

About WACS devices

The WACS (Wide Area Control and Supervision) series consists of IoT devices for online assets' management.

With them, it is possible to continuously monitor cargo, packaging, pharmaceuticals, thermolabile products, among others, as well as remotely accessing its data. Their features enable a complete inventory management of assets and a better operational performance through parameter measurement, including:

- Temperature.
- Humidity.
- Geolocalization.
- Movement and vibration.

The device has analog and digital interfaces that allow the sensing a wide range of parameters beyond those previously mentioned, subject to technical and commercial evaluation

Easily data access

Through the dots platform, access data, management devices and receive alarms through an intuitive platform.

- Graphic, cards and lists visualization.
- Alarms, notifications and historical register.
- Report generation.
- Remotely configured parameters.
- Cloud storage.

It is also possible to access it through API by integration with others platforms

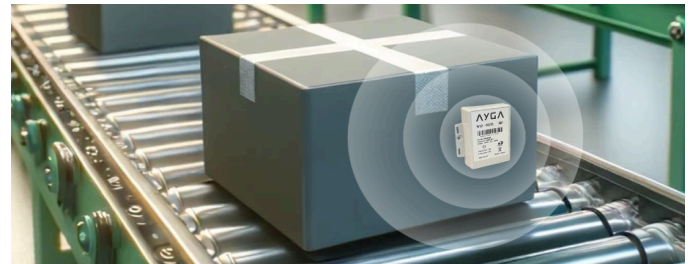
For more information, consult the last dots' TC version, available at: ayga.com/suporte.

Long-lasting battery: Equipped with an extended-life battery, it can last up to 10 years, depending on the devices' usage.

Easy installation: No need for external power supply, compact size and easy attachment, make the WACS series devices unique in terms of ease of implementation without the requirement to stop operation.

Multi IoT network: The WACS series has the ideal IoT technology for each type of application. The product usage remains consistent regardless of the communication technology.

High Accuracy: Designed focusing on measurement quality, the devices enable high-precision measurement, meeting the most demanding market standards.



Solutions

The WACS series devices are used in multiple applications, grouped into two main Business Units:



Focused on the cold chain market, it offers a complete solution for monitoring **temperature** and **humidity** in ambients, refrigerated packaging, pharmaceuticals, and food products.



Applicable in the tracking of **mobile assets** and **packaging**, such as pallets, equipment and high-value cargo.



*Illustrative image of a device with SigFox tecnologia

Products

Ayga offers a wide range of devices that vary in connectivity types, featuring different temperature and humidity sensors. It is worth noting that, by default, all the devices come with an internal temperature sensor and location tracking. The table below provides information about each type of device according to the connectivity.

Available products

	Sigfox	Cellular	LoRa
Internal temperature		✓	
External temperature (simple insulation)		✓	
External temperature (double insulation)		✓	
External temperature (-200 °C)		✓	
External temperature and humidity	✗		✓
Geolocalization		✓	
Movement and vibration		✓	

For other devices, consult the figure attached or contact our team comercial@ayga.com.br

For more specific information on each type of connectivity, consult the following sections.

Sumário

About WACS devices.....	1
Easily data access.....	1
Solutions.....	1
Products.....	2
Available products.....	2
Sumário.....	2
Technical specifications.....	3
General technical specifications.....	3
Temperature and humidity sensors.....	3
Connectivity technical specifications.....	4
Sigfox (RC1 / RC2 / RC4).....	4
Celular (2G / NB-IoT / CAT-M / CAT-1 + fall back 2G).....	4
LoRa.....	4
Mechanic specifications.....	4
General table of mechanic specifications.....	4
Device graphic specification.....	5
Sensor graphic specification.....	6
Attachment.....	7
Devices.....	7

Technical specifications

The table below presents the general technical specifications of the WACS devices, as well as operating parameters related to the included temperature and humidity sensors.

