MAGNA SYSTEMS

GateWay™

Wireless Network
Access Point

Revision A   **(07/2007)**

Warranty

General Terms
Magna Systems, L.L.C. warrants this product to be free from defects in material and workmanship for a period of one year from the date of shipment. If this product is found to be defective during the warranty period, the product will either be repaired or replaced at Magna Systems' sole option.

To Use This Warranty
To exercise this warranty, write or telephone your local Magna Systems representative or contact Magna Systems headquarters in California. Detailed contact information may be found on the Magna Systems web site, www.magnasystems.net . You will receive prompt assistance and return instructions. Send the product, shipping prepaid, to the indicated service facility. The repaired or replacement product will be returned to you with shipping prepaid. The repaired or replaced product will be warranted for the remainder of the original warranty term or ninety days whichever is longer.

Limitation of Warranty
This warranty does not apply to defects or malfunctions resulting from modification or misuse of any product or part. This warranty does not apply to fuses or other circuit protection components, to batteries or damage from battery leakage.

Entire Warranty
This warranty is the complete warranty and stands in lieu of any or all other warranties, expressed or implied, including any implied warranty of merchantability or suitability for a particular use. Magna Systems, L.L.C. shall not be liable for any indirect, special or consequential damages.

Symbols Used in This Manual

⚠️ **CAUTION**   Indicates potential for equipment damage.
Refer to procedures or instructions.

⚡ **CAUTION**   Indicates potential risk of electrical shock.
Take suitable precautions.

Regulatory Statements

Industry Canada Notice to Users

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. See RSS-GEN 7.1.5

FCC Notice to Users

Magna Systems has not approved any changes or modifications to the ThermoSpyder made by the user. Antenna modification, antenna replacement or use of an antenna not approved by Magna Systems is not authorized. Any changes or modifications could void the user's authority to operate this equipment.

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 or more 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.

Important Safety Information

Exposure to Radio Frequency (RF) Energy

The GateWay contains a radio transmitter and receiver. Whenever powered, the GateWay will receive and emit radio frequency energy.

The GateWay is designed to comply with local regulatory requirements including those concerned with the exposure of human beings to RF energy.

Explosive Environments

DO NOT USE THE GateWay IN EXPLOSIVE ENVIRONMENTS

Areas with potentially explosive atmospheres are often, but not always, posted. Such areas may include, but are not limited to, fueling areas, enclosed areas where fumes may accumulate (such as below decks on boats or areas near poorly ventilated gas powered appliances), chemical transfer or storage areas, laboratories and areas when there are airborne particulates such as grain, dust, aerosolized paints or fine metal powders. DO NOT USE THE GateWay IN SUCH AREAS. The installation or removal of batteries may cause sparks which could cause an explosion or fire.

Not Vacuum Compatible

The GateWay is not vacuum compatible. Do not use the GateWay in vacuum as this could damage the GateWay and / or contaminate your vacuum chamber and associated hardware.

Table of Contents

Rev. A

Care of Your New GateWay

DO NOT EXPOSE YOUR GateWay TO ANY OF THE FOLLOWING-

Liquids
Don't expose your GateWay to water, rain, extreme humidity, cleaning solvents, fuels or other liquids.

Extreme Heat or Cold
Avoid temperatures outside of the operating range of 0 to 80ºC (32 to 176ºF).

Microwaves or Intense RF Energy
Do not place your GateWay in a microwave oven or expose it to direct RF energy such as from a RF power transmitter.

Extreme Dust or Dirt
Don't expose your GateWay to extreme dust, dirt, sand or environments containing metal particles.

Shock
Do not expose your GateWay to mechanical shock in excess of a three (3) foot drop or vibration in excess of 10 g's.

Cleaning
Dirt and dust can be removed from the outside of the GateWay by wiping with a damp cloth. Do not use solvents to clean the GateWay.

Maintenance & Service
The GateWay has no user serviceable parts and does not require any adjustment by the user. The GateWay is powered via the USB cable; THERE ARE NO BATTERIES TO INSTALL OR REPLACE.

Getting Started

The figures below show front and rear views of your new GateWay. Your GateWay has been designed to provide accurate thermocouple based temperature measurements while requiring almost no user intervention.

