Discover the
RANOS dB 2

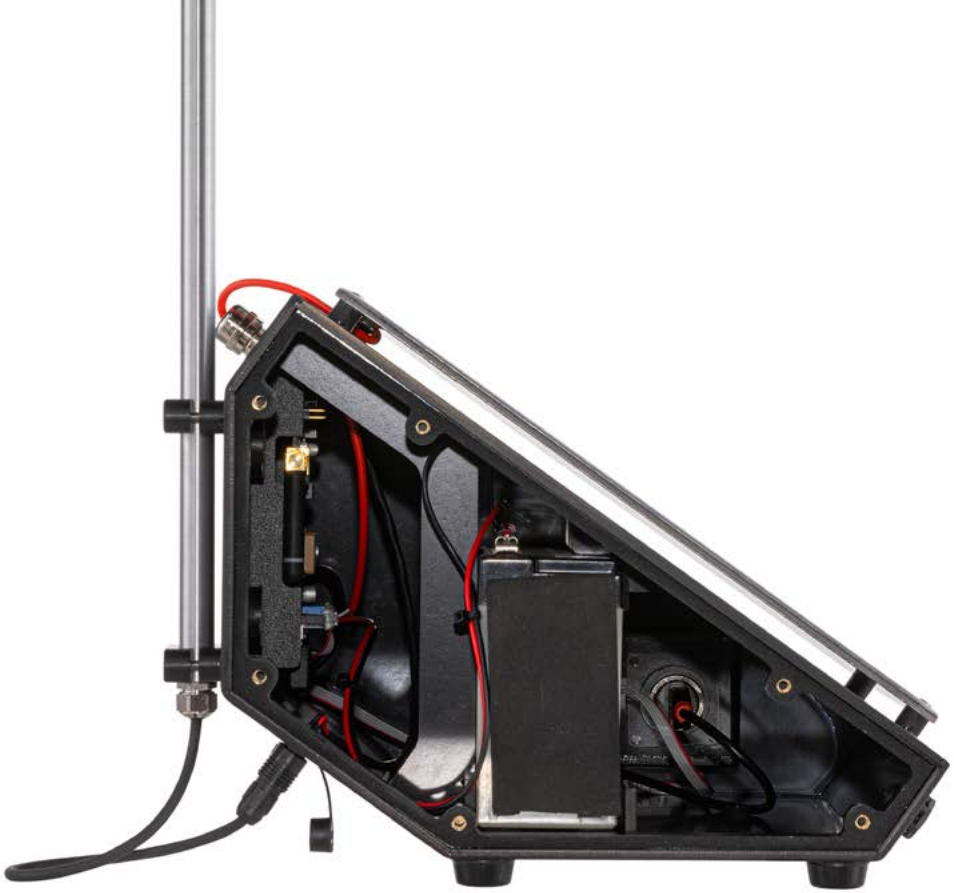
LoRaWAN outdoor
sound monitoring

Dutch Sensor Systems

20210803

Measure Class 2 noise all **over the world** with the Ranos dB 2

We supply the Ranos dB in a Class 1 and a Class 2 version. The dB 2 is powered by a solar panel, works fully autonomously and has LoRa connectivity. That is why you can use this state-of-the-art device anywhere in the world. The housing is made of recyclable HIPS material and completely waterproof.



- Sound level meter
- Best price/accuracy
- 24/7 sound level monitoring
- on the market
- Class 2 (IEC 61672)
- CE mark
- Zero emission
- 100% wireless (solar, 365 days a year)
- Detachable microphone
- Live data dashboard GPS
- Android Control App
- LoRaWAN™ (EU868, US915, AS923)
- Outdoor (IP67)
- Configurable by LoRa downlink