General technical specifications

	Description
Ambient operating temperature	-20 a 65 °C
Location tracking in motion	Yes, distinct location transmission period while in motion
Events	Yes, events of: High or low external temperature; Value in sensor; Motion or end of motion detection; Loss of connectivity with device; Low battery
Battery	Yes, long-lasting replaceable battery (3500 mAh)
Remote parameterization	Yes, with a remote configuration panel on dots platform
Periodic recording of measurements	Yes, interval between records configurable through the platform
Immediate data visualization	Immediate transmission of read data upon detect double tap on the device
Calibration certificate	Produced on demand and can be tested and issued by the laboratory of user's preference
Norms	FDA 21 CFR part 11, RDC 653, USP 1079 compliant
IP level	IP40/IP64* (available upon request)

Temperature and humidity sensors

	Internal temperature	External temperature (double insulation)	External temperature (simple insulation)	External temperature and humidity
Characteristics	-20 a 60 °C	-40 a 100 °C	-40 a 100 °C	Humidity: 20 a 80% RH Temperature: -40 a 100 °C
Primary sensor accuracy	± 0,5 °C	± 0,5 °C (-20 a 60 °C) ± 1°C (-40 a -20°C 60 a 100°C)	± 1 °C	± 2% ± 0,2 °C

The device has inputs that can be adaptive to different applications. Products with other sensors require commercial and technical viability analysis.

Connectivity technical specifications

The devices that differ in connectivity have specific characteristics, which are detailed in the following tables, referring to the Sigfox, Cellular and LoRa connectivity.

Sigfox (RC1 / RC2 / RC4)

	Internal temperature	External temperature (double insulation)	External temperature (simple insulation)	External temperature and humidity
Available devices	WS2-001/x (RC1) WS2-002/x (RC2) WS2-004/X (RC4)	WS2-010/x (RC1) WS2-011/x (RC1) WS2-012/x (RC2) WS2-014/x (RC4)	WS2-021/x (RC1) WS2-022/x (RC2) WS2-024/x (RC4)	WSx-0B2/x
Localization	Yes, latitude and longitude estimation through Wi-Fi AP scan technology (optional service available via dots platform) Location transmission interval is configurable			
Messages recovery	Yes, the device saves up to 60 messages in case of connectivity difficulties			
Certification	Sigfox Ready Class 0			

Celular (2G / NB-IoT / CAT-M / CAT-1 + fall back 2G)

	Internal temperature	External temperature (double insulation)	External temperature (simple insulation)	External temperature and humidity
Available devices	WS2-202/S	WS2-212/S	WS2-222/S	WSx-2B2/S
Localization	Yes, latitude and longitude estimation through Wi-Fi AP scan technology (optional service available via dots platform or third party platforms). Localization transmission interval is configurable			
Messages recovery	Yes, the device saves up to 200 messages in case of connectivity difficulties			
Battery saving mode	Configurable (according to SF/ADR). Message transmission optimization in situations where there are no event occurrences or location changes			
Hall sensor	Yes, by bringing a magnet close to the lower portion of the front face, the device can be turned on			
Certification	ANATEL			

This equipment is not entitled to protect against harmful interference and may not cause interference to be duly authorized. For more information, please refer to the ANATEL website at: www.anatel.gov.br

LoRa

For more information and technical specifications of the LoRa connectivity WACS, please contact: comercial@ayga.com.br

Mechanic specifications

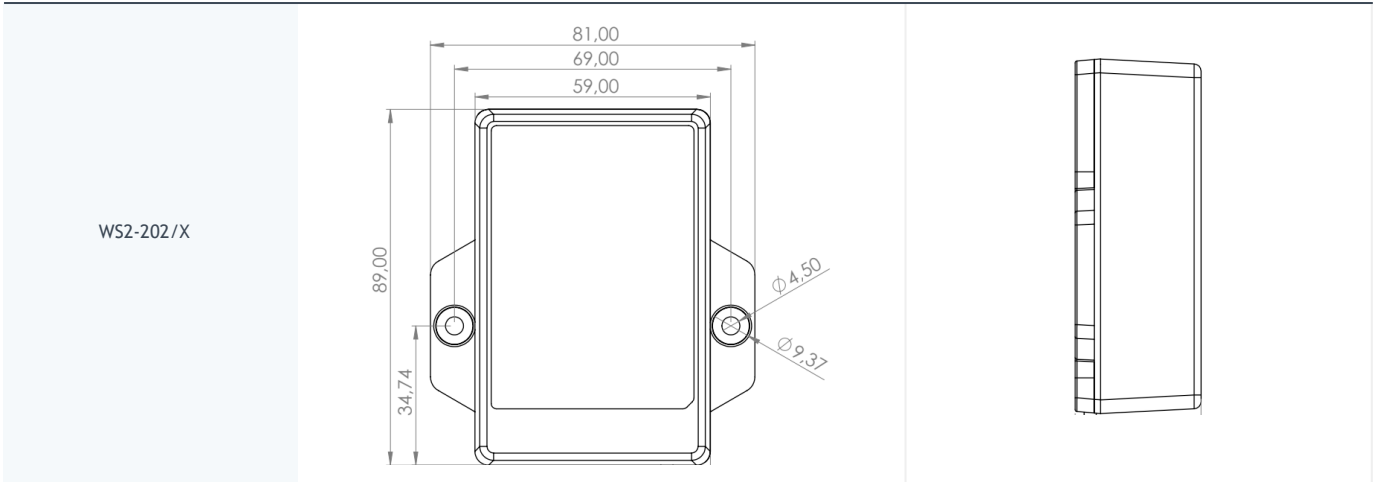
This section describes the mechanical specifications of the WACS and its sensors.

