Excera Company & Products
Introduction

Shenzhen Excera Technology Co., Ltd.
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1. Leading enterprise in private network communications field
   - EXCERA was established in 2012 and her mother company Beijing Vigor was founded in 1993, which is the earliest manufacturer and provider of wireless trunking system equipment and solution for Chinese Police;
   - Built thousands of base station and ten thousands of transceivers for Chinese Police
   - Vigor is the only participator and maker for both MPT1327 and PDT standard in private network communications field in China.

2. Strong technical innovation ability
   - World-leading R&D base for digital radio and trunking system with more than 20 years of experience in this field;
   - Honored with various patents and medal in private network communications field;
   - Created a number of technical innovation in PMR field.

3. Fast growth
   - More than 100% growth in sales volume in successive of 10 years;
   - Honored the high-tech medium-sized enterprise with most development potential in China.
Successfully design the 1st MPT-1327 Trunking System with completely independent intellectual property right in China

1996

Vigor participated in drafting “Police Automation Class Standard of Chinese Police Mobile Communications Network” which was commended for the 1st prize of technology progress in Chinese Police.

1999

The biggest Wireless Command and Dispatch Center in Asia was established in Guangzhou, which was designed independently by Vigor.

2003

Vigor established strategic alliance with Motorola to service China private network communications market.

2005

Vigor participated in drafting Chinese Police Digital Trunking Standard.

2008

Successfully designed and developed PDT/DMR Trunking System with completely independent intellectual property right.

2011

Push out EXCERA PDT/DMR terminal radio with completely independent intellectual property right.

2012

Built more than 2000 units base stations and ten thousands of transceivers for Chinese Police in more than 10 provinces.

2014

Company Profile—Development History

EXCERA was founded.
Vigor is the Key Member of PDT Association and one of five sponsors for drafting PDT standard, and EXCERA is also PDT Association member.

Category 1 member of DMR Association.

International Certification
## Company Profile—Certificate

- Honored with various patents in this field

<table>
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<th>Count</th>
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<td>Software copyright</td>
<td>7</td>
</tr>
<tr>
<td>Invention Patents</td>
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![Patent Certificates]
Company Profile—Quality Control

- Improved Quality Assurance throughout all the processes of R&D and manufacturing.
- 6-Sigma, QCC and various quality improvement tools, ensure the product with high quality.
- Strictly comply with national/industry/American Military standards.
- Compliant with ISO9001 and ISO14001

Scenes of product tests

- Rolling compaction
- Dust-proof test
- Low temperature test
- Water-proof test
EXCERA DMR Product Family

- Portable radio
- Mobile radio
- Repeater
- Accessories
- Trunking System
- Applications
EXCERA DMR Technology Strength

EXCERA DMR Solution, Excellent Communications and digitalized the future

Provide customers with best tailored solutions with innovative technology.

Provide customers with more excellent and more safety solutions.

Provide customers with high reliability solution via continuous innovation.
EXCERA DMR Terminal Product

Portable radio
EP8100

- **EP8100 Highlights**
  - Full Duplex Communications
  - 2.0” HD Transflective TFT LCD Display
  - IP67 and MIL-STD-810 Standards Compliance
  - DMR TierII Conventional and DMR TierIII Trunked
Portable Radio EP8100

✉️ Advantage Features

 2.0” HD transflective LCD color display
 High capacity battery
 Built-in Bluetooth (Optional)
 Built-in noise reduction function (Optional)
 Full-duplex call (Optional)
 Built-in GPS (Optional)
 Support DMR Tier III by software upgrade
 Rich API for 3rd party
 IP67 and MIL-STD-810 Standards Compliance
Portable Radio Accessories

◆ EP8100 Optional Accessories

- 3400 mAh Battery
- Remote Speaker Microphone
- C type Earphone
- One wire Transparent Tube Earphone
- 2-wires tube earphone
- Police Bone Conduction Headset
- Fireman Bone Conduction Headset
- Bluetooth Earphone
- Smart Bluetooth Earphone
- Bluetooth PTT
- Hang Rope
- USB Programming Cable
EXCERA DMR Terminal Product

