

User Guide

Loadsensing LS-G6 Piconode







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1. Important instructions prior to use

Please read these instructions carefully and ensure that the required conditions specified in this document are met before using the product. Each of our edge devices includes this information inside the packaging

General warnings

- Follow these precautions to avoid a battery explosion or leakage of flammable liquid or gas:
 - Use the correct battery type. Dispose of the batteries according to instructions. Do not dispose of the batteries by throwing them into a fire or a hot oven, or mechanically crush or cut them.
 - Do not leave the batteries in an extremely high-temperature environment.
 - Do not subject the batteries to extremely low air pressure. It may result in an explosion or leakage of flammable liquid or gas.
 - Do not short circuit the batteries. This will blow the protection fuse.
- Batteries and equipment to be connected via the data port must meet IEC 62368-1 ES1 and PS1 requirements.
- Equipment to be installed in restricted access areas.

Symbol	Description
	Caution. Do not proceed until the instructions are clearly understood and all required conditions are met.
	Read the instructions for use carefully before using.
	Caution, hot surface.
	According to the European Union WEEE Directive 2012/19/EU, this product and its batteries should not be discarded as unsorted waste. Please send them to separate collection facilities for recovery and recycling. It is your responsibility to dispose of your waste equipment and batteries properly. The correct disposal of your old equipment and batteries will help prevent potential negative consequences for the environment and human health.

2. Piconode overview

The Worldsensing LS-G6-Piconode comprises a configurable single channel, a thermistor, and a pulse counter node. It can be regarded as a simpler version of LS-G6-VOLT node, in the sense that it is compatible with sensors of different analog signal output, such as full Wheatstone bridge, potentiometer/ratiometric, single-ended voltage and thermistors, but with the novelty of being able to read potential-free (dry contact) pulses. The sensor's voltage excitation required to be compatible with the piconode is 5 VDV up to 70 mA. A distinctive feature of Piconode as compared to LS-G6-VOLT and LS-G6 vibrating wire nodes is that it collects and transmits the internal temperature at each reading, to an accuracy of 2 °C.

Unlike other LS-G6 nodes, the antenna in a piconode is located internally in the casing upper cover. The coverage tests results prove that distances over five kilometers can be achieved in urban areas.

You can check the specifications of the piconode here:

<https://www.worldsensing.com/product/loadsensing/>

3. Equipment Provided

The Worldsensing LS-G6-Piconode is equipped with an internal antenna.

Other additional accessories can be supplied upon request. Here is a partial list, please inquire for other accessories:

- USB-OTG configuration cable
- Batteries
- Sensor surge protection
- Mounting supports

4. Piconode installation

4.1 Mounting the Piconode

The Piconode can be mounted:

- On a wall - polycarbonate wall mounting brackets are available as additional accessories (refer to Figures 1, 2, and 3)
- On a raised horizontal surface - same mounting brackets as above
- Inside a manhole (with a plastic or metallic cover) - no special accessories are available for this mounting type. See [Annex 10 LS-G6 Data Loggers installation on manholes](#) for further detail

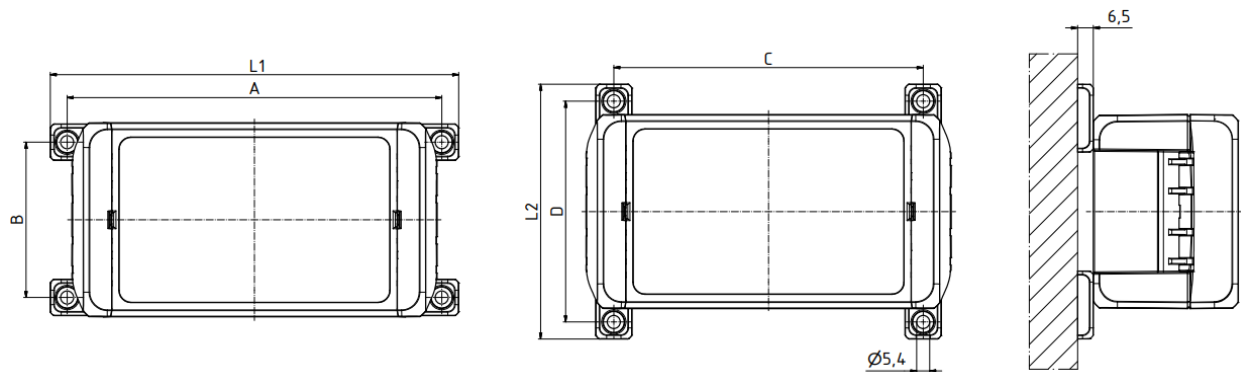


Figure 1: Plan and section views of the mounting brackets (packs of four brackets and four screws)

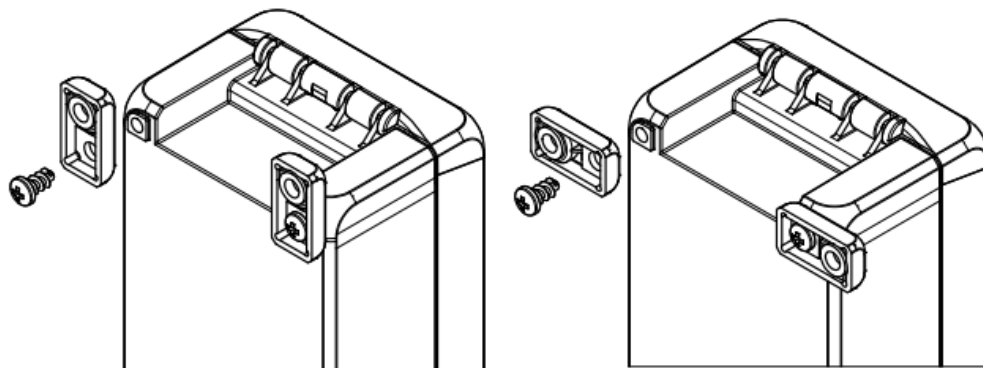


Figure 2: Lateral view of mounting brackets - vertical and horizontal positions

Anschraubmaße / screw mounting dimensions						
Modell / model	A	B	L1	C	D	L2
BOCUBE B 1008..	117	64	131	90	91	105

Figure 3: Screw mounting dimensions

4.2. Powering the Piconode

The data logger arrives sealed and without batteries installed; however, it is possible to have it with the batteries inserted upon request, in that case you should remove the non-conductive material that protects the terminals.

