EnOcean

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.

STM 550B will immediately wake-up and transmit an update if an acceleration event occurs (e.g. due to 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) they operate fully self-supplied. For use cases with insufficient available light, it is possible to mount a dedicated backup battery.

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

STM 550B is delivered as module in PTM 21x form factor for integration into OEM customer designs.

Alternatively, EMSIB is delivered as white label product (WLP) in single unit packaging containing module, wall mount, front cover, magnet and adhesive tape while STM 550B KIT provides module, wall mount, front cover, magnet and adhesive tape in one box for volume deliveries.

Order information

Type	Frequency	Variant	Order Code
STM 550B	2.4 GHz BLE	Module	S6221-K516
EMSIB		WLP	E6221-K516
STM 550B KIT		Kit	B6221-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 Configuration	NFC (ISO 14443)
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 Measurement Range / Accuracy	-20 °C … +60 °C [NOTE 1] / ± 0.3 K
Humidity Measurement Range / Accuracy	0 … 100 % r.h. [NOTE 1] / ± 3% r.h.
Illumination Measurement Range / Accuracy	0 … 65000 Lux [NOTE 1] / ± 10 %
Acceleration Measurement Range / Accuracy	± 2 g / ± 0.03 g
Acceleration Wake Threshold	0.03 g (default, configurable
Required Ambient Lighting	200 Lux for 6 hours per day
Autonomy (operation without light)	4 days
Backup Battery (if required)	CR1632
Dimensions (STM 550B)	40 mm x 40 mm x 13 mm
Operating Conditions	-5 … 45°C / 0 … 90 % r.h. (non-condensing)

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