Mobile Radio
EM8100

- **EM8100 Highlights**
  - Full Duplex Communications
  - 2.8” HD Transflective TFT LCD Display
  - IP54 and MIL-STD-810 Standards Compliance
  - DMR TierII Conventional and DMR TierIII Trunked
Mobile Radio EM8100

◆ Advantage Features

- 2.8" HD TFT LCD color display
- Innovative Auto-protecting Technology
- Built-in Bluetooth (Optional)
- Built-in noise reduction function (Optional)
- Full-duplex call (Optional)
- Built-in GPS (Optional)
- Support DMR Tier III by software upgrade
- Rich API for 3rd party
- Remote Mount Control Head
Mobile Radio Accessories

- EM8100 Optional Accessories

- Keypad Microphone
- Power Supply
- Antenna
- GPS Antenna
- Remote Control Head (3M)
- Bluetooth Earphone
- Smart Bluetooth Earphone
- Bluetooth PTT
- USB Programming Cable
EXCERA DMR Terminal Product

◆ Low-cost digital radio for business users
Repeater/Transceiver
ER9000

- 19 Inches, 1U Cabinet Size Design with Power Supply Inside
- 100% Continuous Duty Cycle with 50W High Power Output
- Upgrade to DMR Trunking Basestation Transceiver by software
- Upgrade to DMR Simulcast Basestation Transceiver by software
Repeater/Transceiver ER9000

**Advantage Features**

- 19 inches, 1U standard cabinet design with power supply inside
- Support multi-site IP interconnection
- Digital dual-slot transmission and voice reception
- 50W high power output, 100% duty-cycle
- Support AC/DC power supply, automatic switching function
- Support analog and digital dual-mode and automatic switching
- Rich API for 3rd party
- Military standard MIL-STD-810 100000 hours MTBF
- Support remote diagnosis, maintenance and software upgrade
- 50W high power output, 100% duty-cycle

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Repeater/Transceiver ER9000

- Upgrade to DMR Trunking Basestation Transceiver by software (optional)
- Upgrade to DMR simulcast basestation transceiver by software (optional)
IP Multi Sites Connect Solution

IP Multi-site Connect enables repeater ER9000 in different areas to exchange data, voice and packets over a TCP/IP-based network, which makes the customer’s communication more effective and wider.

Connect to all kinds of applications based on PC

IP WAN

Interconnectivity between VHF and UHF
Repeater Accessories

- ER9000 Accessories

- AC Power Cable
- Passive duplex
- Antenna
- Fiberglass Antenna
- Power Cord
- USB Programming Cable
EXCERA DMR Trunking System Overview
Excera DMR Trunking System Advantage

- Completely IP Design and support remote maintenance, RADC and remote software upgrade.
- Adopt distributed and flattening design; the base station adopts unique design of transceiver hot backup, which makes sure the system can be hierarchical graceful degradation.
- The basestation transceiver has the advantage of multiple working modes, high reliability, integration, HD colorful LCD display, etc.
- Compatible with digital and analog modes and smooth migration.
- Optional functions (such as call forwarding, IP/E1 link hot backup) can be customized according to different requirement.
- Adopt dual time slot TDMA technology and spectrum utilization is four times of MPT1327 system.
Big regional coverage

Seamless hand-over and keep continuous communications when trans-regional

Support GPS and BeiDou positioning

More safety with encryption

Digitalized voice and enhancing the anti-jamming ability, which ensuring the good voice quality
DMR Trunking Base-station Transceiver

Features

- 19 inch 2U standard cabinet design
- 50W high power and 100% duty cycle
- HD color LCD display
- Load mismatch detection protection
- Independent installation of power amplifier tube (patent)
- Design with military reliability standard, MTBF 100000 hours
- High integration with trunking controller and channel controller and built-in duplexer and power supply inside
- Adopts IP link among BSs
- Rich API for the 3rd party
- Supports RADC, remote maintenance and remote upgrade
DMR Trunking Base Station

