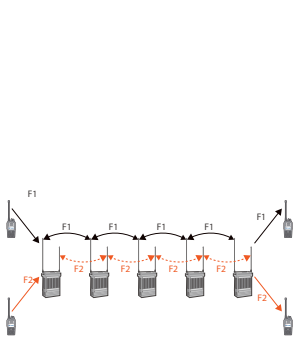
AD HOC System

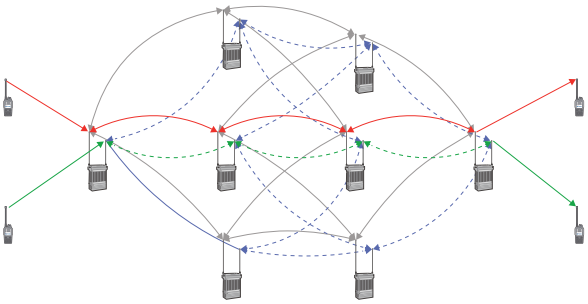
BelFone
Communications for Efficiency and Safety

OVERVIEW

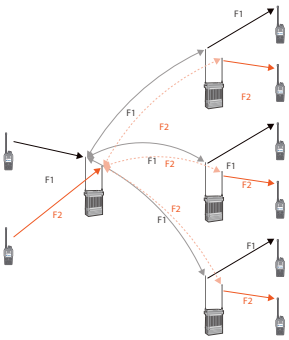
In a disaster management situation, information is widely distributed and owned by different organizations, critical data is maintained in disparate systems that often don' t interoperate well, and there are no common standards to enable organizations to efficiently organize and share their resources during response operations. Especially the frequency and radio type are different, then how to connect all of the organizations like medical, police, fire station, etc. BMC answers with its subsystem- Ad Hoc system. On one hand, it will connect center command and field command network. One the other hand, different frequency of various departments could get in same network, all in one communication network to realize wide cooperation. When the emergency calls, the task force brings Ad Hoc subsystem to deploy flexible nodes and ensure last mile voice communications across the onsite team with the remote command center.



Chain Network



Comprehensive Network



Tree Network

FEATURES & BENEFITS

Ensure Last Mile Communication

With the feature of auto repeater, the system allows the signal to keep hopping until it reaches the optimal node, which ensures last-mile connectivity beyond line-of-sight.

High Reliability, Resilient against Failures

Designed to be military standard rugged, portable, durable, waterproof and dustproof, it can be quickly deployed and work under the harsh conditions to ensure reliable connectivity. AP nodes in MESH network is able to access the available links automatically even in the event of multiple points of failure.

Coverage on Demand

As a highly mobile system, the on-site base station can be deployed and withdrawn without much hustle. Wherever the emergency happens, it offers coverage on demand. With best-in-class system designs and radio performance regardless of the environment, BelFone Ad Hoc is the choice of coverage on demand.

Elements

Repeater

DMR AD Hoc Repeater
BF-TR925R(MC-N)

DMR UV Dual Band Repeater
BF-TR925D(MC-N)

Terminal

Dual Band Portable Radio
BF-TD910D

AD HOC Portable Radio
BF-TD930(MC-N)

BF-TR925R(MC-N) DMR AD Hoc Repeater

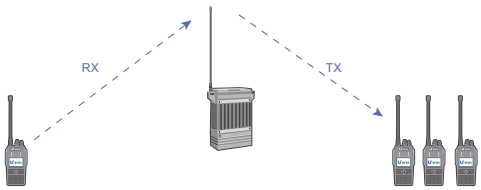
In emergency situations where there is no network coverage, Ad Hoc portable networks are very helpful. As a member of BF-TR925 family, BelFone TR925R(MC-N) is a manpack and vehicle mounted DMR Ad Hoc repeater designed for scenarios where no radio coverage available to realize signal multi-hopping and last mile communication. With features of fast deployment, seamless communication and flexible networking, it works as a radio, repeater and mesh node, it is an ideal solution for search and rescue teams, personnel working at isolated utility sites, first responders during disaster and rescue operations or for those working underground or in tunnels.