Front View   Rear View
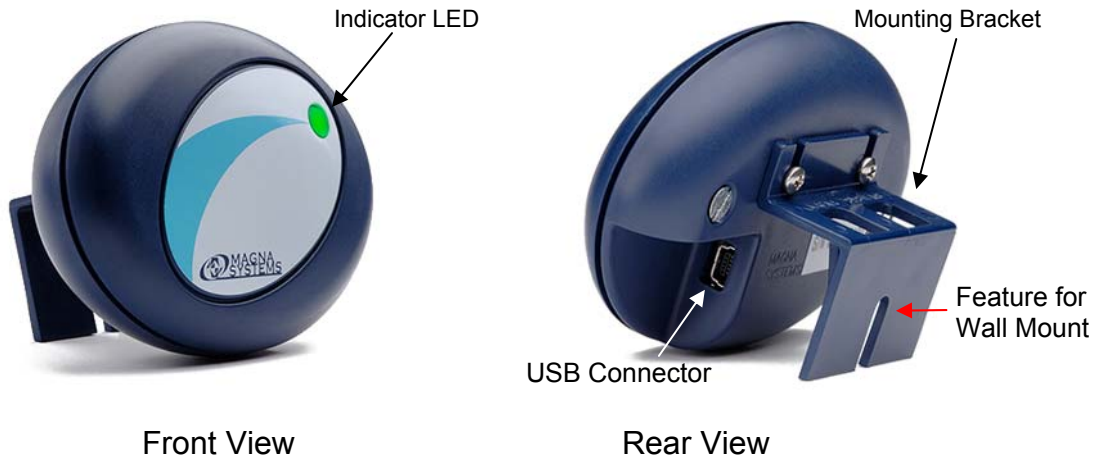
Users typically perform three types of operations while using the GateWay, namely, connection to a computer, mounting, and running tests. This manual covers only the use of the GateWay. Please refer to the DataLink manual for information on running tests and managing test data.

Turning the GateWay ON
The GateWay is powered by your computer's USB port. THERE IS NO ON / OFF SWITCH. To turn the GateWay ON, simply connect it to your computer using the USB cable provided. When connected, the indicator will show amber indicating that the GateWay is powered, but that no network has been established.

⚠ CAUTION

The USB connector is POLARIZED. Installing the USB connector in the wrong orientation is virtually impossible**. If you have difficulty installing the USB connector, check to be sure the plug is oriented properly.**

The following figures show a GateWay with the USB cable installed. Note that the cable may be "tucked" into the clips on the bracket. This will often relieve the twist in the cable, making it easier to rest the GateWay on flat surfaces.

Cable "tucks" into
clips on bracket

Cable in place,
GateWay rests stably
on a table top

Once the cable is installed, the GateWay is ready to set-up and run your measurement network from your DataLink software. Please note that DataLink will not function without being connected to the GateWay.

Mounting the GateWay
For many applications it is desirable to mount the GateWay close to your computer. The maximum distance allowed between the computer and the GateWay is determined by the USB interface specification and should not exceed 5 meters. The GateWay comes with a mounting bracket to facilitate mounting. Using the bracket you may mount the GateWay on top of your computer monitor or place it on the table next to your workspace or attach it in an elevated position by using a mounting screw (not included).

TIP: Don't mount the GateWay in a sealed metal enclosure. The GateWay is a radio communications device and will not be able to establish communications with other devices if it is mounted in a sealed metal environment.

Turning the GateWay OFF
During routine use it should not be necessary to turn the GateWay OFF and so THERE IS NO ON / OFF SWITCH.   However, if it is anticipated that the GateWay will not be used for an extended period, it may simply be unplugged from the USB port and stored safely in its shipping container.

TIP: There may be occasions when you will need to reset the GateWay. Resetting the GateWay is as simple as unplugging the USB cable, waiting for a few moments and re-plugging the USB cable. Since the GateWay is powered by the USB port this easy operation is equivalent to a "power-on" or "hard" reset.