In order to initialize the piconode, the user should follow these steps:

1. Open the data logger (using a 2-mm flat-head screwdriver). The batteries should be inserted into the battery holder placed above the logical board (Figure 4). The internal antenna is internally attached to the cover and is connected to the main board through a cable - be careful not to snap the cable while opening the node



Figure 4: The Piconode can be opened making use of a 2-mm screwdriver

2. Insert one or two **C-type batteries** into the battery holders. Polarity is indicated (see Annex 4 for further information on the batteries)

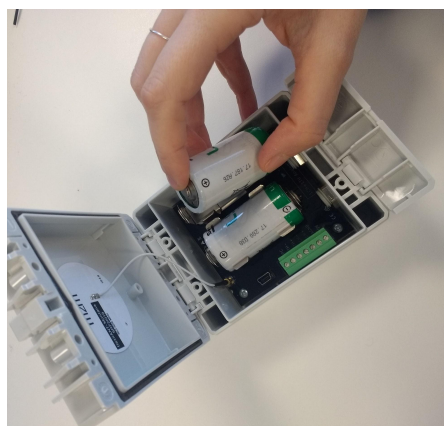


Figure 5: One or two batteries power the Piconode

Note: The device has reverse battery protection but it is not safe to keep batteries reversed in the data logger for a long time.

Warning: Risk of explosion if the incorrect batteries are used. Dispose of batteries according to the instructions. This equipment should be installed in restricted access areas.

3. The node does not have a switch (Figure 6), therefore the only way possible to use the node is with batteries



Figure 6: Unlike other LS-G6 nodes, there is no power switch in the Piconode

5. Piconode configuration

Ideally, this step of the process should be carried out in the same location in which the node is going to be installed. This way, you can perform an on-site radio coverage test.

The node configuration process is done using the WorldSensing DLog app, which is compatible with any Android device equipped with OTG technology (Lollipop 5.1 sdk or above is required). WorldSensing has tested Motorola Moto G4 and G5 and guarantees that they are able to configure and test all nodes. Battery usage may be required as Android devices may not be able to power some sensors.

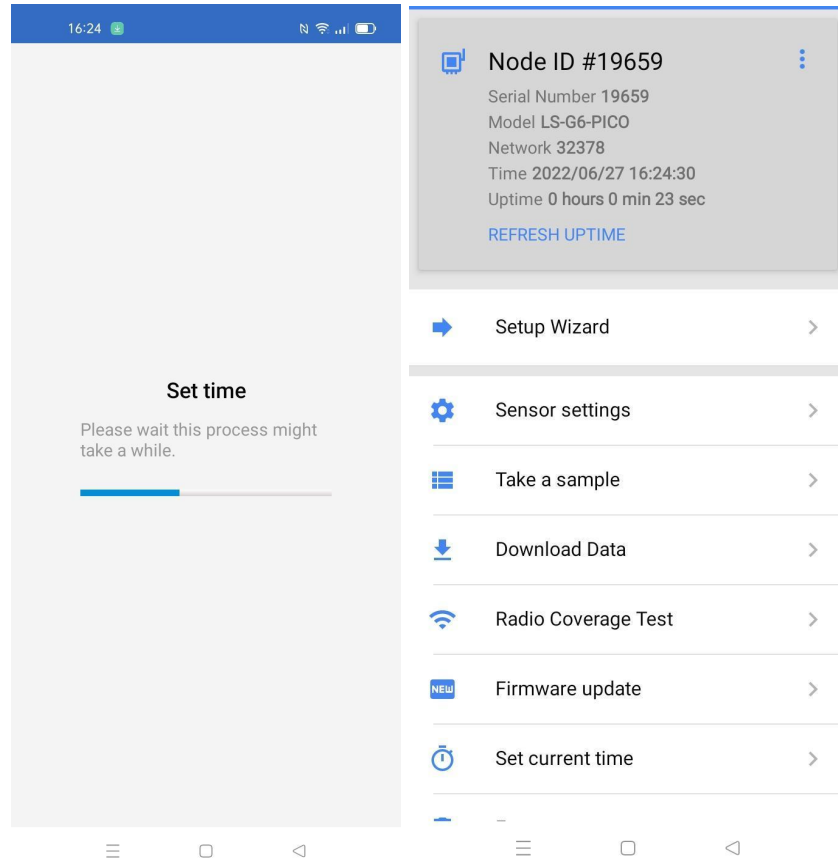
DLog starts up once the device has been connected to the node using the USB-OTG cable. Manual startup is not necessary.

The whole configuration process shouldn't take more than five minutes and, from then, the node will start taking readings and sending data to the gateway (once the gateway is already up and running).

5.1 Connect the Worldsensing Android application

Download the app onto your Android device from the [website](#).

Connect your device to the node using the USB-OTG cable (see the Accessories list). Make sure the battery or batteries are correctly inserted. The app will automatically appear and display a message (Figure 7) requesting that the date and time of the node be set (it will take them from the mobile phone or tablet in use, Figure 8), afterwards, the node's basic information will appear (Figure 9).



Figures 7 and 8 respectively, showing the first steps of the Worldsensing app to set up a Piconode

