Remote Management by
Cloud of things

SMARTbox nano

IoT Gateway for Tracking and OnBoard 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.

Ready2Use – Key parameters

- ✓ GPS Location
- ✓ Wlan location assistance
- ✓ OnBoard: CO2, Temp, Humid., Beacon support

- ✓ Telekom Cloud of Things for easy management
- ✓ LTE-M cellular technology
- ✓ SIM - free selection

Tracking

Geofence

Temp., Humidtiy*

HACCP Logging*

CO2, IAQ, VOC*

BLE Beacons

*optional

NB-IoT

LTE-M

CUMULOCITY IoT

Industry

Logistics

Agricultural and Food

Refrigeration

Specification

Radio

4G LTE	M1 & NB1 B1 (2100), B2 (1900), B3 (1800), B4 (AWS 1700), B5 (850), B8 (900), B12 (700), B13 (700), B18 (800), B19 (800), B20 (800), B26 (850), B28 (700))
2G	GSM | GPRS B2 (1900) B3 (1800) B5 (850) B8 (900)
LTE Cat1	optional
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: ✓ Selectable Options (GNSS-WiFi-Cell, WiFi-GNSS-Cell, WiFi, GNSS) Tracking by ✓ Start (selectable accelleration threshold and Delaytime –max 127s) ✓ Stop (selectable accelleration threshold and Delaytime –max 2048s) ✓ Motion (selectable accelleration threshold and Delaytime – max.12s)

Sensors

Motion	3-axis accelerometer, ±2g/±4g/±8g/±16g ✓ Continuous Mode ✓ Data Rate 1hz (up to 5300 Hz possible) ✓ Shock detection

Batterylevel	Battery level ✓ 2.8% Accuracy of RSOC

Temperatur	Temperature Accuracy ✓ -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	✓ Temperature Logging according to EN12830 and Humidity ✓ Storage of 96 temperature values per Day, Cloud publication 1time per day

Humidity	Humidity accuracy: ± 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 – 250³	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 Pssystec

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.	Sleep:50µA Idle mode: 12mA Operative Mode: 150mA Operative Mode + GNSS/Wlan: 190mA

Accu	✓ Rechargable Lipo 5500/6000mAh ✓ >7months@1message per Day ✓ Charching the device by QI standard or by USB Interface The USB must support a current of min. 500mAh

Primary cell	✓ 16500mAh LiMNO2 Primary Battery ✓ >5years@1message per Day ✓ The device can be switched On/Off by using the Mounting magnet. Hold the magnet for at least 3 seconds to the side bar of the device. The device will switch by giving 2 short sound impulses. To switch off, put the magnet for 5 seconds to the device. A long sound will appear. The device will switch off.

Management Platform

Platform	Telekom Cloud der Dinge
	Cumulocity IoT

Protocol	HTTPS over TLS1.2
Access	Bi-directional communication
OTA	yes

General

Dimension	Accu	99,7 x 55,2 x 28	
	Primary Battery	99,7 x 55,2 x 38,1	

Sensor	Environmental Access for Temperature, Humidity, CO2	

Weight	89g – Accu / 112g – Primary Cell
Mounting	Via magnetic foot or wall mounted by M4 screws and 16kg
LTE Ant.	OnBoard
WiFi Ant.	OnBoard
BLE Ant.	OnBoard
GPS Ant.	OnBoard
SIM Card	microSim / eSim option
Operate T/H	-40..85°C / Max. 85%
Storage T	-40..85°C / Max. 85%
IP Class	IP67
Approvals	CE FC
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

Capabilities

Fleetmanagement:
- ✓ Activate, monitor and diagnose your mission-critical devices from a single point — on your desktop or mobile app – Telekom Cloud of Things
- ✓ Monitor the health of your connected facility by taking graphs from a repository of different widgets

Cockpit:
- ✓ Creating threshold monitoring, events, critical alarms ,warnings and reports, Tracking routes, Geofence

