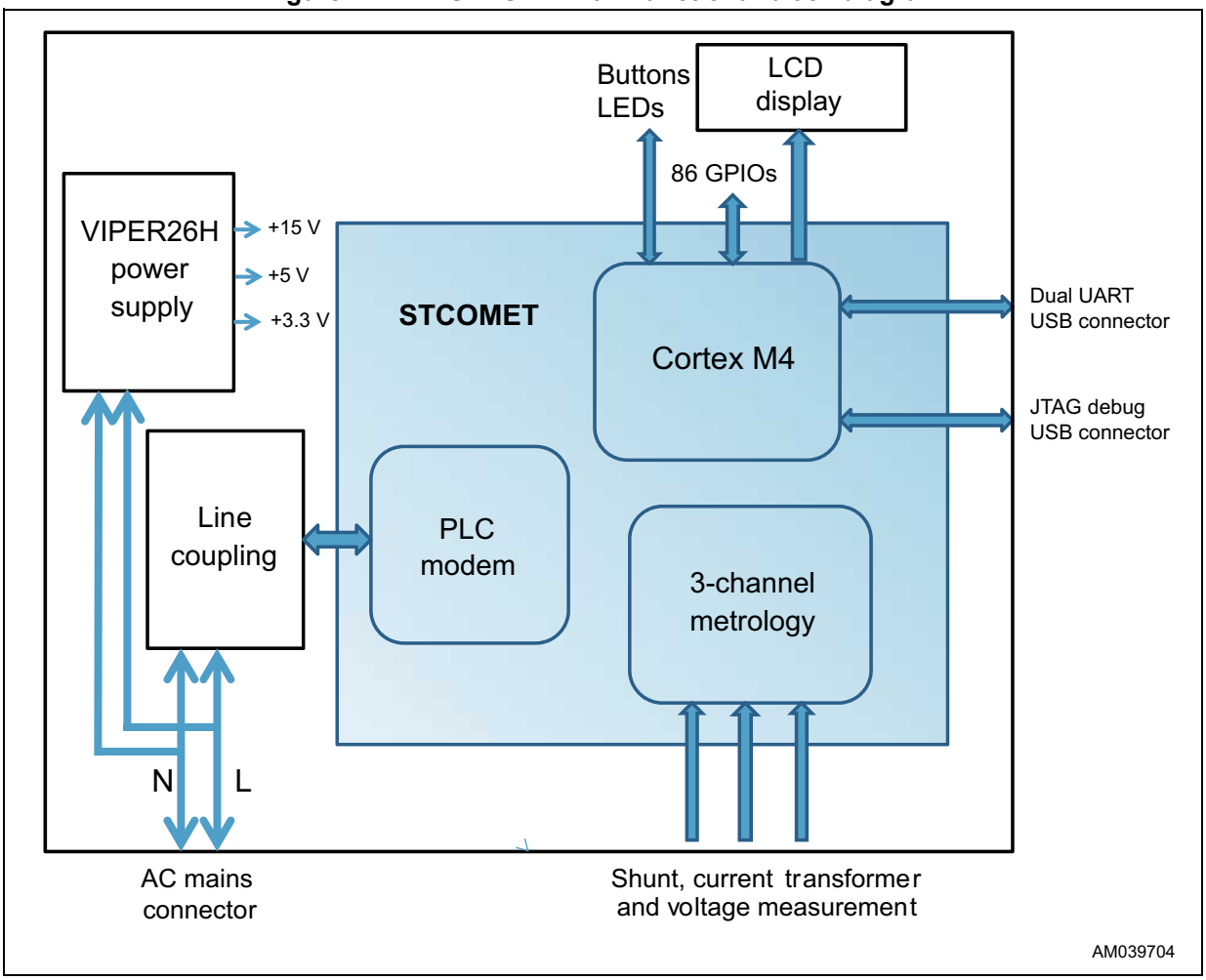
As it can be seen from the EVLKSTCOMET10-1 picture, a special effort has been made to create the development kit compact and optimized to fit the size of a real meter.

The EVLKSTCOMET10-1 is suitable for the evaluation of the complete STCOMET platform. Featuring the full set STCOMET10 chip, the EVLKSTCOMET10-1 demonstrates at the same time all the functions and performance of the STCOM chips.

Please check for the EVLKSTCOMET10-1 hardware documentation, evaluation software and firmware libraries at st.com/powerline. For specific software or firmware releases, you may need to contact directly the STMicroelectronics sales office.