5.2 Worldsensing App settings

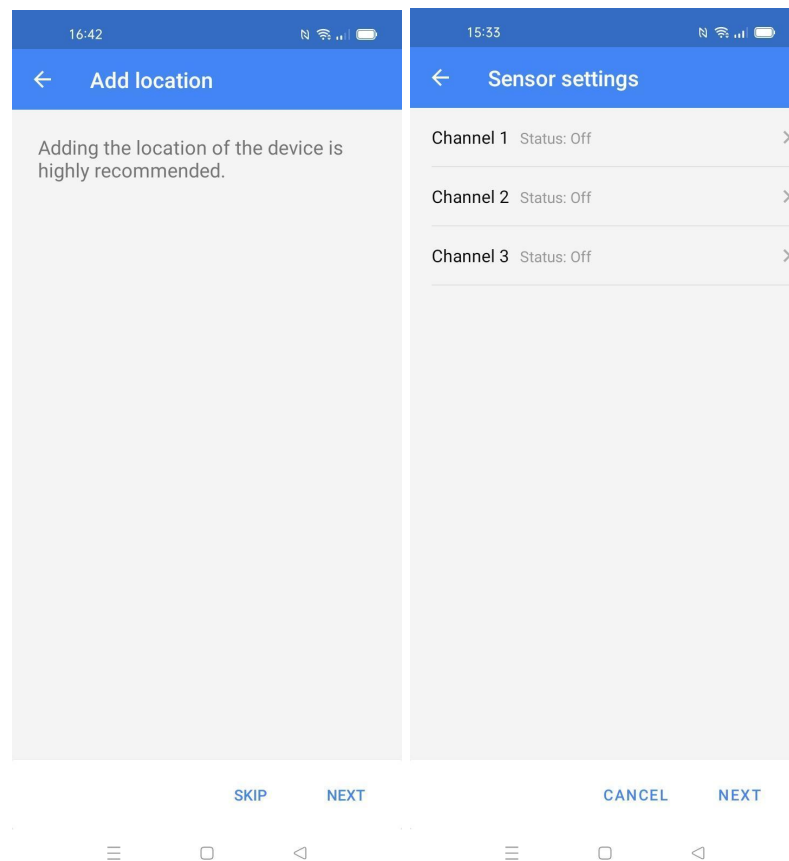
The Worldsensing Mobile App's main menu, idisplays on the main screen the basic information about the node, such as the serial number, the model, the network to which it is connected, if any, the current time and the uptime (time the device is up and running). Other settings are listed next.

5.2.1 Setup Wizard

The whole configuration steps are sequenced to be able to connect the logger to the system.

Sequence:

- 1) Add location - (optional) the app will take the coordinates from the mobile phone or the table, only if the device has the GPS function on (Fig. 9).
- 2) Sensor settings - three available channels are displayed and show their current status: on or off (Fig. 10).



Figures 9 and 10: Optional location of the device and number of configurable channels, respectively

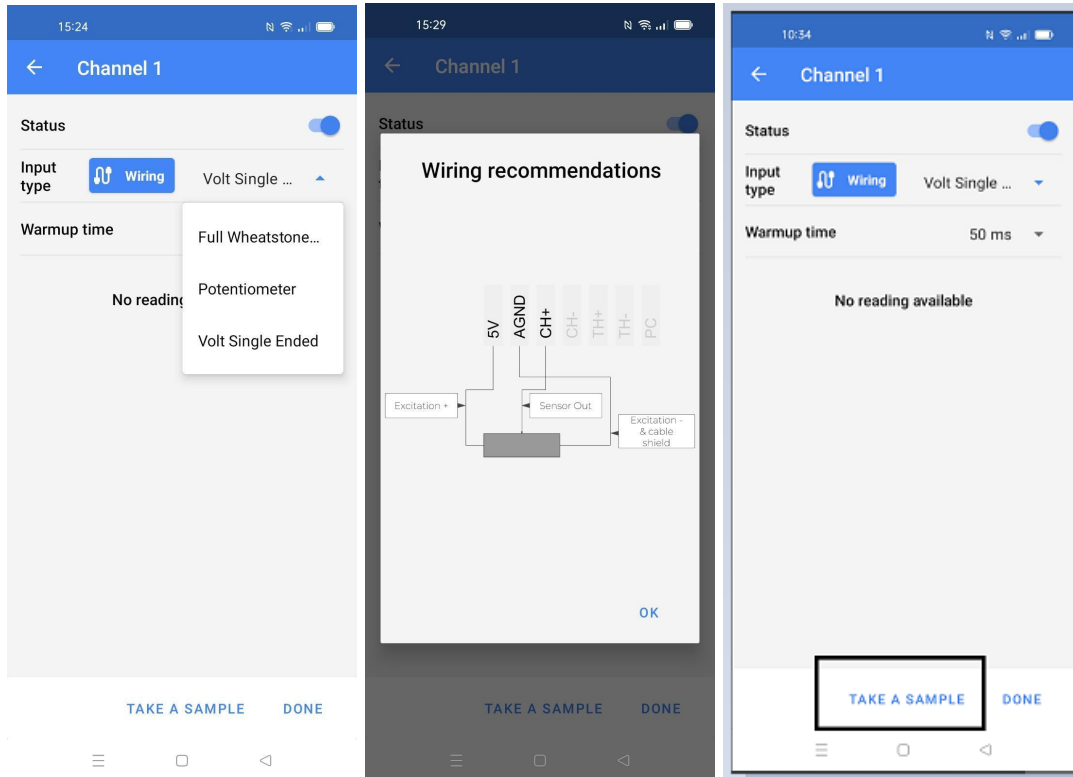
Channel 1

It is meant for Full Wheatstone Bridge, Potentiometer/Ratiometric and Volt Single Ended type sensors (Fig. 11).

Note: these sensors are powered at 5 V dc through the Piconode. This is the maximum voltage the Piconode can supply. This aspect is key to knowing if a sensor of this kind is compatible with the Piconode.

By clicking on the Wiring icon, it is possible to see the wiring diagram that applies in each case.

A **wiring** diagram shows up on the phone or tablet used for configuration for each one of the options selected as shown below (Fig. 12).



Figures 11, 12 and 13: Possible sensors of the Channel 1, wiring scheme and Take a Sample option, respectively

For each one of these types of sensors, a warm-up time has to be set.. The user should refer to the sensor's manual to check which value is necessary or else contact the sensor supplier to get that information.

The '**Take a Sample**' option that appears at the bottom of each channel allows the user to visualize the readings collected by the sensor through the Piconode (Fig. 13)..

