

# Cool Phoenix 2

## Flexible PLC Modem Solution

Cool Phoenix 2 (CPX2) being the second generation device of the award winning Cool Phoenix family, has kept its flexible concept allowing a single design supporting multiple standards.

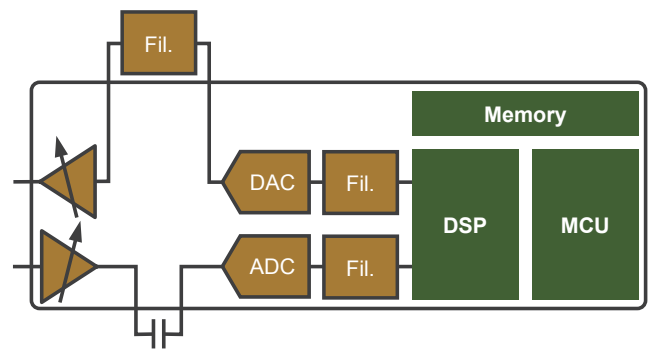
Whilst the device is pin compatible to its predecessor it offers more memory as well as higher performance supporting multiple frequency bands like CENELEC, FCC and ARIB. The AES security engine features ECB, CBC and CCM modes with key lengths of 128, 192 and 256 bit respectively.

- Software configurable PLC modem supporting multiple PLC standards (G3, PRIME)
- Fully certified protocol stacks with well documented API provided
- Multiple frequency bands supported (CENELEC A, FCC, ARIB)
- Superior dynamic range
- Excellent power consumption figures
- Competitive Bill of Material

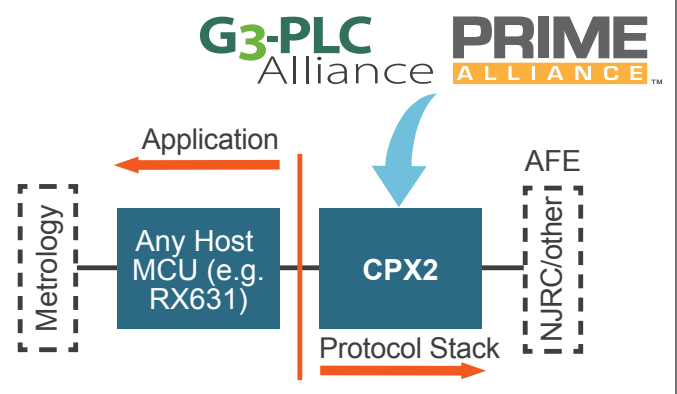
Cool Phoenix 2 integrates a MAC controller as well as a high performance digital signal processor (DSP) for physical layer (PHY) implementation. The embedded analogue front end includes an adaptive gain amplifier with automatic gain control (AGC) functions. This ensures exceptional signal quality in highly dynamic and harsh network environments as found in metering applications. As a result the solution shows outstanding robustness and unique sensitivity characteristics.

- In combination with the wide range of Renesas pin, software compatible and scalable microcontrollers for metering applications, the Cool Phoenix 2 powerline modem solution provides a perfect fit for smart electricity meter platforms. Cool Phoenix 2 is also ideal for other Smart Grid applications such as street lighting.

Cool Phoenix 2 Block Diagram



Cool Phoenix 2 System Block Diagram



# Cool Phoenix 2 – Flexible PLC Modem Solution

Features	Benefits
High performance DSP for PHY	Enables easy design of a single meter platform ready to support multiple standards and frequency bands
Competitive roadmap	Future-proof solution, today fully supporting global mainstream powerline communication standards OFDM PRIME and G3
AFE integrated with adaptive gain amplifier and AGC function	Superior dynamic range and sensitivity assuring optimum output performance and robustness
Very low power operation	Helps reducing overall system power consumption, as one important selection criterion from utilities
Small 48-pin QFP package	Saves PCB board space thus BoM cost; enables the design of small form factor PLC add-on modules
Embedded hardware security engine supporting multiple modes	Simplifies the design of secure smart meters
Combination with wide range of application microcontrollers	Open architecture that allows flexible system partitioning by selection of best fit application microcontroller to save BoM cost

## Connect it! – Powerline Communication Solution Kit

- Simple to use tool for technology evaluation and development
- Configurable to support multiple frequency bands by simple exchange of the filter board
- Pre-programmed for quick PHY performance evaluation
- Simple PC GUI for flexible device configuration and powerline communication analysis
- Assembled RX631 host MCU allowing customisation of evaluation software to own powerline test environment
- E1 debugging interface for development support
- Multiple USB connectors as interface between modem and host microcontroller



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