



2011 Product Catalogue

Underground Communications, Tracking and Safety Products

Company Profile

Minecom provide a range of communications, tracking and safety equipment to the mining industry.

Minecom have been providing reliable radio communications and tracking solutions to the mining industry since 1988.

With extensive experience in all types of underground environments from tunnelling and coal mining, to hard rock mining, Minecom have long recognized that safety and productivity depend on reliable communications, tracking and safety systems.

With over 120 mines, more than 2,500 km of tunnels and more than 15,000 miners now using two-way radio over Minecom systems worldwide.

Proudly Australian owned and operated.

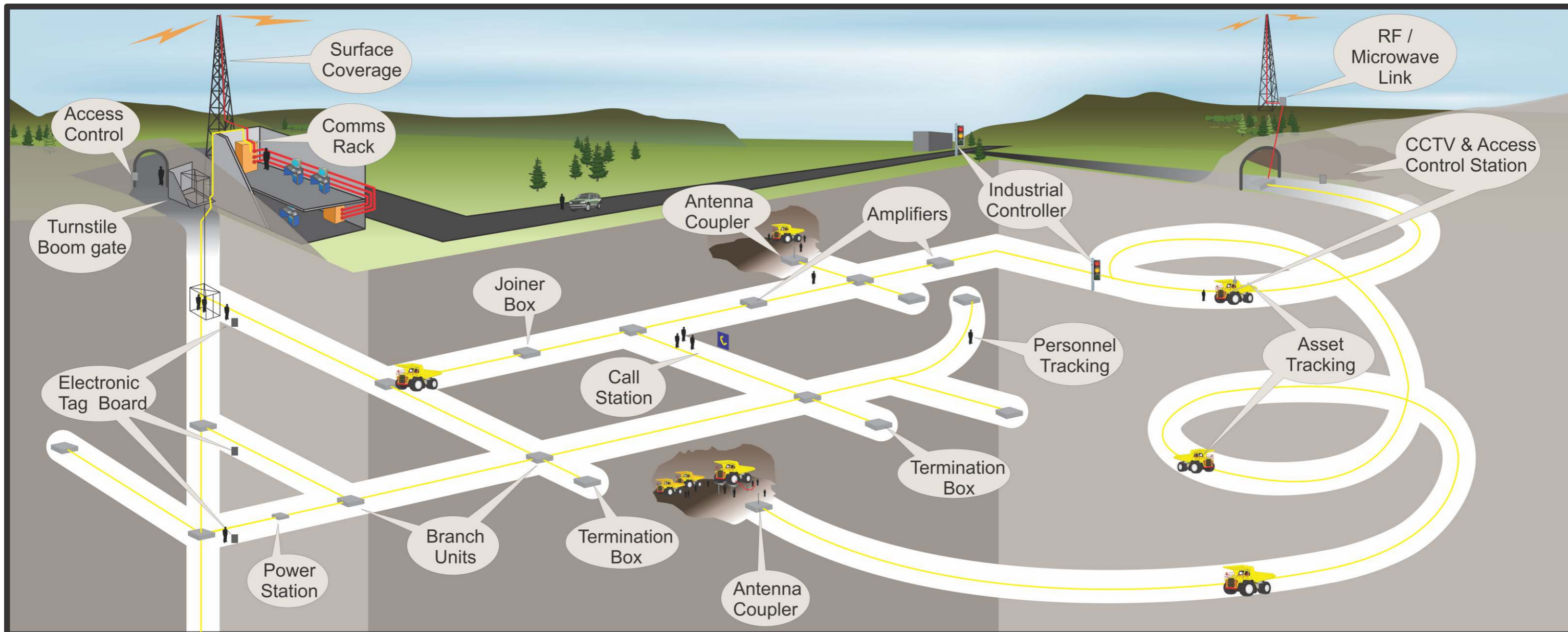
Our Customers

Minecom have customers in Australia, New Zealand, Indonesia, United States, Canada, Europe and South America.

