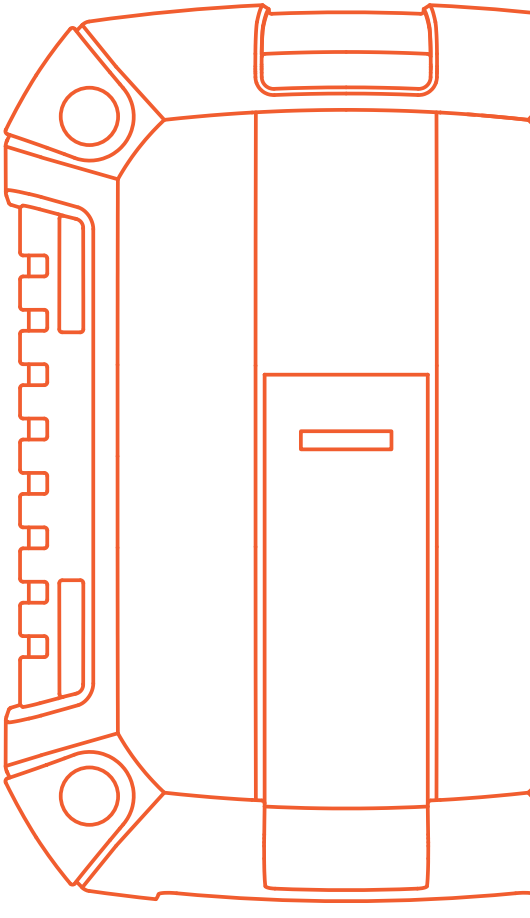
maturix®

Gaia 200

Wireless Transmitter for Maturix®
Temperature and Strength Monitoring



Quick Start Guide

Manufactured by **Sensohive Technologies ApS**

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5000 Odense C
Denmark

About this guide

This Quick Start Guide covers the most fundamental product information and instructions. For more documentation and information please visit **maturix.com/help**

About Maturix®

Maturix® is a smart system for monitoring the concrete curing process. It is one of the most advanced solutions for wireless concrete monitoring, being used by leading companies within the construction industry worldwide. Read more at **maturix.com**

About Sensohive

Maturix® is developed by Sensohive Technologies ApS, a Danish tech start-up for wireless sensor solutions and IoT. Our mission is making it easy to collect, analyze and understand valuable data for businesses through intelligent wireless sensor solutions.
Read more at **sensohive.com**

Version 1.1 // June 2021

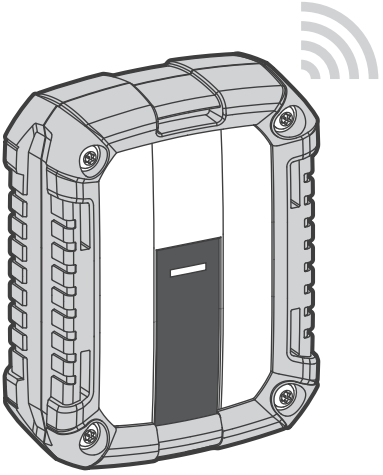
Introduction

Gaia 200 is a wireless transmitter for Maturix® Temperature and Strength Monitoring using type K thermocouples.

The device transmits the temperature readings wirelessly to the cloud using the Sigfox network.

Sigfox is a global wireless network dedicated to the Internet of Things (IoT). It has low power consumption and longer range than WiFi and Bluetooth. Learn more at **maturix.com/sigfox**