Notes:

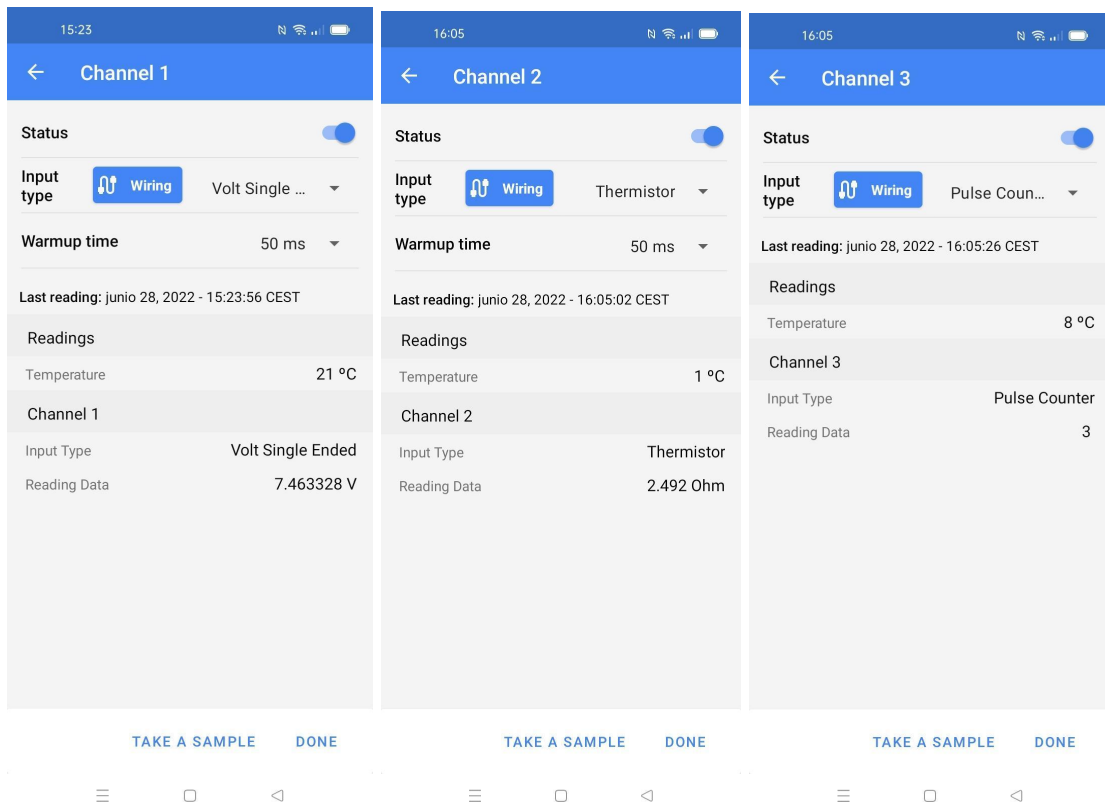
1. The socket connector of the Piconode is removable, facilitating the wiring of the sensor.
2. The user should also refer to the sensor's manual to see the wiring scheme of the sensor
3. All three channels can be used together

Channel 2

When enabled, it can read a thermistor. It also requires a warmup time to be set as shown in Fig. 15.

Channel 3

When enabled, it can read a pulse counter sensor(Fig. 16).



Figures 14, 15 and 16: Three channels of the Piconode and Channel 1 options (sensor types), respectively

5.2.2 Channel 3- Pulse counter output

The Piconode can read a pulse rate of up to 50 Hz, its measuring range is 0 to 2 MOhms, and it has a memory capacity of 4.294.967.296 pulses that can be accumulated. Once memory capacity is exceeded, the Piconode will start counting over from zero.

5.2.2.1 Pulse counter (Dry Contact)

Sensors with potential-free (dry contact) pulses output are usually furnished with two cables, these two cables are interchangeable and have to be connected one to the PC (power connection) terminal and the other one to the AGND (grounding), see Fig. 17.

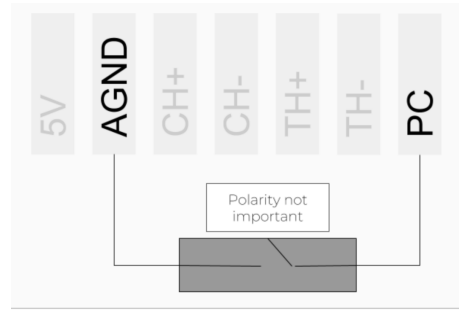


Figure 17: Wiring diagram for a pulse counter (dry contact)

5.2.2.2 Pulse counter (Open Collector Pulse)

Unlike sensors with potential-free (dry contact) pulses, sensors with an open collector pulse output only work when the ground cable of the sensor is connected to the ground pin (AGND) of the Piconode and the open collector output needs to be connected to the pulse counter (PC) pin, see fig. 18.



Figure 18: Wiring diagram for a pulse counter (open collector pulse)

The open collector output behaves like a switch that is either connected to ground or disconnected, this allows electronics with different voltage level interconnect, consequently if a sensor with this type output is connected to a Piconode it could run and be powered by the Piconode when the power requirement of the sensor (voltage) is within the 5 VDC range and up to 50 mA, otherwise it will require of external power supply.

5.2.3 Radio Type

The radio settings are as follows (Fig. 19):

- Radio off if you want to work in standalone mode.
- CMT Edge for embedded gateway configuration.
- CMT Cloud for multi-gateway configuration.