Some of our customers include:

BHP Billiton
 Rio Tinto
 Newcrest Mining
 Massey Energy
 Alpha Natural Resources
 Lundin Mining

Freeport McMoRan
 Barrick Gold
 Thiess Construction
 Mineral Resources
 Redpath Mining



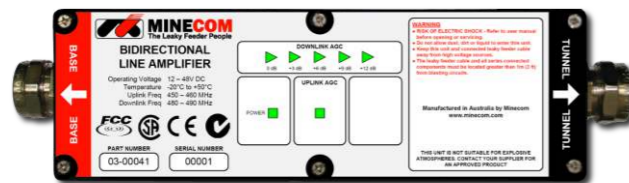
Our Solutions

Surface Radio Communications

UHF / VHF, Analog / Digital Radio
 Site Linking using microwave or fibre
 GPS location and Messaging

Underground Leaky Feeder Communications

UHF or VHF, 350m or 500m cable lengths
 12 Hour battery backup
 Tracking and digital compatible



Emergency / Evacuation Call Station



Audio and visual alert in above and below ground mines, tunnels, port installations and building construction sites.
 Call Stations can be powered from Leaky Feeder cable.

Custom Frequency Solutions

Customised leading edge local or wide area radio coverage on commercial private frequencies to increase your site's productivity and safety.

Electronic Tagging and Access Control

Identify and locate personnel
 Replaces existing manual tag board
 Control access to secure areas
 Works over Ethernet or fibre network



Electronic Tracking of Personnel and Assets

Precise site-wide location and monitoring of personnel and assets. Used with an emergency preparedness system, evacuation management, and automatic personnel registration.



Two-way Radio

A range of options for site linking, surface and underground linking and mine radio communications, including Motorola, Tait, & Kenwood two-way radios.

The Minecom Base Station Radio provides reliable communications via AC power with battery backup.

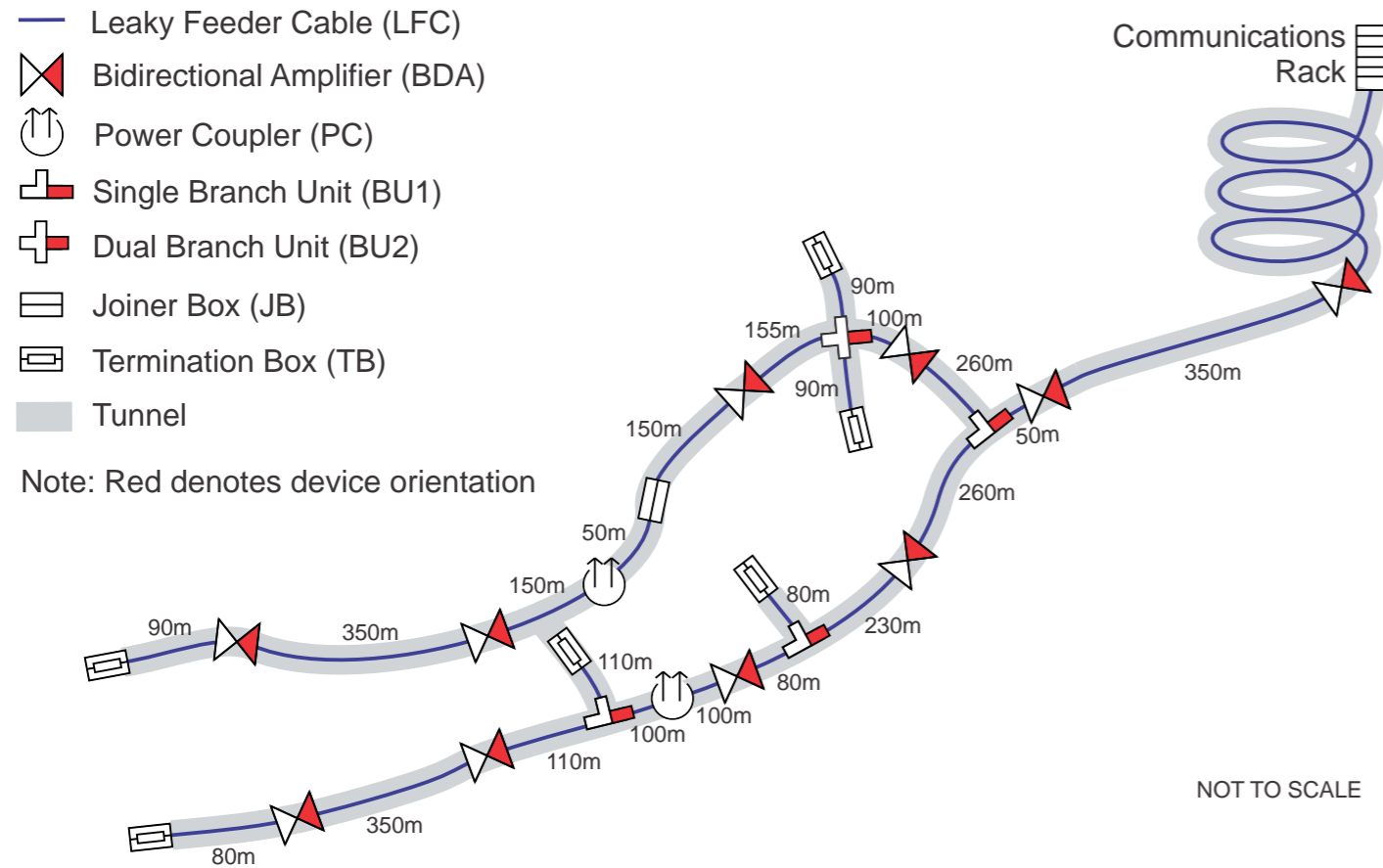
The Minecom Vehicle Radio Enclosure provides a ruggedised housing for a mobile radio.



