temperature @lert

ZPoint Node

TM-ZP200

TM-ZP200-TH

User Guide

User Guide

Thank you for choosing Temperature@lert to protect your highly valuable belongings from unexpected changes in temperature or other potentially harmful environmental factors. We hope that you will find our products and services the simplest and most reliable wireless temperature monitoring systems available.

TABLE OF CONTENTS

About Temperature@lert

Our data logger device helps to alert you when slight changes in the environment are detected. We believe in the simplicity of our device – in design, set-up, and operation.

Our device is cost effective. We strive to design, manufacture and deliver high quality, reliable products and services our customers want at a price they believe delivers good value and the peace of mind they expect.
We have a long history of designing devices to measure environmental changes. Our line of monitoring devices takes environmental monitoring to the next level by allowing for customized timing of monitoring efforts and customized methods of alert notifications. We design our products and services to make them easy to use as delivered together with the capability to be customized for technical applications and advanced integration requirements.

About ZPoint

Temperature@lert's next generation wireless sensor offering provides leading edge data logger performance and advanced features to meet the needs of IT, Medical, Bio/Pharma, Retail and Commercial Food Service, Property Management, Solar & Green Energy and Residential customers to keep track of their valuable materials, equipment and data where limited or no network connectivity is available or the service is unreliable.

How it Works

ZPoint battery powered nodes monitor temperature, humidity or other sensors and alert you via phone call, email or text message when the readings are out of range all without a phone line or internet connection. ZPoint nodes transmit readings to a ZPoint Cellular Gateway. The Gateway then forwards readings over the mobile phone network to the Sensor Cloud Website. Several Nodes can connect and transmit to a Gateway at the same time.

Benefits

ZPoint provides customers with capabilities and benefits to make it the most user-friendly, cost-effective wireless temperature and humidity sensor on the market today. These include:

- Easy to set up and use – just power it on and each ZPoint Node will automatically find a ZPoint Gateway within range and send sensor readings up to the cloud.
- Onboard Temperature Sensor - A built in temperature sensor allows ZPoint to operate without any external cables connected.
- Additional Two Sensor Input Capability – Significantly reduces Cost/Sensor (Measurement Point), very useful for food service, medical and pharmaceutical applications where monitoring of both the refrigerator and freezer compartments of storage units is required.
- Temperature/Humidity Sensor Option – Adds Relative Humidity monitoring for critical applications such as Servers, HVAC Systems, Refrigerators and Freezers, Archives and Laboratories.
- Set and send alerts for multiple temperature and/or humidity thresholds – provides an easy and meaningful way to implement an escalation strategy based on severity of the conditions in critical areas.

- Send multiple email, text and voice messages for each threshold and notification type – lets those who are most affected by potential problems know when issues arise and when they are resolved.
- Data Logging – stores and forwards data when your device is out of range of a cellular connection so no data is lost, providing complete histories of the environment you're monitoring. This is especially suited for mobile applications such as refrigerated Food and Medical Supply distribution.

ZPoint Models

At least one Cellular Edition ZPoint Gateway is needed for operation. You can connect wired sensors directly to the gateway as well as use one or more ZPoint Nodes wirelessly with the gateway. All the features are identical except the important differences highlighted below:

Gateway Models

TM-CELL400-Z: Works up to 24 hours if AC power is lost. Communicates with up to 15 ZPoint Nodes.

TM-CELL400-IND-Z: Works up to 72 hours if AC power is lost. Communicates with up to 25 nodes. Monochrome LCD display.

Node Models

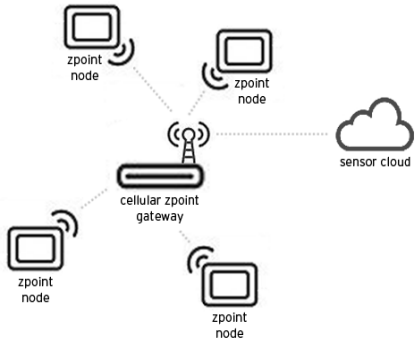
TM-ZP200: Onboard temperature sensor

TM-ZP200-TH: Onboard temperature and humidity sensors

Hardware Guide

ZPoint at a Glance

Temperature@lert ZPoint is a remote environmental monitoring system that measures conditions such as temperature and humidity at various locations every few minutes. Each sensor reading is transmitted via 2.4Ghz wireless radio to ZPoint Cellular Gateway. The Gateway relays the readings using the mobile phone network to our 24/7 monitoring system and secure web site. If the temperature or other sensor readings goes too high or too low, the system will call, email or text message you.



