

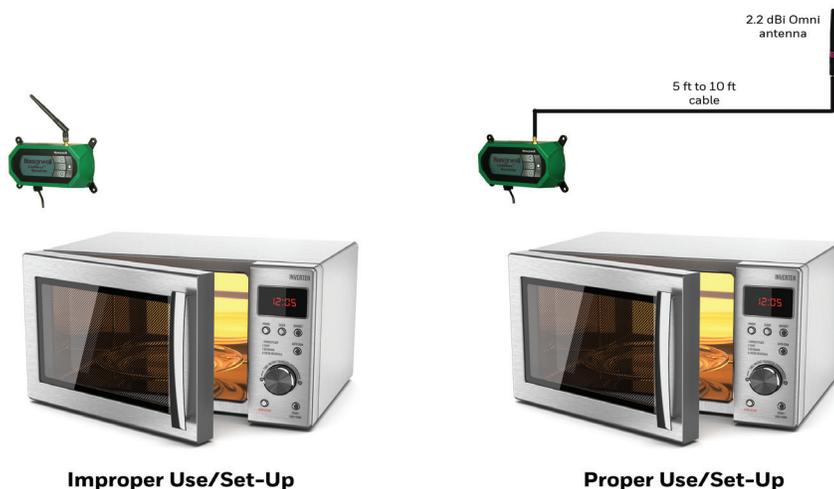
Best Practices to Improve Radio Frequency (RF) Signal Quality

A Technical Note

Best practices to reduce RF signal interferences and to improve wireless network reliability include:

- 1) Before installing a Honeywell wireless system, perform a site survey. The site survey results will indicate the RF signal strength between the transmitter(s) and receiver. The Honeywell receiver will indicate the radio signal strength indication (RSSI) on the LCD screen and if the status of the radio signal is optimal, it will display Excellent, Very Good, or Good, as applicable. If the site survey result is not up to expectations, then it is recommended to use higher-gain antennas on either the transmitter, the receiver, or on both the devices and then perform another site survey. Only after the site survey elicits results of either Excellent/Very Good/Good, install the products in their final destinations. If the RF signal quality between the receiver and transmitter(s) is not Excellent/Very Good/Good, try raising the antenna on the receiver, the transmitter(s), or on both devices. To avoid unnecessary antenna gain-loss or weaker RF signal strength, use the minimum amount of antenna cable.
- 2) If Honeywell's wireless product is installed close to other 2.4 GHz wireless receivers, gateways, or Wi-Fi routers, there should be a minimum distance of 10 inches between the antennas of the devices.
- 3) If Honeywell's wireless receiver is installed inside an enclosure, it should be made of fiberglass or plastic.

Figure 1. Product Placement Avoiding Electromagnetic Emissions



- 4) If a metal enclosure is required, then mount the antenna outside the enclosure using a bulkhead connector at the bottom of the enclosure. RF signal cannot pass through metallic enclosures.

The radiating tip of the antenna should not be in contact with any metallic object .

- 5) Make sure that the antenna is always perpendicular to the ground. Optimal performance can typically be achieved when the antenna on the receiver and the transmitter are mounted at the same height.
- 6) Ensure there is direct line of sight between the receiver and transmitter(s), if possible.
- 7) Make sure that the antenna cables are at least 10 feet away from high voltage electrical power lines such as 120 Vac, 220 Vac, 400 Vac cables or electromechanical equipment's such as motors, generators, transformers, microwave ovens etc. as they produce electromagnetic emissions that can generate noise interferences (see Figure 1).

- 8) If antenna cables are used for an outdoor wireless application, use lightning or surge arresters to eliminate unwanted noise interferences as well protect the device from lightning or unwanted voltage fluctuations. The lightning arrestor recommended by Honeywell is AL6-RSPRSJBW-9 from L-COM Global Connectivity. It features a bulkhead RP-SMA connector with a rubber "O"-ring seal which can also be used for mounting through an enclosure wall.

Warranty/Remedy

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items that Honeywell, in its sole discretion, finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

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WARNING **IMPROPER INSTALLATION**

- Consult with local safety agencies and their requirements when designing a machine control link, interface and all control elements that affect safety.
- Strictly adhere to all installation instructions.

Failure to comply with these instructions could result in death or serious injury.

For more information

To learn more about Honeywell's sensing and switching products, call 1.800.537.6945, visit sensing.honeywell.com, or e-mail inquiries to info.sc@honeywell.com

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