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Review: 1.2	User Manual	

# User Manual

Wi-care 130 Ex  
Mod# WM510331x410x




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## Acknowledgements

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# Important Notice


**For your safety, it is imperative that you read and abide by all the instructions given in this user manual.**

**This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.**

This User Manual includes safety information. The following icons are used:

	Indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.
	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
	Indicates a hazardous situation, which if not avoided, could result in minor or moderate injury.
	Addresses practices not related to personal injury.

**The photographs, diagrams and illustrations in this manual are provided as indications to clarify the information given. I-care denies any liability in relation to the validity of the images contained in this document.**

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# 1. Introduction

The device *Wi-care 130 Ex* is an advanced instrument specifically designed to collect temporal and spectral vibration and temperature data from industrial rotating equipment. This manual is intended for users of the G23 generation of *Wi-care 130 Ex* with Model number WM510331x410x (x are placeholders for digits explained in the chapter [Details for the WM510331x410x model](#)). These models are designed and certified for use in explosive atmospheres or hazardous environments (→ [Explosion protection](#)). Read this manual carefully before using the device. Keep it for further reference.

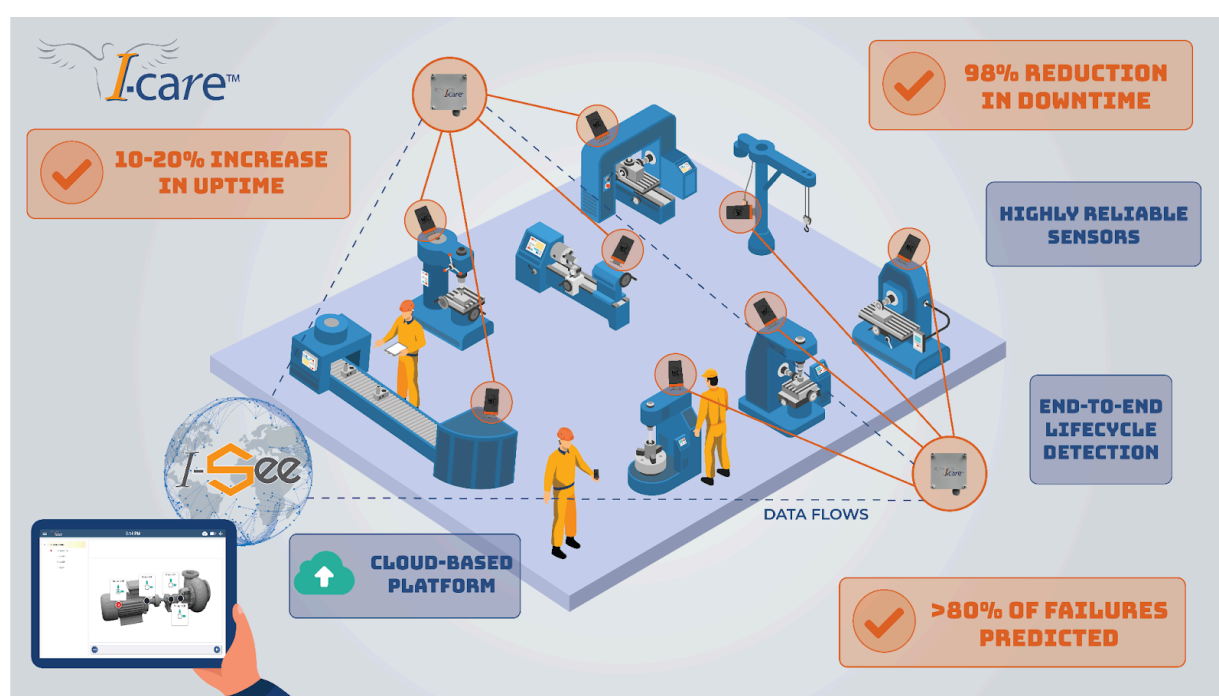
## 1.1. System Integration Requirement


It's essential to understand that the *Wi-care 130 Ex* transmitter is an integral part of a comprehensive industrial monitoring system known as the *Wi-care system*. The device does not operate in a stand-alone mode; it works as a Transmitter and relies on the *Wi-care system* for its essential functions. This system provides the communications infrastructure needed to efficiently transfer measured data to a cloud-based software platform called *I-see*, where in-depth analysis takes place. This analysis is key to predicting potential equipment failures, enabling operators to proactively reduce unplanned downtime.