Zpoint Nodes can transmit temperature readings every 5 minutes for up to 5 years on the included AA batteries. If the monitoring website ever fails to hear from the unit, you will receive an alert to check the device. Either way, we want you to know that we've got you covered.

Temperature@lert ZPoint Nodes communicate to the cloud via a Temperature@lert Cellular Edition ZPoint Gateway on a monthly or annual monitoring plan for operation. If you purchased your unit from a reseller, you will need to call Temperature@lert at 866-524-3540 or email support@temperaturealert.com to activate your Cellular Edition ZPoint Gateway.

What's Included

Temperature@lert ZPoint includes the following items:

- **Node (onboard temperature sensor / optional onboard humidity)**
- **Two AA Batteries (already installed)**
- **Antenna**
- **Quick Start Guide**

Setting Up the Hardware

Ensure the ZPoint Cellular Gateway is powered on. Once the gateway is powered on, it will attempt to connect to the cloud. After a successful cloud connection is made, the gateway will be accessible by the battery powered ZPoint Nodes.

To use a battery powered ZPoint Node, simply press and release the power button to turn on the unit. The device will turn on and begin searching for a ZPoint Cellular Gateway within range and transmit a reading to the cloud. The unit is operating correctly if you do NOT see the red failure light blink.

Verifying Wireless Signal Reception

Your Temperature@lert ZPoint Nodes transmit sensor readings via 2.4GHz radio waves to the ZPoint Cellular Gateway. In order for the unit to operate, the nodes **must be within range of a ZPoint Gateway**.

If your unit cannot connect to the wireless network, the red “fail” light will blink twice every 30 seconds. If your unit cannot read the temperature sensor, the red “fail” light will blink once 30 few seconds.

Please refer to troubleshooting section of this document if you continue to receive the red “fail” light.

If the unit is functioning correctly, the green status light will blink once every 30 seconds to indicate the device is on. the device will then wake up, take sensor readings, transmit them to the cloud and then go back to sleep every X minutes where X is the interval you set on Sensor Cloud. Available monitoring intervals of 5, 15, 60, or 120 minutes vary according to the monitoring plan that you have.

You can use up to 15 ZPoint Nodes with the TM-CELL400-Z Gateway and up to 25 ZPoint Nodes with the TM-CELL400-IND-Z Gateway.

Setting Up Your First Alert

Temperature@lert ZPoint Cellular Gateway and Nodes are primarily controlled via the Sensor Cloud website located at www.myalertlist.com.

Log into www.myalertlist.com using the username and password you created when you purchased the device. To setup a temperature alert notification, follow these steps:

1. Click on the Device List tab.
2. In the Device List table, click on the view link for your device.
3. Scroll to the bottom of the page
4. Next to Sensor Alerts, click the Edit link.
5. Click the Add Alert link.
6. Enter a name for the alert.
7. Choose Temperature for the condition.
8. Set the alert for above or below the temperature reading.
9. Enter the temperature threshold in degrees that will trip the alert.
10. Click the Add Action link.
11. Select Email, Phone, or SMS and enter the email or phone number.
12. Click the Send on Clear Also box to be notified when the temperature comes back in range.
13. Click the Save button.

Please review the Sensor Cloud user guide at temperaturealert.com/support for detailed instructions on setting alerts.

Temperature@lert ZPoint Nodes in Detail

ZPoint was designed from day one to be wicked (yes, we're headquartered in Boston, MA) simple. Keeping it simple enables the unit to achieve rock solid reliability and performance. As with any piece of technology, it's always good to know the details even on the simple stuff.

