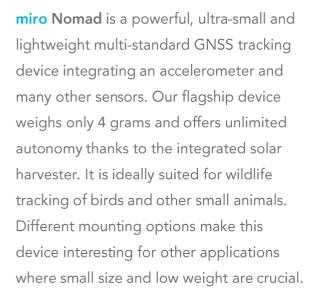
## miro Nomad L4

ULTRA LIGHTWEIGHT LORAWAN® GPS
TRACKER WITH SOLAR ENERGY HARVESTER

Ultra-small and light-weight solar-powered LoRaWAN® GPS tracker for wildlife- and asset tracking applications



The device is powered by a solar-based energy harvester which performs well across all levels of light conditions. A backup battery secures uninterrupted operation during night and periods of poor weather conditions.



#### **KEY BENEFITS**

- LoRaWAN<sup>®</sup> class A compliant device
- Supports EU868, US915, AU915, AS923
- Low power GNSS module with integrated antenna
- Ultra-small and lightweight (4 grams)
- Stores 100'000 locations and transmits them when in range of a network
- Solar harvester for autarkic operation
- Lacuna-enabled device supports international satellite communication

#### **APPLICATIONS**

- Wildlife tracking
- Pet and livestock tracking
- Logistics and fleet management



## Document Information

#### **ABOUT**

File name	miro Nomad datasheet		
Document type	Datasheet		
Revision	1.0.5		

#### **REVISION HISTORY**

Date	Release	Changes
2021/05/17	1.0	Initial Release

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## Functional Description

miro Nomad is a universal LoRaWAN® class A compliant GPS tracking device. Its small size and ultra-low weight make it ideal for wildlife and livestock tracking and monitoring applications. All LoRaWAN® bands are supported which allows international use, be it in the Amazon the Alps or the Himalaya.

The built-in accelerometer and gyroscope allow to detect movement and trigger the acquisition of a GPS fixes when in motion, resulting in lower current consumption and extended battery lifetime. Additionally, it can also obtain fixes on regular intervals. The device can be configured with profiles for various applications even after deployment in the field using, thanks to LoRaWAN® downlink messages. With its additional sensing capabilities, such as temperature, barometric pressure, it is suitable for a large variety of use cases.

**miro Nomad** is compatible with all network providers and can detect when there is no network coverage. If no LoRaWAN® network is available, the tracker will store up to 100.000 locations in the internal flash memory and send it to the gateway along with original timestamp information once it gets back in reach of a LoRaWAN® network.

The tracker can be set up and configured to suit your application's needs using an USB to serial cable or using LoRaWAN® down-links, thanks to an extensive set of AT-commands

## Technical Specifications

#### **MECHANICAL SPECIFICATIONS**

Weight	12 g / 4g with optimized housing & battery
Dimensions	28 x 21 x 18 mm
Enclosure	Plastic, ABS

#### **OPERATING CONDITIONS**

Temperature	-20 – 80 °C		
Humidity	0 – 95% RH, non-condensing		

#### **DEVICE POWER SUPPLY**

Battery type	Solar cell-based energy harvester and LiPo battery				
Expected battery lifetime	10+ years depending on device configuration				

#### **RADIO / WIRELESS**

Wireless technology	LoRaWAN® 1.0.3		
LoRaWAN® Device type	Class A		
Supported LoRaWAN® features	OTAA, ADR, Adaptive Channel Setup		
Link budget	137 dB (SF7) to 151 dB (SF12)		
RF transmission power	14 dBm / 20 dBm (depending on region)		
LoRaWAN® bands	EU868, US915, AU915, AS923		



## Sensor Specifications

#### **GPS**

Receiver	u-blox ZOE-M8
Sensitivity	-167 dBm @ Tracking, -160 dBm @ Acquisition
GNSS	GPS/GLONASS/BeiDou/Balileo L1 band
Horizontal Position Accuracy	2.5m CEP
Internal storage	Up to 100'000 GPS locations

#### **ACCELEROMETER**

Range	±2, ±4, ±8, ±16		
Resolution	12 bit, 4 mG		
Accuracy (typ.)	±40 mG		

#### **AMBIENT PRESSURE**

Range	300 – 1100 hPa
Resolution	0.01 hPa
Accuracy (typ.)	±1 hPa



# Additional Resources

#### **ADDITIONAL RESOURCES**

Product Information Page	Product Website		
Developer Resources	docs.miromico.ch		
Technical Documentation	Datasheet		

### Device Options

PRODUCT ID	LoRaWAN® REGION				Ν	OPTIONS
	EU868	US915	AS923	AU915	IN865	∑ E O
TRACK-NOMAD-LW/□						

### Keep in touch

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We reserve the right to make technical changes, which serve to improve the product, without prior notification.

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