# airius

WIRELESS VIBRATION SENSOR
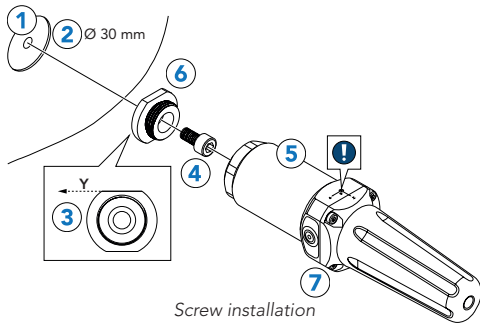
# QUICKSTART
## Airius II LTE-M

SPM ®

# CONTENTS

Technical data subject to change without notice.
ISO 9001 certified. © SPM 2023-05. 72328 B Rev.6

## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Material, housing/lid: | stainless steel EN 1.4523 |
| Weight: | approx. 300 g |
| Power supply, | |
| AIR14: | non-rechargeable 3.0 VDC Lithium |
| AIR15: | 24 V DC ±10 %, 400 mA |
| Power rating, AIR15: | 1.2 W |
| Power connector, AIR15: | 4-pin M12 male connector |
| Readings: | RMS, peak, peak-to-peak, crest, kurt, skew, temperature |
| Spectrum lines: | 400, 800, 1600, 3200* lines |
| Measurement range, temperature: | –20° to +85 °C (–4° to +185 °F) (accuracy +/– 2 °C) |
| Operating temperature: | –20 °C to +85 °C (–4 °F to +185 °F) |
| Storage temperature: | –40 °C to +85 °C (–40 °F to +185 °F) |
| Maximum altitude: | 2000 m |
| Condition evaluation: | ISO10816 Part 2, 3, 4 >600 rpm |
| Protection class: | IP69 |
| Relative humidity: | 0 to 100% (non-condensing) |
| LTE-M: | LTE Cat M1 (300 kb/s DL, 375 kb/s UL). Multi-region, incl. bands 1, 2, 3, 4, 5, 8, 12, 13, 18, 19, 20, 25, 26, 28 |
| Operators: | Onomondo** (global solution), Telia Sverige AB (Nordic solution) |
| Bluetooth: | v4.2 BLE |

### Part numbers

AIR14-01-X   Airius II LTE-M, battery powered, incl. subscription with 3 years of data***, 10-1000 Hz, 2/4/8 g

AIR14-10-X   Airius II LTE-M, battery powered, incl. subscription with 3 years of data***, 2-5000 Hz, 2/4/8/16 g

AIR15-01-X   Airius II LTE-M, externally powered, incl. subscription with 3 years of data***, 10-1000 Hz, 2/4/8 g

AIR15-10-X   Airius II LTE-M, externally powered, incl. subscription with 3 years of data***, 2-5000 Hz, 2/4/8/16 g



### Accessories

18470   Installation kit (installation foot, M4 screw, M4 washer, M6 screw)

18471   Installation kit (installation foot, M8 screw)

18466   Installation foot, glue installation

18549   Power supply for testing AIR15 in an indoor environment (incl. Europlug, angled 4-pin M12 female connector, and 1.8 m cable)

MOD1YB One year of additional data for AIR14***

MOD1YC One year of additional data for AIR15***

MOD3YB Three years of additional data for AIR14***

MOD3YC Three years of additional data for AIR15***

### Spare parts

100064   Spare part kit (battery, O-ring, 4 pcs M2.5x6 screw)

18661   Antenna lid, transparent

90700   Antenna

\* 3200 lines are only available for AIR14-10 and AIR15-10.
\*\* Not all networks supported by Onomondo are available – ask SPM for recent information.
\*\*\* Amount of data based on four measurements per day for AIR14 and 24 measurements per day for AIR15.

*Screw installation*

|  | Screw torque | Sensor torque |
|---|---|---|
| M4 with washer | 2 Nm | 2 Nm |
| M6 | 7 Nm | 7 Nm |
| M8 | 17 Nm | 7 Nm |
| UNF 1/4" | 8 Nm | 7 Nm |
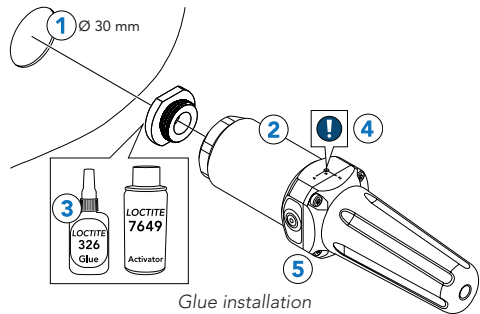


*Glue installation*

Sensor torque: 7 Nm

## MECHANICAL INSTALLATION, AIRIUS VIBRATION SENSORS

There are two ways to mechanically install Airius vibration sensors, either by screw installation or glue installation. Screw installation is recommended, if possible. Position the sensor so that the sensor performs measurements in an optimal manner while having good LTE-M signal strength. Consider that the LTE-M signal strength, ambient temperature, and time in Bluetooth mode affects battery life.