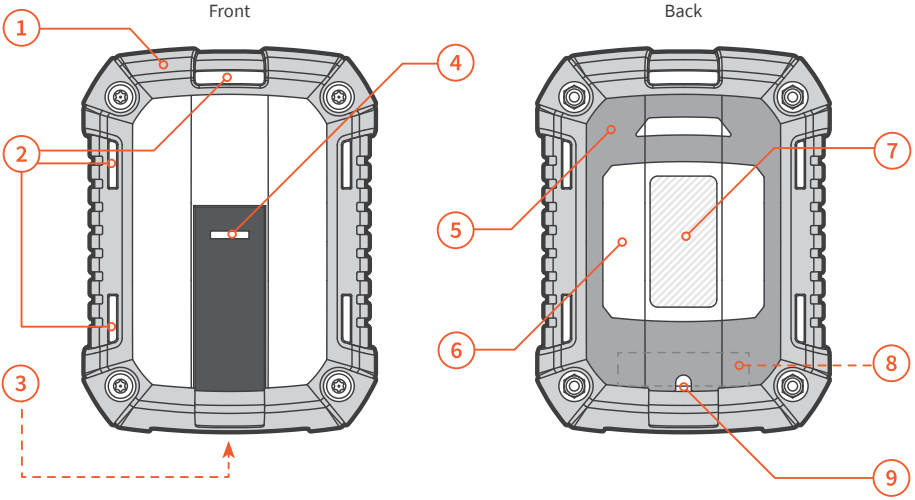
The transmitter is designed to withstand harsh environments and outdoor use. It is protected against the ingress of dust and water, and its rubber frame offers increased shock-absorption and better handling.



Activation and Data Access

The temperature data can be monitored in real-time online in our web portals. Visit **maturix.com/getstarted** to learn how to get started.

Product Diagram



1. Rubber frame
2. Mounting slots
3. Type K connector
4. LED indicator
5. Back cover
6. Battery cover
7. Label with Device ID
8. Device ID (under the back cover)
9. Opening slot

Before you start

Attention:
The steps below are **strictly required** for Gaia 200 to operate correctly!

- [ ] Ensure **good Sigfox coverage** at the monitoring location (page 4)
- [ ] Install the **batteries** (page 5)
- [ ] Connect a **type K thermocouple** (page 9)
- [ ] The device must be activated and added in the respective **web portal** prior to use

Read the software-specific guide or visit
maturix.com/getstarted for more information

Getting started

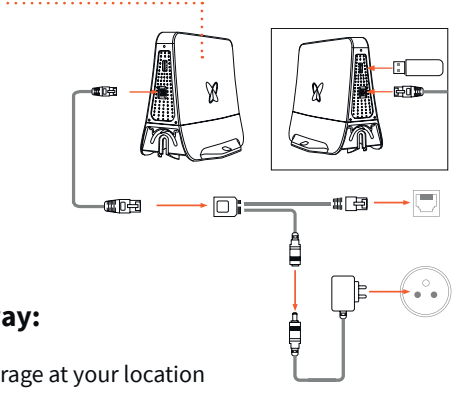
Connectivity

Attention:
Good Sigfox coverage is required for Gaia 200 to work, otherwise data will be lost!

If you have a Sigfox Gateway:

Install it following the steps in the *Quick Start Guide* provided with the gateway.

The gateway may have to be configured before use. For installation guides visit **maturix.com/gateway**



If you *don't* have a Sigfox Gateway:

Check that you have good/excellent coverage at your location prior to use. Learn how at **maturix.com/sigfox**

To purchase a gateway, contact your reseller.

If you are in doubt about the coverage, we strongly recommend using the **Sigfox Gateway** to create network coverage in areas with poor reception and to ensure better connectivity.

