Smart Virtual Trunking System

BF-8200SVT

BelFone

Communications for Efficiency and Safety

OVERVIEW

1 — A Radio Communications R&D Pioneer

2 — A Top 10 PMR Brand

3 — Export Volume Among Industry Top

Founded in 1989, BelFone, a state-level high-tech enterprise, is a leading technology and solution provider of mission and business critical communications, with our focus on the field of professional radio communications and our clientele all over the globe.

With over 30 years of experience and expertise, we are dedicated to bringing the best out of the evolvement of different communications technologies and empowering our customers with integrated radio solutions such as broadband Trunking, narrowband Trunking, PoC Trunking, emergency response communication systems as well as command and dispatching systems.
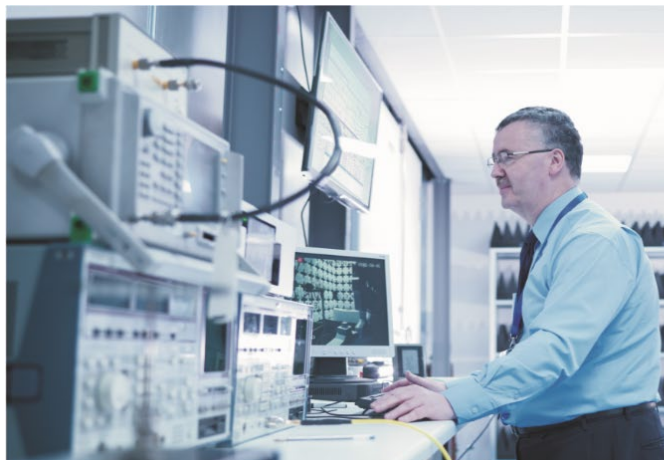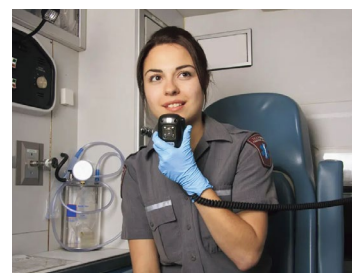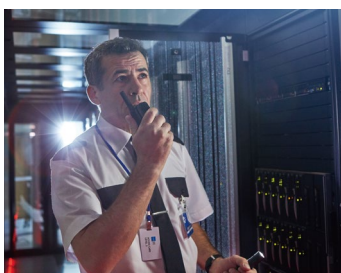

R&D STRENGTH

BelFone emphasizes a lot on innovation and has been investing over 10% of its annual revenue in R&D. At present, BelFone has 5 R&D centers in China and its R&D personnel account for about 30% of the total staff number. BelFone is the proud owner of nearly 100 intellectual property patents.

BelFone has been actively pioneering the development of PMR technologies through relentless R&D efforts and has now mastered the mainstream open standard technologies, such as DMR, PoC, LTE, 5G, and traditional analog communications. BelFone's comprehensive product portfolio includes narrowband, broadband, convergent, mesh, as well as command and dispatch systems, which effectively help users to realize the integration of communication and management.

Our products and solutions provide enhanced efficiency, safety, stability and connectivity, helping users to get communication coverage, flexible networking, rapid deployment, visual command and Trunking features, benefiting a wide spectrum of sectors such as public safety, utilities, emergency response, energy, transportation, enterprises and businesses.

SYSTEM OVERVIEW

Application Layer	Dispatch Management	GIS Management	Patrol Management	Data Management	Network Management

System Layer	Dedicated Server	Converged Gateway	SVT Base Station(TR900)	SVT Base Station(TR8500)

Terminal Layer	BP860	BP750	TD930/Ex	TD880Ex	TD510	TD511	TD510Ex	TD511EX	TD800	TM8250	Base Radio

BF-8200 Smart Virtual Trunking System (SVT) is an intellectualized Trunking system that integrates digital voice, SMS, GPS, and unified dispatching platforms. BF-8200 supports a maximum 16 repeaters with 32 traffic channels, and can flexibly allocate idle channels to improve channel utilization. Therefore, communication problems such as traffic density, concurrency tasks, and too many work groups can be easily solved. SVT could also interconnect different systems by deploying the gateway access to the telephone system and broadcasting system, etc.

CURRENT SITUATIONS & OUR SOLUTIONS

Low Channel Utilization

Current situations: limited and unshareable channel resources make it impossible to finely group communications in concurrency tasks.