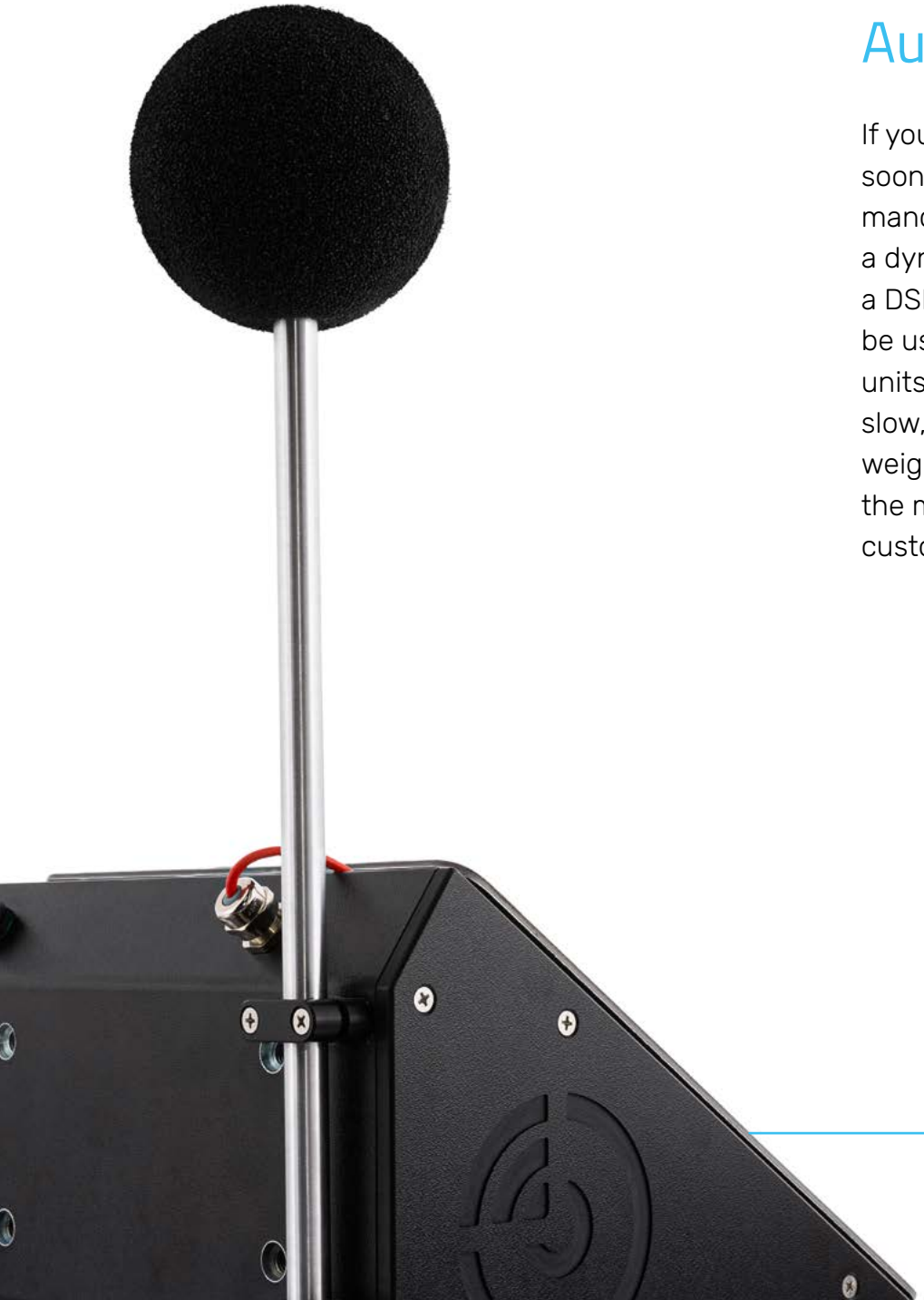
The characteristics of the Ranos dB 2

- Equipped with a solar panel, has LoRa connectivity and works 100% autonomously.
- Lightweight housing with a dry interior.
- Has GPS on board and works according to the Android app.
- Easy to operate from any cloud platform.
- Data visualization via DSS data platform that seamlessly integrates with the Ranos dB 2.
- Ranos dB 2 that meets the Class 2 requirements of the IEC standard.
- Dynamic range of 33 - 121 dB and a DSP sample rate of 48 kHz.
- Detachable microphone that can be mounted at any desired location.

