

SMARTbox nano

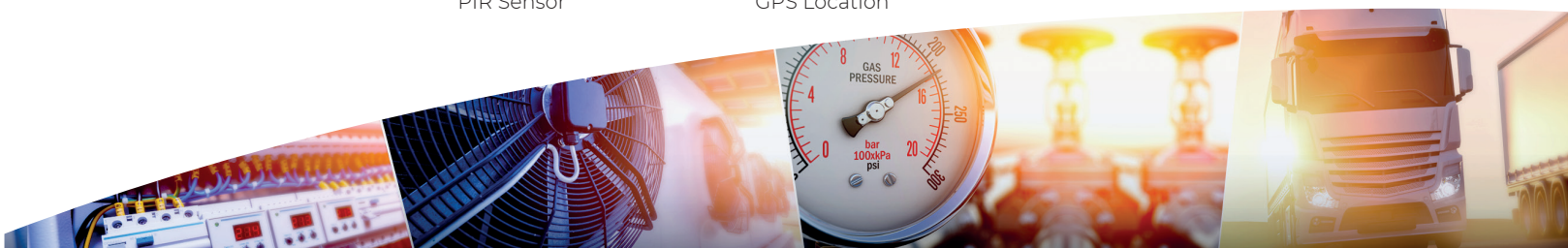
LongLife Tracking Device for GPS and environmental sensing

SMARTbox nano is a battery powered cellular gateway with integrated Sensors. Designed to work in industrial environments, it is the ideal solution for companies looking to tracking and monitoring of goods. SMARTbox nano leverages the IoT Cloud of Cumulocity and Cloud of Things enabling customers who need to track large number of assets to easily integrate that data in one platform.



Key features

- GPS Location
- Wlan location assistance
- OnBoard: Temp, Humid., Beacon support
- Telekom Cloud of Things for easy management
- LTE-M cellular technology
- SIM-free selection





RADIO

4G LTE	optional LTE Cat 1 B1(2100) B3(1800) B7(2600) B8(900) B20(800)
2G	B2 B3 B5 B8
LTE Cat1	B1 B2 B3 B4 B5 B8 B12 B13 B18 B19 B20 B25 B28 B66 B71 B85 B103
Regions	WorldWide
Bluetooth	Protocol: Bluetooth v4.2 BR/EDR and BLE specification NZIF receiver with -97 dBm sensitivity Class-1, class-2 and class-3 transmitter
Wi-Fi	Protocol: 802.11 b/g/n (802.11n up to 150 Mbps) Frequency Range: 2.4 GHz ~ 2.5 GHz



LOCATION SERVICE

GNSS	GPS, GLONASS, BeiDou, Galileo, and QZSS
Wi-Fi	WlanLocation by Google API (<10m)
Cell	Celllocation service by Google API (<200m)
Tracking	Location Services: <ul style="list-style-type: none"> • Selectable Options (GNSS-WiFi-Cell, WiFi-GNSS-Cell, WiFi, GNSS) Tracking by: <ul style="list-style-type: none"> • Start (selectable acceleration threshold and Delaytime – max 127s) • Stop (selectable acceleration threshold and Delaytime – max 2048s) • Motion (selectable acceleration threshold and Delaytime – max.12s)



SENSORS

Motion	3-axis accelerometer, $\pm 2g / \pm 4g / \pm 8g / \pm 16g$ <ul style="list-style-type: none"> • Continuous Mode • Data Rate 1hz (up to 5300 Hz possible) • Shock detection
Battery level	Battery level <ul style="list-style-type: none"> • 2.8% Accuracy of RSOC
Temperatur	Temperature Accuracy <ul style="list-style-type: none"> • -0.5 between 15°C and 40°C • -1 from 0°C to 15°C and from 40°C to 60°C • -2 from -40°C to 0°C and from 60°C to 85°C
HACCP	<ul style="list-style-type: none"> • Temperature Logging according to EN12830 and Humidity • Storage of 96 temperature values per Day, Cloud publication 1 time per day



SENSORS

Humidity Humidity accuracy: $\pm 3.5\%$ rH, 20 to +80% rH

Airpressure Pressure sensor: 300-1100 hPa

- The logging interval of the sensor Readout is selectable from 10sec to 3hours, max. 96 logs for intermediate buffering, until sending to Cloud

AirQuality

- Index Air Quality (IAQ): 0..500 according to guidelines issued by German federal environmental agency (Umweltbundesamt).
- See also here: <https://www.umweltbundesamt.de/daten/luft/luftdaten>

