

STM 550B Multi-Sensor Module (BLE)

STM 550B enables the realization of energy harvesting wireless sensors communicating based on the BLE radio standard.

Key applications are wall-mounted or equipment-mounted sensor applications for the measurement of temperature, humidity, illumination or acceleration / orientation.

STM 550B integrates dedicated sensors for temperature, humidity, illumination, acceleration and magnet contact. These sensors measure and transmit the current status every 60 seconds. The transmission is indicated using a dedicated LED.

STM 550B will immediately wake-up and transmit an update if a change in the acceleration vector occurs (e.g. due to STM 550B being moved or shaken) after a period without such change.

STM 550B contains an integrated solar cell optimized to generate the required energy based on available ambient lighting. Under typical indoor lighting scenarios (200 lux for 6 hours per day) it operates fully self-supplied. For other cases it is possible to mount a dedicated backup battery.



STM 550B contains an integrated NFC interface that can be used for device configuration and device commissioning. In addition, it contains a LRN button that can be used for simple commissioning tasks.

STM 550B is delivered as module in PTM module form factor for integration into customer design frames.

For alternative use cases, the ready to use white label product EMSIB integrates STM 550B into a housing with wall mount and front cover frame.

Order Information

Type	Frequency	Variant	Order Code
STM 550B	2.4 GHz BLE	Module	S6221-K516
EMSIB	2.4 GHz BLE	WLP	E6221-K516

Features overview

Antenna	Integrated antenna
Radio Standard	2.4GHz Bluetooth Low Energy (Advertising Mode)
Radio Channel	BLE Channels 37, 38 and 39 (Advertising Channels)
Sensor Data Encoding	EnOcean BLE Sensor Protocol
Transmission Interval	Every 60 s (adjustable via NFC)
Device Identification	Individual 48 Bit Device ID (factory programmed)
Security	AES128 (CBC) authentication with sequence counter
Transmission Range (typ.)	30 m line of sight / 10 m indoor environment
Power Supply	Integrated Solar Cell
Temperature / Humidity Sensor	-20 °C ... +65 °C (+-0.3 K) / 0 ... 100 % r.h. (+-3 %) ⁽¹⁾
Illumination Sensor	0 ... 65535 Lux (+- 10%)
Acceleration Sensor	- 4g ... +4g (+- 0.05g) with configurable trigger (default 0.0625 g)
User Interface	Learn button + LED
Required Ambient Lighting	200 Lux for 6 hours per day
Autonomy (operation without light)	4 days
Backup Battery (if required)	CR1632
Operating Conditions	-5 ... 45°C / 0 ... 90 % r.h. (indoor use in dry rooms only)
Dimensions (STM 550B)	40 mm x 40 mm x 13 mm

(NOTE 1: STM 550B / EMSIB should only be used within the operating conditions specified above)