

QUICK START GUIDE

RANOS ONE

Install, power, configure, and start measuring your environmental noise in six steps.

SIX STEPS TO YOUR FIRST MEASUREMENT

A typical installation takes 30-60 minutes. Follow the steps below; each links to the section with full detail.

1

UNBOX

Check the delivery

2

CONFIGURE

Register in Connect

3

MOUNT

Unit & microphone

4

POWER

Connect Solar Panel

5

SWITCH ON

Check the LED indicator

6

VERIFY

Complete the Checklist

INTRODUCTION

This guide provides the essential steps to install, power, configure and start measuring with the RANOS ONE. It is a condensed installation guide intended for installers and end users alike.

For detailed technical specifications, calibration procedures and compliance information, refer to the full RANOS ONE Instruction Manual on our website.

KEEP THIS HANDY

Keep this guide with the unit throughout installation. The RANOS ONE runs entirely on solar power, so plan the mounting position for good year-round sun.

1 DELIVERY OVERVIEW

1.1 WHAT YOU RECEIVED

STANDARD DELIVERY

- RANOS ONE (incl. battery)
- Detachable 1/4" MEMS microphone
- Windscreen (90 mm, bird spike)
- Standard Solar panel 9WP on mounting plate

INCLUDED ACCESSORIES

- 1x Ranhos Mounting Kit.
- Microphone extension kit:
 - 1x Microphone clip
 - 2x Extension bracket
 - 1x coupler plate
 - 6x M5 Nut
 - 4x Cable tie
- 1x USB A-C Cable
- 1x USB C-C Cable
- External LoRa Antennas

OPTIONAL ACCESORIES

- MIC Extension cable (2.5/5M)
- External Power Supply

2 CONFIGURE

2.1 INITIAL POWER-UP - STEP ONE

Power-up sequence

- 1 Connect the microphone (align the red dots, press until it clicks)
- 2 Connecting the microphone will power on the unit
- 3 The LED indicator solid green for a few seconds, the unit is on. (If the unit doesn't power up, charge the battery first)
- 4 Check status via the LED indicator (right), or over USB in the Connect App.

LED indicator (next to MIC connector)

- **Continuously on for approx. 750 ms**
Successfully connected to the LoRa network
- **1 pulse of approx. 500 ms**
Message sent successfully
- **1 short pulse of approx. 100 ms, every 2 seconds**
External power present and device is in idle mode
- **2 pulses of approx. 300 ms**
LoRa config or keys missing; device cannot connect
- **Fast blink pattern of approx. 200 ms**
Connecting to the LoRa network failed
- **2 fast pulses of approx. 200 ms**
Transmission failed or modem is busy; device will retry connecting or resend later
- **No light**
Normal idle mode, LED disabled in configuration, or no active status notification

2.2 DEVICE REGISTRATION & CONFIGURATION

2.2.1 USB configuration with the CONNECT app

- 1 In Chrome, Edge or Opera, open **app.dutchsensorsystems.com** and log in or create an account.
- 2 Connect the RANOS ONE with the supplied USB cable and switch it on.

CONNECT APP:

Please make sure you are logged with the correct user credentials, the device will be registered to this user account

- 3 Click **Connect** and select the RANOS ONE in the browser popup (WebUSB, no install needed).
- 4 Give the device a name to register it to your account; it then appears in the Connect Dashboard.
- 5 Configure the LoRa settings (see 7.2), save, then power off and refit the USB connector cover.

2.2.2 LORA network setup

Select the pre configured lora keys and register with your network provider, or enter custom keys from your provider.

NATIVELY SUPPORTED NETWORKS:

At the moment we support the following networks:

- KPN
- Orange
- TTN
- Lorient
- Helium
- Chirpstack
- Netmore

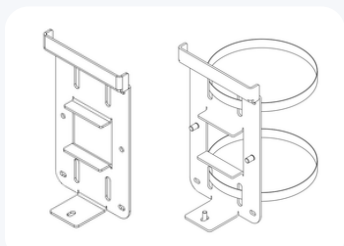
3 MOUNTING OPTIONS

Choose the configuration that suits your site and application. The matrix below summarises the options; step-by-step procedures follow.