Our goals: Realize dynamic channel allocation, resource sharing, independent communication, and unified dispatching.

Simple Communication Mode

Current situations: Only simple voice communication can't meet diverse dispatching needs.

Our goals: Build an integrated commanding and dispatching network.

Poor Communication Security

Current situations: Easy to cause mutual interference, miscommand, and misoperate due to the lack of communication security.

Our goals: Independently grouping departments to ensure the independence of departmental communications and guarantee communication privacy.

Weak Interconnection

Current situations: Traditional communication systems are weakly interconnected and cannot interoperate with telephone systems, broadcasting systems, etc., which makes it impossible to establish a collaborative communication system.

Our goals: Build an efficient communication network to connected different departments.

SYSTEM ADVANTAGES

Dynamically Allocate Channel Resources

The base station controller can effectively integrate channel resources by managing and allocating channel resources in real-time, which improves channel utilization and call completion rate.

Load Balance

Multi-Channel Sharing
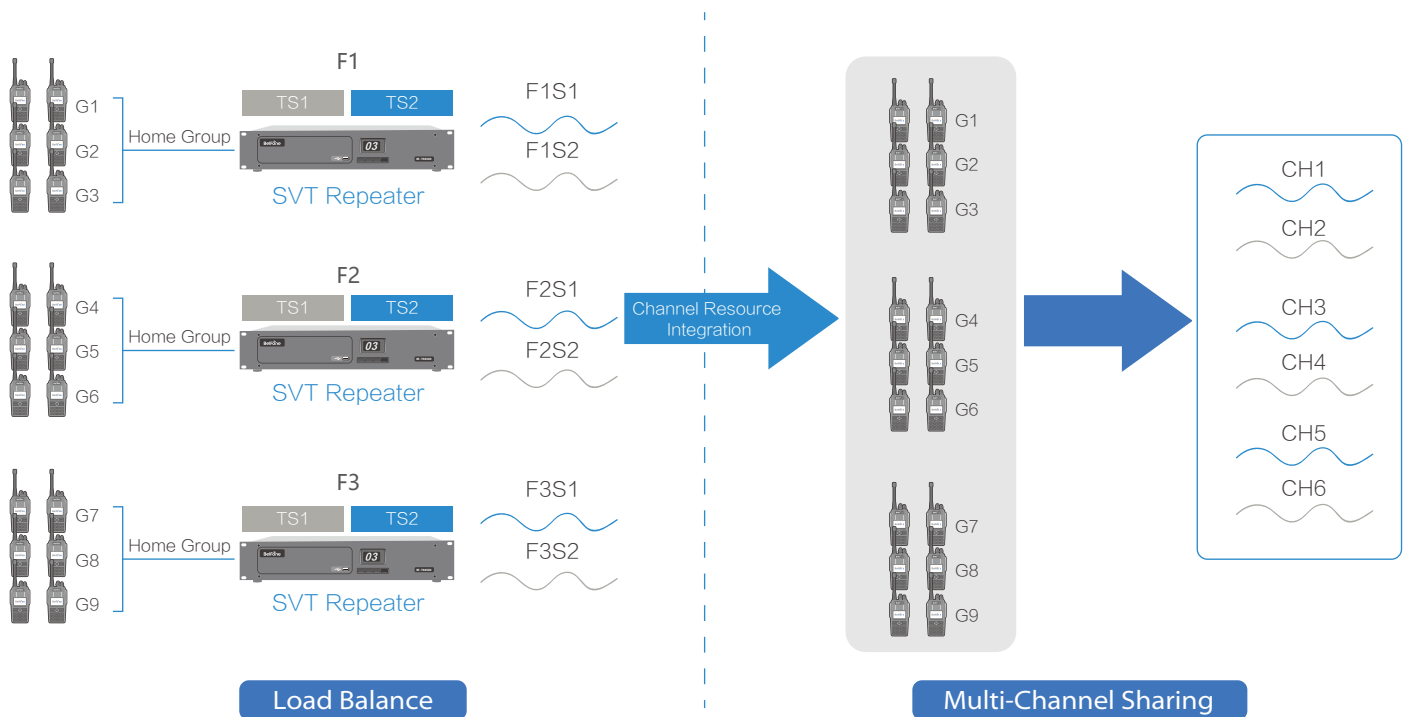
Balancing Repeater Load

SVT can assign different active groups to different repeaters evenly to dynamically allocate channel resources, effectively eliminate call collision, improve call success rate, and balance the repeater load.