General table of mechanic specifications

	Internal temperature	External temperature (double insulation)	External temperature (simple insulation)	External temperature and humidity
External material	ABS plastic (Acrylonitrile Butadiene Styrene)			
Fixation	By means of high adhesion tape (WS2-XXX/T) or screw (WS2-XXX/S)			
Weight	120g			
Length	-	1,5 m		0,5 m
Diameter	-	3,3 mm	3,6 mm	0,5 mm

Device graphic specification

	Frontal view	Lateral View
<p>WS2-010/x (RC1) WS2-011/x (RC1) WS2-012/x (RC2) WS2-014/x (RC4) WS2-021/x (RC1) WS2-022/x (RC2) WS2-024/x (RC4) WS2-0B2/x (RC2)</p>		
<p>WS2-001/x (RC1) WS2-002/x (RC2) WS2-004/x (RC4)</p>		
<p>WSx-2B2/x WS2-222/X WS2-212/X</p>		



Sensor graphic specification

Frontal view	
<p>External temperature sensor (double insulation)</p>	<p style="text-align: right;">Unit: [mm]</p>
<p>External temperature sensor (Simple insulation)</p>	<p style="text-align: right;">Unit: [mm]</p>
<p>External temperature and humidity sensor</p>	<p style="text-align: right;">Unit: [mm]</p>

Attachment

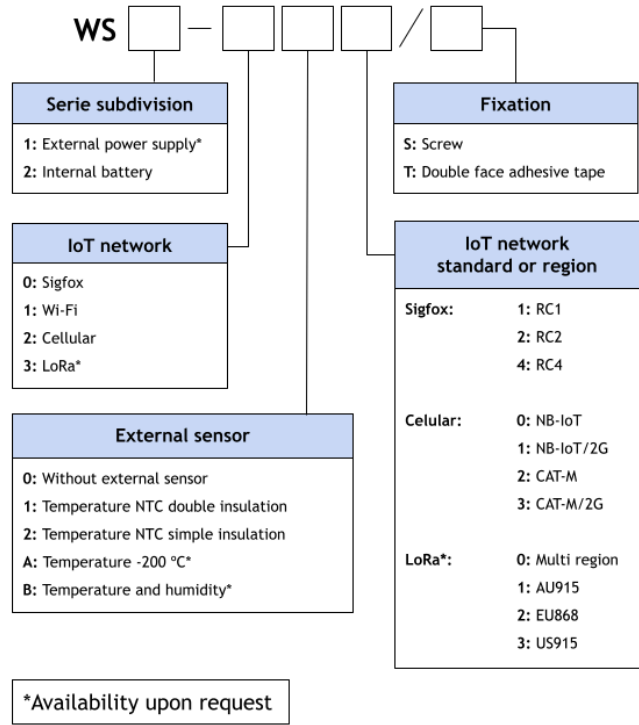
Each digit of the product code corresponds to a specific characteristic of the device. The diagram below shows how to understand the code.

Observation: Every device model includes an internal temperature sensor.

Devices

The table below describes the products available in Ayga's portfolio and their respective sensors.

	Sigfox	Cellular
Internal temperature	WS2-001/x WS2-002/x WS2-003/x WS2-004/x	WS2-202/S
External temperature (simple insulation)	WS2-010/x WS2-011/x WS2-012/x WS2-014/x	WS2-212/S
External temperature (double insulation)	WS2-021/x WS2-022/x WS2-024/x	WS2-222/S
External temperature (-200 °C)	WS2-0A2/x	WS2-2A2/S
Internal humidity	-	WS2-2B2/S



Contact us through our Technical Support team

ayga.com.br/suporte

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