LoRaWAN

Google Play

CE



Audio performance

If you use the Ranos dB 2, you will soon notice that the audio performances are very high. The dB 2 has a dynamic range of 33 - 121 dB and a DSP sample rate of 48 kHz. It can be used for measuring the following units: LAeq, LCeq, dB (A) fast, dB (A) slow, dB (C) fast, dB (C) slow. The time weighting is fast, slow and Leq. Plus, the measurements interval can be customized via the app or the cloud.

Electret condenser microphone

The microphone is detachable and can be mounted at any desired location. Optionally, a 1.5 meter, 3.0 meter and 5.0 meter microphone extension cable is available. The microphone type is an "electret condenser microphone" and the directivity is omni-directional.

IEC 61672 standard

The Ranos dB 2 meets the Class 2 requirements of the IEC standard. While less accurate than Class 1, the Class device 2 can be used in various situations.

Sustainable housing

Highly rigid and using plastic HIPS, the housing is lightweight and quite suitable for years of intensive use. HIPS (High Impact PolyStyrene) has a fire retardant effect. This is an absolute requirement because a lead battery is used as a backup.

Water-resistant

We also made sure the interior is water-resistant, with venting holes in the housing exterior. While gas and moisture can escape through the valves, no moisture can enter. This way, the PCB will consistently operate in an optimally dry environment. Should any of the components or glands allow moisture to pass through over time, the bottom plate valve ensures any moisture is drained off.

- The microphone can be easily detached. The recess has a power button and a USB port to connect the smartphone (an app).
- The dB 2 can be attached to a pole or lamppost. We also supply a wall mount and a pole clamp. The dB 2 can be placed anywhere (table top).
- The housing has a lid on one side. Please refer to the user manual to remove the cover. In the interior, you can find the PCB, cables and the lead battery.
- Outdoor (IP67)

Solar-powered

The Ranos dB 2 has a highly efficient use of energy and the size of the solar panel adapts to its consumption. Sometimes, the measuring process uses more energy than the solar panel generates. For instance, when days are short and sunlight is scarce. Should this happen, energy consumption can be reduced by changing the settings via a downlink or via the app. One option is to lower the frequency of measurement messages sent using the LoRa network.

Lead battery

Whenever no solar power is available, the Ranos dB 2 uses a lead battery. We use a lead battery because this type of battery also performs well at lower temperatures. In addition, this type is readily available and affordable in most countries.

LoRa network

The Ranos dB 2 communicates via LoRa. We can deliver to all LoRa (frequency) regions in the world. The device is suitable for LoRaWAN Class C networks, allowing the cloud server to send direct and undelayed messages to the Ranos dB 2. This enables continuous adjustability of measurement settings, characteristics and network configurations.

