

# nBox – The IoT recording & edge computing device

This standalone IoT recording & computing device can be installed to enable audio monitoring of any asset. Discover the abundant edge computing power that will give you the possibility to run complex machine learning models without a need to transfer data to a cloud storage.

## Key features

- Up to 12 channels of simultaneous recording with various microphones and acoustic sensors
- Intelligent recording software supporting multiple audio file types (WAV, OGG, FLAC) and recording modes, up-to 192 kHz AD
- On-device data processing/computing
- LAN / Wifi / LTE connectivity for data transfers
- Supporting microSD cards and external hard drives
- LED circle status signalization
- Easy installation next to a machine or into a DIN ledge



## Technical specification

Dimensions, Weight, Material:	130x130x40 mm (WxLxH), 1 000g, ALU case
CPU, GPU, RAM, Storage:	Chip RK3399, 6xARM Cortex, 1.2GHz, ARM Mali-T860MP4 GPU, 2 GB RAM, 32 GB eMMC
Connectivity:	Wi-Fi , 3G/4G, Ethernet
Power supply, consumption:	12-18V DC with 2.5A load, min. 660mA DC
Sound recording:	Up to 12-channel recording, digitally controlled gain 0 - 60dB
Operating temperatures:	Min -10°C, max +60°C
Outputs:	1x ETH, 1x RS232, 1 x USB
Microphones/sensors:	Piezo / Airborne / Condenser / Ultrasonic / MEMs accelerometers

## nCard – The mobile recording gadget

A custom-designed shielded sound card that connects to a mobile phone and allows to make high-resolution audio recordings anytime, anywhere. Recording of broken machines has never been easier.

### Key features

- Pocket-sized and lightweight Analog-To-Digital Converter (ADC) with 2-channel recording capability (2 microphones/piezo sensors)
- The nCard Mobile App (Android) allows to record and tag audio files, upload them to Neuron soundware's cloud storage and receive a result from a pre-trained algorithm running in the cloud.
- Headphones output jack 3.5 mm for easy listening



### Technical specification

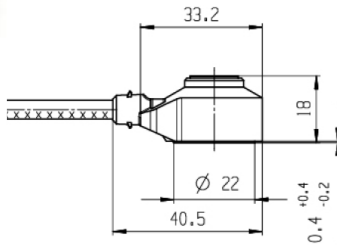
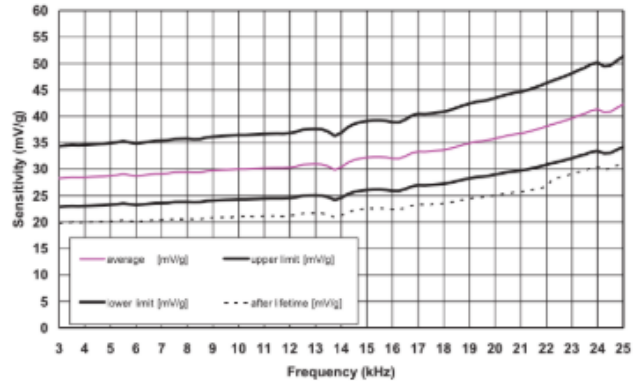
nCard gadget		nCard mobile app	
Audio quality:	20 Hz - 22 kHz	OS:	Android
Dimensions:	57x86x26 mm (WxLxH)	Recording:	FLAC audio files, (supports any external USB microphone)
Weight, Material:	98 gram, ALU case	Uploading:	Via mobile networks (WiFi / LTE), offline recording supported
Sensors input:	2x mini XLR connector	Data labelling:	Custom-defined labels and project folders
Connection:	USB 2.0 port	Analysis:	Display of algorithm results from a server to the mobile phone

# Structure-borne sound sensor

Due to the inertia of the seismic mass, the sensor moves in correlation to the engine block vibration; this motion results in a compressive force which is converted into a voltage signal via a piezoceramic sensor element.

## Key features

- Reliable detection of sound to protect machines, motors and other mechanical devices
- Piezo-ceramic element with high measurement sensitivity
- Compact design with high temperature durability from -40°C up to 150°C (short term 180°C)
- Connecting cables to the edge device up-to 100m (in-built amplifier)
- Removable and simple mounting via glued bolt or neodymium magnets



## Technical specification

Structure-born sensors	
Audio quality:	7 Hz – 30+ kHz
Dimensions:	33.2x22x18 mm (WxLxH)
Weight:	82 gram
Temperature:	-40°C up-to 150°C (short term 180°C)
Max. vibration:	4.000 m/s <sup>2</sup>