5.2.4 Region

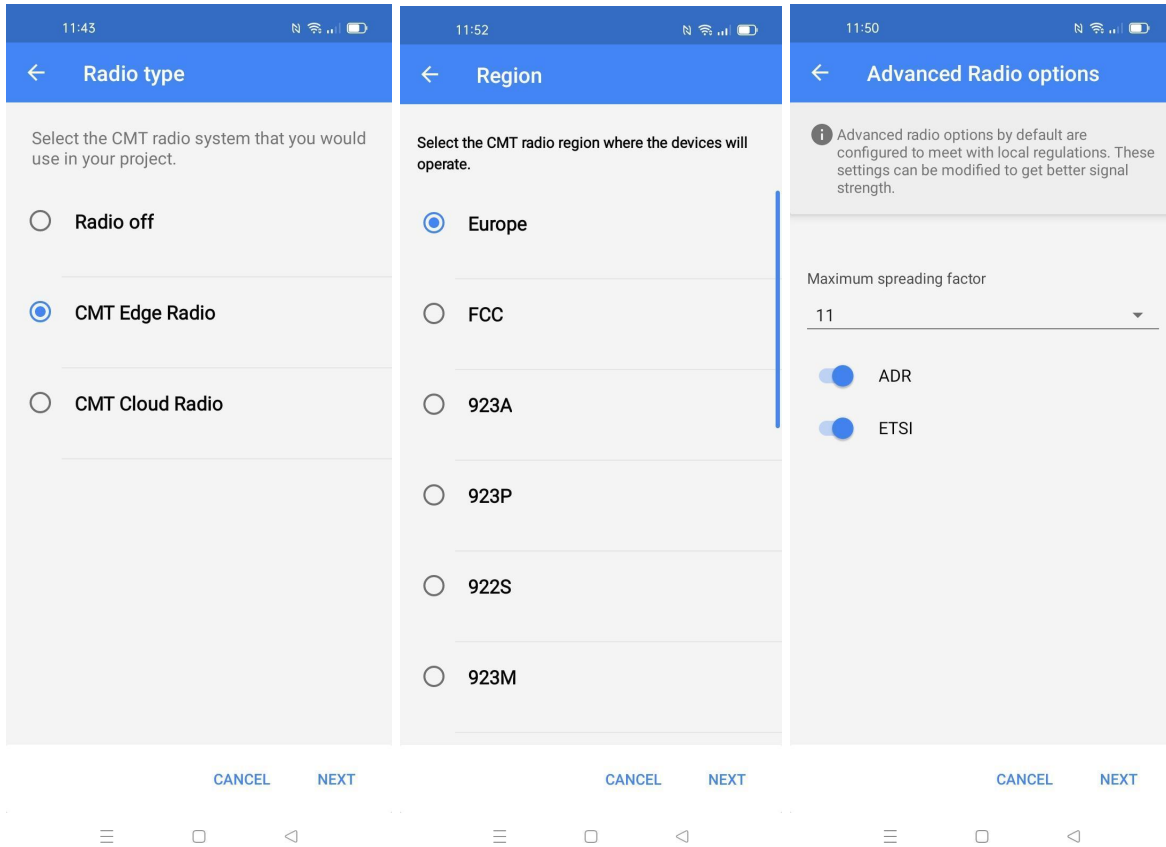
Select the region that matches your LoRa region regulations. The same region must be applied in the gateway radio configuration (Fig. 20).

5.2.5 Advanced Radio Options

These two parameters ADR and ETSI are related to the radio communication and set by default and do not have to be changed unless otherwise indicated by Wordsensing's technical support (Fig. 21).

Notes:

1. See the Radio specification chapter of the Gateway User Guide or [Annex 01_LS G6 Gateway Radio Specifications](#) for more details on radio models and settings.
2. Remember the Wordsensing Mobile App saves and maintains the radio settings to simplify the configuration of all the nodes in a network. To modify these settings, the radio must be enabled again.
3. The default configuration parameters should be suitable for the majority of networks.



Figures 19, 20 and 21: Radio type configuration, different regions and advance radio settings, respectively

5.2.6 Network Size

It refers to the number of nodes connected in a same network. We recommend indicating the final number of sensors and or data loggers that your wireless network will have, since this parameter determines the available sampling rates. Large networks do not allow the selection of small sampling rates, see Fig. 22.

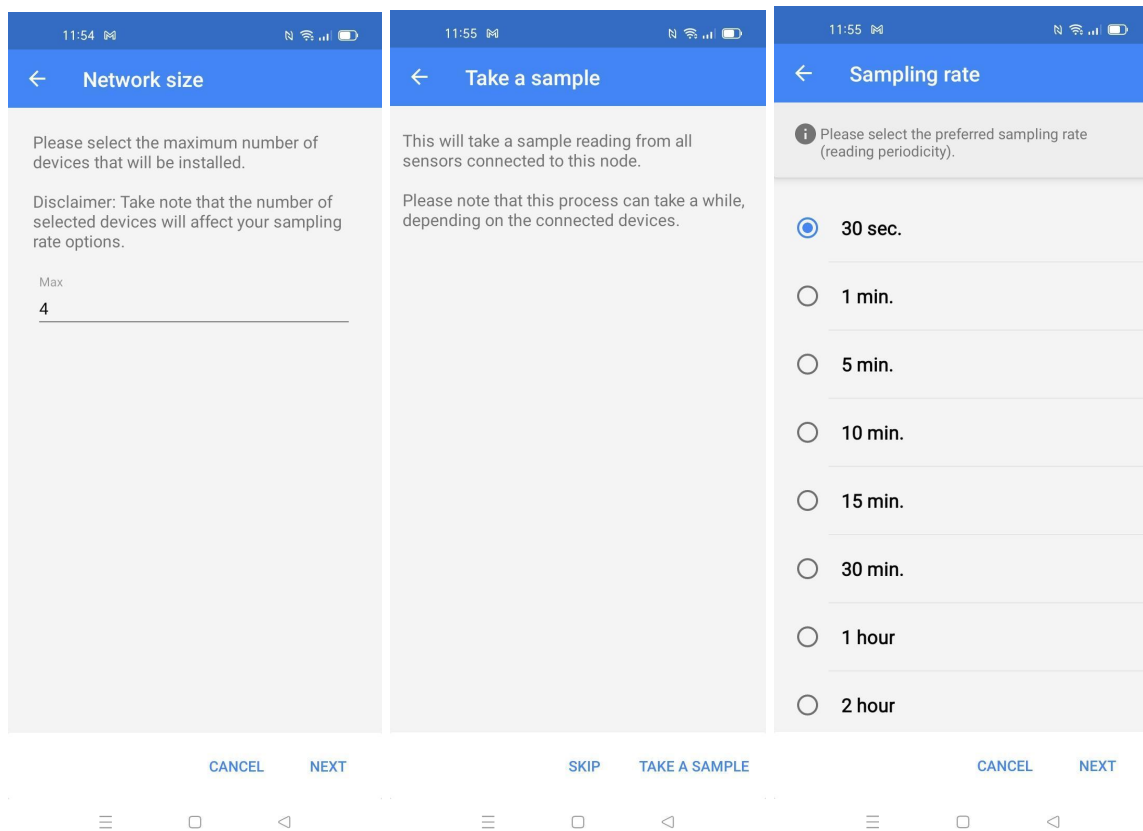
5.2.7 Take a sample

Optionally the user can take a sample before setting the sampling rate (Fig. 23).