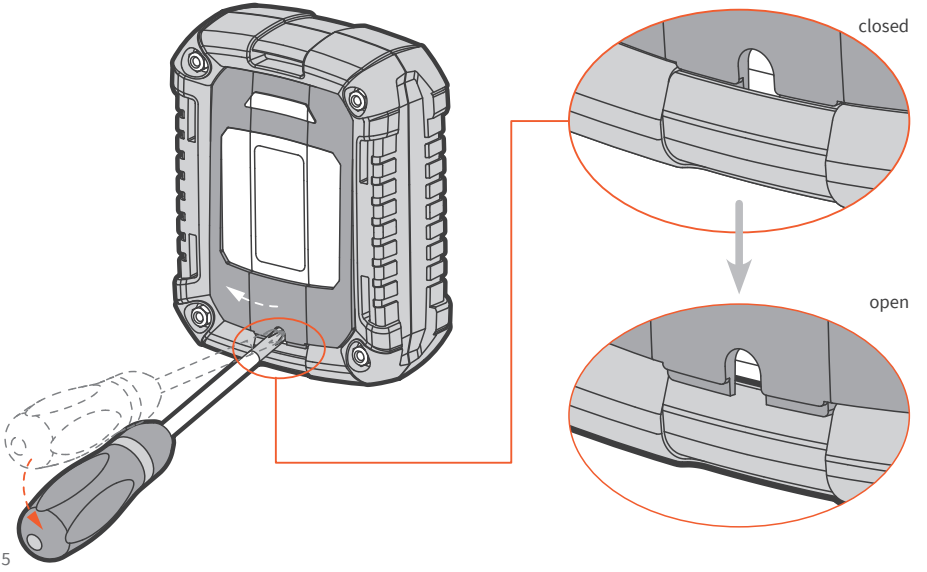
Install batteries

Gaia 200 works with 4 x AA batteries.
For general use, we recommend using high-quality 1.5 V alkaline batteries (included).
For use at temperatures below 0 °C (32 °F), we recommend lithium batteries*.

* Lithium batteries have a different (and less linear) discharge curve than alkaline. Please visit **maturix.com/batteries** for more information.

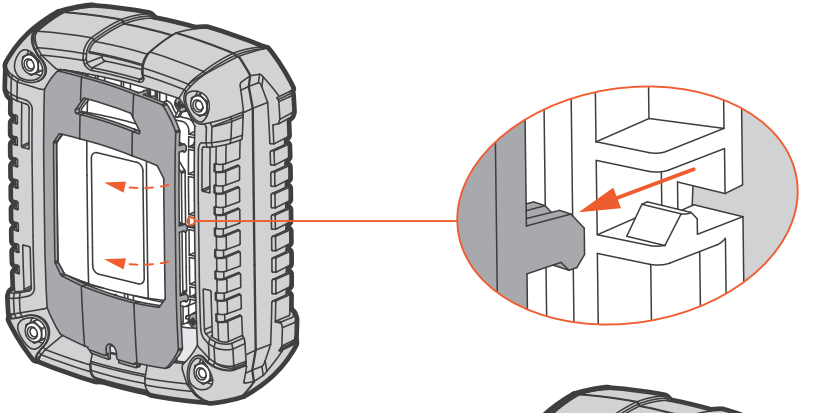
Step 1

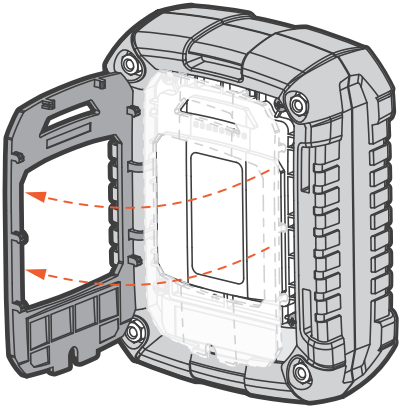
Use a screwdriver to open the bottom flap of the *back cover*.



Step 2

Detach the snap-fits of the back cover and rotate it to the left .





Attention:

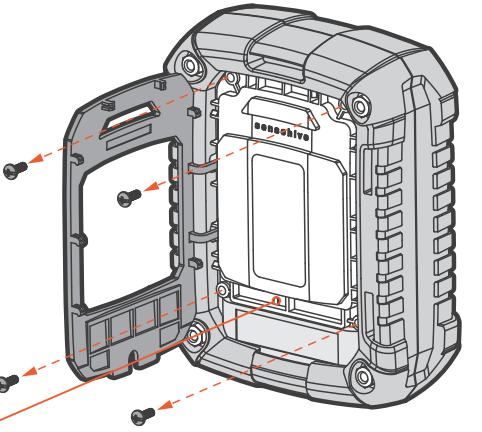
The cover is attached to left side.

Be careful not to tear it!

Step 3

Unscrew the 4 screws from the *battery cover* (the hard plastic part with the Sensohive logo).

