

PRIME-certified development kit based on STarGRID® ST7590T



A complete reference design for PRIME-based application developments

ST's EVALST7590T-2 is more than a simple development kit: certified compliant with the PRIME specification and EN50065 standard, it is a ready-to-use, standalone module for PRIME pilot tests or small volume production. Supporting DLMS/COSEM libraries, the EVALST7590T-2 is the ideal tool to cut development times and to fit existing meters with PRIME PLC communication for the first development phase.



KEY FEATURES

- PRIME-certified power line communication development kit based on STarGRID® ST7590T PLC SoC
- EN50065 fully compliant complete reference design for modular and integrated PRIME-based developments
- On board STM32F101 microcontroller for system management and application host controller
- AC power supply based on the ALTAIR04-900 quasi-resonant current-mode SMPS controller
- RS232 / RS485 host interface to STM32F101 microcontroller with opto-couplers for double insulation
- Intuitive graphical user Interface (GUI)
- Suitable for CENELEC EN50065 and FCC part 15 compliant applications

APPLICATIONS

- Complete reference for PRIME-based developments such as smart meters or concentrators
- Standalone tool ready for in-field PRIME network tests
- Suitable solution for pilot and low volume production and customization evolutions



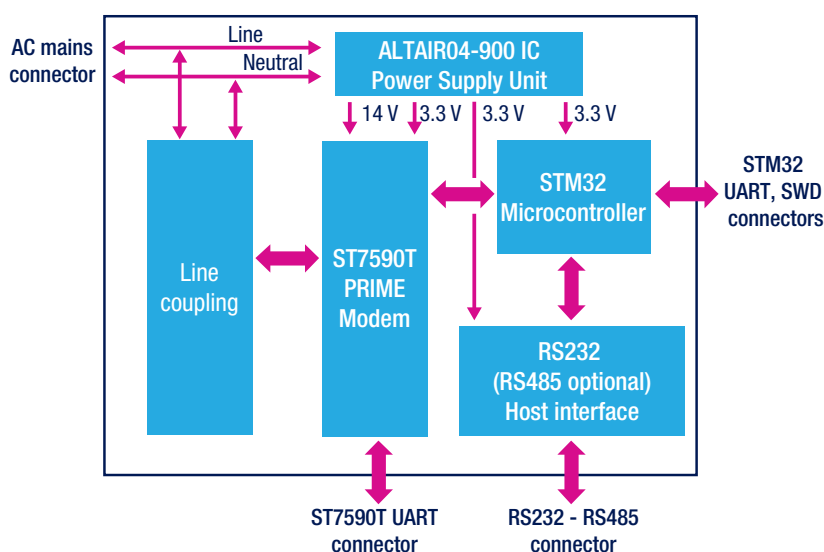
The EVALST7590T-2 development kit embeds all the functions required for a turnkey power-line communication network: PLC node based on the ST7590T, AC power supply based on the ALTAIR4-900 SMPS controller and the STM32F101 microcontroller, to either control the system as a standalone application or to connect the EVALST7590T-2 to an external host.

The ST7590 is the PRIME-specific SoC from ST's PLC modular platform family. Built using ST's most advanced smart power technology, STarGRID® allows the integration of an optimized DSP for different

modulation schemes and physical layer service management with a digital 8-bit industrial microcontroller core for system supervising and protocol stack management. The integration of specific functions, such as a dedicated hardware accelerator for 128-bit AES data encryption, a built-in channel quality estimation feature and other critical functions, increases system performance and capabilities. The integration of a full analog front end and a high-linearity line driver reduces both the system bill of material and the customer's development effort.

The EVALST7590T-2 embeds the ST7590's full PRIME-compliant protocol stack and provides a complete reference for PRIME-based developments such as smart meters or concentrators, and is an ideal standalone tool for in-field PRIME network tests. The EVALST7590T-2 kit supports DLMS/COSEM libraries and has been jointly developed by ST and Fideltronik to accelerate high-volume industrial implementations and customizations, as well as to provide ready and customizable solutions for any special, low-volume application.

EVALST7590T-2 BLOCK DIAGRAM



STARGRID EVALUATION BOARDS

Order code	STarGRID SoC	Embedded protocol	Modulation	Bit rate
EVALKITST7570-1	ST7570	IEC 61334-5-1 PHY, MAC	S-FSK	2.4 Kbit/s
EVALKITST7580-1	ST7580	ST DLL, custom stack	FSK, BPSK, QPSK, 8PSK	28.8 Kbit/s
EVALST7590T-2	ST7590T	PRIME PHY, MAC, CS, IEC 61334-4-32 LLC	OFDM	128 Kbit/s