The ZPoint system is made up of a Gateway unit and one or more remote Nodes. **For details on the Cellular Edition ZPoint Gateway, please visit temperaturealert.com/support and download the Cellular Edition ZPoint Gateway User Guide.** Each Node powers on and looks for a Gateway. The Nodes will automatically find and pair with the closest ZPoint Gateway. The Gateway takes the sensor readings from the Nodes and sends it up to the Sensor Cloud website for storage and evaluation.

ZPoint Node Indicator Lights

The unit has 3 indicator lights: Status, Warning and Failure (see figure 1).

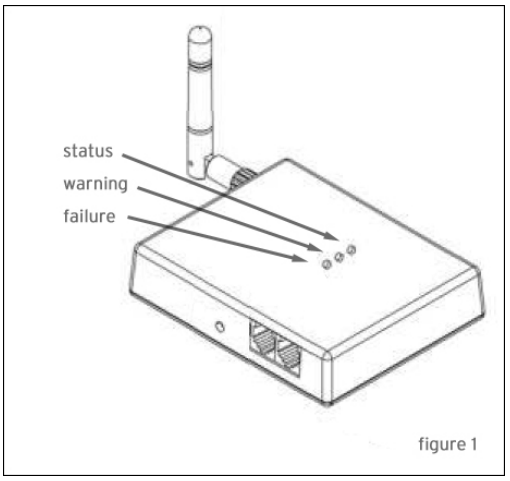


figure 1

Status Light

When operating properly, the green status light will blink once every 30 seconds to indicate the unit is powered on. During transmission on the cellular network, the green status light will blink rapidly.

Warning Light

The warning light will normally be off. However, the warning light will flash once 30 few seconds to indicate the unit's internal battery is low. The warning light will flash twice every 30 seconds to indicate a low wireless signal. Your unit is operating normally even if the warning light is flashing.

Failure Light

When operating properly, the failure light will be off. However, the failure light will flash twice every 30 seconds to indicate there was a problem sending the temperature over the wireless network. If the failure light is flashing, your device is not functioning. Please refer to the troubleshooting section of this manual.

Light Indicator Reference Table

	Single Blink	**Double Blink**
Status	Power On	Transmitting
Warning	Low Battery	Low Wireless Signal
Failure		Wireless Trouble

ZPoint Jacks and Connectors

On the side of the unit, you'll find the majority of the connectors and jacks (see figure 2):

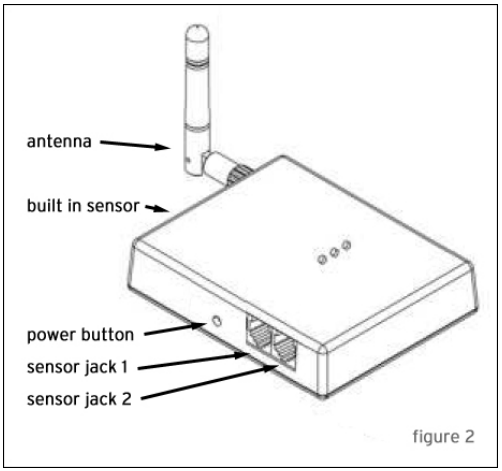


figure 2

Antenna – The swivel antenna is connected via a threaded SMA mount.

Power Switch – This switch is used to control the different operating modes of the device (See operating modes).

Built in Sensor – The TM-ZP200 includes a built in temperature sensor. The TM-ZP200-TH includes built in temperature and humidity sensors.

Sensor Jack 1 & 2 – The sensor jacks accept Temperature@lert environmental sensors. The unit will monitor up to two external sensors. The one exception is our combination temperature/humidity sensor. This sensor uses a single jack and provides you with both temperature and humidity effectively doubling the sensor capacity of the jacks. Most of the external sensors we sell are compatible with this unit such as temperature, temperature/humidity, flood, dry contact, 4-20mA, 0-5VDC, etc. Please visit TemperatureAlert.com for a complete list of compatible sensors.