Visualized Dispatching

The BF-8200(SVT) uses GIS, internet, wireless communication, and cloud-computing technologies to provide voice intercom, real-time dispatching (individual call/group call/all call, etc.), ad hoc calls, GIS, and broadcasting service, helping to improve work efficiency and responsiveness.
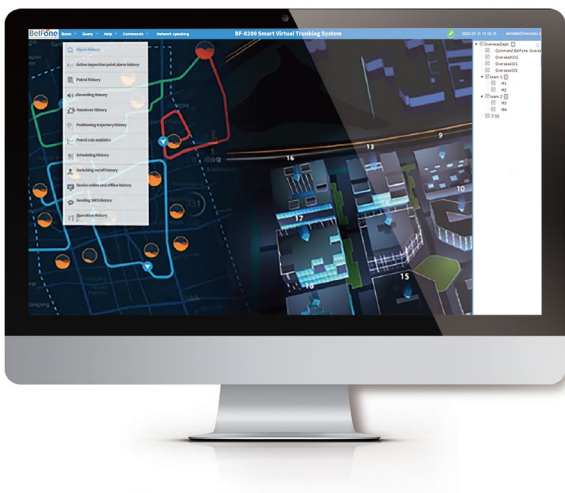
GIS Dispatching
Real-time positioning; dynamic monitoring; linkage command and dispatching, emergency alarm etc.

Interactive Dispatching
Interconnecting with analog, digital, and public-private convergence terminals to realize high-quality voice dispatching.

Voice Dispatching
Voice and information dispatching for voice calls, IP telephony, Trunking communication, broadcast calls, group calls, and SMS, etc.

Data Dispatching
The dispatching platform can unify terminals' network access and talk-around information and remotely control the terminals.

Intelligent Digital Management

SVT can help to increase user management efficiency in a digital way. It can not only manage multiple types of data (user information, equipment information, terminal information, etc.) but also provide historical data query services for voice recording, positioning, historical tracking, patrol records, etc.

Flexible Deployment

Providing flexible deploy modes for different working environments (single station, multi-station, visual dispatching system, etc.) can not only meet daily communication needs but also can be used to carry out emergency command and dispatching.

Base Station Controller Backup

SVT supports a backup controller solution. When the master controller breaks down, the backup controller will automatically take over to ensure the system run normally.

Failure Fallback

In the multi-station interconnection mode, the SVT system can fallbacks to a single site mode to guarantee the running service when the master controller breaks down. Apart from that, the single site could also fallbacks to repeater mode to make sure the system runs normally when the single site controller breaks down.

Rich Applications

Voice Services	Data Services	Supplementary Functions	Others
● Emergency Call	● SMS	○ Call Prompting	● Failure Fallback
● Call Time Limit	○ Visualized Dispatching	○ Remote Monitor	● Redundancy Backup
● BCL	○ Audio Data Management	○ IP Gateway	● Roaming(multi-site)
● Call Priority	○ GPS/ GLONASS	○ Remote Kill/Activate	● Signal Test
● Individual Call/Group Call/All Call		○ Radio Testing	● Authentication/Encryption
			● RDAC

● Represents Standard Features   ○ Represents Optional Features

NETWORKING MODE

Single Site Mode

The SVT system supports multiple networking modes that can meet diverse networking requirements. The single site mode is for users with small coverage areas who only need voice calls. It is consists of a SVT controller, repeater, antenna and feeder, etc. One single site can support up to 16 repeaters.

