

Humidity System

CMP5000

Probe for Maturix[®] Humidity and Temperature Monitoring

Gaia 220

Wireless Transmitter for Maturix[®] Humidity and Temperature Monitoring

Quick Start Guide

Manufactured by Sensohive Technologies ApS

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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**

Disclaimer

Information in this guide is based on specifications believed correct at the time of publication. The right is reserved to make changes as design and general improvements are introduced. Find the latest version in the Help Center at **maturix.com/help**

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CMP5000

Humidity and temperature probe sensor for fresh and hardened concrete.

It can be cast in fresh concrete for onetime usage, or reused in dry concrete using a borehole method. *

* There are different standards and (i)regulations for measuring concrete RH in drilled holes. Verify which is applicable for each case and region. Wireless Transmitter for Maturix®

Humidity and Temperature Monitoring in real time.

The device transmits the data wirelessly to the cloud using the Sigfox network. The data is accessible in our web portals (see page 3).

Sigfox is a global wireless network dedicated to the Internet of Things (IoT). Learn more at maturix.com/sigfox

Important Notes

Power Source

Gaia 220 is powered by 4 x AA batteries (see page 8). The CMP5000 probe is powered by the Gaia 220 and it will start measuring when connected to the transmitter.

Anti-Drift System

The CMP5000 probe is equipped with an exclusive Anti-Drift System, allowing prolonged exposure to high humidity levels without damaging the sensor.

∧ Attention:

To ensure the best precision of the CMP5000, it is very important to make sure that Gaia 220 **does not** run out of battery – see page 11 to know how to verify the battery status.

Once in use, the CMP5000 probe must always be connected to Gaia 220!

If the probe is exposed to high humidity levels without being powered, the sensor and the Anti-Drift System can be **permanently damaged.**

Activation and Data Access

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

Storing the Probe

When not in use, the CMP5000 probe must be stored in a dry environment, free from high moisture. Ideally it should be kept in a closed container together with one or more silica gel desiccant bags.

For more information please refer to the product datasheet at maturix.com/help



Product Diagrams



∆ Attention:

Do not attempt to connect the CMP5000 probe to any other device except Gaia 220.

Gaia 220



Opening slot

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Before you Start

Attention:

The steps below are **strictly required** for the RH System to operate correctly!



Getting Started

Connectivity

∆ Attention:

Good Sigfox coverage is required for Gaia 220 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 220 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. ſì 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 .



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. $^{\scriptscriptstyle 1}$



○ 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.





 $^{\scriptscriptstyle 1}$ 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.



(i) To extend the battery life, disconnect the CMP5000 probe when not in use. Gaia 220 will mainly consume energy when the probe is connected.

Battery Status

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.*

(i) * 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 the CMP5000 probe.

Turn Off

Disconnect the CMP5000 probe.

Connecting the Probe

Insert the probe in the Gaia 220 connector as displayed in the image.

When the probe is connected, data will be transmitted every 60 minutes.



LED Indicator

Gaia 220 has an *LED indicator* which lights up and blinks when the CMP5000 probe 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 probe connected	_	LED is turned off

If the LED is not blinking, but the CMP5000 probe is connected, check the batteries or see Troubleshooting on page 22.

Probe Installation

Borehole Methods

The CMP5000 can be installed on its own or with a complementary hole liner (sold separately).

We recommend the use of the plastic liner for a few reasons:

- To comply with most of the standard test methods for determining relative humidity in concrete floor slabs. *
- To make sure the sensor is measuring the humidity levels in the right depth, instead of the average moisture from the entire hole.
- To protect the probe enclosure from scratches and extend its lifetime.



i) * There are different standards and regulations for measuring concrete RH in drilled holes.

Verify which is applicable for each case and region.

Method A - Probe with Hole Liner

- Verify the thickness of the concrete slab to determine the depth of the holes you will be drilling, according to the standard or guidelines you are following.
- Drill a hole with Ø 18 19 mm, and the required depth. Verify your standard or procedure in regards to the maximum diameter. Obs: The liner is Ø 17.3 mm, Ø 20 mm with the ribs.
- 3. Use a steel wire brush for concrete to clean the hole.
- 4. Vacuum the hole to remove dust and small particles.
- Verify that the hole depth is correct.
 Note: There are often debris and irregularities that can block the proper insertion of the liner.
- 6. Insert the liner, making sure it is reaching the bottom of the hole. If needed, clean the hole again, or repeat steps (3) to (5) to make its walls more uniform.
- 7. Insert the probe into the liner, and make sure it is reaching the bottom.
- 8. Immediately connect the probe to Gaia 220, and keep it connected all the time.
- Thoroughly seal around the liner at the surface (B) and also at the top of the liner (C) using butyl-based dry sealant or similar, so no air can escape from it.



Method B - Probe Only

- Verify the thickness of the concrete slab to determine the depth of the holes you'll be drilling, according to the standard or guidelines you are following.
- Drill a hole with Ø 16 mm or more, and the required depth. Verify your standard or procedure in regards to the maximum diameter. Obs: The probe is Ø 14 mm.
- 3. Use a steel wire brush for concrete to clean the hole.
- 4. Vacuum the hole to remove dust and small particles.
- Verify that the hole depth is correct. You can use the probe for this, drawing a line with a marker. Note: There are often debris and irregularities that can block the proper insertion of the liner.
- 6. Insert the probe into the hole, and make sure it is reaching the bottom of the hole. If needed, clean the hole again, or repeat steps (3) to (5) to make the hole walls more uniform.
- 7. Immediately connect the probe to Gaia 220, and keep it connected all the time.
- Thoroughly seal around the probe at the surface using dry butyl-based sealant or similar, so no air can espace from the hole.



Cast into Fresh Concrete

- 1. Determine the placement of the probes in the area to be monitored.
- 2. Verify the thickness of the concrete slab to determine in which depth the probe will be positioned, according to the standard or guidelines you are following.
- 3. Install a humidity probe at the correct depth using plastic cable ties or another preferred method. The sensor is situated at the tip of the probe.
- 4. Immediately connect the probe to Gaia 220, and keep it connected all the time.
- 5. Check again that the probe tip is at the correct depth prior to pouring and take measures to ensure that it will remain at the correct depth after pouring.

∆ Attention:

Remember: It is very important that the probe is connected to Gaia 220 prior to pouring and while in use. If the transmitter is not connected, the sensor can be permanently damaged and provide inaccurate results.



Mounting on Site

∆ Attention:

For better signal strength, we recommend placing Gaia 220:

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

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









Do not place Gaia 220 in such a way that it could get permanently damaged.





Do not place Gaia 220 in direct sunlight. This may result in lower battery life.

Do not leave Gaia 220 submerged in water.



Do not place Gaia 220 up against large metal surfaces, as this may affect the antenna performance.





Do not block Gaia 220, as this may affect the antenna performance.

Do not drop Gaia 220 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 (<i>see page 18</i>)
		Install a Sigfox Gateway on-site
	The CMP5000 probe might be damaged	Replace the faulty CMP5000 probe
	The battery might be too low	Replace with fresh batteries
The LED is not lighting/blinking (CMP5000 connected)	The battery might be too low	Replace with fresh batteries
	The CMP5000 probe might be damaged	Replace the faulty CMP5000 probe

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





Designed in Denmark

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