Hardware Operation

Turning on the Node

A ball point pen or paper clip can be used to press and immediately release the On/Off button. All lights will briefly light up and the unit will be turned on.

Turning off the Node

The unit is shipped in the Off mode. To power off the device manually, use a ball point pen or paper clip to press AND HOLD the On/Off button for 5 seconds. You will see all lights turn on and the status light will flash. When the lights start going off in order one by one, you can release the On/Off button. The unit is now powered off.

While fully powered off, the unit will not send or record any temperature readings any time. All indicator lights will be off.

Signal Strength Indicator Mode on the Node

Use this mode to determine the wireless signal strength where the device is installed. To enter signal strength indicator mode, use a ballpoint pen or paperclip and push the On/Off button for 3 seconds. All lights will come on. When the status light begins flashing, you can release the On/Off button. The status light will remain solid green until the unit finds a cellular gateway in range. You are now in signal strength indicator mode. As you move the device around, the number of lights will turn on and off to indicate signal strength. The more lights that are on, the stronger the wireless cellular signal. A solid light indicates a "bar" of signal strength. A blinking light indicates half a "bar" of signal.

To exit signal strength indicator mode, use a ballpoint pen or paperclip to briefly press and release the On/Off button. All lights will briefly turn on and then the device will enter normal operation. Otherwise, the device will automatically return to normal operation after a few minutes of signal strength indicator mode.

Store and Forward

Store and Forward is an optional feature available in certain Sensor Cloud monitoring plans. When wireless communication is unavailable (for example if

the cellular gateway is damaged or the node goes out of range of the gateway), turning on store and forward will internally log the sensor readings on the regular interval. Once wireless communication is restored, the logged data will be forwarded to the cloud and available for reporting and compliance purposes. Each node can store up to 5000 readings.

By default, Store and Forward is turned off. If you wish to turn it on, please contact support to ensure you have a monitoring plan that supports it.

Store and Forward data transmitted to Sensor Cloud is not evaluated for alarms. Therefore, if you utilize this feature, you should setup a missed report alert to notify you that a node or other device has been unable to transmit.

Advanced Configurations

For mission critical fault-tolerance, you can deploy two Cellular Edition Gateways on different mobile phone operators (for instance, one on AT&T and one on T-MOBILE). Should one mobile operator be disrupted, the ZPoint Nodes will automatically re-route through the Gateway with reception. Please contact support for details.

Operating Guidelines

Placement

Zpoint Nodes can be placed on a flat and level surface or mounted vertically on a wall with screws of industrial Velcro® tape. The unit will report readings from the built in sensor(s) or you can use the external sensor jacks to wire sensors into areas where monitoring with a buffer vial is needed (such as inside a fridge or freezer). Alternatively, the entire node can be placed inside a refrigerator or freezer using our fridge kit. The fridge kit consists of a hermitically sealable FDA approved bag and a small desiccant pack to absorb moisture. Feel free to contact our monitoring experts via email or phone for help in placing your sensors.

Wireless Reception

The unit requires must be within range of a Temperature@lert Cellular Edition ZPoint Gateway in order to operate. The range will vary depending on your location, but is generally several hundred feet through walls. If a signal is unavailable in the desired installation area, you can move the location of the Cellular Edition ZPoint Gateway closer to the node or install additional Cellular Edition ZPoint Gateway.

The antenna should be oriented in a vertical position perpendicular to the horizon.

The antenna must remain connected during operation. In order to disconnect the antenna, complete the full power down instructions first.

Battery Life

ZPoint nodes will run up to 5 years on the two included Energizer Advanced Lithium AA batteries. The unit can transmit as frequently as every 5 minutes and be in ambient temperatures down to -40C without shortening the battery life.

There are several things that will shorten the battery life:

- Sensor configurations that require the sensor to constantly remain powered such as Rainfall and wind speed will reduce the battery life.

Standard sensors such as temperature, humidity, flood, and dry contact ***will not*** reduce the battery life.

- ZPoint Nodes that are not within range of a Cellular Edition ZPoint Gateway for an extended period of time will decrease the battery life.