5.2.8 Sampling rate

Several sampling rates are displayed on the screen and their availability will depend on the **Network Size**. Choose your desired reading frequency from the drop-down menu (Fig. 24). The highest possible sampling rate is limited by the network size and the number of sensors that are being read. The correct configuration of your network size and sensor sampling rate is crucial to prevent data transmission collisions and data loss at the gateway.

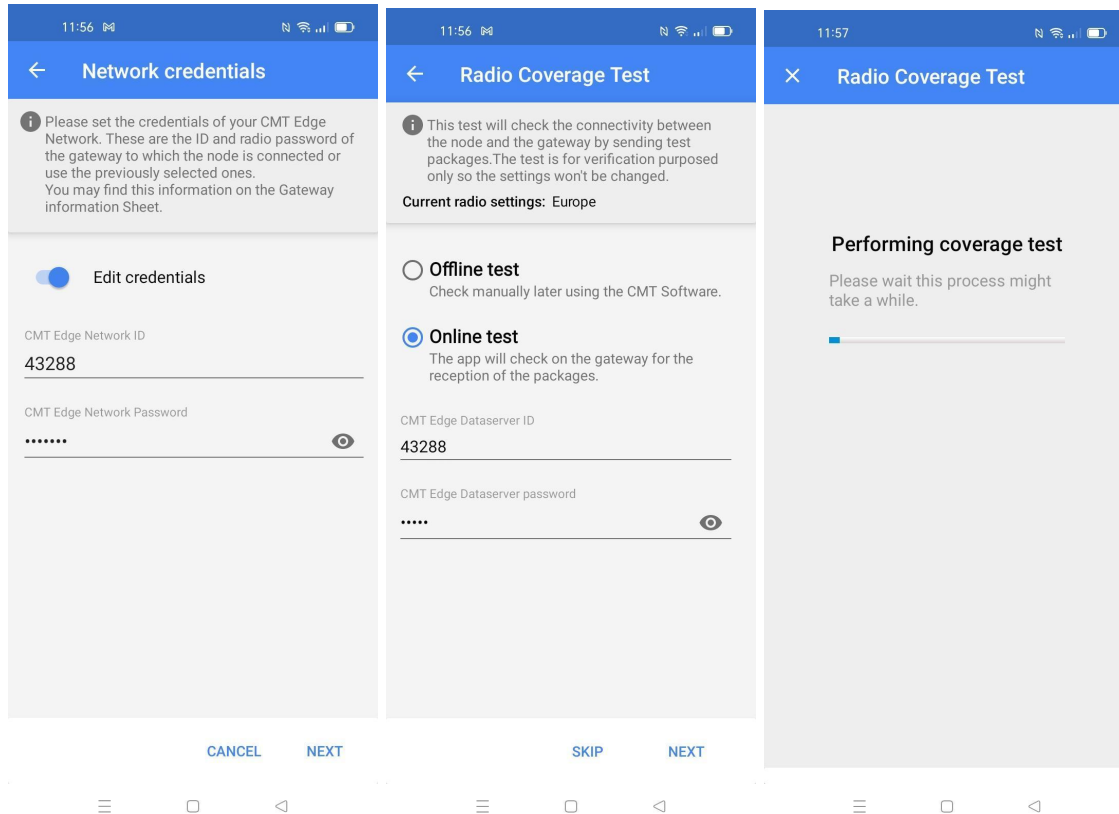
In this regard, once the data loggers are connected and configured, we recommend you to set up the sampling rate again from the gateway as it will be able to optimize slot time radio communication. For further information, please refer to the **Radio specification** chapter in the Gateway User Guide that can be found at [the knowledge base](#).



Figures 22, 23 and 24: Radio type configuration, different regions and advance radio settings, respectively

5.2.9 Network credentials

To establish the connection between the Piconode and the radio of the gateway, it is required to enable the CMT Edge Network credentials, ID and password, and type them as shown in Fig. 25.



Figures 25, 26 and 27: Radio type configuration, different regions and advance radio settings, respectively

5.2.10 Radio Coverage Test

The final step in configuring the data logger with the WorldSensing Mobile App is to perform a signal coverage test to check the quality of communication with the gateway. The gateway must have been previously connected and configured.

The Piconode sends test packages. The WorldSensing Mobile App then checks the gateway (using an Internet connection) to see if these packages have arrived. Hence, the test will check for:

- The correct operation and communication of the gateway.
- The correct radio configuration of the gateway and data logger (including matching region and ID/password configurations).

- The quality of the signal received by the gateway from the data logger.

To perform an **Online test**, the gateway serial number and remote access password must be entered in the Loadsensing Mobile App (figures 26 and 27). The CMT Edge dataserver ID and password are meant to protect the gateway from accessing it in local mode or online. They are conceptually different from the CMT Edge Network server ID and password, although by default they are set to be the same value (see the corresponding Gateway Information Sheet).

When carrying out the **Radio signal coverage** test, the position of the Android device is saved (if you gave the app permission to access GPS data) and a security token number identifies each test.

If the gateway and/or the Android device are not connected to the Internet during the test, the online test will fail and you will need to perform an **offline test**. In this mode, however, the results of the test cannot be displayed on the Android phone. A security token number identifies each test (figure 27). Write down the token number along with a description of where and under what conditions the test was taken. Check the results of the coverage test on the gateway web interface by going to **Network**, then **Signal coverage test map**, and then **Download all tests of this network**.

Enter the **Network ID** and password provided in the Gateway Information Sheet that is supplied along with the gateway. All messages are encrypted with the network password.

5.2.11 Test results interpretation

The results of an online coverage test are shown when the test is finished. For offline coverage tests, they can be downloaded to the Gateway (CMT Edge) or to the data server (CMT Cloud). For more information on how to download them, please refer to the [knowledge base](#) where the user guides can be downloaded.

The results are displayed for each Spreading Factor (SF) (figure 28). During a radio signal coverage test, a data logger sends 5 or 10 data packages from SF7 to SF11. The number of data packages that reach the gateway is captured and gives an idea of the quality of the communication. A coverage test is considered successful if any of the SFs available on the network is able to deliver at least half of the packages sent.

The SF represents a way of modulating data. The SF is proportional to the distance between the data logger and gateway: higher SFs are capable of transmitting data at higher distances, while lower SFs reach lower distances, consequently the lower the SF number is, the shorter the message; thus, more messages can be sent on the network.