CONFIGURATION	BEST FOR	REQUIRED ACCESSORIES	MICROPHONE
Pole mount	Permanent street / site monitoring	Mounting Plate 2x Worm Drive Clamp	MIC Extension Arm
Wall mount	Facades where no pole exists	Mounting Plate Appropriate screws. and/or wall plugs	MIC Extension Arm

3. Pole mount installation - follow the six steps

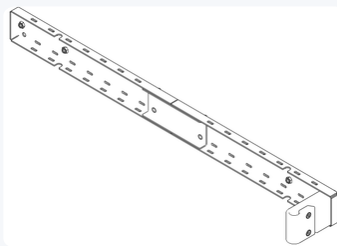
1 INSTALL THE MOUNTING BRACKET



Attach the Mounting Bracket to a pole or surface using appropriate fixings.

Pole Ø 40–120 mm Height ≥ 3 m,
tip: To protect the pole, use rubber mat

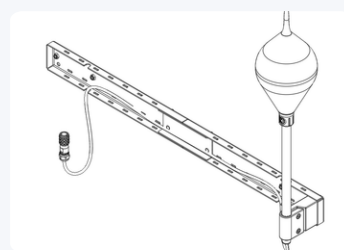
2 ASSEMBLE & INSTALL THE MIC EXTENSION ARM



Join the two extension brackets with the coupler plate, using the M5 nuts.

Attach the Arm to the Mounting Bracket using two M5 nuts

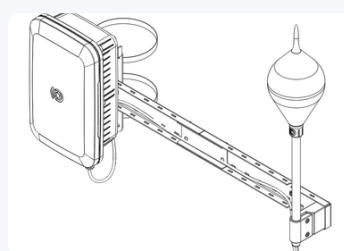
3 FIT THE MICROPHONE



Slide the MIC up through the clamp from below, tighten the clamp, fit the windscreen, then secure the cable to the bracket with cable ties.

≥ 2 m (preferably > 3 m) from reflective surfaces

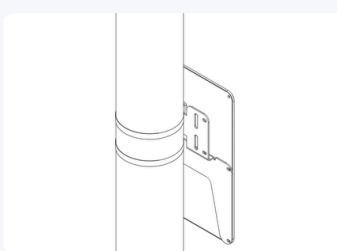
4 MOUNT MAIN UNIT



Hook the RANOS ONE to the Mounting Plate and fixate with the lock screw in the bottom.

Lock the RANOS ONE to the Mounting Plate with the bottom lock screw

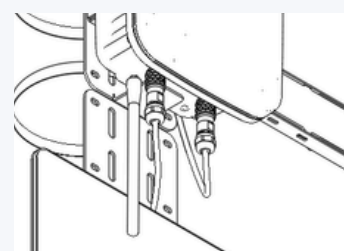
5 FIT THE SOLAR PANEL



Mount the solar panel below the unit, facing the correct direction.

Rotate the mounting bracket of the panel for more mounting options

6 CONNECT & FINISH



Connect the microphone, solar panel and external antenna (if used). The RANOS ONE is ready for use.

Verify mechanical stability!
Allow no play or vibration.

CHECK:

Mounting height at least 3 meters

If wall mounted, apply the correct wall correction in the dashboard

4 POWER

4.1 DESK CHARGING

To top up the battery indoors or before deployment, connect a USB-C PD charger (20V, 1A minimum) to the unit's USB-C port. This charges the battery directly, useful for bench setup, configuration, or storing a fully-charged unit. It is for temporary top-ups only; in the field the unit runs on solar or a power supply connected to the DC-input.

4.2 SOLAR POWER & CHARGING

The included solar panel charges the battery automatically whenever it sees sunlight, including while the unit is switched off, and is protected against overcharging and short circuit. No external power source is required.

- **Orientation:** the panel is fixed at 90°; aim it south (northern hemisphere) for maximum exposure.
- **Solar exposure:** keep the panel clear of shade from buildings, trees and the pole itself across the day.

SITE CHECK:

The RANOS ONE is designed to run on solar power with no external power connection. Before mounting, make sure the site receives enough sun year-round, especially at far-northern or far-southern latitudes. Scan the QR code for a site check calculator. Or find the link in our FAQ



WHY IS THE SOLAR PANEL MOUNTED VERTICALLY (90°)?:

Although the optimum tilt for maximum annual energy production depends on latitude, winter performance is generally improved by steeper panel angles. A 90° mounting angle prioritizes reliable year-round operation, particularly in snowy regions and at higher latitudes, while still providing ample summer energy.

4.3 BATTERY & AUTONOMY

The RANOS ONE uses a 6V 12Ah AGM VLRA battery, (e.g. Yuasa NP12-6). From a full charge it runs for at least two weeks of continuous operation without any solar charging, to bridge spells of bad weather.

