

# Honeywell



## Bi-Directional Amplifiers (BDA)

Reliable In-Building Public Safety Radio Coverage to  
Safeguard Emergency Responses





**Lives depend on  
reliable Public Safety  
Radio Coverage.**

**Enhance In-building  
coverage with a Life  
Safety BDA system  
from your trusted Life  
Safety Provider.**



A reliable path of communication is crucial during an emergency and weak radio signals could cause a loss of communications for Emergency Responders.

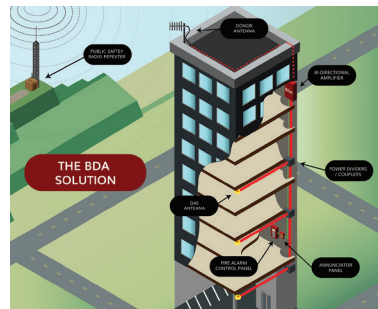
Introducing the Honeywell Gamewell-FCI Bi-Directional Amplifier (BDA) emergency communication system designed to enhance in-building radio frequency (RF) signal coverage for public safety use.





### Non-compliant to Code

Building with Insufficient Public Radio Coverage



### Code Compliant

Building with Sufficient Public Radio Coverage

## Codes, Approvals, and Requirements

Emergency Radio Communication Enhancement Systems (ERCES) were first introduced in the 2009 International Building Code. The ERCES requirement was established to address the performance of emergency responders' portable radios inside buildings because building construction, building size, construction features, and other elements can absorb or block radio communications.

If a building does not meet the required signal strength (-95dBm), the only effective solution is the installation of a signal booster (BDA).

Today's codes, like the IBC 2015 Section 916, IFC 2018 Section 510, NFPA 72 2010, NFPA 1221 2016, and UL2524, require all buildings to have approved radio coverage for emergency responders within the building based on the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. .

## Solutions to Problems

Concrete or metal construction, larger buildings, and underground structures have a negative impact on the in-building signal strength required for reliable communications. Buildings that use low-E glass windows will attenuate the signal from public safety radio systems. Many design professionals are not aware of the ERCES requirements, therefore, if ERCES is not referenced on a building submittal, the fire official should immediately notify the building official and design professional, in writing, that the ERCES must be evaluated. If the existing radio coverage has not been maintained, then ERCES must be provided

The Gamewell-FCI Class B Bi-Directional Amplifiers are a high gain, high power band-selective signal booster / Bi-Directional Amplifier that have been specifically designed from the ground up for UL2524 1st Edition In-building 2-Way Emergency Radio Communication Enhancement Systems, NFPA and IBC/IFC standards compliance, to become the best choice for public safety and other mission-critical applications.

- Single portfolio to meet any application across US with all Public Safety frequency bands supported, various models available for UHF, VHF, 700MHz FirstNet, 800 MHz and multi-band
- An all-inclusive and fully-integrated BDA with UL2524 1st Edition for In-building 2-Way Emergency Radio Communication Enhancement Systems listing, NFPA 72, 2010 Edition, NFPA 1221 2016 Edition and IFC 2018 compliance
- Integrated dual power supply and battery charger with intelligent battery monitoring saves cost
- Wider bandpass allows using a single BDA to cover multiple sub-bands
- Built-In Gamewell-FCI Addressable Monitor Modules saves wiring and installation cost
- Supervised SD card on-board for event logging provides audit and troubleshooting support
- Modular design for easier troubleshooting and field component replacement

# FAQs

## **What are NFPA's requirements for annunciator at FACP or is FACP monitoring adequate?**

A dedicated alarm panel must be located in the fire command center. The BDA status must also be monitored by the building's fire alarm system.

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## **Does the Building Code require BDAs for Police and Fire Departments?**

The Code requires coverage for both. The AHJ will determine which Agencies will need coverage.

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## **Who determines what public safety agencies are to be supported under the provisions for "Emergency Responder Radio Coverage"?**

The AHJ will determine which agencies will need coverage.

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## **How does a system designer or system engineer determine what frequencies are to be supported?**

The AHJ is required to maintain a document of technical information specific to these requirements.

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## **Where multiple agencies are required to be supported, is each agency responsible for accepting or approving their respective system, or is that the sole responsibility of the Fire Official?**

Each FCC Licensee must approve any BDA operating on their frequencies.

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## **What skills, education, or experience must a technician have to install, commission, and service a BDA system?**

This depends on the jurisdiction, but typically FCC GROL or approved equivalent and manufacturer certification.

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## **How does one determine whether existing radio coverage is adequate, or justify whether an Enhancement System is warranted?**

A RF Survey must be performed. Typically performed by specialized FCC GROL certified technician and some fire department radio personnel, a RF Survey is accomplished by measuring the Downlink/Uplink signal strengths in decibels-milliwatts (dBm) using special measuring devices.

Results are submitted to AHJ to determine if a BDA is required or if a waiver is appropriate.

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## **What is the difference between the two BDAs: Class A Channelized vs. Class B Band Selective?**

a.) Each BDA amplifies a specific frequency range or bandwidth. If the bandwidth is less than 75 KHz, then the BDA is categorized by the FCC as Class A. A BDA that amplifies bandwidths higher than 75 KHz is Class B.

b.) BDAs that can amplify multiple <75 KHz channels are called Channelized Signal Boosters. The disadvantage is that they introduce signal delay, which in turn introduces signal distortion in signal overlap areas. They must be used with caution under special consideration.

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## **Can multiple raw channel radio frequencies be deployed for fire, police, and EMT responders, and can digital data using bi-phase Manchester techniques or equivalent be used for the transport of digital data on the same wireless system?**

The DAS may be shared, but not the Amp. Always check with the AHJ first.

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### **For more information**

[www.gamewell-fci.com](http://www.gamewell-fci.com)

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