Leaky Feeder Communications

Overview

This diagram shows an example of mine layout using Minecom 350m UHF Leaky Feeder system



Why Leaky Feeder?

Radio waves travel by line-of-site, making radio communications underground difficult. Minecom Leaky Feeder solves this problem by forming a long antenna that is installed throughout the mine, providing complete radio communications coverage. Leaky Feeder cable is strong and flexible, so there is no problem moving the network around corners and turns.

How Leaky Feeder works

The Minecom Leaky Feeder cable is a type of coaxial cable that 'leaks' radio signals, and acts like a long antenna. Amplifiers are installed along the Leaky Feeder cable to boost the signal and compensate for cable loss. Branch units can be used to send lengths of cable down different pathways.

Minecom's Leaky Feeder System has the ability to scale and grow with a changing environment in any mine or tunnel. Each Minecom Leaky Feeder System will be tailored to specific site requirements to provide the best radio coverage.

Communications Rack

The Minecom Communications Rack is normally located above ground at the start of a Leaky Feeder System. Its purpose is to combine base radio signals and apply DC power to the Leaky Feeder cable.

The Communications Rack normally contains:

- Head End Combiner
- Up-to 32 digital or analogue radio repeaters
- Power Supply with optional Battery Backup

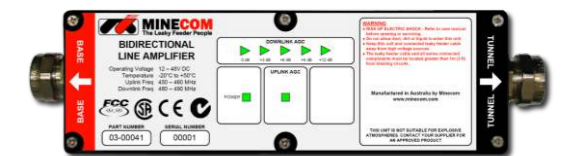
Options include:

- Digital voice recording
- Microwave / Ethernet site-linking
- Optional Emergency channel override
- RF multicoupling and antenna combiner.



Bidirectional Line Amplifier (BDA)

- Third generation Minecom technology
- Local diagnostics
- Maximum 32 dB gain
- 12, 24 or 48 V DC operation
- 1 W power consumption
- Automatic Gain Control (AGC) in both directions
- Adjustable gain control
- Corrosion resistant nickel coated connections
- IP55 rated enclosure











Product Numbers	Frequency Bands
02-00149	VHF GEN-3 172/154 MHz
02-00156	VHF GEN-3 162/146 MHz
03-00041	UHF GEN-3 455/485 MHz

System Voltage	Amplifiers per Power Coupler / Cell (350 m spacing/500 m spacing)															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12 V	500 m spacing															
	350 m spacing															
24 V	500 m spacing															
	350 m spacing															
48 V	500 m spacing															
	350 m spacing															

*The figures quoted above are the theoretical maximum and may be reduced by RF signal degradation or other system performance issues.