SVT Controller   Repeater NO.01   Repeater NO.02   Repeater NO.16
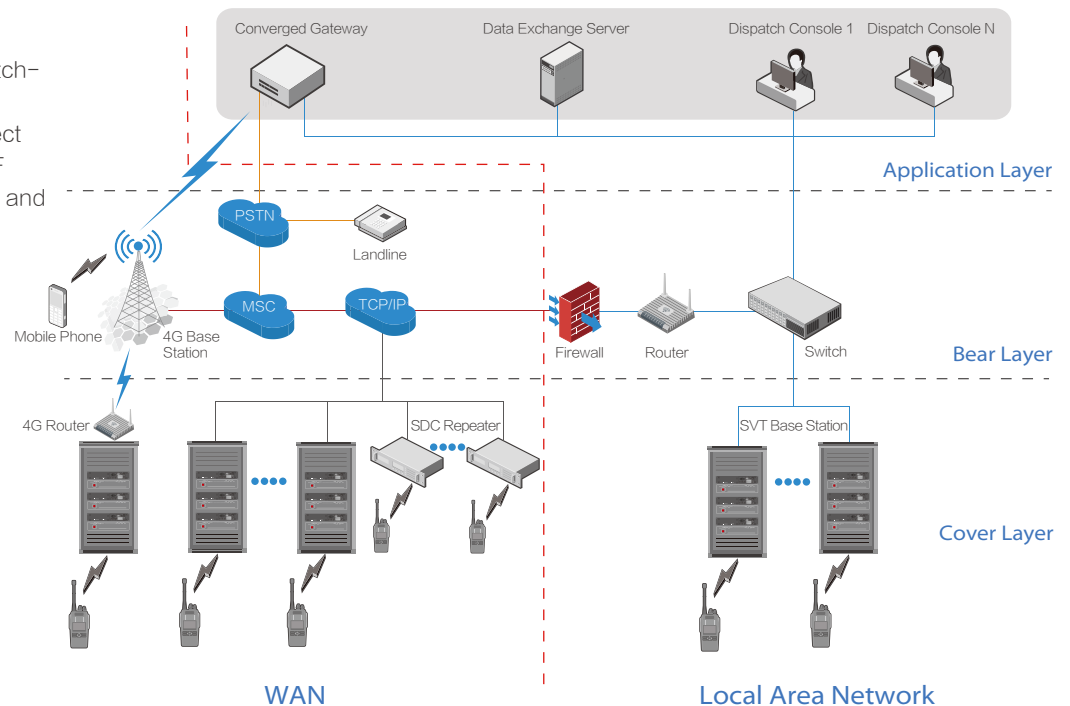
TS1   TS2
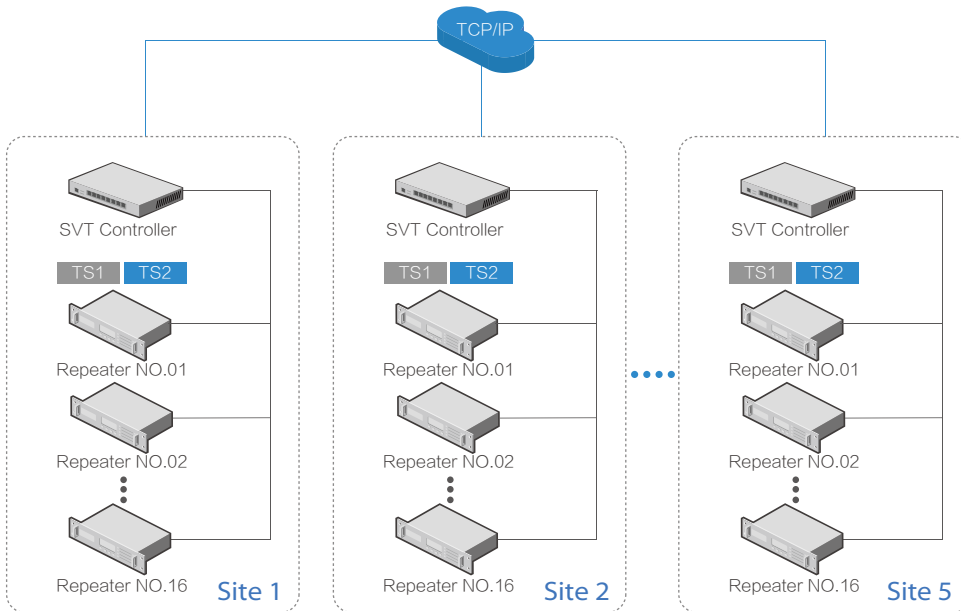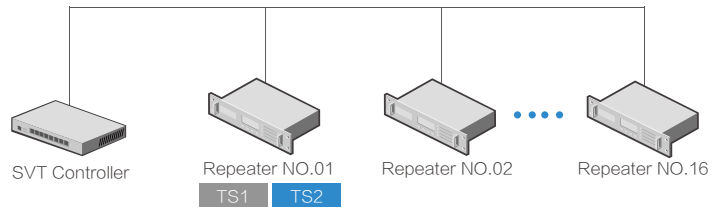
Multi-Site Interconnection

The multi-site interconnection mode is for users with wide networking coverage. It interconnected base stations in different regions by IP networking.