The *Wi-care system* consists of 2 different hardware devices:

Device	Role
Transmitter	Collecting and transmitting equipment health data
Gateway	Managing the stock of transmitters, storing data

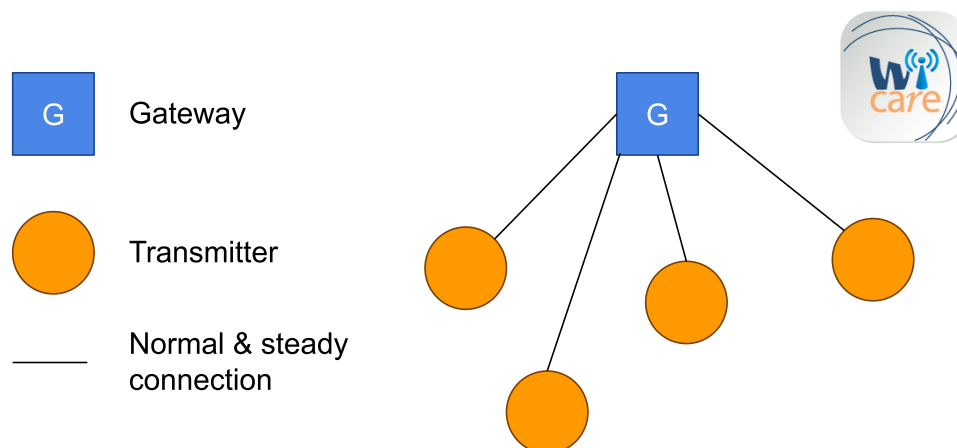
The system provides an alternative to manual data acquisition and eliminates the need for wiring. The system is designed to last several years without maintenance.



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*Picture 1: I-care acquisition system*

The *Wi-care system* uses a tree network architecture (see figure below). The network is automatically configured by the system and is capable of self-optimization to maximize wireless transmission quality.



*Picture 2: Network structure*

## **1.2. Wi-care as part of a Maintenance Strategy**

Implementing a *Wi-care system* provides flexible remote diagnostics, available periodically or on demand, making it a versatile tool for industrial maintenance needs. This system integrates easily into a variety of maintenance strategies, including:

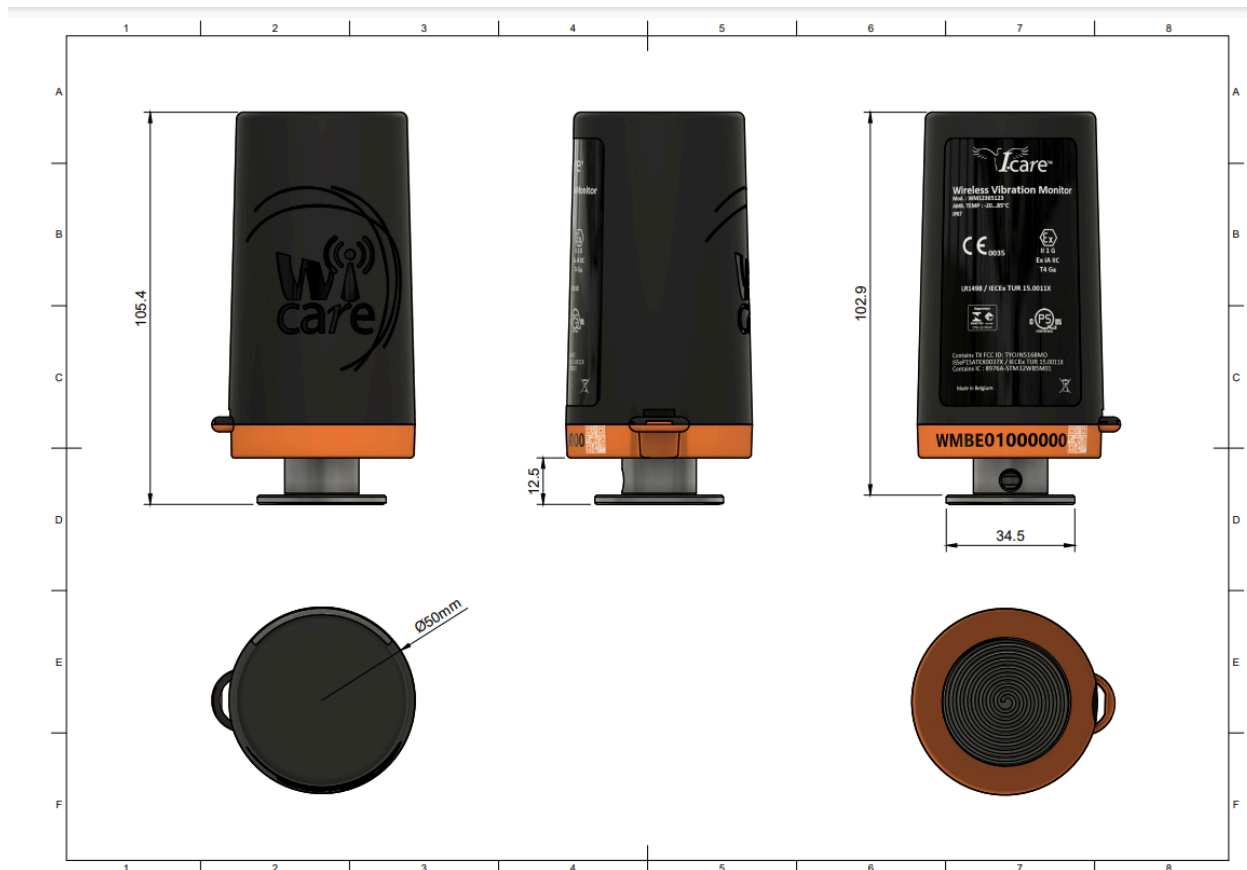
- Condition-based Maintenance
- Predictive Maintenance
- Proactive Maintenance
- Prescriptive Maintenance