Be careful not to lose the screws. [1]

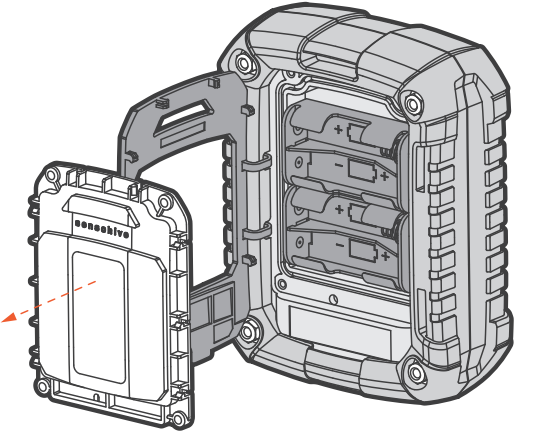


Caution:
Do not insert any tool in the pressure vent opening.

Step 4

Remove the battery cover and insert the batteries in place.

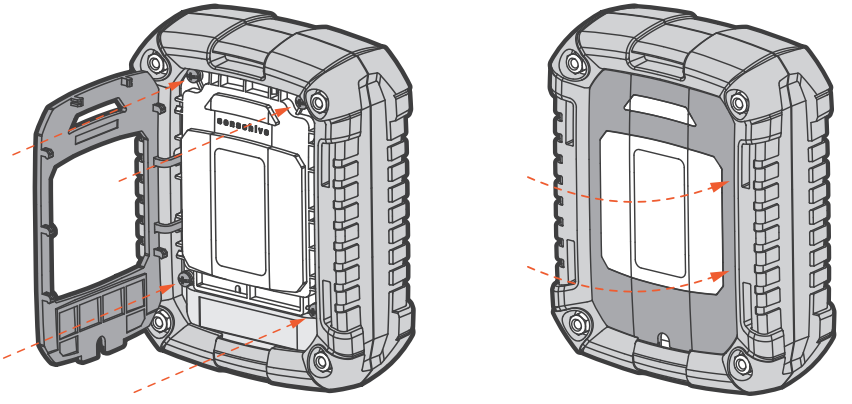
Observe the indications in the holders for the right polarity.



[1] In case you lose a screw, here's the size: M3 x 8

Step 5

Screw the battery cover on again and flip the back cover in place, pressing the snap-fits back. Once batteries have been inserted, the device is ready for use.



ⓘ To extend the battery life, disconnect the thermocouple when not in use. Gaia 200 will mainly consume energy when a thermocouple is connected.

The battery status is shown in the web portals under “Devices” or “Sensors”.
An indication of low power will appear when it is needed to replace the batteries.*

ⓘ * Lithium batteries have a different (and less linear) discharge curve than alkaline. Please visit **maturix.com/batteries** for more information.

Operation

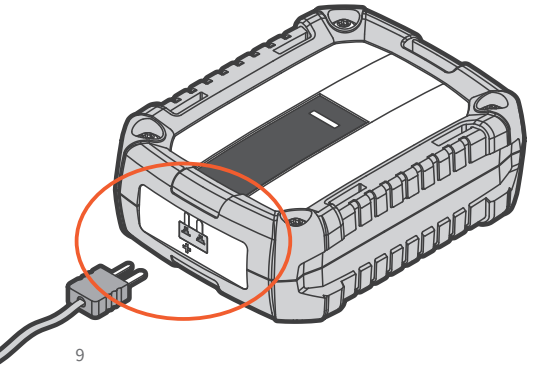
Turning on / off

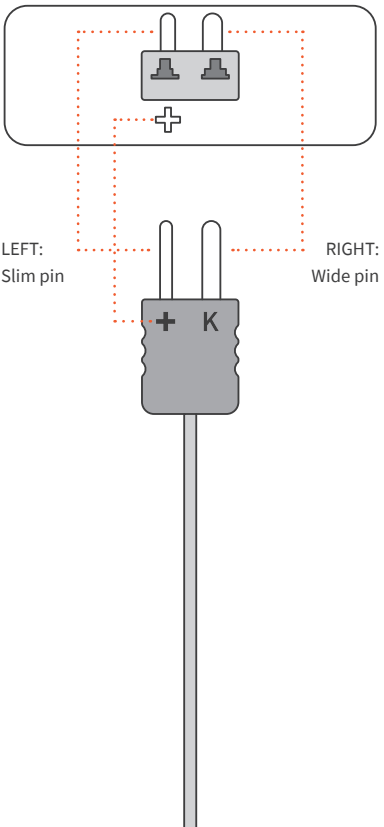
Turn on
Connect a type K thermocouple.

