MS-02

miggy
GET SMARTER

Smart Multi-Sensor Node

Key features:
- Small size
- Long battery life
- Packed with sensors
- BLE beacon
- LoRa localization services

Use cases:
- Asset tracking
- Environmental sensor
- Remote monitoring
- Security
- Presence detection
- Motion alarming
- Proximity detection

Industries:
- Logistics
- Construction machines
- Smart building
- Predictive maintenance
- Rental equipment
- Security purposes

Available sensors:
- Accelerometer
- Gyroscope
- Magnetometer
- Temperature
- Humidity
- Barometer
- Light intensity

Signaling:
- RGB LED
- Piezo buzzer

7 sensors at your disposal
7 high-resolution sensors allow for an accurate and versatile monitoring of items or environments.

Discrete & easy to use
Small size & easy to set up due to the use of pre-set profiles.

Low-cost location tracker
Battery friendly LoRa location-based services.

IP67 dust and waterproof
Water-resistant to ensure stable operation in tough environments.
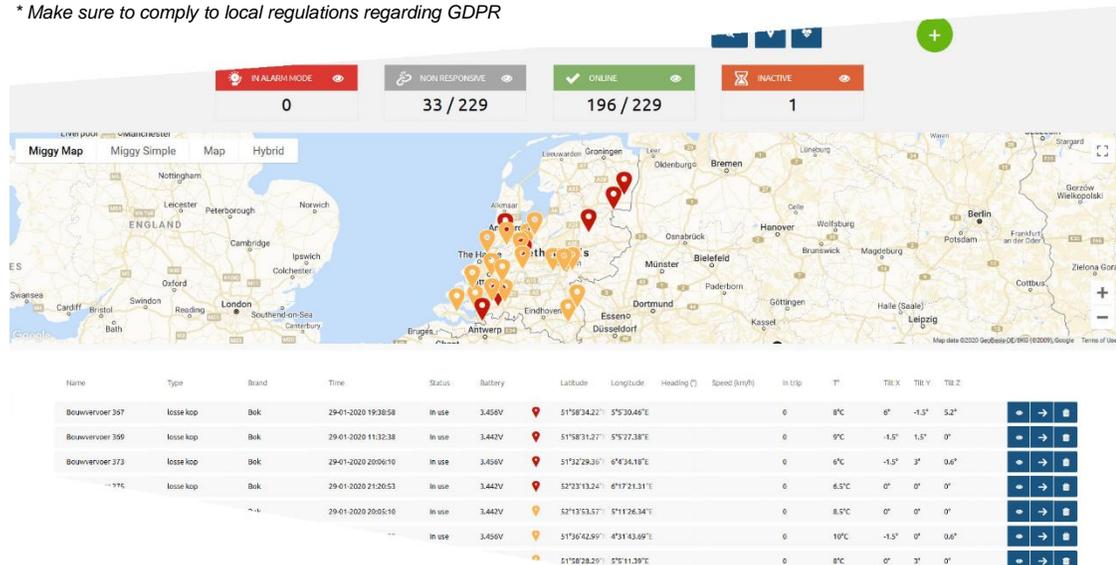
Short ROI, Long life
Designed to be power-efficient and cost-effective.

The MS-02 is a small size, LoRa + Bluetooth multi-sensor. A variety of sensors allows you to collect field data from your assets, equipment, machines, perimeters or people*. By using network location-Based-Services (LBS), a location can be generated without the need of a battery-draining GPS-chip. For accurate (indoor) localization the Bluetooth beacon functionality can be enabled.

Depending on the configuration, this device can be used for a wide range of applications, such as security & alarming, tracking, process-monitoring, usage counting, remote monitoring, activity monitoring, etc.

This data can be used to enrich your systems with accurate and close- to real-time field data.

Make sure to comply to local regulations regarding GDPR

	IN ALARM MODE	NON RESPONSIVE	ONLINE	INACTIVE
	0	33 / 229	196 / 229	1

Name	Type	Brand	Time	Status	Battery	Latitude	Longitude	Heading (°)	Speed (km/h)	In trip	T°	Tilt X	Tilt Y	Tilt Z
Bouwvervoer 367	losse kop	Bok	29-01-2020 19:38:58	In use	3.456V	51°58'34.22"	5°5'30.46"E		0		8°C	6°	-1.5°	5.2°
Bouwvervoer 369	losse kop	Bok	29-01-2020 11:32:38	In use	3.442V	51°58'31.27"	5°5'27.38"E		0		9°C	-1.5°	1.5°	0°
Bouwvervoer 373	losse kop	Bok	29-01-2020 20:06:10	In use	3.456V	51°32'29.36"	6°4'34.16"E		0		6°C	-1.5°	3°	0.6°
375	losse kop	Bok	29-01-2020 21:20:53	In use	3.442V	52°23'13.24"	6°17'21.31"E		0		6.5°C	0°	0°	0°
		Bok	29-01-2020 20:05:10	In use	3.442V	52°13'53.57"	5°11'26.34"E		0		8.5°C	0°	0°	0°
				In use	3.456V	51°36'42.99"	4°31'43.69"E		0		10°C	-1.5°	0°	0.6°
						51°58'28.29"	5°5'11.39"E		0		8°C	0°	3°	0°

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Miggy Data Services:

- Current location
- History locations
- Actual sensor data
- History sensor data
- Usage statistics

Alerts & alarms:

- Movement detection
- Geofences
- Over/ under values
- Custom alerts & alarms

Profiles:

- Tracker
- Alarm
- Temperature sensor
- Vehicle usage counter
- Vibration monitoring

Battery lifetime
1 to 2 years, depending on configuration, settings & usage.