Features

- Adopt TDMA technology, improving spectrum utilization greatly.
- Adopt IP SoftSwitch Technology.
- Big regional coverage.
- Digital and analog dual modes, supporting digital and analog radio to access the network at the same time.
- Seamless hand-over and automatic roaming when trans-regional.
- Good voice quality with completely digital voice processing.
- Redundancy backup of the key equipment and modules.
- Support remote maintenance, RADC and remote software upgrade.
Mobile Switching Center (MSC)

Features

- Adopt flattening design with coordinate structure among MSCs, which facilitates system planning and construction.

- Adopt software modular design, allowing different users to do the different configuration flexibly.

- Adopt multiple redundancy hot backup of database, ensuring the system data safe and complete.

- Provide multiple Access Gateway such as PSTN/PABX gateway, GPS Server gateway, MPT system gateway.

- Real-time operating monitoring, remote maintenance and configuration management.
Dispatching Center (DIP)

Dispatching System Structure Chart

BS/MSC

Dispatching Server

IP Network

Dispatcher
Dispatcher
Dispatcher
Dispatcher
Dispatching Center (DIP)

**Main Services**

- Voice Dispatching
- Short Data Message Management
- Visual Dispatching (AVL)
- Track Playback
- Discreet and ambience Listening
- Override and Interrupt
- Dispatching Plan Management
- Log management
- Dispatching System Configuration

Visual Dispatching Interface

Dispatcher Interface
Network Management (NMC)
Network Management (NMC)

Main Services

- Security Management
- Device Management
- Alarm Management
- Subscriber Management
- Statistics Management
- Staff Management
- OTAP (Over the Air Program) Management
- Upgrade management

NMC Interface
EXCERA DMR Trunking System

- Reliable
- Stable

Multiple redundant backup greatly improves the system reliability and stability.

- Hot backup of the key modules for each transceiver
- Hot backup of transceiver for each BS
- Hot backup of key equipment and modules for BSs
- Hot backup of database among MSCs
EXCERA DMR Trunking System

**Safety of system design**

Adopt distributed and flattening design; which makes sure the system can be hierarchical graceful degradation.

Adopt hot backup design of transceiver, database and key modules.

**Safety of information**

Authentication

Air interface encryption

Kill/revive

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EXCERA DMR Trunking System

High-efficient & Flexible

Flexible software modular design
MSC adopts software modular design with Different functions, which can be done the Flexible configuration according to different Requirement by different users.

Flexible working modes
Five in One:
1. Analog MPT trunking system
2. Digital DMR trunking system
3. MPT/DMR dual-mode trunking system
4. Analog conventional simulcast system
5. Digital DMR conventional simulcast system

Flexible Applications
MSC provides multiple Access Gateway such as PSTN/PABX AG, GPS Server AG, MPT system AG, etc. the users can choose different application AG according to different requirement.

Innovation
Flexible remote management and control via IP network

Soft switching

IP Network
EXCERA DMR Trunking System

**Single Site Solution — EXCERA DMR Smart Trunking**

- Support max. 1200 subscriber
- Support voice and data service
- Support max. 6 repeater and 12 dynamic voice/Data channel
- Support max. 12 repeater and 24 static data channel
- Compatible with MOTOTRBO terminal radio and realize **Capacity Plus** functions

Especially tailored for the users who require small-scale networking
EXCERA DMR Trunking System

Single Site Solution --- DMR TierIII Trunking System
-- smooth escalation of small and middle scale analogue trunking system to DMR trunking system

Previous MPT analogue trunking terminals

DMR trunking terminals

Make use of most of the previous terminals and meanwhile upgrade the system to digital one.