Turn off
Disconnect the thermocouple.

Connecting the thermocouple

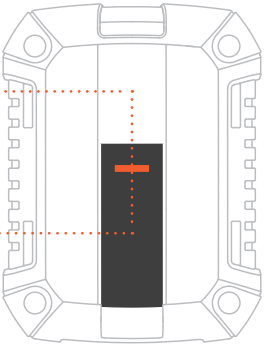
Follow the indications next to the connector to correctly insert the type K thermocouple. When a cable is connected, data will be transmitted every 15 minutes.





LED indicator

Gaia 200 has an *LED indicator* which lights up and blinks when a type K thermocouple is connected and when the device is transmitting data.



Situation	LED behaviour	
Batteries installed (device is starting up)		Solid yellow for 15 seconds
Data transmission		Solid blue while taking measurement and transmitting data
Operating (battery OK)		Two green blinks every 20 seconds
Operating (low battery, change soon)		Two yellow blinks every 20 seconds
Operating (critical battery, change now)		Two red blinks every 20 seconds
No thermocouple connected		LED is turned off

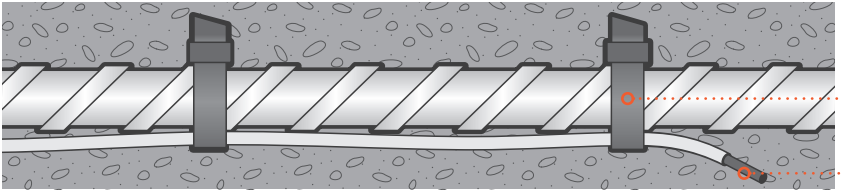
If the LED is not blinking, but a thermocouple is connected, check the batteries or see Troubleshooting on page 17.

Installation of type K thermocouple

Example 1: Installation on rebar (wet cast concrete)

1. Determine the positions for the thermocouples in the structure before pouring.
2. Secure the thermocouples to the rebars using plastic cable ties or strong tape. Fasten them along the bottom of the reinforcement to shelter them from direct impact during pouring. *Note: The sensor is situated at the tip of the cable.*
3. Connect each thermocouple to a transmitter (see page 9)
4. Mount the transmitters at a secure location (see page 13).

Caution:
Do not use metal ties or alike as they may damage the thermocouples.



Consider good cable management practices, e.g. marking each thermocouple with a label. This will make it easier to remember where each thermocouple is positioned in the structure and assist when assigning each thermocouple to a transmitter in the web portal.

Example 2: Installation in hollow-core slabs (dry concrete)

1. Determine the positions for the thermocouples in the structure.
2. Use a tool (e.g. a screwdriver) to penetrate the dry concrete and make a small hole. Consider the right depth of the hole for correct positioning of the thermocouple's tip, which is where the temperature will be measured.
3. Insert the thermocouple into the concrete.
4. Close the hole thoroughly by pushing the concrete around it to ensure the thermocouple stays in place.
5. Once the thermocouple has been installed correctly, immediately connect it to a Gaia 200 transmitter and place it at a secure and visible location (see next page)

> **Caution:**
> **The tip of the thermocouple must not touch a prestressed wire or the metallic bed, otherwise, the measurements might be incorrect.**

For a more detailed guide with pictures and video, please visit **maturix.com/help**

When the monitorings are done and readings are no longer needed, cut the thermocouple cable at the concrete surface.