Versatile Connectivity to Suitable for Challengeable Situations

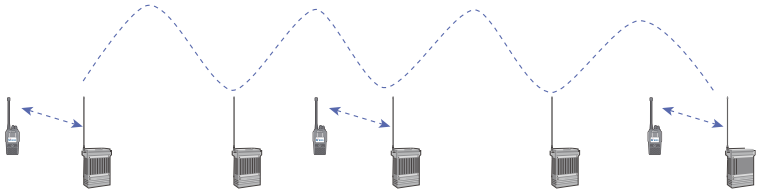
- 4G wireless communications link
- Satellite communication link
- Narrowband communication link
- IP connectivity for multi sites connection

Multi Working Mode, Highly Integrated

- DMR Ad Hoc repeater
- DMR single frequency repeater
- DMR base radio (DMR Tier I, II)
- Analog base radio
- PSTN gateway



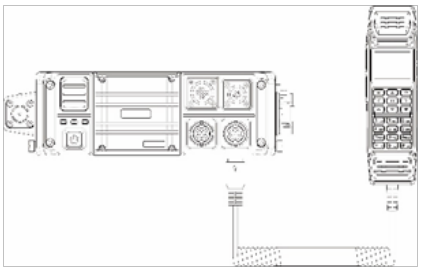
DMR Single Ferquency Repeater



DMR Ad Hoc Repeater

DMR and Analog Base Radio/ PSTN Gateway

- Connect with remote controller microphone BF-TC981 to enjoy PTT function as a DMR or analog radio.
- Support 4G SIM card to realize public network phone call.



Flexible and Reliable Networking, Fast Deployment

- Multiple networking deployment: chain, tree, star, connected network, etc.; thus, users can choose different networking based on actual environment.
- Highly reliable network: Based on mobile wireless ad hoc network, the device is capable of creating and joining networks simply by power-on. Signals will switch to another node automatically to ensure link continuity, when one node within a network disconnects or malfunctions.

Ease of Installation

- Manpack mounted
- Modular hardware design
- Vehicular/Desktop mounted

SPECIFICATION

General	
Frequency Range	VHF：136-174MHz　UHF：350-400MHz/ 400-480MHz/ 450-520MHz
Channel Capacity	3776
Channel Spacing	12.5KHz
Antenna Impedance	50Ω
Operating Voltage	Vehicular: DC13.8V(± 15%), negative ground　Battery: 10.8-12.6V
Operating Current	< 6A
Dimensions	302mm(L)*218mm(W)*76mm(H)　(Without antenna and antenna base)
Weight	≤5kg (battery 2kg included)
Transmitter	
RF Power (100% Duty Circle)	Vehicular: 5-25W(continuously)　Manpack: 3-15W(continuously)
Frequency Stability	≤0.5ppm
4FSK Modulation	12.5KHz(Data Only)：7K60FXD　12.5KHz(Data & Voice)：7K60FXW
Adjacent Channel Power	≤60dB
Spurious Radiation	-36dBm<1GHz　-30dBm>1GHz
Vocoder	AMBE
Receiver	
Sensitivity	3%BER≤0.35μV
Frequency Stability	≤0.5ppm
Adjacent Selectivity	≥60dB
Intermodulation Rejection Ratio	≥65dB
Spurious Suppression	≥70dB
Blocking	≥90dB
Rated Audio Output Power	No speaker, can be connected to microphone
Environmental	
Working Environment	-30℃ ~ +70℃
Storage Temperature	-40℃ ~ +85℃
Water & Dust Proof	IP67
Humidity Proof	MIL-STD-810G Standard
Shock & Vibration	MIL-STD-810G Standard

BF-TR925D DMR UV Dual Band Repeater

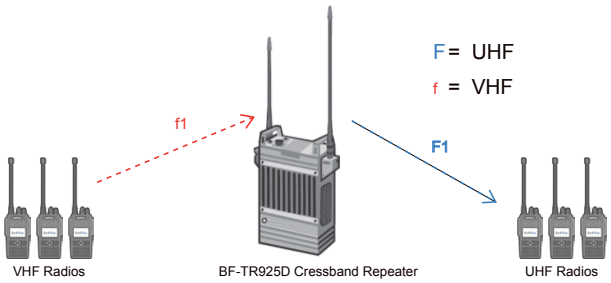
BF-TR925D portable dual band repeater is specially designed for the rapid deployment during emergency response. Compliant with military standard, sturdy and durable, it is can be vehicle mounted or man-packed. BF-TD925D works with BF-TR900 digital repeater and BF-TR925 portable repeater, or networks independently, to realize hierarchical networking and command and extend communication distance. Different frequencies of various departments manage to transmit in the same network, which makes an all-in-one communication network to realize wider cooperation. Organizations are better equipped to efficiently organize and share their resources during response operations.