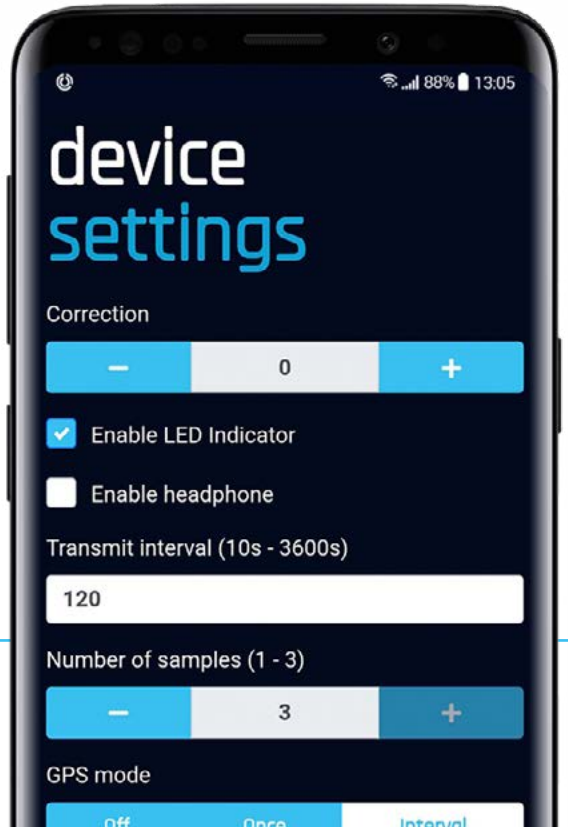
Uplink and Downlink

As the Ranos dB 2 can both send uplinks and receive downlinks, it is quite easy to operate from any cloud platform. Do you wish to set how often you receive certain measurements? No problem! You can also switch the GPS on and off. Refer to the DSS Connect App manual to find out exactly how this works and which settings are available.

DSS Connect App

You can connect the Ranos dB 2 to your Android smartphone or tablet using the included USB cable. The Android app will open automatically. In the app, you can create an account and register the Ranos dB. The app recognizes the dB 2 by its unique serial number. You can then enter the LoRa keys and send them to the device. The app itself checks whether the Ranos dB 2 has the most recent firmware version installed and uploads and installs the firmware after you have given permission.

Under Support you will find the user manual of the DSS Connect App with a full description of the possibilities and options. The app can be downloaded from Google Play.



Payload description

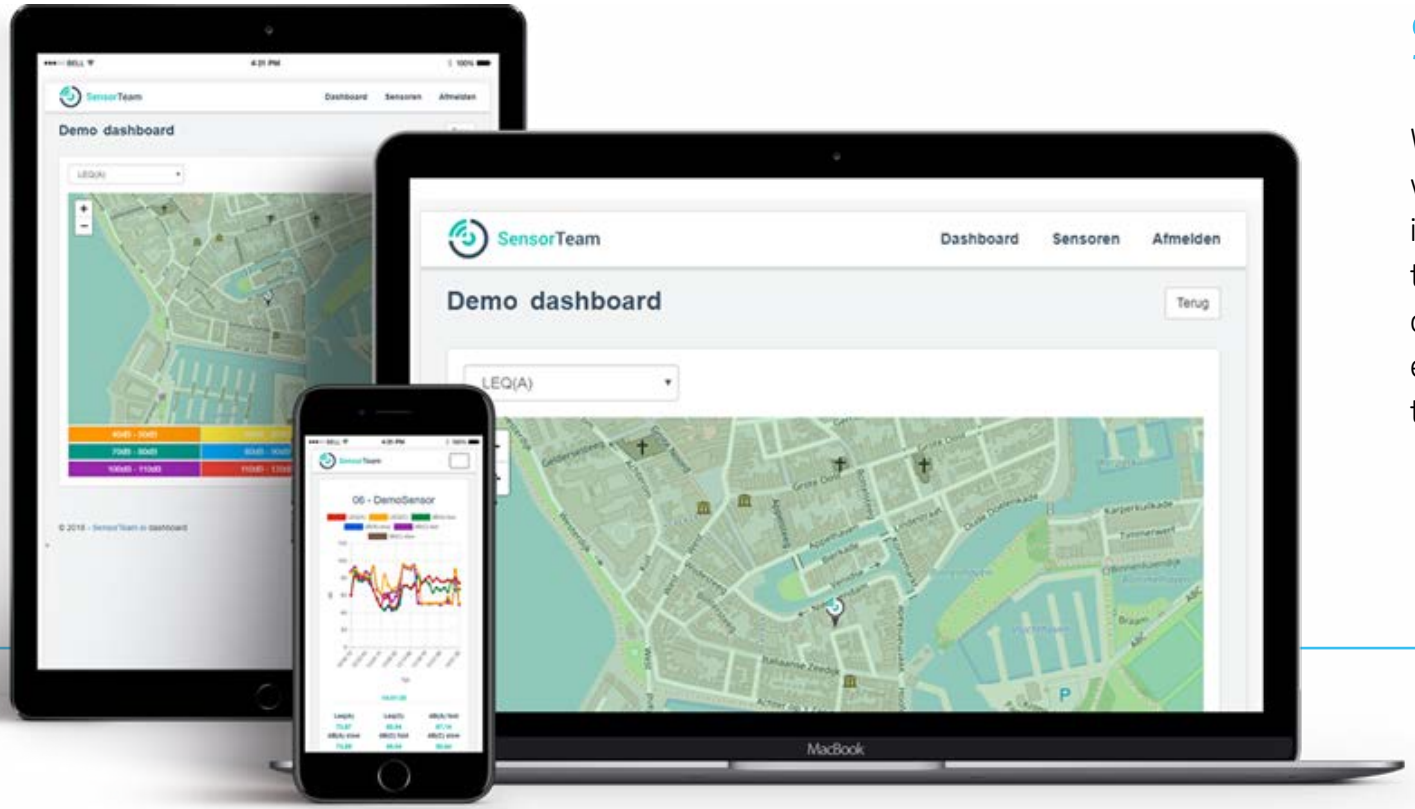
We deliver a complete package including all information on integrating the Ranos dB 2 with your dashboard environment. The package consists of a parser for code testing and a sample code in Javascript.