TCP/IP

SVT Controller

TS1   TS2

Repeater NO.01

Repeater NO.02

Repeater NO.16   Site 1

SVT Controller

TS1   TS2

Repeater NO.01

Repeater NO.02

Repeater NO.16   Site 2

SVT Controller

TS1   TS2

Repeater NO.01

Repeater NO.02

Repeater NO.16   Site 5

Dispatching System

SVT can access the visual dispatching system over IP network by integrating gateway to interconnect PSTN, broadcasting systems, HF systems and realize unified voice and data dispatching.

Converged Gateway   Data Exchange Server   Dispatch Console 1   Dispatch Console N

Application Layer

PSTN

Landline

Mobile Phone   4G Base Station   MSC   TCP/IP   Firewall   Router   Switch   Bear Layer

4G Router   SDC Repeater   SVT Base Station

Cover Layer

WAN   Local Area Network

SYSTEM COMPOSITION

● Intelligent Dispatching Management Platform

The intelligent dispatching platform adopts B/S structure and IP-based technology to provide voice dispatching, GIS dispatching, individualized staff management, terminal management.

- ● Voice Dispatching
- ● GIS Dispatching
- ● Satellite Positioning
- ● Remote Control
- ○ Patrolling Management
- ● Data Management
- ● Historical Data Query
- ● Hierarchical Authorization Management
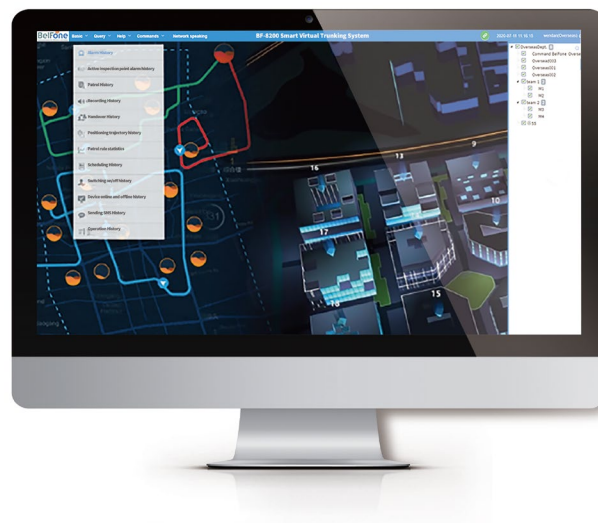
● SVT Controller

BF-TS909 (SVT controller) equipped with BelFone multi-carrier channel sharing system and GPON design, greatly increased interconnected devices and expanded base station functions.

- ● Service Expansion
- ● Network Transmission Management
- ● Voice Call Management
- ● Bearer Protocol Processing
- ● Equipment Monitoring And Management
- ● Data Information Management
- ● Multi WAN Network
- ● WAN/LAN Ports Customization

● BF-TR8500 (Digital Repeater）

BF-TR8500 is a very cost-effective digital repeater with the 19-inch 2U rack design. It could meet the needs of fixed place for deployment, regional signal coverage, cross-region communication, and provide users with multiple working modes.

- ● 50W Output Power
- ● Malfunction Warning
- ● Active Heat Dissipation
- ● Built-in Power Supply
- ● Emergency Power Float Charge
- ○ GPS

BF-TR900 (Digital Repeater)

BF-TR900 is a high-end professional digital repeater that can provide wide coverage with 50W output power which effectively saves equipment resources. It is equipped with overall cast aluminum material, with strong robustness, great heat dissipation, excellent high and low temperature property, and could tackle various harsh environments.

- 50W Output Power
- 2.8 Inches Display
- IP54 Water Proof And Dust proof
- Heat Dissipation
- Multi-Mode Positioning
- Numeric Keypad

BF-TM8250 (Digital Mobile Radio)

BF-TM8250 digital mobile radio supports SVT systems, with large communication range, diverse applications, and can also be used as a portable base station when connected to BF-PS200B power supply.

- 50W Output Power
- Full Duplex Calls
- Multiple Working Modes
- AES256/ARC4 Encryption
- Bluetooth
- SMS
- Lone Worker
- GPS

BP860 (Digital Portable Radio)

BP860 based on DMR, has rich application functions, wide application range, and excellent RF performance. It also has a built-in AI noise-reduction chip that could greatly improve communication quality. Bring users high-quality communication experience.