Dual Band Interoperability, Communicate in an Instant

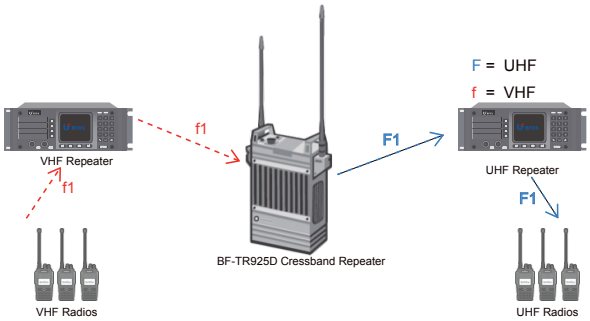
The device is valuable, since it performs across multiple digital and analog networks and operates in both VHF and UHF for instant interoperability. Now you can efficiently manage mission critical voice and data in any environment and significantly improve your team' s safety and response time.

Multi Working Mode, Highly Integrated

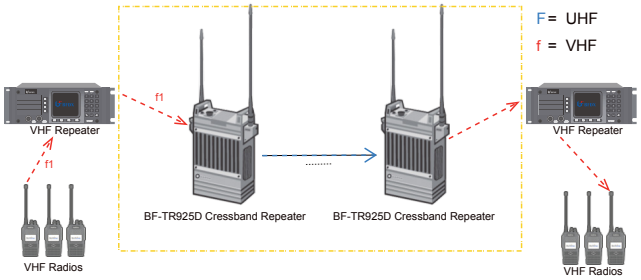
- DMR single frequency repeater (12.5KHz bandwidth, for UV both)
- DMR/Analog UV cross band repeater
- DMR base radio (DMR Tier I, II)
- Analog base radio (for UV both)



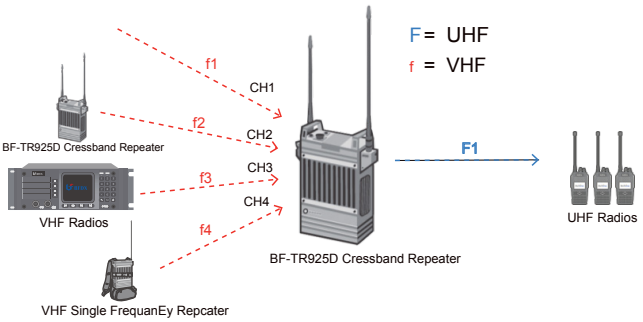
Different frequency radios connect via crossband repeater



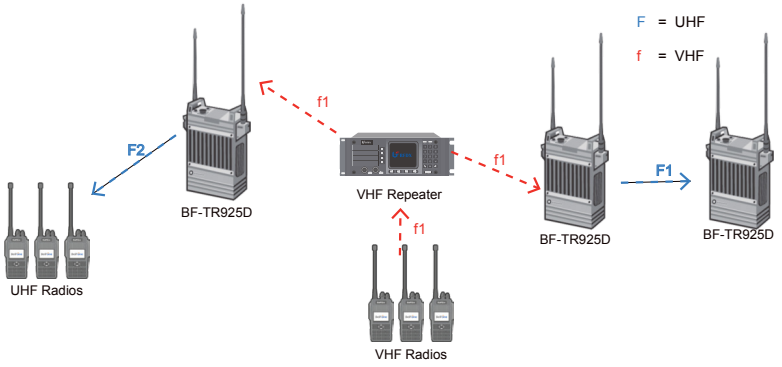
Different frequency repeaters connect via crossband repeater



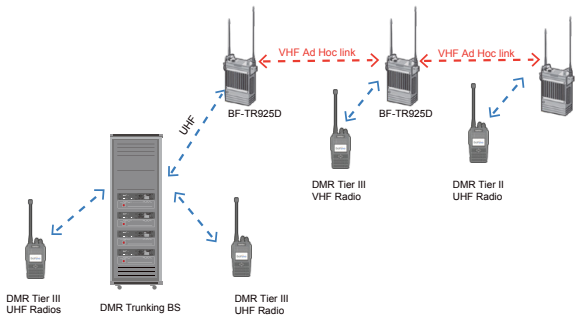
Different areas repeaters connect via multi crossband repeaters



Last-Mile communication expansion



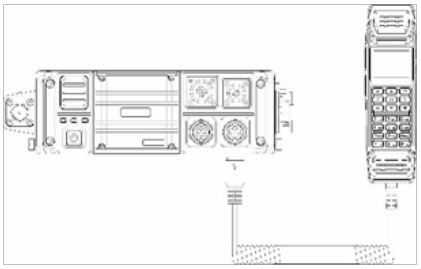
Hybrid Networks



DMR Tier III and Ad Hoc Hybrid Newtork

DMR and Analog Base Radio/ PSTN Gateway

- Connect with remote controller microphone BF-TC981 to enjoy PTT function as a DMR or analog radio.
- Support 4G SIM card to realize public network phone call.



