



Two-Way Radios

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Two-way industrial radio communication on the jobsite is increasing in popularity. Using two-way radios to communicate in and around industrial sites or buildings saves workers time and is a practical solution for communication, especially in areas where other means of communication are almost impossible.

When choosing a type of radio communication for your workplace, it is important to determine your application as well your surroundings. The most common questions about two-way radios are: Whether you should select UHF or VHF radios; what wattage you will need to attain the clearest communication for your application; and what range of clear communication can you expect from any given two-way radio.

Hand-held radios can “talk” to each other radio to radio in “line of sight” for up to two miles. In this case both UHF and VHF radios will offer similar range of communication in flat, open areas. The range for two-way radios is determined mainly by the following factors:

Frequency: UHF or VHF

Industrial two-way radios operate on FM business frequencies, in the UHF and VHF bands. Both UHF and VHF offer similar range for communication in open areas for line of sight communications.

VHF radios offer excellent communication in open flat terrain, and can also be used in wood structures or structures that are smaller in square footage.

UHF radios have better penetration ability; therefore UHF radios operate better in multilevel, steel and concrete structures. They can operate in structures of greater square ft. than that of a VHF radio.

Power: Identified in watts. As a general rule of thumb, the higher the watts, the better the coverage. In order to determine how many watts your two-way radios should have, you should consider the terrain.

Terrain: Is defined as the area you wish to use these radios—is it flat wide open space, or are there structures such as buildings, dense foliage or hills? Anytime there are obstructions communication can be affected.

Range and Coverage	Flat Ground No Obstruction	Industrial Sites and Buildings	Multi-Level Structures
VHF 1 watt	Up to 5 miles	150,000 sq. ft.	Up to 8 floors
VHF 2 watt	Up to 6 miles	180,000 sq. ft.	Up to 10 floors
VHF 5 watt	Up to 6 miles	Up to 250,000 sq. ft.	Up to 15 floors
UHF 1 watt	Up to 5 miles	Up to 200,000 sq. ft.	Up to 15 floors
UHF 2 watt	Up to 6 miles	Up to 250,000 sq. ft.	Up to 20 floors
UHF 4 watt	Up to 6 miles	Up to 350,000 sq. ft.	Up to 30 floors

Battery Life and Charging

Rechargeable batteries such as NiMH (nickel metal hydride) and NiCd (nickel cadmium) batteries are often used in two-way industrial radios.

NiCd batteries have an average life span of approximately 18-24 months, and NiMH batteries have an approximate life of 12-18 months.

Manufacturers suggest using a “trickle charge” to fully recharge your batteries. **Trickle charging** can take 8-12 hours to fully recharge a battery. Because of the amount of time involved with trickle charging, many people opt for **Fast-charging**. Fast chargers will charge a battery much quicker, however constant fast rate charging can decrease the life span of a rechargeable battery. Fast-rate charge the batteries only when it is absolutely necessary. Or, if fast-rate charging cannot avoided, run the batteries down completely and trickle charge at least once a month.

Commonly Asked Questions

Q. *How should I dispose of my used rechargeable batteries?*

A. Both used NiCd and NiMH are considered by the EPA as hazardous waste. Proper disposal is advised. You will want to contact your local Hazardous Waste Authority or your local recycling program for proper disposal procedures.

Q. *How long can I expect my industrial 2-way radio to last?*

A. With proper care, a low-end industrial radio can last between three to four years of use. High-end radios are engineered to last approximately four to five years. Careful handling and care of your radio can ensure you will get an expected service life from your two-way radio.

Q. *Do I need to license my two-way radios?*

A. According to the FCC, licensing is required on all professional two-way radios. Information on obtaining a license is the responsibility of the end-user, not of the distributor or

manufacturer. The licensing forms are included with the radios when purchased. You do not need a license to purchase two-way radios.

FREE Technical Support

If you have specific questions on product specifications, product applications or installation, personal safety gear, regulatory compliance requirements, or any other technical questions [E-mail our Technical Support staff](#). Or, call **800-241-6401** or **608-743-8001** from 7 a.m. to 7 p.m. CT, Monday--Friday.

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