For guidance on implementing and optimizing these maintenance strategies with your *Wi-care system*, please don't hesitate to contact your local distributor.

## 2. Device Overview

### NOTICE

Please note that the product labeling shown here is an example. The explanation of product labeling can be found in section [\[Marking Label\]](#).



Picture 3 : Wi-care 130 drawing - marking not representative

Transmitters (see illustration above) are mounted on the equipment in order to collect data on its state of health. They consist of a box, an accelerometer and an insert. This is screwed to the base of the box and can not be removed.

Instructions on mounting Transmitters are to be found in the section [“Installation”](#).


It is powered by a battery which lasts for approximately 5 years under normal use.

## 2.1. Details for the WM510331x410x model





Element	Description	Value
<b>WM</b>	Wi-care Transmitter	
<b>5</b>	Vibration sensitivity	5 : 25mV/G
<b>1</b>	Ex environment	1 : Intended for Ex environment
<b>0</b>	Mounting method	0 : None/undefined
<b>3</b>	Sensor thread	3 : Fast mounting
<b>3</b>	Maximal temperature measured	3 : 85°C <sup>1</sup>
<b>1</b>	Protection level design	1 : IP67
<b>x</b>	Battery type	1 : Saft LS 26500 3 : Saft M52 EX SV 4 : Tadiran SL-2770
<b>4</b>	Generation	4 : Wi-care G23
<b>1</b>	Measuring direction	1 : Triax
<b>0</b>	Version	0 : Initial Version
<b>x</b>	Compliance Code <sup>2</sup>	For WM5103311410: <ul style="list-style-type: none"> <li>● <b>2</b> ATEX/IECEEx approvals for 40 °C</li> <li>● <b>3</b> HazLoc approval for 40 °C</li> </ul> For WM5103313410 or WM5103314410: <ul style="list-style-type: none"> <li>● <b>0</b> ATEX/IECEEx approvals for 70 °C</li> <li>● <b>1</b> ATEX/IECEEx and HazLoc approvals for 70 °C</li> </ul>



<sup>1</sup> This is not the ambient temperature rating, but the maximum range of the temperature probe used.

<sup>2</sup> Digit assignment depends on the other digits of the preceding model number. No independent assignment possible.