SPECIFICATION

General	
Frequency Range	VHF：136-174MHz　UHF：350-400MHz/ 400-480MHz/ 450-520MHz
Channel Capacity	3776
Channel Spacing	12.5KHz
Antenna Impedance	50Ω
Operating Voltage	Vehicular: DC13.8V(± 15%), negative ground Battery: 10.8-12.6V
Operating Current	< 6A
Dimensions	302mm(L)*218mm(W)*76mm(H) (Without antenna and antenna base)
Weight	≤5kg (battery 2kg included)
Transmitter	
RF Power (100% Duty Circle)	Vehicular: 5-25W(continuously)　Manpack: 3-15W(continuously)
Frequency Stability	≤0.5ppm
4FSK Modulation	12.5KHz(Data Only)：7K60FXD　12.5KHz(Data & Voice)：7K60FXW
Adjacent Channel Power	≤60dB
Spurious Radiation	-36dBm<1GHz　-30dBm>1GHz
Vocoder	AMBE
Receiver	
Sensitivity	3%BER≤0.35μV
Frequency Stability	≤0.5ppm
Adjacent Selectivity	≥60dB
Intermodulation Rejection Ratio	≥65dB
Spurious Suppression	≥70dB
Blocking	≥90dB
Rated Audio Output Power	No speaker, can be connected to microphone
Environmental	
Working Environment	-30℃ ~ +70℃
Storage Temperature	-40℃ ~ +85℃
Water & Dust Proof	IP67
Humidity Proof	MIL-STD-810G Standard
Shock & Vibration	MIL-STD-810G Standard

BF-TD910D Dual Band Portable Radio

BF-TD910D is a tough dual-band two-way radio capable of operating on both VHF and UHF band in analog and digital mode, so that users across different systems can instantly communicate for better collaboration. Its comprehensive feature kit includes versatile calls, emergency call, lone worker, scan/monitor, roaming, transmission authentication, etc. It works in a great diversity of communication scenarios, e.g., indoor operations, outdoor operations, cross-dept. teamwork, emergency response, etc.

Dual Band Interoperability

The device is valuable, since it performs across multiple digital and analog networks and operates in both VHF and UHF for instant interoperability. Now you can efficiently manage mission critical voice and data in any environment and significantly improve your team' s safety and response time.

Reliable and Tough

This tough IP68-graded water and dust proof radio is designed to brave the challenges of harsh environments and to keep your workers connected safely and productively, wherever the job takes them.

Advanced Security

- ARC4, AES256 and TF card encryption technologies and authentication protect mission critical radio system from unauthorized access or malicious disruption.
- Users can eliminate voice records and important data through the terminal to prevent information leakage.

BF-TD930(MC-N) AD HOC Portable Radio

Designed for emergency response system, BF-TD930(MC-N) works as a mobile repeater as well as a high-end digital radio which incorporates such advanced features as virtual trunking, IP68 protection, GPS, full duplex call, Ad Hoc, SFR, etc. Ad Hoc enables quick networking and flexible deployment. Features such as man-down, loner worker and emergency alert keep the users safe and sound. It greatly benefits on-site users from sectors such as public security and emergency response.

Multiple Working Modes

- DMR Tier III Trunking
- DMR Conventional
- Analog Conventional

Handheld SFR in Dual Modes

This device can also function as a single frequency repeater, allocating one timeslot to receive and the other to transmit at same frequency and using DMO mode to furtherly extend radio coverage. One single device serves two purposes.

Enhanced Communication Efficiency

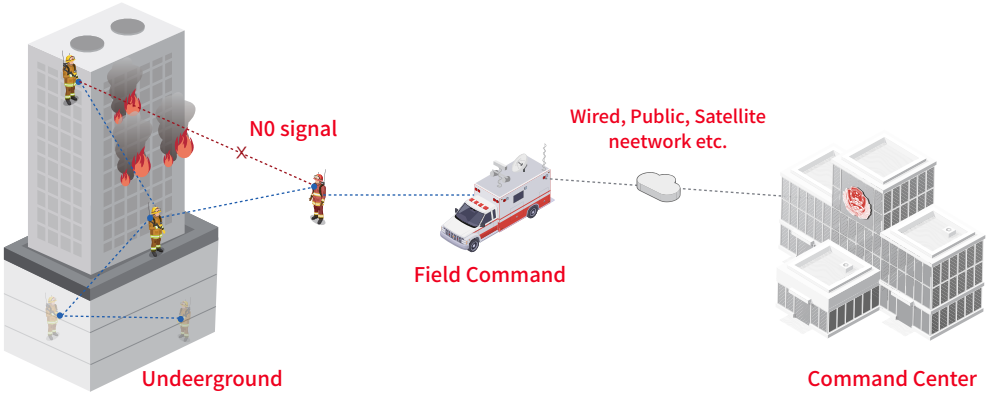
Incorporating ground-breaking full-duplex call to allow simultaneous two-way voice calls, it facilitates crucial information exchange, making sure the voice call gets through even in peak traffic.