**Screw installation**
1. Drill a screw hole where the sensor should be placed.
2. Drill a counterbore with 30 mm diameter on the machine.
3. Align the longest flat side of the installation foot with the y-axis of the intended measurement direction.
4. Screw the installation foot onto the machine. See table for screw torque.
5. Screw the sensor onto the installation foot. See table for sensor torque.
6. If necessary, adjust the installation foot so that the sensor's markings align with the intended measurement directions.
7. If installing AIR15, connect an M12 connector to power the sensor.

**NOTE:** There are markings for z, x, y on the sensor, indicating the directions of the measurements.

**Glue installation**
1. Drill a counterbore with 30 mm diameter on the machine where the sensor should be placed.
2. Screw the sensor onto the installation foot. Tightening torque: 7 Nm.
3. Apply glue (Loctite 326) and activator (Loctite 7649) to the installation foot.
4. Make sure that the sensor's markings align with the intended measurement directions. Press the sensor onto the flat surface. Hold steady for three minutes.
5. If installing AIR15, connect an M12 connector to power the sensor.
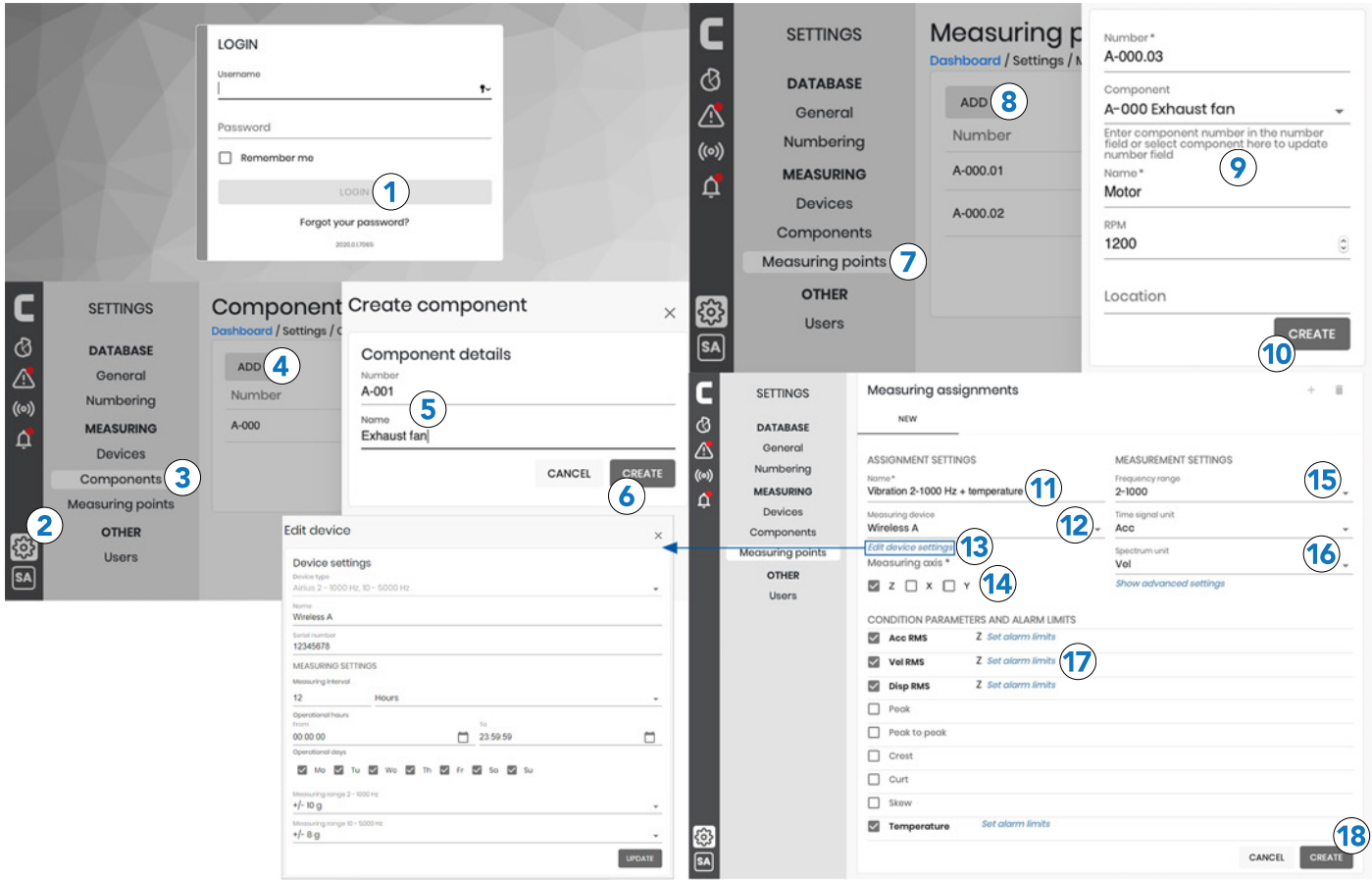
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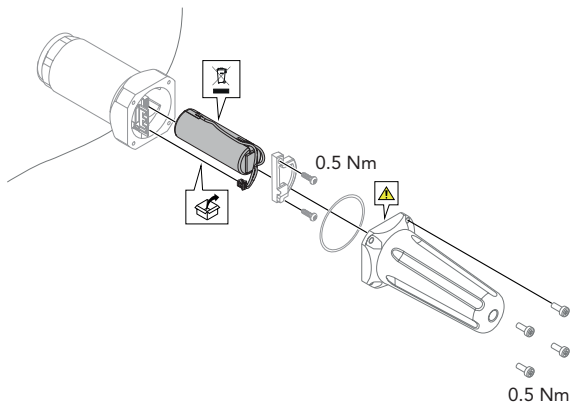
## SETTING UP AIRIUS