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## 2.2. Marking Label

	<p>The following symbols appear on the marking label. Make sure you understand them to reduce risks and ensure safe use of the device.</p>
	<p><b>USE ONLY xxx<sup>3</sup> BATTERIES:</b> Using the specified batteries ensures that the device operates safely. These batteries are tested and certified to meet specific safety standards, related to risks of overheating, leakage, or explosion. Contact an authorized distributor.</p> <p><b>DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT:</b> Opening the device will compromise the protection of the enclosure. Only qualified personnel are allowed to open the unit or replace the battery. NEVER do this when an explosive atmosphere is present. Contact an authorized distributor.</p> <p><b>ELECTROSTATIC CHARGING HAZARD:</b> This device poses a potential electrostatic charging hazard, creating a risk of ignition through electrostatic discharge. Clean only with a damp cloth.</p>
 	<p><b>READ MANUAL:</b> Read the user manual to understand the safety information and avoid or minimize risks. You can use the QR Code next to the symbols to get an electronic access to the manual.</p>

	<p>Addresses practices not related to personal injury.</p>
	<p>This device is subject to the Directive 2012/19/EU on waste electrical and electronic equipment (WEEE). Do not dispose of with household waste.</p> <p>Any device that is defective in whole or in part must be returned to the manufacturer. To return the system, you should contact the manufacturer to arrange for its return. For contact information, see section 8.6 <a href="#">Practical information</a>.</p>

<sup>3</sup> Depending on the model you have **either** Saft LS 26500, Saft M52 EX SV or Tadiran SL-2770 only are allowed.




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### 3. Safety information


- Retain this document as reference.
- Follow the instructions given in this document to guarantee its safe use.

	<b>EXPLOSION HAZARDS</b>
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- Electrostatic hazards, all precautions shall be taken to avoid all risks of electrostatic charges on the enclosure when the equipment is used in zones where gases of the groups IIB or IIC are present.  
Avoid electrostatic build-up: Clean enclosure with a damp cloth only.
- To maintain the explosion protection of the device, the battery must only be replaced by qualified personnel. Based on the model number, only certain batteries shall be applied:
  - WM5103311410x: Saft LS 26500
  - WM5103313410x: Saft M52 EX SV
  - WM5103314410x: Tadiran SL-2770
- Do not expose the device to excessive heat to avoid battery explosion.
- Opening the device will compromise the protection of the enclosure. Only qualified personnel are allowed to open the unit or replace the battery. NEVER do this when an explosive atmosphere is present. Contact an authorized distributor.
- Do not repair the device. Do not open the enclosure, but contact an authorized distributor.
- Use the device only in EX areas it is intended for and compliant with. (→ [Explosion Protection](#)).

	<b>HAZARDS FROM ADHESIVES OR FALLING DEVICES</b>
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- When attaching the device to the machine using adhesives, follow these measures and precautions:
  - Choose adhesives that are specifically designed for industrial applications and metal to metal contact. The recommended adhesive is Araldite 2051.
  - Properly prepare the surfaces to be bonded. This may involve cleaning, degreasing, and roughening the surfaces to enhance adhesive bonding strength.
  - Follow the adhesive manufacturer's instructions for applying the adhesive, including recommended curing times and temperature conditions. Ensure that the adhesive is applied uniformly and in the correct quantity.
  - Use appropriate Personal Protective Equipment (PPE): Before bonding, be sure to wear the recommended PPE, including gloves and goggles, to protect yourself during the process.
  - Minimize Adhesive Usage: Use the minimum amount of adhesive necessary to secure the device effectively.
  - Refer to Safety Data Sheet (SDS): Consult the Safety Data Sheet (SDS) provided by the adhesive manufacturer for detailed safety information, handling guidelines, and potential hazards associated with the adhesive.
  - Refer to ["Installation"](#) for detailed positioning information.
  - Verify that the glue joint is securely in place.

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- When removing the device from a machine, take precautions to prevent it from accidentally falling and causing harm to anyone below. If applicable ensure that the area below the device is clear of people or safety critical equipment. Removal should be made by using the appropriate tool, i.e. a chisel in that case.

	<b>RADIO EXPOSURE</b>
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- Do not stay within 20 cm of the device for more than 15 seconds.

	<b>DATA QUALITY</b>
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- The presence of a Wi-care network operating nearby may interfere with the nominal operation of another *Wi-care system*. However the Wi-care network is designed and compliant for use with other wireless networks or radio devices.
- Do not expose the device to shock. Do not hit or drop the device. This could damage the measuring device.
- The device shall be mounted in accordance with good practice by a person trained to ISO 18436-2 or equivalent. This will ensure that valid asset health is obtained.

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## 4. Installation

The safety of any system incorporating this device is the responsibility of the assembler of the system. Please follow the instructions below.

### 4.1. Installation Location

To maximize the efficiency of the measured data, it is recommended to place the device in the vertical direction. This is not mandatory, but it helps to get a longer range of the signals.

Please select a location that is ventilated and not affected by mechanical shocks.  
Avoid people getting caught on the device or being obstructed.

