

Wireless transceiver promises double operation lifetime in smart meters



STMicroelectronics introduced a high-performance, ultra-low-power wireless transceiver for Automatic Meter Infrastructure and other wireless sensor node applications, such as alarm and security systems, home and building automation, and industrial monitoring and control. ST's SPIRIT1 transceiver combines receiver sensitivity of -120 dBm with desirable current consumption, delivering 50 percent power reduction over existing solutions in the market, according to the company. Features include full remote control, power peak and consumption analysis, anti-tampering mechanisms, fault alert, and time-variable tariffs to help make both the supply and usage of electricity, gas or water more efficient and economical. ST's SPIRIT1 transceiver handles the communication between smart meters in households and businesses and the neighborhood data concentrator, which relays the information to the utility provider control center. By enabling short-range transmissions in frequency ranges below 1 GHz[*], SPIRIT1 ensures proper wireless signal propagation through concrete walls and building structures. (*The SPIRIT1 is compliant with the Wireless M-BUS, ETSI EN 300 220, FCC CFR47 part 15 (sub parts 15.247, 15.249, 15.205, 15.209 and 15.231) and ARIB STD T-67/T-108 worldwide regulatory standards.)

SPIRIT1 boasts an outstanding receiver sensitivity of -120dBm. This allows the designer to lower the output power of the transmitter and thus further decrease the overall current consumption, while maintaining a highly robust communication channel. The transceiver supports advanced technologies like frequency hopping, auto-acknowledgment and antenna diversity to secure error-free data transmission even in harsh-environmental or challenging-logistical conditions.

Additional embedded features include 128-bit data encryption, error correction and detection, FIFO memory blocks, as well as highly flexible and programmable data packet management, which contribute to reducing the computation load of the host

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microcontroller and the overall system cost.

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