

S2-LP: Ultra-low-power, high-performance, sub-1 GHz RF transceiver



The S2-LP is an ultra-low-power, wireless, sub-1GHz proprietary RF transceiver

Designed principally for the ISM (Industrial, Scientific and Medical) frequency bands, it shows top-notch RF performance and unparalleled energy efficiency extending battery life from months to more than 10 years. The embedded radio guarantees an RF link budget in excess of 145 dB in addition to a compelling output power up to +16 dBm, resulting in a reliable long-distance communication link. It is ready for SIGFOX, Wireless M-Bus, 6LowPAN and IEEE 802.15.4g networking connectivity, simplifying the design of IoT applications and enabling remote sensors to directly connect to the Cloud without a local gateway.

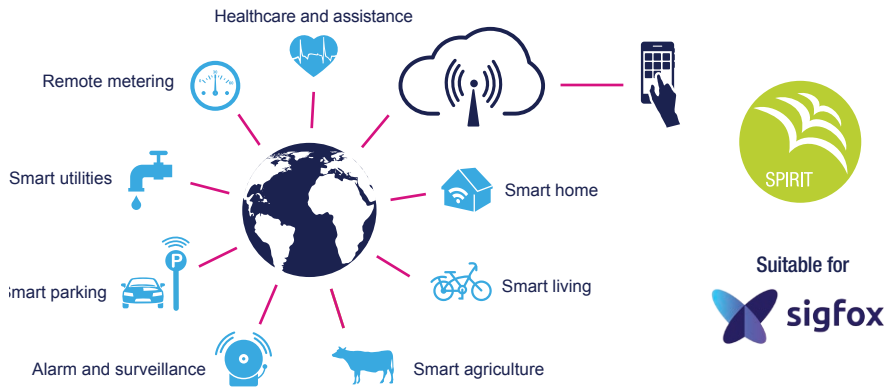
KEY BENEFITS

- Extended battery life up to 10 years
- Long distance and reliable RF connections
- Connects smart things to the Cloud without a local gateway
- Modulation schemes: 2(G)FSK, 4(G)FSK, OOK, ASK
- On-chip DC/DC step-down converter and linear regulator
- Fully integrated ultra-low power RC oscillator

KEY FEATURES

- Ultra-low power consumption
 - 600 nA in Sleep mode
 - 7 mA in Receive mode
 - 10 mA in Transmit mode @ +10 dBm
 - Sniff mode
- RF link budget higher than 145 dB
- Up to +16 dBm output power
- Frequency bands:
 - 413-479 MHz (S2-LPQTR)
 - 452-527 MHz (S2-LPCBQTR)
 - 826-958 MHz (S2-LPQTR)
 - 904-1055 MHz (S2-LPCBQTR)
- 128-byte Receive and Transmit FIFO
- Robust CSMA/CA engine based on listen-before-talk systems
- Embedded flexible packet handler
- Suitable for SIGFOX™ connectivity
- IEEE 802.15.4g packet handler
- Wireless M-BUS and 6LowPAN supported
- Suitable for building systems targeting world-wide regulatory standards

Sub-1GHz TRANSCEIVER CONNECTS SMART THINGS TO THE CLOUD



KEY APPLICATIONS

- Smart metering
- Smart home and Smart City
- Home energy management systems
- Industrial monitoring and control
- Smart parking
- Wireless alarm systems
- Asset tracking devices

AVAILABLE TOOLS AND TECHNICAL DOCUMENTATION

Evaluation kit	STEVAL-FKI433V2	Sub-1GHz transceiver development kit tuned for 430-470 MHz
	STEVAL-FKI868V2	Sub-1GHz transceiver development kit tuned for 860-940 MHz
	STEVAL-FKI915V1	Sub-1GHz transceiver development kit tuned for 860-940 MHz allowing the application to reach +27 dBm
	STEVAL-FKI512V1	Sub-1GHz transceiver development kit tuned for 452-527 MHz
	X-NUCLEO-S2868A1	Sub-1 GHz 868 MHz RF expansion board based on S2-LP radio for STM32 Nucleo
HW resources	Schematic pack	Evaluation kit: schematics
	BOM	Evaluation kit: bill of material
	Gerber pack Evaluation kit	Evaluation kit: board manufacturing specification
SW resources	GUI	Graphical user interface for driving by PC evaluation kit
	Library	Library drivers
	Examples	Embedded examples
Documentation	AN4190	Antenna selections guidelines
	AN4947	PCB design guidelines for the S2-LP transceiver
	AN4949	Using the S2-LP transceiver under FCC title 47 part 15 in the 902 – 928 MHz band
	AN4953	Using the S2-LP transceiver under ARIB STD-T108 in the 920 MHz band
	AN4962	S2-LP ETSI compliance test at 868 MHz SRD band
	AN4997	FCC part 15 @433 MHz compliance
	AN5008	ARIB STD-T67 @ 449 MHz compliance
	AN5009	FCC part 90 in 450-470 MHz band masks D and E compliance
	AN5029	Using the S2-LP transceiver with FEM at 500 mW under FCC title 47 part 15 in the 902 – 928 MHz band
	UM1904	Getting started with X-CUBE-SUBG1, Sub-1 GHz RF software expansion for STM32Cube
	UM2149	Getting started with the S2-LP development kits
	UM2169	Getting started with the SIGFOX S2-LP kit
	UM2173	SIGFOX firmware library user manual
	UM2211	BLE-Sub1GHz development kit
	UM2405	Getting started with the X-NUCLEO-S2868A1 Sub-1 GHz 868 MHz RF expansion board based on S2-LP radio for STM32 Nucleo