For further information, please check the following link: [Spreading Factor](#).

Radio signal coverage	
Date	13 Oct 2020 13:25:46
Token	1602588346
Node ID	7060
Network ID	21784
Latitude	
Longitude	
SF7	10 / 10
SF8	10 / 10
SF9	10 / 10
SF10	5 / 5
SF11	5 / 5
SF12	5 / 5
<p>For the coverage test to be successful, the highlighted SFs should receive an average of at least one third of the messages sent, and one of them should receive at least half of the messages sent. For more information consult the documentation.</p>	
<p style="text-align: center;"> <input type="button" value="BACK"/> <input type="button" value="NEXT"/> </p>	

Figure 28, Coverage test results (online test)

Note: Performing the Radio signal coverage test takes approximately 2 minutes.

2) Radio type -

1) **Sensors data:** Access to real-time sensor readings and data stored on the node.

2) **Node Configuration:** Access this menu to configure the node.

a) Change node ID: By default, the node ID is the same as the serial number of the sensor. This tool lets you change the node ID and use a different number. We recommend only changing the ID in case of replacement, to keep it the same as the previous node.

b) Set date and time: this info will be taken from the mobile phone or the laptop in use.

4) **Factory reset:** This resets the configuration parameters and removes all stored data. It is designed to allow the node to be used in different sites. Don't use it for other purposes unless suggested by Worldsensing technical support.

5) **Installation tools:** This option relates to other types of nodes and so can be ignored when working with the LS-G6-Piconode.

6. Safely closing the Piconode

To ensure water tightness and durability of the data logger, the polycarbonate cover has to be fully closed by lifting it up and pressing until you hear a 'click' sound. The cable gland is to be tightened with a 19 mm spanner to ensure watertightness (Figure 29).

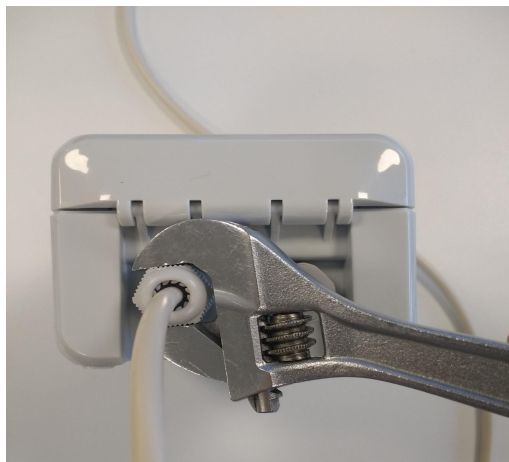


Figure 29: Tightening of the Piconode cable gland

If the above conditions are not met, IP67 rating cannot be guaranteed. Should the data logger need further sealing due to placement in an extreme environment or in a floodable manhole, additional sealants will be required to close the box. See [Annex 10 LS G6 Dataloggers installation on manholes](#).

9. Maintenance

9.1 Piconode Firmware Upgrade Procedure

When a new version of the app is available, DLog will display an automatic message asking the customer to upgrade it. To be able to have the latest Dlog version, the mobile phone or tablet in which the app is installed needs to have Internet, otherwise the customer should contact Loadsensing Technical Support for assistance.

9.2 Battery lifespan

This node can run on one or two battery cells **and cannot be powered by an USB connector**, that is to say, it cannot be powered by using an external power source. When connected to a Piconode

without the battery or batteries inserted, the app does not recognise the device because theoretically it is not powered, thus an error message appears and also a recommendation to upload the firmware of the node. If clicking on the firmware upload, a screen appears showing the update of the firmware but with no timeout, the device can remain in that state for hours.

Also, there could be erratic behavior if the Piconode had a low battery level, not high enough to power the internal processes. This can be observed at the uptime in seconds that appears on the screen when connecting the Worldsensing app. In general, a Piconode should not restart during its configuration. If it restarts several times, it is usually related to the power supply.

No Real Time Clock (RTC) battery is allocated in piconodes. As a result, anytime the battery or batteries are removed, you need to update the node's time and date via LS app.

The battery life of the Piconode will depend on the sampling rate selected, on the radio communication quality, i.e. the spreading factor (SF) and the transmission power (Tx Pw) with which the system works and on the temperature profile of the area.

Some estimated figures for a scenario with SF:9 ; Tx Pw 14dB (European radio) and with the temperature profile of Singapore (average temperature: 31°C) are as follows:

Sensor	Sampling rate	One battery	Two batteries
Potentiometer + Thermistor	5 min	1 year	2.5 years
	1 h	5 years	8 years
	6 h	6.5 years	9.5 years

Sensors	Sampling rate	One battery	Two batteries
Gauge + Thermistor	5 min	0.5 years	1.5 years
	1 h	4 years	6.5 years
	6 h	6 years	9 years

Sensors	Sampling rate	One battery	Two batteries
---------	---------------	-------------	---------------

Pulses	5 min	1.5 years	3 years
	1 h	5.5 years	8 years
	6 h	6.5 years	9.5 years

Figure 30. Tables showing the estimated battery duration based on the sensors connected and the sampling rate selected.

Notes:

The above figures are estimated in lab conditions using 2 SAFT LSH 14 batteries with a nominal voltage of 3.6V ([SAFT LSH 14 batteries product sheet](#)).

Type of sensors used for the calculation: 7.5 x 7.5Kohm potentiometer, , 3K thermistor and 300ohm wheatstone bridge strain gauge.

As mentioned, temperature and spreading factor have effects on the the batteries' lifespan as shown in the following table:

Temperature profile:	Singapore (average temp. 31°C)		Barcelona (average temp. 19°C)		Moscow (average temp. 7°C)	
	SF8	SF9	SF8	SF9	SF8	SF9
Sampling rate						
5min	2	1.9	2.1	2	2.2	2
1h	8	7.8	9.1	9	9.7	9.5
6h	9.8	9.8	11.7	11.7	12.8	12.8

Figure 31. Table showing the estimated battery duration average in years for different SR, SF and T* profiles. Source: SAFT

9.3 Data Acquisition and storage

The Piconode has an internal memory of 200.000 readings. When the memory is full, new readings overwrite the earliest ones. As well as sensor data, the Piconode collects health data on battery voltage, internal temperature and node uptime every 7 hours.