Before mounting the device on its machine, check that the device is active and stays connected to the Wi-care network at the installation location. For more information please refer to the documentation of the software I-see.

Ensure accessibility to the installed device for maintenance and troubleshooting.

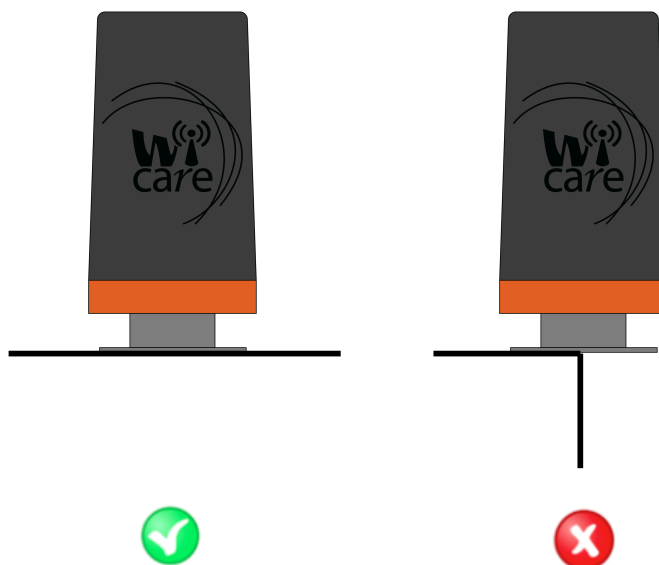
### 4.2. Installation Instructions

The device is glued to the surface of the machine. The glued part is the glue stud. The recommended adhesive is Araldite 2051.



When attaching the device to the machine using adhesives, **follow the precautions below** to ensure a safe application.

- Please follow the manufacturer's instructions and Safety Data Sheet (SDS) carefully when **selecting and using the adhesive**. Different adhesives have different requirements and safety precautions.
- Ensure the installation surface for gluing is flat, clean and dry and the temperature is in line with the glue's requirements. Please refer to the instructions of the adhesive you use.
- Use appropriate Personal Protective Equipment (PPE): Before bonding, be sure to wear the recommended PPE, including gloves and goggles, to protect yourself during the process.
- Minimize Adhesive Usage: Use the minimum amount of adhesive necessary to secure the device effectively.
- Verify that the glue joint is securely in place, as shown in the figure below.




*Picture 4 : Transmitter placement*




- Do not install a damaged device.
- Mount the device so that it is not exposed to mechanical hazards and so that ventilation of the device is not hindered.

## 5. Maintaining devices

The devices are designed and tested to be deployed on industrial equipment for long periods.


	<ul style="list-style-type: none"> <li>• Avoid electrostatic build-up: <b>Clean enclosure with a damp cloth only.</b></li> <li>• Opening the device will compromise its ingress protection (IP). To maintain the device's integrity and safety and explosion protection, do not attempt to open it. Instead, please contact an authorized distributor for support. <ul style="list-style-type: none"> <li>○ <b>Only qualified personnel are allowed to open the device.</b></li> <li>○ <b>Only qualified personnel are allowed to replace the battery.</b></li> </ul> </li> </ul>
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The battery status is monitored by the software I-see. Please refer to its documentation or contact the [manufacturer or an authorized distributor](#) in case of battery issues.

	<p>Detaching a device that is not securely bonded is needed to <b>prevent hazards from falling objects</b>. Please follow the steps below:</p>
<ul style="list-style-type: none"> <li>• If you suspect that the device's adhesive bond may be compromised or not securely attached to the machine, do not attempt to operate or use the device further.</li> <li>• Ensure that the area below the device is clear of people or safety-critical equipment.</li> <li>• Use appropriate tools (e.g. chisel) to safely detach the device from the machine.</li> <li>• Please inform the manufacturer or an authorized distributor about the issue to reattach a device to the machine.</li> </ul>	

Depending on the environmental conditions it is advisable to perform regular checks of the device on the following:

- Legible marking label
  - If the label is no longer legible because it is covered with dust or liquid, clean it using a damp cloth only.
- General condition of the device
  - Please contact the [manufacturer or an authorized distributor](#) in case of issues.

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## 6. Disposal and Recycling (Take-back policy)

We strongly encourage customers to follow our take-back policy for disposal of industrial electrical products at the end of their life cycle.