The single site supports maximum of 32 carriers.
EXCERA DMR Trunking System

DMR Trunking System Solution
-- smooth extension of the small and middle scale analogue MPT-1327 trunking system with DMR trunking system

The single site supports maximum of 32 carriers.

The previous MPT-1327 trunking system is still working while extend the system with DMR trunking system.
EXCERA DMR Trunking System

Smart Trunking Multi Sites Solution

- Multi Sites pseudo trunked solution
- Support multi-site simulcast
- Inter-connected among DMR single site by IP link
- This system with multi sites and multi channels can do:
  - **Extend the coverage** for the single site
  - **Increase the system capacity** for the sites with IP link
- Upgrading with software, no any hardware is needed
- No BS controller
- Compatible with MOTOTRBO terminal radio
- Use EXCERA MSC as switching node, supporting maximum of 62 sites.
EXCERA DMR Trunking System

Single Node Multi Sites System
-- middle scale digital trunking system solution

- Adopt IP soft switching technology, which is more flexible, effective and open, and easy to connect with other network device;
- Each MSC can support max. of 62 base stations;
- The key equipments, modules and DB are all adopted redundancy hot backup, greatly reducing the possibility of system breakdown;
- Multi links are supported such as IP, E1, 4W+E&M and microwave;
- Provide various applications access gateway: dispatching service, GPS positioning, recording and PABX/PSTN, etc.
Multi Nodes Multi Sites System
-- large scale digital trunking system solution

- Adopt the mainstream of soft switching technology:
  - Support various network programmable processing system with different protocol;
  - Can be operated conveniently on various PC with various OS
  - Flexible and effective to connect with external network device
  - Open for the 3rd party development (API)
  - Convenient for system expansion station

- Adopt automatic roaming technology, ensuring seamless hand-over and keep continuous communications when trans-regional;

- Adopt flattening design with coordinate structure among MSCs, which facilitates system planning and construction;

- Adopt distributed and flattening design; the base station adopts unique design of transceiver hot backup, which makes sure the system can be hierarchical graceful degradation;

- Provide various applications access gateway: dispatching service, GPS positioning, recording and PABX/PSTN, etc.
EXCERA DMR Simulcast Solution

Typical Application: Linear Networking

Simulcast BS

IP/E1/Microwave......

Simulcast BS

Simulcast BS

Simulcast BS

Simulcast BS

Applications:
- Fire
- Highway
- Railway

Various optional Applications

NMC

Dispatch

PSTN/PABX

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EXCERA DMR Simulcast Solution

Typical Application: Star Networking

Applications:
- Fire:
- Forest:
- City/Town

Various optional Applications

NMC
Dispatch
PSTN/PABX
Professional/business critical users can benefit from EXCERA simulcast solution in terms of:

- Frequency saving
- Wide area coverage
- Intrinsic hand-over and roaming
- Fast call set-up time
- Support analogue and digital dual-mode simulcast
- Unauthorized Access Protection with system management
- Digital voice protection with encryption
- Same DMR channel for voice and data communications
- Network flexibility: EXCERA Simulcast solution can be deployed in any network topology configuration (linear, star, tree, ring, mixed). Its nested infrastructure logic levels allow the solution easily widen its topology for any future use.
## Typical Cases

### Typical Cases of Chinese Police in recent 6 years

<table>
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<th>Province</th>
<th>BS Qyt</th>
<th>Trans. Qyt</th>
<th>Subscriber Qyt</th>
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<td>Jiangsu</td>
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<td><strong>Total</strong></td>
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<td>3836</td>
<td>315000</td>
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</tbody>
</table>

- **Hebei Province**
- **Shanxi Province**
- **Anhui Province**
- **Jiangxi Province**
EXCERA Service --- One-stop Service

- Full series of DMR Solution
- Various Applications
- Professional network design and engineering ability
- Project service and technical support, training included
EXCERA Service --- One-stop Service

- Rich experience in network design
- Rich experience in system construction and maintenance
- Fast service response with professional team
- Remote technical support by engineers
Thanks