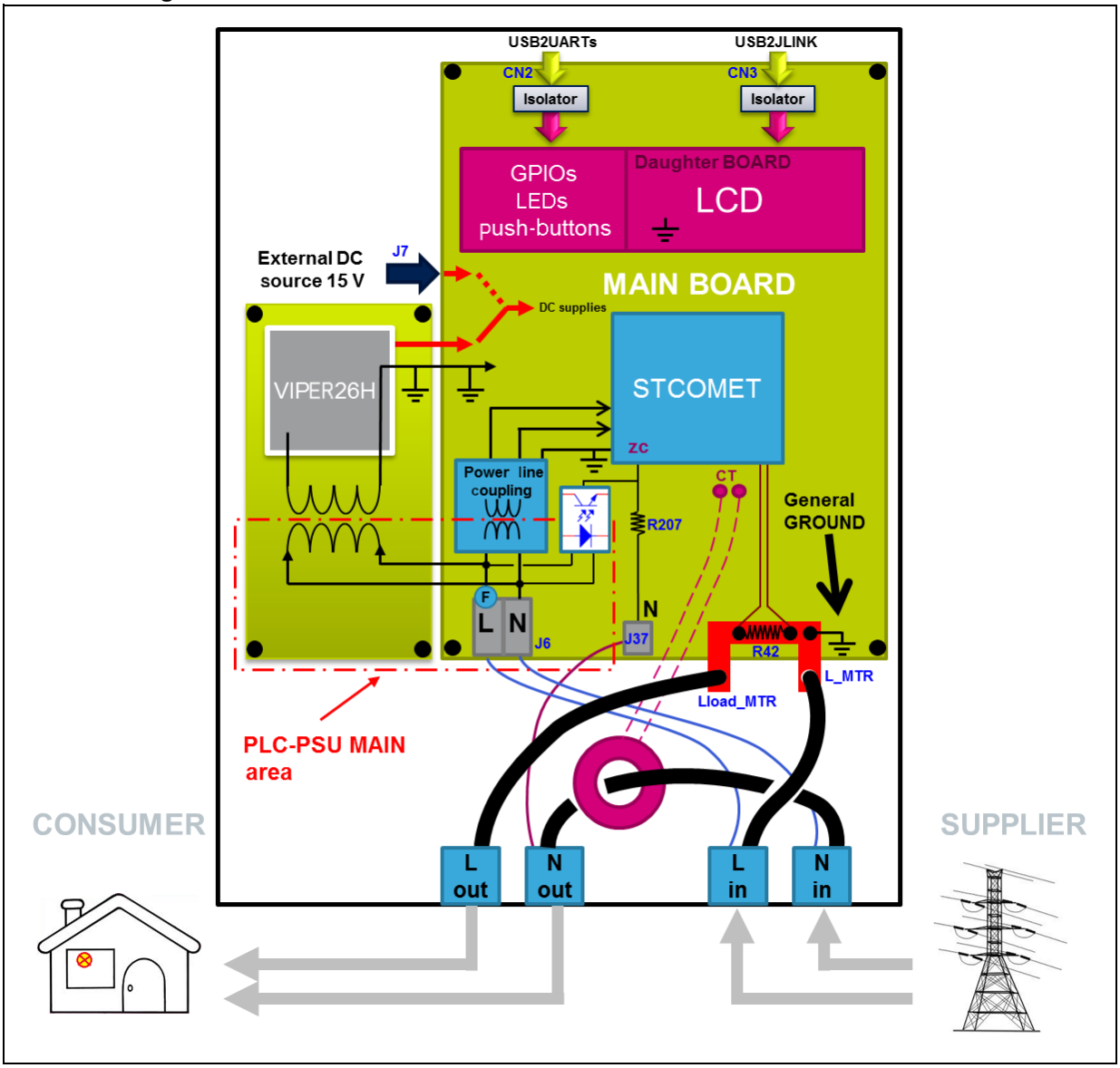
2 Block diagram

Figure 1. EVLKSTCOMET10-1 functional block diagram



3 Connections to the AC mains network

Figure 2. EVLKSTCOMET10-1 overview with connections to the AC mains



4 EVLKSTCOMET10-1 software packages

The STCOMET development kit can be used with several PLC protocols and in different application scenarios. A complete toolset is available for each protocol, organized in packages.

The available software packages are the following:

- PRIME v1.3.6
- PRIME v1.4
- G3-PLC standalone
- G3-PLC RTOS application framework

Each package includes:

- Binary images for the protocol libraries
- Source code of application examples
- Specific PC GUI to easily evaluate protocol functionalities and performance
- Package documentation (UM, AN, etc.).

The EVLKSTCOMET10-1 is delivered with a pre-programmed basic RTOS framework, without any specific protocol package. This basic framework enables a firmware upgrade by the dedicated Smartgrid LabTool PC application, included into each package along with the documentation on the upgrade procedure.

Packages are separately delivered under Software license agreement by contacting your local ST sales office.

5 Revision history

Table 1. Document revision history

Date	Revision	Changes
22-Oct-2015	1	Initial release.
13-Nov-2017	2	Added *Section 4 on page 5*.

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