**Please return these products either directly** to our manufacturing facility **or through our network of authorized distributors** (→ [Manufacturer and Authorized Distributors](#)).

## 7. Specifications and environmental constraints

### 7.1. Specifications


#### 7.1.1. Physical properties

<b>Weight</b>	0.192 kg
<b>Size (D x H)</b>	50 x 105.4 mm
<b>Enclosure material</b>	Polycarbonate + Acrylonitrile Styrene Acrylate (PC + ASA)

#### 7.1.2. Environmental conditions




The device is intended for typical indoor industrial installations. In accordance with the requirements of the European Economic Area, it is also suitable for outdoor use (not for North America, details below).

	<b>European Economic Area (CE marking)</b> WM51033114102 WM51033134100 WM51033144100	<b>North America (cCSAus certification)</b> WM51033114103 WM51033134101 WM51033144101
all models	<b>Altitude</b> ≤ 2.000 m above sea level <b>Operating Humidity</b> ≤ 95 % relative humidity, non-condensing <b>Current rating</b> max. 62 mA <b>Protection</b> IP67 certified to protect against the ingress of dust, dirt, or other solid particles and to withstand temporary immersion in up to 1 m of water for up to 30 minutes without damage.	
	Devices are suitable for use in pollution degree 4 or wet environments according to IEC or EN requirements.	For North American requirements, devices are suitable for pollution degree 2 environments and indoor use only.
WM5103311410x	<b>Operating Temperature</b> $-20^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$ <b>Supply voltage</b> battery powered: 3.6 V DC	
WM5103313410x	<b>Operating Temperature</b> $-20^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ <b>Supply voltage</b> battery powered: 3.0 V DC	
WM5103314410x	<b>Operating Temperature</b> $-20^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ <b>Supply voltage</b> battery powered: 3.6 V DC	


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## 7.2. Explosion protection


Model numbers WM510331x410x are certified for compliance with the following technical standards:

	IECEx	ATEX
<b>Marking</b> WM5103311410x	Ex ia IIC T4 Ga (-20 °C ≤ T <sub>a</sub> ≤ +40 °C)	 II 1 G Ex ia IIC T4 Ga (-20 °C ≤ T <sub>a</sub> ≤ +40 °C)
<b>Marking</b> WM5103313410x	Ex ia IIC T4 Ga (-20 °C ≤ T <sub>a</sub> ≤ +70 °C)	 II 1 G Ex ia IIC T4 Ga (-20 °C ≤ T <sub>a</sub> ≤ +70 °C)
<b>Marking</b> WM5103314410x	Ex ia IIC T4 Ga (-20 °C ≤ T <sub>a</sub> ≤ +70 °C)	 II 1 G Ex ia IIC T4 Ga (-20 °C ≤ T <sub>a</sub> ≤ +70 °C)
<b>Tested according technical standards</b>	IEC 60079-0:2017-12 IEC 60079-11:2011	EN IEC 60079-0:2018/+AC:2020-02 EN IEC 60079-11:2012
<b>Certificate</b>	IECEx TUR 24.0007 X	TÜV 23 ATEX 9025 X

The following models have additional hazardous location (HazLoc) certifications for the North American market:

	HazLoc
<b>Marking</b> WM51033114103, WM51033134101 or WM51033144101	IS Class I, Div 1, Group ABCD Ex ia IIC T4 Ga Class I Zone 0 AEx ia IIC T4 Ga
<b>Tested according technical standards</b>	CSA C22.2 No. 60079-0:19 CSA C22.2 No. 60079-11:14 (R2023) UL 60079-0-2020 UL 60079-11-2023 UL 913-2022 CSA C22.2 No. 61010-1-12 UPD1:2015, UPD2:2016, AMD1:2018, UPD3:2023 UL 61010-1 3rd ed (Rv. Jun 6, 2023)
<b>Certificate</b>	CSA 24CA80211149X 



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## 7.3. Wireless network


### 7.3.1. Architecture

<b>Wireless communication protocol</b>	OpenThread 802.15.4-2006
<b>Frequency</b>	2405 to 2480 MHz
<b>Reliability</b>	Self-healing mesh networking, with no single point of failure, and spread-spectrum techniques to provide immunity to interference
<b>Integrity</b>	No data corruption. Control checksum.
<b>Evolutionary</b>	A new Transmitter may be added to the network at any time whatsoever
<b>Interference</b>	No interference with other wireless networks

### 7.3.2. Transmission distances

<b>Recommendation*</b>	max	typical
<b>Transmitter – Gateway (open air)</b>	150 m	100m
<b>Transmitter – Gateway; (industrial environment)</b>	50 m	30 m

\* Distances are shown on an indicative basis and may vary depending on conditions of use.