LoRa data usage
Uplinks are limited to 1 per 15min. Therefore, the default connectivity plan (100up / 10 down) is never exceeded.

Configuration
The device can be configured over Bluetooth or by downlink messages over LoRa.

Warranty
Miggy offers 1-year limited warranty.

Sensordata:
The 7 build-in sensors of the MS-02 allows you to collect a variety of data item or location where it's installed on. Depending on settings or profile, the data is collected and send over LoRa on set intervals or in the event of a pre-configured trigger.

Profiles:
To fit your needs, the MS-02 can be activated with one of the pre-configured profiles. This allows for a very straightforward and fast setup not seen before on a LoRa device! You can switch profiles to re-purpose your MS-02 to fit changes in application.

If you require a specific configuration, Miggy can build a dedicated profile for you.

Location services:
The KPN LoRa network calculates the position of the device by triangulation of the received signal. Within our portal we visualize this data to show current and past locations and movement history.

With the Bluetooth beacon enabled you can pinpoint each item's location up to the last meter (using an APP on your smartphone). The beacon also allows for accurate- indoor location services. (additional infrastructure required)

Mechanical:
The versatile and water-resistant casing ensures a solid mounting in all situations.
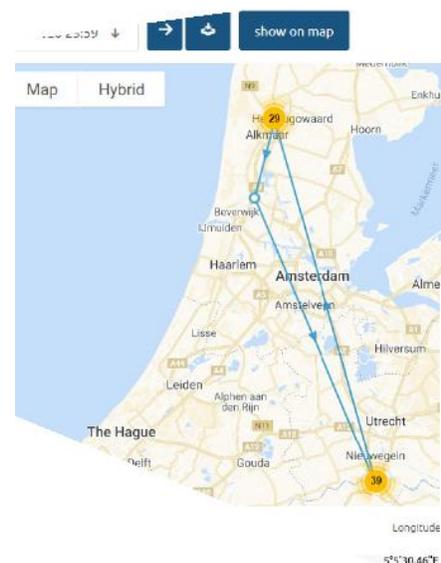
Thanks to the internal sensors & antenna's there are no additional external parts needed.

The QR-code on the label can be used to easily activate the device and add to your administration.

Portal:
All data is sent to our highly secure portal where it is available in your account for further analysis or event-triggering such as setting alarms or notifications. (item moving, setting geofence, exceeding thresholds, etc.)

The portal is available as multi-tendent & white-labelled solution, allowing you to offer a portal for your customers in a few clicks!

Visit us on:
www.miggy.nl

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Specifications

Accessories:
- Charging cradle
- Activation magnet
- Mounting magnets
- VHB tape

Expansions*:
- GPS module
- Analogue I/O
- Digital I/O

* project based

Product description	LoRaWAN smart mini multi-sensor Node
Main sensors	accelerometer, inclinometer, magnetometer, 2x thermometer, humidity sensor, barometer, hall-effect sensor.
Signalling	RGB LED indication, Piezo buzzer
Connectivity	LoraWAN, class A /EU868, US915 ISM, ADR/, BLE 4.2
Location based services	Lora triangulation, BLE beacon
Battery	LiPo 1300mAh/ rechargeable (charger sold separately)
Battery lifetime	up to 2 years*
Operating voltage	3,6 – 5.2 DC (3,7V nominal, 5V charging)
Antenna	Internal PCB trace antenna, tuned for 868 & 915Mhz

3-Axis accelerometer-min. sensitivity	0,122 mg/digit
3-Axis accelerometer-max. range	16G
3-axis Gyroscope- sensitivity	17.50 mdps (@ +/-500 dps)
Magnetometer sensitivity	0,29 mgauss (+/-8 gauss)
Temperature sensor 1	-40 -85°C (+/- 3%)
Temperature sensor 2	-40 -85°C (+/- 3%)
Barometer	300-1100 hPa (+/- 0,25%)
Relative humidity	20 - 90% (+/- 3%)
Digital light sensor- min. sensitivity	0.01 lux

Dimensions (L x W x H)	74 x 28 x 23mm
Weight	58 grams
Enclosure	ABS plastic (UV resistant) black
Protection rating	IP67
Mounting	Cable ties, VHB tape, magnets, adhesive, base plate.
Operating temperature	-20 to 40°C
Accessories	Mounting plate / Charge cradle

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