Flexible and Reliable Ad Hoc Networking

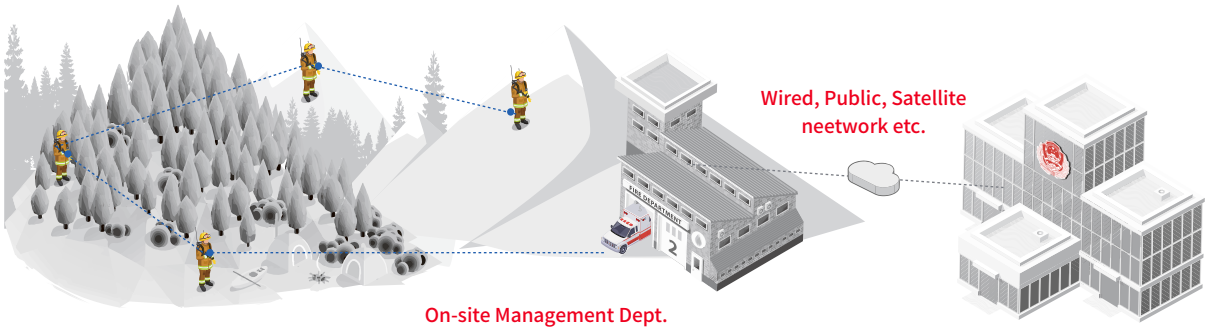
Without the aid of repeaters, this radio can speedily establish a portable Ad Hoc network with as many nodes as it may be needed. It is self-adapting and supports versatile network topologies.

Application

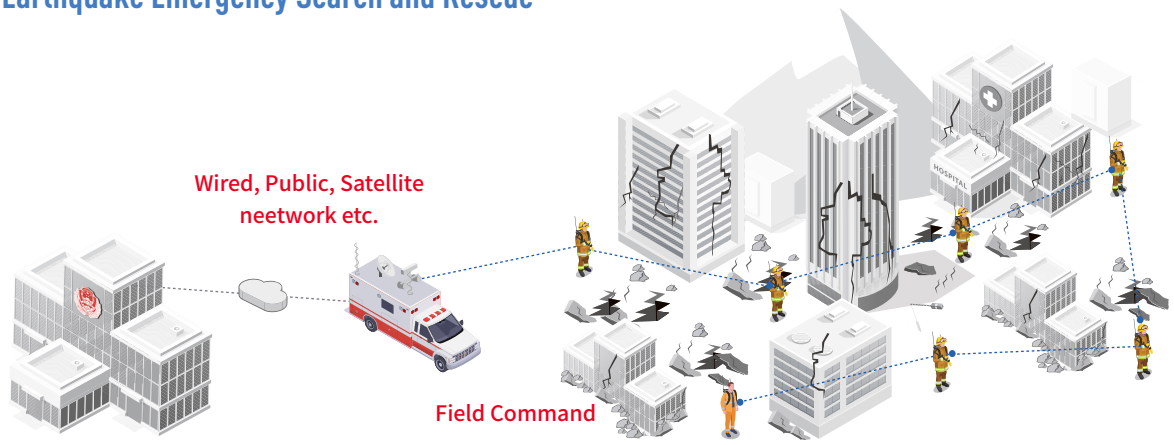
Fire Emergency Rescue



Forest Fire Prevention



Earthquake Emergency Search and Rescue



Fujian BelFone Communications Technology Co., Ltd

Add: A-15 Huaqiao Economic Development Zone, Luojiang, Quanzhou, Fujian, China
Email: overseas@belfone.com
Phone: +86 595 28396717
Fax: +86 595 22771635

BelFone
Communications for Efficiency and Safety

Dedicated to increasing the efficiency and reliability of missioncritical communications, BelFone is always on the way to offer responsive, flexible and reliable products. For more information about our products and solutions, contact us or visit us at www.belfone.com.