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## 8. Manufacturer and Authorized Distributors

Please contact one of the following companies for authorized support and technical assistance on the device.

### 8.1. Manufacturer

I-care SRL  
Rue René Descartes 18  
7000 Mons  
Belgium

### 8.2. Authorized support via email


Feel free to contact the official email support in local languages or from the manufacturer or legal subsidiaries:

Belgium - Dutch	customer.support.benl@icareweb.com
Belgium - French	customer.support.befr@icareweb.com
France	customer.support.fr@icareweb.com
Germany	customer.support.de@icareweb.com
Poland	customer.support.pl@icareweb.com
Switzerland	customer.support.ch@icareweb.com
The Netherlands	customer.support.nl@icareweb.com
USA / North America	support.us@icareweb.com


### 8.3. Authorized Distributors

Here is a non-exhaustive list of authorized distributors (this list is subject to change):

- I-care Asia Co Ltd, 519-C, Baekbeom-ro 513, Yongsan-gu, Seoul, South Korea
- I-Care Australasia Pty Ltd, U1/35 Beach Road, SA 5165, Christies Beach, Australia
- I-Care Deutschland GmbH, Dennewartstr. 25-27, 52068 Aachen, Germany
- I-care Polska SP Z.O.O., Ul. Puzkarska 9, 30-644, Kraków, Poland
- I-care Reliability Brazil LTDA, Avenida Doutor Chucri Zaidan - 1550 - Conj 1510 - Vila São Francisco, 04711-130, São Paulo, Brazil
- I-care Reliability España sl, Edificio ESPAITEC 2 - Universitat Jaume I Avda Sos Baynat, Castellón de la Plana, Spain
- I-care Reliability Inc., 11200 Westheimer rd., Suite 625 - Westheimer Central Plaza, TX 77042, Houston, USA

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- I-care Reliability UK Limited, Faulkner House, Victoria Street, AL1 3SE, St Albans, United Kingdom
- I-care SAS, 89, Rue George Stephenson B7, 59300, Famars, France
- I-care Suisse SA, Le Chateau 3, 2028 Vaumarcus, Switzerland
- Services Fiabilité I-care Inc, 1000 Boul. Crémazie Est - Bureau 805, Québec H2P 2X2, Montréal, Canada

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## 9. Additional information

### 9.1. Warranty

Please contact the [manufacturer or an authorized distributor](#) for warranty assistance.

For detailed information, please refer to the document called “General sales terms and conditions Wi-Care” in attachment.

### 9.2. Frequent problems and solutions provided

If certain devices are not recognised by the software I-see:

1. Check if the device has all been enabled. Please remove and dispose of any remaining plastic tab on the device to activate the battery.
2. The device needs a Gateway to cooperate with. Is a compatible Gateway within range of the device? Change positions of the device or the Gateway. Please refer to the user manual of the Gateway.
3. Does the device still have battery power? The device is designed to last for approximately 5 years.
4. Have you properly configured and enabled the different tasks? Have you left time for the Gateway to synchronize tasks? You should leave +/- 1 hour between the time when the task is created and the time when the measurement must be taken. For more details, please refer to the documentation of the software I-see.
5. Has the device been subjected to shock or treatment that could damage it? If so, please contact the manufacturer.

For more information, please refer to the user manual of the Gateway and the documentation of the software I-see.

### 9.3. QR code

Access the last measurements of a Transmitter by scanning the QR code located on it, using any QR code reader application.

### 9.4. Practical information


**I-Care:** <http://www.icareweb.com/>

**I-See:** <https://isee.icareweb.com/login/>

**Wi-Care support:** [customer.support@icareweb.com](mailto:customer.support@icareweb.com)

**Phone number:** +32 65.45.72.14

**YouTube channel:** [https://www.youtube.com/channel/UCQ-ne\\_q6kz9M53TB9KZfbww](https://www.youtube.com/channel/UCQ-ne_q6kz9M53TB9KZfbww)

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Before you contact us, please make sure you have the following information ready so that Support can process your request as efficiently as possible:

- **product name and serial number,**
- **a complete description of the problem,**
- **the exact wording of any error messages.**

End of document