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

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<td>2.4 GHz</td>
<td>Module</td>
<td>S6221-K516</td>
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<td>EMSIB</td>
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<td>STM 550B KIT</td>
<td>Kit</td>
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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 °C ... 45 °C / 0 °C ... 90 % r.h. (non-condensing)

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