IAQ Index	Air Quality	Impact (long-term exposure)	Suggested action
0 – 50	Excellent	Pure air, best for well-being	No measures needed
51 – 100	Good	No irritation or impact on well-being	No measures needed
101 – 150	Lightly polluted	Reduction of well-being possible	Ventilation suggested
151 – 200	Moderately polluted	More significant irritation possible	Increase ventilation with clean air
201 – 250*	Heavily polluted	Exposition might lead to effects like headache depending on type of VOCs	optimize ventilation
251 – 350	Severely polluted	More severe health issue possible if harmful VOC present	Contamination should be identified if level is reached even w/o presence of people; maximize ventilation & reduce attendance
> 351	Extremely polluted	Headaches, additional neurotoxic effects possible	Contamination needs to be identified; avoid presence in room and maximize ventilation

- The logging interval of the sensor Readout is selectable from 10sec to 3hours, max. 96 logs for intermediate buffering, until sending to Cloud

CO₂, VOC

- eCO₂: The equivalent CO₂ (eCO₂) output
- eTVOC: The equivalent Total Volatile Organic Compound (eTVOC) output
- The logging interval of the sensor Readout is selectable from 10sec to 3hours, max. 96 logs for intermediate buffering, until sending to Cloud

Beacon Beacon- support:

- Temp/Humidity/Light: iB004N Plus SHT LT
- Temp/Humidity: iB003N-SHT
- Distance: 0..2m ACN_Range
- Max. 20 Beacons in parallel
- For more beacons to be integrated ask Pssystemec

LED Signal LED:

- Off – the device is in sleep Mode
- Slow flashing – The device is waked up and in low Power mode

USB USB 2.0 HS-programming, Logging and Trace the device



BATTERY / LIFECYCLE

Consumpt.	<p>Sleep: 50µA</p> <p>Idle mode: 12mA</p> <p>Operative Mode: 150mA</p> <p>Operative Mode + GNSS/Wlan: 190mA</p>
Accu	<ul style="list-style-type: none"> • Rechargeable NIMH LSD 5500 / 6000mAh • >7months@1message per Day • Optional: charging the device by Qi-standard or by USB-Interface <p>The USB must support a current of min. 500mA</p>
Primary cell	<ul style="list-style-type: none"> • 6000mAh LiMNO2 Primary Battery • >5years@1message per Day • Switch On: <p>Hold the magnet 4-6 seconds to the marked place. The LED flashes briefly at the beginning. Leave the magnet for minimum of 5seconds at the same place and then remove it. The LED will flash every second during this time. At the end the LED will be steady on for 2 seconds. The device is switched on.</p> <ul style="list-style-type: none"> • Switch Off: <p>Hold the magnet 4-6 seconds to the marked place. The LED flashes briefly at the beginning. Leave the magnet for minimum of 5 seconds at the same place and then remove it. The LED will flash every second during this time. At the end the LED will be flashing quickly. The device is switched off.</p>



MANAGEMENT PLATFORM

Supported Platforms	Telekom Coud der Dinge, Cumulocity IoT, AI, Mindsphere, ooredoo, Telia, ...and more
Communication	MQTT, LWM2M OMA, https, TLS,TCP, UDP, HTTP
Access	Bi-directional communication
OTA	yes
FOTA	yes



GENERAL



Dimension	99,7 x 55,2 x 28
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Weight	89g – Accu
Mounting	Via magnetic foot or wall mounted by M4 screws and 16kg
LTE Ant.	OnBoard
WiFi Ant.	OnBoard



GENERAL

BLE Ant.	OnBoard
GPS Ant.	OnBoard
SIM Card	microSim / eSim option
Operate T/H	Accu: Charging: 10 ~ 45° C Discharging: -20 ~ 60° C Max. 85% Primary cell: -55° C to +85° C
Storage T	-40...85° C / Max. 85% / Accu / Primary cell: -55° C to +85° C
IP Class	IP67
Approvals	 
Conformity	2014/53/EU (Radio Equipment Directive - RED) Radio EN301511 v12.5.1 EN301908 v13.1.1 EMC EN 301489-1 v2.2.0 General Part EN 301489-52 v1.1.0 DIN EN 61326-1 - 2018-09 Safety DIN EN 61010-1:2020-03; VDE 0411-1:2020-03
Warranty	2 years

Remote Manager

Fleetmanagement:

- Activate, monitor and diagnose your devices from a single point – on your desktop or mobile app
- Monitor the health of your connected facility by taking graphs from different widgets. A large selection of evaluation and diagram types are available.

Cockpit:

- Creating threshold monitoring, events, critical alarms, warnings and reports

Open API:

- Create Notifications or simply use the REST API from the Cloud platform to feed your third party system with all the data



Third Party IoT-Platforms



... and more