Data visualization

DSS has its own data platform that integrates seamlessly with the Ranos dB 2. This is available for three months starting from the date of purchase. In addition, we offer an integration with Datacake and we can assist you in displaying the data in any desired IoT platform.

Support

We are here to help you! The quickest way to get you up and running again is contacting us online or checking the Support page on the website. The device's modular structure allows for easy replacement, which is part of the service we provide.



Key features				
Certified Class 2 according to IEC 61672	LoRaWAN™ compliant	ublox GPS	Solar powered	CE mark
EU868, US915, AS923	Detachable microphone	Time sync	Outdoor (IP67)	DSS Connect App

Adds	
Mounting option 1	Pole clamp
Mounting option 2	Wall bracket
Mounting option 3	Table top
Mic cable extender 1	1,50 m
Mic cable extender 2	3,00
Mic cable extender 3	5,00 m
Mic extender	Mic. extender
Power 1	Solar
Power 2	USB
Power 3	Power and communication cable (included) USB C male to USB B male

Radio	
Network	LoRaWAN™ compliant
Frequency band	EU868, US915, AS923
Class	Class B
RF Module	Microchip RN2483
Antenna	Integrated
LoRa keys	DSS Connect App
Attribute	
GPS	u-blox M8 GNSS
Geolocation	Lat, lon
Software licence	Full

Audio	
Frequency range	20 Hz - 20 kHz
Frequency weighting	A and C weighting
Time weighting	Fast, slow, Leq
Dynamic range	33 - 121 dB
Measurements units	LAeq, LCeq, dB(A)fast, dB(A) slow, dB(C)fast, dB(C)slow
Measurements interval	Adjustable
DSP sample rate	48 kHz
IEC 61672	Certified Class 2 according to IEC 61672
Class	Class 2
Microphone type	Electret condenser microphone
Microphone directivity	Electret condenser microphone
Microphone directivity	Omnidirectional
Microphone fixation	Detachable
Calibration frequency response	Calibrated frequency response / Finite Impulse Response (FIR)

Power	
Outdoor	Solar
Indoor	5V DC USB-B
Effective rated power	170 mW
Battery type	Sealed Lead Acid
Charge regulator	Yes

Dimensions	
Case material	HIPS UL94-V0
IP Rating	IP67
Weight	4350 gram
Depth	252 mm
Width	246 mm
Height	193 mm
Volume	6,8 dm^3
Surface	0.23 m^2
Operation temperature	-10 ~ +60
Operation humidity	0 ~ 95%RH, Non-condensing

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DSS
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