- **Replacement:** in critical applications replace the battery yearly; otherwise every 2 years is sufficient.
- **Auto shutdown:** if the battery runs too low the unit shuts down automatically to protect the battery and restarts once it has recharged.
- **Storage:** charge to at least 6.2 V before storage and check the voltage monthly.

4.4 FIXED POWER SOURCE

For permanent mains-powered installations, use the DSS external PSU (optional), which connects to the unit's dedicated power input and keeps the battery charged continuously.

DO NOT USE USB FOR FIXED POWER

The USB-C port is for desk charging and configuration only. For a permanent power source, always use the DSS external PSU, never the USB port.

5 SWITCH ON

The RANOS ONE switches on automatically when the microphone is connected.

5.1 GPS

(BASIC OVERVIEW)

- The unit synchronises its clock automatically once it has a GPS fix.
- GPS is required where precise timestamps or multi-device synchronisation are needed.
- After the first fix, the time is set within a few minutes and maintained thereafter.
- Multiple units across a site stay aligned for comparable, time-matched measurements.

5.2 CALIBRATION

BASIC OVERVIEW

- **When:** as a periodic field check, following your compliance schedule.
- **Required:** a $\frac{1}{4}$ " sound calibrator to IEC 60942, 94 dB @ 1 kHz (e.g. Cirrus CR:514 / CR:515).
- **Routine:** in the Connect App "Ranos live" tab, insert the mic into the coupler at 94 dB / 1 kHz; when "Calibrator detected" appears, click "Start automatic calibration" and keep still.
- **Detail:** the full calibration procedure is in the Instruction Manual.

6 VERIFICATION CHECKLIST - BEFORE LEAVING SITE

- | | |
|--|--|
| ☐ Device securely mounted | ☐ Microphone correctly oriented |
| ☐ Windscreen installed & locked | ☐ Solar panel unobstructed & facing south |
| ☐ Battery charged | ☐ Device registered in dashboard |
| ☐ Data transmission verified in Connect | ☐ LED confirms power & transmission |

Installer: _____

Date: _____

Site / device ID: _____

7 TROUBLESHOOTING - QUICK REFERENCE

ISSUE	POSSIBLE CAUSE	ACTION
No LoRa data	Permanent street / site monitoring	With the device in situ, run the logging function via . If there is an error, the log will show it. Lora data cuts off after exceeding max. air time time: check the time one air resulting from the selected transmission interval and data in each transmission.
No LED activity	Long transmission interval, or flat battery	The led will only blink once at power up and at each transmission. Switch off and on the device to confirm power state, check the transmission interval settings and check if the led indication has been disabled.

NEED MORE INFORMATION

Visit our website for more information and the complete user guide, or scan the qr code.

<https://www.dutchsensorsystems.com/ranos-one>



8 SAFETY & ENVIRONMENTAL NOTES

Ingress protection: IP54

Maintenance: replace the AGM VRLA battery yearly (critical application) or every 2 years; check calibration periodically; replace the windscreen when worn

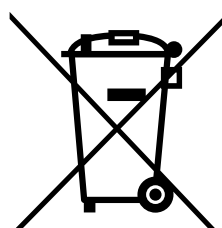
Operating temperature: -10 °C to +50 °C

To all residents of the European Union
Important environmental information about this product.

This symbol on the device or the package indicates that disposal of the device after its lifecycle could harm the environment. Do not dispose of the unit (or batteries) as unsorted municipal waste; it should be taken to a specialized company for recycling.

This device should be returned to your distributor or to a local recycling service. Respect the local environmental rules.

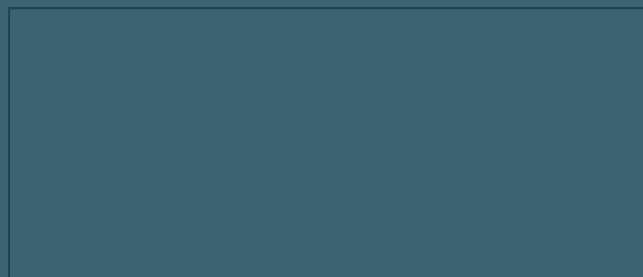
If in doubt, contact your local waste disposal authorities.





Serving the world with

Sensible Insights



Serving the world with Sensible Insights.
For full specifications, calibration and compliance, see the RANOS ONE Instruction Manual.
This project was supported by the Province of Flevoland with a subsidy voucher.