The data is stored in comma-separated value files (CSV type for both readings and health data). The readings and health files can be downloaded using the Loadsensing Mobile App. The user can refer to section 3 of the following doc [LS-G6 Worldsensing user guide](#).

10. Pulse counter particularities - Engineering Units

There are some particularities related to the pulse counter. This type of signal input implies data to be continuously stored, in a way that the value recorded when sampling is added up to the previous one. The Piconode therefore, stores an accumulative value from the moment the node starts taking readings. The maximum number of pulses that can be recorded until the reset-to-zero point is 2^{32} . Consequently, if the user wishes to start over the data counting (from zero value), either the node has to be reset via the Dlog app or the engineering units have to be redefined.

10.1 Steps to reset the node configuration via Dlog app

On setup wizard

- Disable channel 3- pulse counter
- Enable Channel 1 or Channel 2, or both if already in use. They will have to be reconfigured by choosing the same settings. The coverage test can be skipped
- Enable Channel 3 - pulse counter
- Proceed with the usual node configuration, the coverage test can be skipped

10.2 Steps to reset the node configuration via Gateway configuration

On Networks – Node ID

- Click on the wheel icon located on the right side of the Last readings and Time series graphs panel as shown in the image below (Figure 32)

Node 29385

/ Networks / 23486 / Node 29385

Name

Installation date

Comments

Model LS-G6-PICO





Firmware version 2.65

Serial number 29385

Health CSV files [29385-health-current.csv](#)
[+ More](#)

LS-G6-PICO CSV files [29385-readings-current.csv](#)
[+ More](#)

Last readings and Time series graphs

Channel	Raw reading 	
1 Potentiometer	0.00433022 V/V	
2 Thermistor	8003825.675 Ohms	
3 Pulse Counter	0 pulses	

Received on 2022-07-08T08:00:16Z

Status

Metadata

Last messages

Figure32. By clicking on the wheel icon it is possible to reset the pulse value to zero

- On formula panel, choose Pulses minus an offset by clicking on the dropdown menu (this formula appears by default if never configured before, Figure 33)

Engineering units

/ Networks / 22789 / Node 44353 / Engineering units

Channel 3

Use engineering units

Formula:

Pulses minus an offset

$$R = P_i - P_o$$

R: Pulses result

P_i: Current pulse reading

P_o: Pulse offset

Save

Figure 33, Pulses minus an offset formula

This formula will allow to offset the zero value (for example, if 23 pulses were previously recorded, P₀ is set to 23 to start counting over)

Other formulas are captured below in Figures 34 and 35.

Engineering units

/ Networks / 22789 / Node 44353 / Engineering units

Channel 3

Use engineering units

Formula:

Pulses minus previous pulses

$$PulseCount = CumCounts_i - CumCounts_{i-1}$$

Pulse Count: Pulse Count in the sampling period

CumCounts_i: Current reading of the accumulated counts

CumCounts_{i-1}: Previous reading of the accumulated counts

- Node sampling rate has to be remotely set to apply this formula.
- In the case where one radio packet is lost, the formula will not be applied.
- Readings manually collected with android App will be rejected in the calculation.

Save

Figure 34, Pulse count formula

The pulse count formula will allow the user to get a cumulative pulse variation within a specific sampling period (hourly, daily, etc.)

CMT Edge Networks Status Configuration

Engineering units

/ Networks / 22769 / Node 44353 / Engineering units

Channel 3

Use engineering units

Formula:

Rainfall

$$Rainfall = (CumCounts_i - CumCounts_{i-1})G$$

Pulse Count: Pulse Count in the sampling period
CumCounts_i: Current reading of the accumulated counts
CumCounts_{i-1}: Previous reading of the accumulated counts

G: Linear Gage Factor in units/pulses

Units: Magnitude that is measuring the sensor (ie: mm/cm)

- Node sampling rate has to be remotely set to apply this formula.
- In the case where one radio packet is lost, the formula will not be applied.
- Readings manually collected with android App will be rejected in the calculation.

Save

Figure 35, Rainfall formula

The Rainfall formula will allow the user to get a cumulative pulse variation within a specific sampling period (hourly, daily, etc.) expressed in specific units, for example in mm which is equivalent to liters of water poured per square meter of surface.

11. Environmental best practices

Installation and operation

Please install Worldsensing products in an energy-efficient manner by minimising power usage for computers, mobile phones or other devices needed for setup and configuration. Minimise the use of small components needed for installation, like mounting brackets and other connection materials. Avoid using toxic materials and/or hazardous substances.

- Set the sampling rate only in the nodes you need.
- When configuring the nodes, use "Set last configuration" whenever possible.
- Remove the batteries if you are not using the node.
- For nodes with switch, use the usb mode when not in operation.

Return Material Authorization (RMA)

In the event of requesting a Return Material Authorization (RMA) please make sure to use the most environmentally friendly mode of transportation possible.

Product End of Life and disposal

Please take the necessary measures to extend the life of the product and reuse it when possible.

Once the product reaches its end of life (EoL) recycling is crucial to divert material from waste streams into new applications.

Electrical and electronic devices, and batteries must be recycled according to the European Union WEEE Directive 2012/19/EU.

Please separate batteries from equipment.

This product and the batteries it may contain should not be discarded as unsorted waste. Please send them to separate collection facilities for recovery and recycling.

Product packaging

Worldsensing's product packaging is recyclable. Separate the different materials for a correct waste management.

Safety and emergency procedures

Please read the safety sheet that comes with our products before installing them. For safety information on batteries and other materials, as well as instructions in case of emergency please read the safety information available at: <https://info.worldsensing.com/safety-information/>

In the case of an emergency and after it has been managed, please evaluate the waste generated in order to dispose of it in accordance with current legislation and local regulation.

It is your responsibility to dispose of your waste equipment, batteries and packaging properly to help prevent potential negative consequences for the environment and human health.

The cost of environmental waste management is included in the battery's selling price.

By following these best practices you can help protect the environment. Thank you for your cooperation.

12. CONTACT WORLDSENSING

Need more support? Get in touch with our Customer Success team:

Email: support@worldsensing.com Phone: +34 93 418 05 85 (08.30h - 16.30h UTC)

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