If you are using the Nodes in those conditions, make sure you have low battery alarms setup.

Changing the Batteries

The status of the batteries can be seen from the device view page on the Sensor Cloud website. In addition, you can setup a low battery alarm to notify you when the batteries are low on power.

To change the batteries, turn the unit over and unscrew the cover. Remove the two AA batteries and replace them with the same type (2 Energizer Advanced Lithium AA Batteries). Standard alkaline cells can be used, but they will not perform well in cold conditions and will provide a shorter lifetime.

IMPORTANT: *After you change the batteries, you will need to press and release the on/off button to turn the device back on.*

Troubleshooting

Common Problems

Failure Light is Flashing

Enter signal strength indicator mode to determine if you have adequate cellular service in the area of operation.

Contact Temperature@lert support if you require further assistance.

Warning Light is Flashing

A warning light does NOT indicate a fault or failure. The device is still transmitting successfully as long as the red failure light is not flashing. The warning lights serve to alert you of a potential problem.

The battery charge may be low. Unscrew the bottom of the case and replace the batteries.

The signal strength from the selected installation site may be low. Use signal strength indicator mode to find a more suitable location if needed.

Specifications

Model	TM-ZP200 & TM-ZP200-TH
English Dimensions	6.62” x 3.30” x 1.10”
Metric Dimensions	16.8 cm x 8.38 cm x 2.79 cm
Weight	6.4 oz (182 grams)
Software Requirements	None
Hardware Requirements	Cellular Edition ZPoint Gateway in Range
Network Requirements	None
Battery Life (Varies with Monitoring Rate)	Every 5 Min — Up to 5 years Every 15 Min — Up to 6 years Every 60 Min — Up to 7 years 2 Energizer Advanced Lithium AA Batteries INCLUDED
Outdoor/RF Line of Sight Range	1000' (304m)
Indoor/Urban Range	300' (90m)
Max ZPoint Nodes per Gateway	TM-CELL400-Z: 15 TM-CELL400-IND-Z: 25
Radio Transceiver	2.4Ghz
Operating Temperature Range	-40°C to 60°C
AC Power Requirement	None
Built-in Temperature Sensor Range	-40°C to 60°C (-200°C to 200°C with optional probe)
Built-in Temperature Sensor Accuracy	±0.5°C Accuracy from -10°C to +70°C
Built in Humidity Sensor Range	TM-ZP200-TH ONLY: Humidity: 0 ~ 100% RH Accuracy: +/-0.5°C, ±3% RH
Sensor Expansion Jacks	2
Power Source	Two AA Energizer Lithium Batteries
Sensor Datasheet	http://datasheets.maxim-ic.com/en/ds/DS18B20.pdf
Maximum Sensor Cable Length	200’ (61 meters)
Real Time Alerts	Yes
Monitoring Frequency	5 minutes to 240 minutes (Requires corresponding Sensor Cloud service plan)
Continuous or One Time Alerts	User Selectable
Email, SMS, Phone Alerts	Yes
Data Log Format	Word, Excel
iPhone & Android Apps	Yes
Online Temperature Log	Yes
In the Box	ZPoint Node, Antenna, Quick Start Guide
Warranty	1 Year
Money Back Guarantee	30 Days Risk Free (minus shipping)
Software Upgrades & Support	Unlimited with Monthly Monitoring Plan
Activation Fee	No
Monthly Fee	Yes, various monthly plans

Obtaining Service and Support

We've worked very hard to ensure that Temperature@lert ZPoint monitoring solution is simple and easy to use. Of course, we do realize that questions and other issues can pop up at any time. So, we'd love to hear from you.

If you require assistance at any time, please visit http://www.temperaturealert.com/ and click on the Help/Support tab.

As long as you have an active monitoring plan, data logs and archive files, technical support and free software upgrades are available to you.

Regulatory Notices

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

To comply with FCC's and Industry Canada's RF radiation exposure limits for general population/uncontrolled exposure, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This radio transmitter has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

The device is approved to work with a 1/2 wavelength dipole SMA-RP antenna with maximum gain of 2.2db**i.**

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.