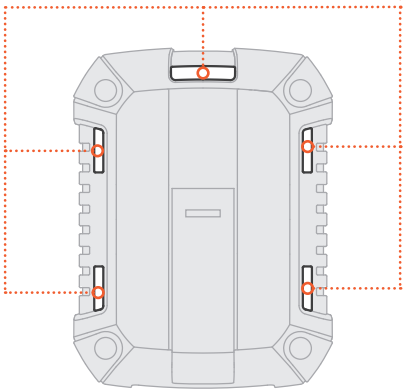
Mounting on site

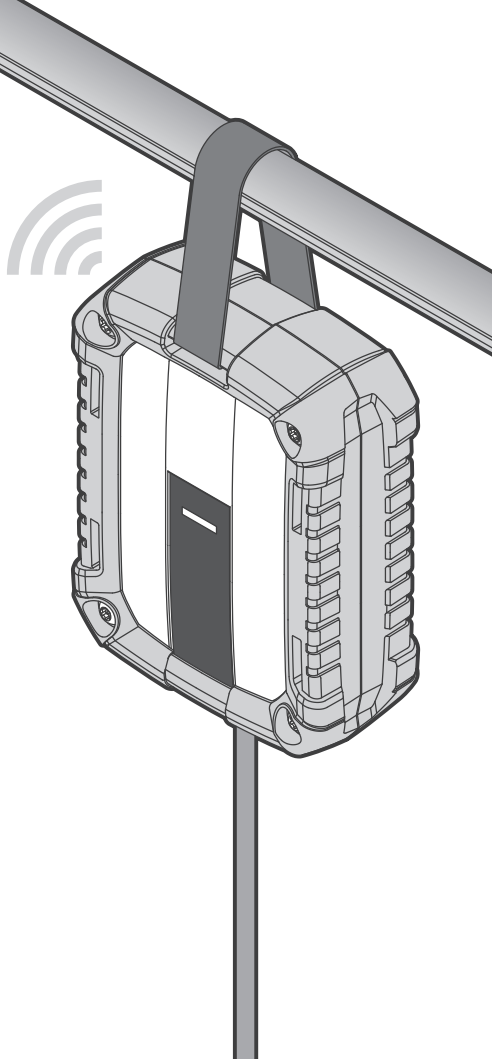
Attention:

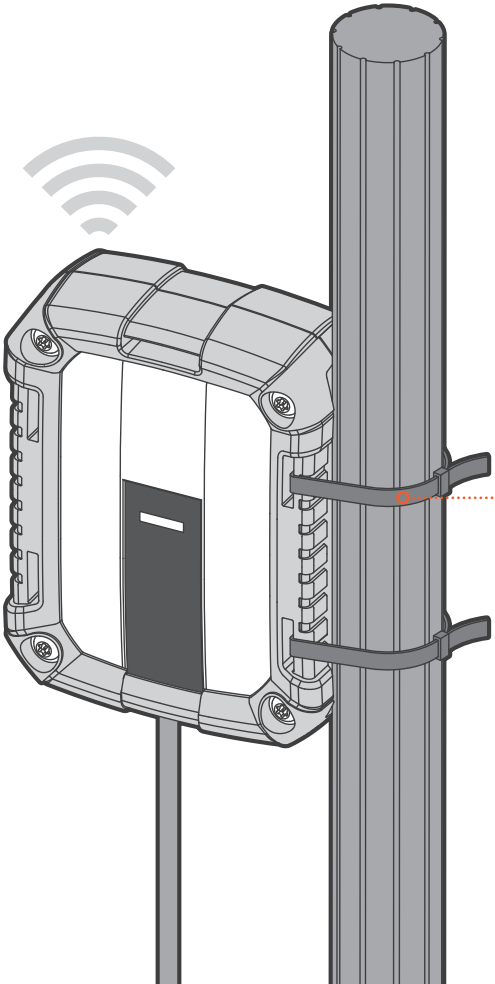
For better signal strength, we recommend placing Gaia 200:

- Positioned as high as possible
- Free from obstacles
- With the connector facing down

The device has 5 *mounting slots* for diverse possibilities of installation.







Use *cable ties* or other preferred fastening method to securely mount Gaia 200 in place.

Attention:
Carefully read the precautions on the next pages to ensure correct mounting of the device.