- 2.4 Inches Display
- Full Duplex Calls
- IP68 Protection
- Superheterodyne Circuit
- AI Noise Reduction
- Advanced Encryption

- Ad Hoc
- TF Encryption
- SFR
- Multiple Alarm
- GPS
- Bluetooth/Recording

BP750 (Digital Portable Radio)

BP750 is a new enhanced digital two-way radio with rich functions and full application scenarios. BP750 supports different versions (Conventional/System/SVT /Ad hoc) for users choice.

- Ad Hoc
- Superheterodyne Circuit
- SFR
- Full Duplex Calls
- Advanced Encryption
- Stealth Mode
- Satellite Positioning*

- TTS
- Long Battery Life
- IP68 Protection
- Multiple Alarm Modes
- Multi Versions & Functions
- Individual Call/Group Call/All Call

BF-TD930/TD930Ex (Digital Portable Radio)

BF-TD930/TD930Ex has rich application functions such as: voice encryption, SMS, roaming, backlight switching. Its rugged design makes it very suitable for the users with high-intensity communication require-ments. (BF-TD930Ex has passed the gas explosion-proof: ex IB D 21 and T130 the dust explosion-proof)

- Double Explosion Certification
- Full Duplex Calls
- Multiple Working Modes
- TTS
- GPS

- IP68 Protection
- TDMA
- 3350mAh Battery
- Voice Encryption/ Vibrating Alert
- 3 Emergency Alarms
  (emergency alarm/lone worker/mandown)

● BF-TD510/TD511(Digital Portable Radio）

BF-TD510/BF-TD511 has passed the IP68 rating and MIL-STD. Its rich applications and excellent sound quality make it perform well in various working environments.

- ● IP68 Protection
- ● VOX
- ● TDMA
- ● ARC4 Encryption
- ● 400 Hour Voice Recording
- ● Lone Worker/Mandown
- ● GPS/GLONASS
- ● Monitoring/Scanning/ Automatic Monitoring

● BF-TD800(Digital Portable Radio）

BF-TD800 digital portable radio supports individual call/group call/all call and flexible dispatching. Moreover, it supports various sensors connections for better interaction and more efficient commanding and dispatching.

- ● Patrolling RFID
- ● Emergency Alarm
- ● TTS
- ● AGC
- ● IP67 Protection
- ● Long Battery Life
- ● Call/Group Call/All Call
- ● GPS

● BF-TD880/TD511/TD510

(Digital Explosion-Proof Radio)

BF-TD880/TD511/TD510 IIB explosion-proof radios strictly obeyed national electrical explosion-proof standards and passed the CQST test certification. It is a very powerful radio with rich applications, long battery life, excellent voice quality, digitalized voice recording and other features.

- ● EX IIB
- ● IP67 Protection
- ● TDMA
- ● ARC4 Encryption
- ○ 400Hour Voice Recording
- ○ Lone Worker/Mandown
- ○ GPS/ GLONASS
- ● Monitoring/Scanning/ Automatic Monitoring

APPLICATION CASES

● Large Iron And Steel Group

Background:
With the rapid development of the enterprise, the old analog system can no longer keep up with its development trend. To meet the daily communication and dispatching needs, the group adopted BelFone SVT solution and significantly improved the communicating efficiency.

Solutions:
1.Built a communication system with 16 carriers to cover the plant and meet daily communication needs.
2.More than 500 portable radios and over 100 explosion-proof radios.

Achievements:
BelFone SVT solution effectively grouped the departments and provided internal communication channels. They built a 16 carrier communication system to meet communication needs of concurrent tasks, and used explosion-proof radios for explosion-proof areas to realize the full communication and commanding needs.

● Chemical Industry Park

Background:
The chemical park finished its first phase of construction in 2022, which covered 230 thousand square meters. To meet its communication, command and dispatching needs the industry park has planned to build a wireless communication system to cover the whole industrial park.

Solutions:
1. A system of 8 carriers to cover the park.
2. 140 explosion-proof radios and 190 portable radios.

Achievements:
Our solution effectively grouped the departments, and provided internal communication channels which eliminated potential production hazards in explosion-proof areas. Meanwhile, this solution overcame communication blocks in concurrency tasks by building the 8-carrier communication system.

● Application Scenarios

BF-8200 SVT can be applied to various large public scenarios such as industrial and mining enterprises, industrial parks, urban complexes, gymnasiums, campuses, hospitals, harbors, airports, stations, etc.

| Urban Complexes | Hotels/Supermarkets | Gymnasiums | Harbors | Large Scenic Spots |

BelFone

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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.

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