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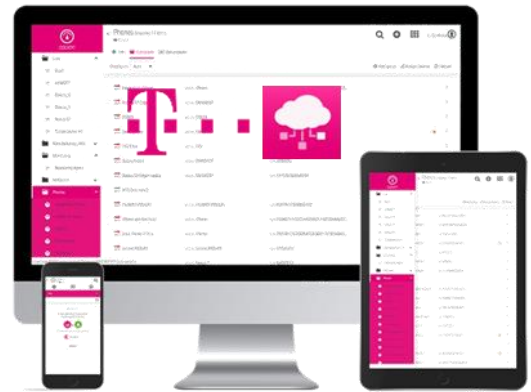
Platforms

Telekom Cloud of Things	
Cumulocity IoT	
Siemens Mindsphere	
Telia Iot Hub	
A1 Digital	
Ooredo IoT Hub	

Ordering Codes

IoT Gateway	Ordercode	🔋	⚛	🖧	📡	📍	⏱
nano GPSW prim	NB8105400XX	16500mAh LiMNO2 Primary Battery,	Fuelgauge, Acellerometer, BLE 4.2	LTE CatM, 2G Fallback (opt. NBIOT)	GPS, Glonass, Beidou, Galileo / Wlan Location /Cell	nano GPSW prim	BLE 4.2, 1..30 Beacons
nano GPS prim	NB8105100XX	16500mAh LiMNO2 Primary Battery	Fuelgauge, Acellerometer	LTE CatM, 2G Fallback (opt. NBIOT)	GPS, Glonass, Beidou, Galileo	nano GPS prim	BLE 4.2, 1..30 Beacons
nano GPSW akku	NB0105400XX	Rechargable Lipo 5500 mAh, Recharge by USB	Fuelgauge, Acellerometer, , BLE 4.2	LTE CatM, 2G Fallback (opt. NBIOT)	GPS, Glonass, Beidou, Galileo / Wlan Location /Cell	nano GPSW akku	BLE 4.2, 1..30 Beacons
nano GPS akku	NB0105100XX	Rechargable Lipo 5500 mAh, Recharge by USB	Fuelgauge, Acellerometer	LTE CatM, 2G Fallback (opt. NBIOT)	GPS, Glonass, Beidou, Galileo	nano GPS akku	
nano GPSW akkuQI	NB5105400XX	Rechargable Lipo 5500 mAh, Recharge by USB or QI	Fuelgauge, Acellerometer, BLE 4.2		LTE CatM, 2G Fallback (opt. NBIOT)	GPS, Glonass, Beidou, Galileo / Wlan Location /Cell	
nano GPS akku	NB0E05400XX	Rechargable Lipo 5500 mAh, Recharge by USB	AIR Quality, Temperature, Humidity, Fuelgauge, Acellerometer		LTE CatM, 2G Fallback (opt. NBIOT)	GPS, Glonass, Beidou, Galileo / Wlan Location /Cell	BLE 4.2, 1..30 Beacons
nano sens prim	NB860A000XX	16500mAh LiMNO2 Primary Battery	Temperature, Humidity, Fuelgauge		LTE CatM, 2G Fallback (opt. NBIOT)		
nano sens prim	NB8C0A000XX	16500mAh LiMNO2 Primary Battery	CO2, Temperature, Humidity, Fuelgauge		LTE CatM, 2G Fallback (opt. NBIOT)		

nano sens prim	NB8A0A000XX	16500mAh LiMNO2 Primary Battery	AIR Quality, Temperature, Humidity, Fuelgauge		LTE CatM, 2G Fallback (opt. NBIOT)		
nano lite T prim	KB950A000XX	16500mAh LiMNO2 Primary Battery	Temperature, Fuelgauge		LTE CatM, 2G Fallback (opt. NBIOT)		
nano lite GPS prim	LB800A100XX	16500mAh LiMNO2 Primary Battery	Temperature, Fuelgauge		LTE CatM, 2G Fallback (opt. NBIOT)	GPS, Glonass, Beidou, Galileo / Cell	

Accessoires / Ordercode

Primary Cell 16,5Ah	70411	LiMNO2 Primary Battery 16000mAh for SMARTbox nano
SET nano magnet	70777	Magnetholder 2 pcs with each 8kg holding force
iB003N-TH	70518	BLE Beacon Temperature/Humidity Temperature Range: -40°C to 60°C Relative Humidity Range: 0% - 100% RH Power: CR2477 coin battery