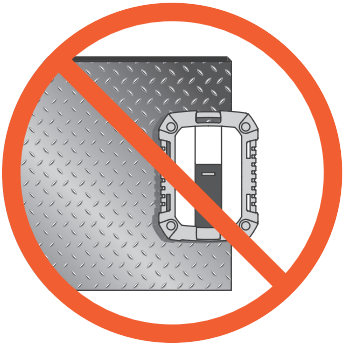
Precautions

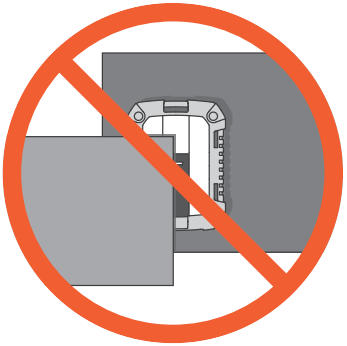
Do not place Gaia 200 in such a way that it could get permanently damaged.

Do not place Gaia 200 in direct sunlight. This may result in wrong temperature readings and lower battery life.

Do not leave Gaia 200 submerged in water.

Do not place Gaia 200 up against large metal surfaces, as this may affect the antenna performance.





Do not block Gaia 200, as this may affect the antenna performance.

Do not drop Gaia 200 from heights. Take care of your tools!

Troubleshooting

Problem	Possible cause	Solution
No data received *or* Sporadic data received	The transmitter might be outside of good Sigfox coverage	Make sure the transmitter is mounted correctly for ideal antenna performance (*see page 13*)
		Install a Sigfox Gateway on-site
	The thermocouple might be damaged	Replace the faulty thermocouple
	The battery might be too low	Replace with fresh batteries
Wrong readings received	The thermocouple tip might be touching a conductive material (e.g. metal)	Install the thermocouple so the tip is protected or not in contact with any conductive materials
	The thermocouple might be damaged	Replace the faulty thermocouple
	The thermocouple type might be wrong	Use type K thermocouples
	The thermocouple polarity might be swapped (self-assembled thermocouple)	Change the polarity in the Data Editor in the web portal (only Maturix® In-situ) *or* Change the polarity by reassembling the connector correctly
The LED is not lighting/blinking (thermocouple connected)	The thermocouple might be damaged	Replace the faulty thermocouple
	The battery might be too low	Replace with fresh batteries

For detailed troubleshooting and help, please visit **maturix.com/troubleshooting**
If a problem persists, contact your reseller for support/service.

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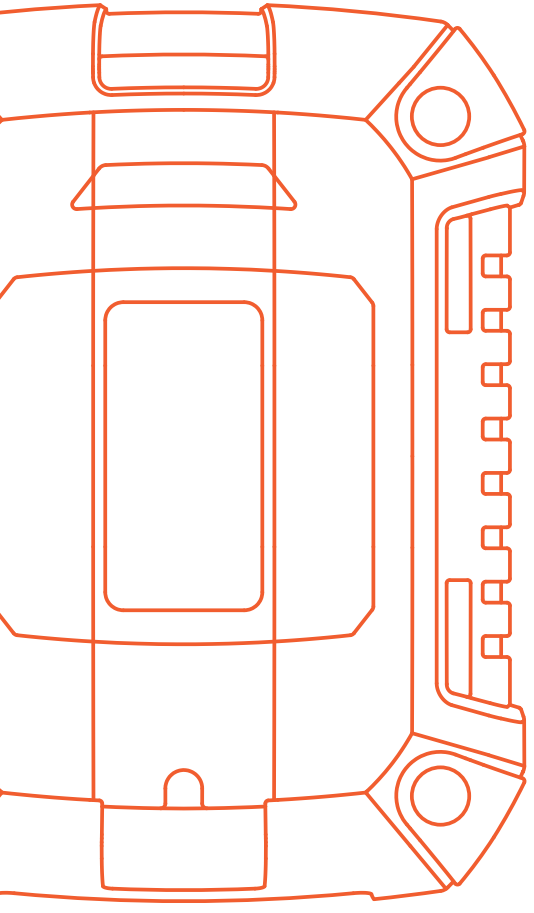

Designed in Denmark

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