



nPod sensor

netBin's rugged variable angle
dual ultrasonic fill level sensor

Datasheet v1.52



nPod features

Dual Ultrasonic sensing

nPod determines container fill levels using its superior dual ultrasonic sensors. This provides improved accuracy and refined granularity for a huge range of materials and surface topographies. Also dual ultrasonic sensing allows the nPod to measure accurately right up to the sensors.

Variable angle sensors

Maximising flexibility the nPod can be mounted on the side wall of many containers ensuring the device avoids rubbish flow and is fixed to the most durable parts of the bin.

Not only does the variable dual ultrasonic design (patent applied) increase the performance of the device but removes the necessity to fit obstructing mounting plates.

The installation of nPod is straightforward, two 6mm high security button head bolts secure the unit to the container. The sensor barrel rotates through 135°, once in the optimum position two hidden grub screws lock off the barrel in position.

Intelligent Processing & Remote Configurability

Variable power ultrasonic sensors and multiple echo return analysis enables the nPod to perform accurately in both small bins and large bins.

The nPod and HUB work together using sophisticated algorithms to determine the most representative fill level to report, considering type and size of bin. An orientation sensor detects when bins are emptied.

Bluetooth Connectivity

Unique to the nPod is its ability to optionally connect via Bluetooth with nearby netBin apps and allows the future opportunity to work with 3rd party Bluetooth sensors.

nPods can detect the duration of collectors visits and do much more with our INSPECTOR, SETUP, nLok and nTag solutions.

Rugged ABS Polycarbonate

Bin environment are invariably hostile to electronic devices so we have custom designed the nPod to be very tough, durable and waterproof.

A specially selected blend of ABS polycarbonate gives the nPod impressive resistance against impacts, UV damage, fire and operates through a wide temperature range (-30°C to +80°C).

Using 6mm tamper proof security bolts ensures a strong fixing that can only be removed with the correct installation tools.

Reliable & Secure Communications

Data security is important, our very experienced communication engineers have developed a very power efficient, reliable and secure method of sending the encrypted netBin data to the HUB in the cloud.

The nPod utilises GPRS/3G communications but also has the ability to support many new up and coming IoT networks, the nPod will support NB-IoT and LTE Cat M1 from 2018.

Temperature and GPS Position Sensing

A sensor allows the bin temperature to be reported with wake up alerts in the event of extreme temperatures such as a fire. The GPS positioning option allow the bin's location to be reported, useful for relocating bins, missing bins and to detect theft.

Power Saving

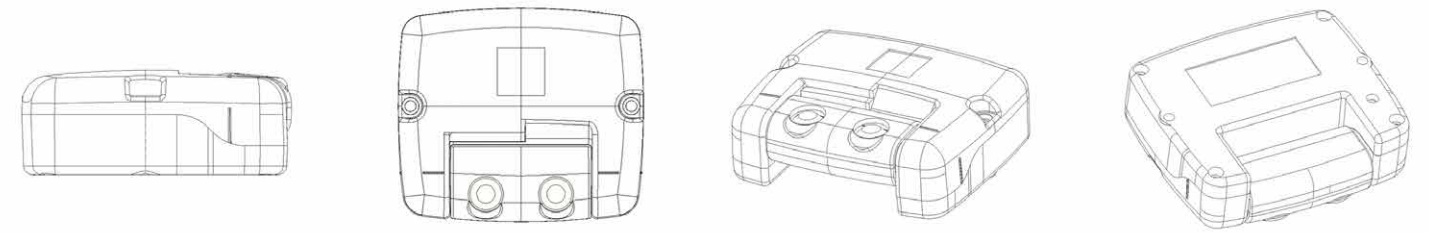
The nPod is designed to conserve power every step of the way. It's at the heart of every feature of the design, components are only powered up when required. Configurable intelligent modes of operation such as only send on change reduce power use still further.

"nPod is the most reliable and future proof sensor on the market"

Franklin Zee, Director, Greenovo

netBin nPod technical specifications

General	netBin nPod, a wireless, battery-powered, ultrasonic container-level monitoring sensor providing data over a wireless network to the Bin Management System
Fill measurement sensor	Dual high sensitivity 40KHz ultrasonic sensor (patent applied)
Variable angle sensor housing	135° range lockable by 2 discrete grub screws (patent applied)
Depth range	5cm - 4.0m (up to 5m with long range sensor)
Resolution	2cm
Temperature sensor	Reports container temperature, can be used to indicate temperature extremes, eg a fire
Tilt sensor	Detects container empty event, when mechanically lifted.
Enclosure	Ingress Protection Rating IP67
Material	ABS Polycarbonate
Fixing	2 x M6 security bolts
Dimensions	140 x 122 x 46 mm excluding fixing mounts
Weight	Approx 440g
Operating temperature range	-30°C to +80°C
Battery type	Lithium Thionyl Chloride
Battery life	10+ years
Communications options	GPRS(2G), 3G, NB-IoT, LTE Cat M1, LoRa (2021 Q3)
Antenna	Internal for GPRS/3G/LTE and GPS
Approvals and compliance	CE, FCC, RoHS2, REACH, WEEE, European Radio Equipment Directive (RED) 2014/53/EU
Data logging	To the netBin HUB Cloud based server
Security	Encrypted data is used between the nPod and the netBin Management System application. Only a registered nPod can access the system.
Options	<ul style="list-style-type: none"> • GPS for automatic location • BLE for 3rd party sensors & netBin apps • External GPRS/3G/NB1/M1 antenna • Protective cage for extra harsh environments • nLok for access control



All trademarks and registered trademarks are acknowledged. Changes are periodically made to the information herein; these changes will be incorporated into new editions of the publication. FarSite Communications may make improvements and/or changes in the products and/or programs described in this publication at any time.



+44 (0)1256 330461

iot@farsite.com

www.iot.farsite.com