Airius II LTE-M is configured and linked to the subscription and Condmaster license when shipped from SPM Instrument, which means no setup other than the following is required to get started with Airius II LTE-M sensors:

1. Perform the mechanical installation, see *Mechanical installation, Airius vibration sensors*.

2. Press the button on the sensor to perform a function and connection test. Immediate green flashing means that the sensor is working. When the connection to Condmaster Entity Server (CES) is successful, the sensor flashes green. The number of green flashes corresponds to the LTE-M signal strength (1 flash = poor; 2 flashes = average; 3 flashes = good). If the connection is unsuccessful, the sensor flashes red (1 flash = could not connect to the server; 2 flashes = invalid subscription, contact your sales representative; 3 flashes = CES is offline; 4-5 flashes = CES did not respond).

3. Set up vibration measurements. Follow the steps in *Setting up vibration measurements in Condmaster Ruby* or *Setting up vibration measurements in Condmaster.NET*, depending on the software used.

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**NOTE:** The local installation of CES must have access to CES Service Connector for the software services in Airius II LTE-M to work. For details, see 72341.

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## SETTING UP VIBRATION MEASUREMENTS IN CONDMASTER RUBY

1. Go to **Graphical Overview** > **View as tree**.
2. In the tree structure to the left, expand **Components**.
3. Right-click Components, choose Create, and click **Component**.
4. Enter component number and name.
5. Click **Save**.
6. Right-click the created component, choose Create, and click **Measuring point**.
7. Enter Measuring point number and name.
8. Select a vibration measurement technique (Vibration, 2 or 3 channel vibration, or ISO 10816) and click **Add**.
9. Select **Online** under Instrument, select settings as desired, and click **OK**.
10. Go to the **Online** tab, select the Airius sensor and direction (z, x, or y) under Address. Click **OK**.
11. Go to the **Settings** tab, name the assignment, and edit the settings as desired.
12. For settings regarding conditions and filtering of results, go to the **Online Advanced** tab.
13. Go to **RPM** and enter fixed or variable speed (as a global value).
14. Click **Save**.

For further information regarding these steps, see chapter *Settings up measuring assignments for Airius vibration sensors* in the *Condmaster Ruby User Guide.*

**LOGIN**

Username

Password

☐ Remember me

**LOGIN** ①

Forgot your password?

