

STM 550B (Revision DB) 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 2 minutes.

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.

Features overview

Antenna	Integrated antenna
Radio Standard / TX Power	2.4 GHz Bluetooth Low Energy / +4 dBm
Radio Channel (Default)	BLE Channels 37, 38 and 39 (Advertising Channels)
Transmission Range (Typ.)	30 m line of sight / 10 m indoor environment
Sensor Data Encoding	EnOcean BLE Sensor Protocol
Security	AES128 (CBC) authentication with sequence counter
Transmission Interval (Default)	2 minutes (adjustable via NFC)
Device Configuration	NFC (ISO 14443)
Temperature Measurement Range / Accuracy	-5 °C ... +45 °C / ± 0.3 K
Humidity Measurement Range / Accuracy	0 ... 90 % r.h. / ± 3% r.h.
Illumination Measurement Range / Accuracy	0 ... 2000 lux / ± 10 % at 1000 lux
Acceleration Measurement Range / Accuracy	± 2 g / ± 0.03 g
Acceleration Wake Threshold	0.03 g (default, configurable via NFC)
Power Supply	Integrated Solar Cell
Required Ambient Lighting	200 Lux for 6 hours per day
Autonomy (Operation without light)	>4 days
Backup Battery Type (If required)	CR1632
Dimensions	40 mm x 40 mm x 13 mm
Operating Conditions	-5 °C ... 45 °C / 0 ... 90 % r.h. (non-condensing)

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



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, STM 550B KIT combines STM 550B module with wall mount, front cover, magnet and adhesive tape.

Order information

Type	Frequency	Variant	Order Code
STM 550B	2.4 GHz	Module	S6221-K516
STM 550B KIT	BLE	Kit	B6221-K516