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How the GateWay Works

A simplified block diagram of the GateWay wireless network access point is shown below.
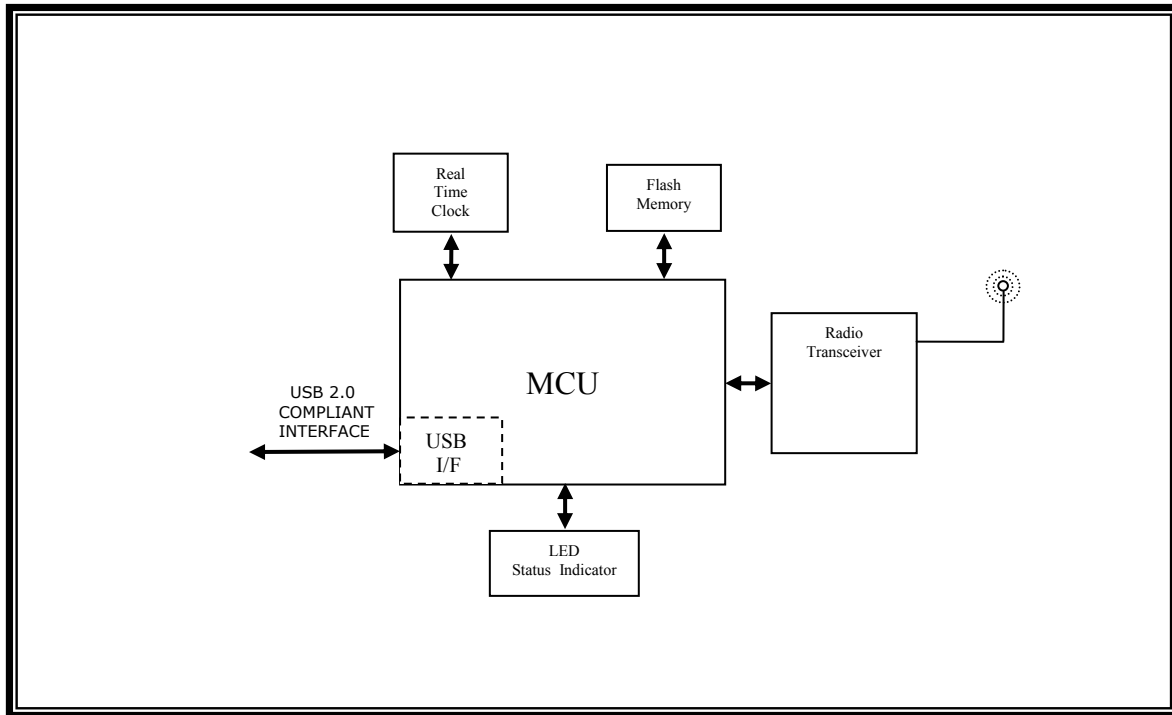
The GateWay is designed to function as a wireless network access point providing communications and network management functionality. The GateWay is only able to be used with the Magna Systems DataLink application program. The GateWay uses the USB interface for both communications and power. When the USB connection is established, the GateWay executes power-on diagnostics and then acts as a radiofrequency link between DataLink and the radio network. DataLink issues network management commands and communicates with networked devices via the GateWay. The GateWay's indicator LEDs provide visual indicators of network status during operation.

The visual status indicator will show a variety of colors corresponding to the various network conditions. The indications are-
* Continuous amber- GateWay is powered and ready to establish a network
* Continuous green- GateWay indicates normal network operation
* Continuous red- Network fault

Occasionally, when there is a network fault, the indicator may stall at the last status before the communication failure with DataLink occurred.

Troubleshooting

Symptom: GateWay does not show up in DataLink

Possible Problem-   Unable to establish USB communications with GateWay.

Solution-   Close the DataLink application, unplug and re-plug the USB cable.

Symptom: DataLink keeps trying to initialize the network but fails to complete the network initialization process

Possible Problem-   Communications between DataLink and the GateWay may have been disrupted.

Solution-   To check the communication between the GateWay and DataLink, click on the [Stop] button and then the [Back] button to display the node configuration again for network initialization. At this step, DataLink issues a "Clear Network" command to reset the nodes. If there is a communication failure between Gateway and DataLink, DataLink will display a communication failure message associated with Gateway and request that you close DataLink and reconnect the USB cable to Gateway. You will have to restart the node configuration.

Possible Problem- One or more ThermoSpyders have depleted batteries.

Solution-   Check the battery power of any nodes that failed to respond to network initialization. Reset the ThermoSpyder by removing and reinstalling its batteries. Then, attempt network initialization again.

Symptom: Indicator LED on GateWay does not light

Possible problem-   GateWay did not properly initialize.

Solution-   Reconnect USB cable. If the indicator LED still does not remain lit after three tries, contact Magna Systems at 1-888-9MAGNA9.

Technical Specifications

GateWay Specifications

Network Functionality-

Number of Nodes: up to 50

PC Interface-

USB 2.0 compatible interface

Wireless Network Interface-

Half duplex communication
Radio characteristics: 868 / 915 MHz ISM band radio
                              +5 dBm maximum TX power
                              RX sensitivity better than -100 dBm
Range: Up to 50 m (160') under optimal environmental conditions

General Specifications-

Operating Environment: 0°C to 80°C (32°F to 176°F)
                              5% to 95% RH non-condensing

Vibration: 10 g   (rms 20 Hz to 2000 Hz)

Shock: 3 foot drop

Power: Powered via USB port
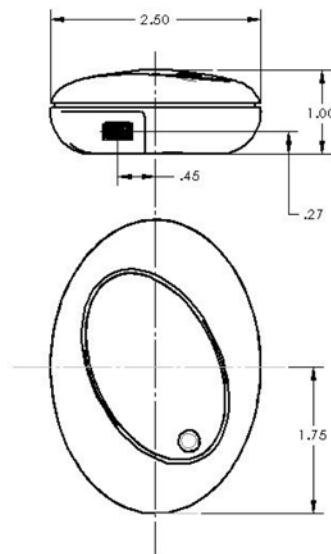
Time Accuracy: ± 1 min / month

On Board Clock Power Backup: > 5 days

Storage Temperature Range: -40°C to 120 °C

Weight: 75 grams

Enclosure: Flame Retardant ABS plastic (UL flame rating of 94-V0)
Dimensions:

All dimensions in inches