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SETTINGS

**DATABASE**
General
Numbering

**MEASURING**
Devices
Components ③
Measuring points

**OTHER**
Users

② ⊙ SA

**Component**

Dashboard / Settings / C

ADD ④

Number

A-000

---

**Create component** ✕

**Component details**

Number
A-001 ⑤

Name
Exhaust fan

CANCEL    **CREATE** ⑥

---

**Edit device** ✕

**Device settings**

Device type
Airius 2 – 1000 Hz, 10 – 5000 Hz

Name
Wireless A

Serial number
12345678

MEASURING SETTINGS

Measuring interval
12    Hours

Operational hours
From
00:00:00    To    23:59:59

Operational days
☑ Mo  ☑ Tu  ☑ We  ☑ Th  ☑ Fr  ☑ Sa  ☑ Su

Measuring range 2 – 1000 Hz
+/- 10 g

Measuring range 10 – 5000 Hz
+/- 8 g

**UPDATE**

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C ⊙ ⚠ (o) 🔔 ⚙ SA

SETTINGS

**DATABASE**
General
Numbering

**MEASURING**
Devices
Components
Measuring points ⑦

**OTHER**
Users

**Measuring p**

Dashboard / Settings / N

ADD ⑧

Number

A-000.01

A-000.02

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Number *
A-000.03

Component
A-000 Exhaust fan ▼

Enter component number in the number field or select component here to update number field

Name *
Motor ⑨

RPM
1200

Location

**CREATE** ⑩

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C ⊙ ⚠ (o) 🔔 ⚙ SA

SETTINGS

**DATABASE**
General
Numbering

**MEASURING**
Devices
Components
Measuring points

**OTHER**
Users

**Measuring assignments**    + 🗑

NEW

ASSIGNMENT SETTINGS

Name *
Vibration 2-1000 Hz + temperature ⑪

Measuring device
Wireless A    ⑫

Edit device settings ⑬

Measuring axis *
☑ Z  ☐ X  ☐ Y ⑭

MEASUREMENT SETTINGS

Frequency range
2-1000 ⑮

Time signal unit
Acc

Spectrum unit
Vel ⑯

Show advanced settings

CONDITION PARAMETERS AND ALARM LIMITS

☑ Acc RMS    Z  Set alarm limits
☑ Vel RMS    Z  Set alarm limits ⑰
☑ Disp RMS   Z  Set alarm limits
☐ Peak
☐ Peak to peak
☐ Crest
☐ Curt
☐ Skew
☑ Temperature    Set alarm limits

CANCEL    **CREATE** ⑱

## SETTING UP VIBRATION MEASUREMENTS IN CONDMASTER.NET

1. Open Condmaster.NET and log in. If required, select database.
2. Click **Settings**.
3. Click **Components**.
4. Click **Add**.
5. Fill in the component details.
6. Click **Create**.
7. Click **Measuring points**.
8. Click **Add**.
9. Fill in the measurement point details.
10. Click **Create**.
11. Select a name for the measuring assignment.
12. Select an Airius sensor under Measuring unit.
13. To edit measuring interval, operational hours, or measuring range for the Airius sensor, click **Edit unit settings**.
14. Mark the axes (**z**, **x**, **y**) to be measured.
15. Select frequency range.
16. Select spectrum unit.
17. Set alarm limit for each condition parameter that should have an alarm limit.
18. Click **Create**.

For further information regarding these steps, see chapter *Getting started* in the *Condmaster.NET User Guide*.

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0.5 Nm

0.5 Nm

## REPLACING BATTERY

When replacing the battery, appropriate ESD protection measures must be taken.

1.  Loosen the four screws and carefully position the lid so it does not interfere with the battery replacement. The lid is attached to the antenna cable that is attached to the circuit board at the other end.

⚠️ **CAUTION**: The lid and antenna cable should be handled with care. The antenna cable connected to the lid cannot be reassembled. Do not disconnect the antenna cable from the circuit board.

2.  Loosen the two screws and remove the battery cover.
3.  Remove the battery and disconnect the plug.
4.  Connect the plug and insert the new battery (100064).
5.  Screw on the battery cover. Tightening torque: 0.5 Nm.
6.  Put the O-ring in place and screw on the lid. Tightening torque: 0.5 Nm.
7.  Go to **Notifications** in Condmaster.NET and select **Confirm battery change** for the sensor. For further information, see section *Confirm Airius battery replacement* in the *Condmaster.NET User Guide*.

This product must be disposed as electronic waste and is marked with a crossed-out wheeled bin symbol in order to prevent it being discarded with household waste.

When the life cycle of the product is over You can return it to Your local SPM representative for correct treatment, or dispose it together with your other electronic waste.

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