Leaky Feeder Distribution Equipment

Product	Image	Purpose
Leaky Feeder Cable 20-00020 (350m blue) 20-00007 (350m yellow) 20-00008 (500m yellow)		Leaky Feeder Cable is the antenna of the system and distributes DC power and RF signals.
Single Branch Unit 02-00030		Single Branch Units are used to split an additional path in the Leaky Feeder cable.
Dual Branch Unit 02-00029		Dual Branch Units are used to split two additional paths in the Leaky Feeder cable.
Power Coupler 41-00011		Power Couplers are used to inject DC power from a Power Station into the Leaky Feeder cable.
Power Station 02-00052 (12 V) 02-00067 (24 V) 02-00093 (48 V)		Power Stations connect to Power Couplers to provide battery backed-up DC power to the Leaky Feeder system.
Joiner Box 02-00039		Joiner Box joins Leaky Feeder cable.
Termination Box 02-00048		Termination Box is used to terminate the ends of the Leaky Feeder cable.
Antenna Coupler 03-00086 (PL-259 connector) 03-00087 (N-Type connector)		Antenna Coupler terminates Leaky Feeder cable and provides an antenna connection to extend radio coverage in difficult areas.

Emergency Call Station



The Emergency Call Station provides a fixed radio call point for personnel to use in case of an emergency. Built in siren and lights can be remotely triggered during evacuation or emergency situation.

Features:

- Uses external AC power to operate
- Internal DC power supply continuously charges the batteries
- Reverts to DC backup mode during a power outage; once power is restored, the batteries will slowly recharge the batteries until fully restored
- Available in UHF or VHF.

Product Number: 42-00202

Leaky Feeder Tuning Kit

The kit contains all the equipment required to tune a Minecom VHF or UHF Leaky Feeder System.

- Heavy Duty Case
- Universal Adaptor Kit
- Multipurpose Attenuator
- Battery & Battery Charger
- Adaptors
- Radios and chargers
- RF Coaxial cables and leads
- Software & programming cable
- Antenna Coupler
- Heavy Duty Jumper Test Lead Kit
- DC Block N-Type
- Minecom Standard Toolkit (also sold separately 31-00002)



Product Number: 31-00013

Radios



Minecom use the latest digital radio technologies and can supply and service radio equipment from all the leading brands (Motorola, Tait, & Kenwood).

Minecom can assist you with all your radio accessories including: batteries, chargers, speakers, microphones, etc.

Tagging and Tracking

Electronic Tagging and Access Control



The Minecom Electronic Tagging and Access Control System allows you to securely manage and record access to important parts of the mine using electronic 'tags'.



Based on proven CARDAX security technology and interconnected using high speed Ethernet network, the system comprises the following products:

- Electronic Tag Board
- Access Control Panel
- Security Workstation.

The 'Electronic Tag Board' enhances the traditional manual tag board by providing a secure and accurate means of 'tagging' the location of personnel.

The 'Access Control Panel' provides access control to secure locations, such as magazine, etc.

The 'Security Workstation' provides centralised system management; monitor alarms, retrieve and report on system information, manage cardholders and access, and much more.

Features:

- Battery backup
- Integrate with existing security system
- Activate door locks, boom gates, etc.
- Customised reports (induction, fitness for work, etc.).

Tagging and Tracking Applications

Access Control	Restrict unauthorised personnel from high risk areas using the Minecom Access Control Panel
Tracking	Identify and locate personnel throughout the mine including pre and post incident management and reporting
Evacuation Management	Get a real-time headcount in specific areas during emergency situations and access reports
Time On-site	Accurately and automatically maintain employee and contractor time sheets using the Minecom Electronic Tag Board
Induction Management	Manage staff and contractor on-site induction using the Minecom Electronic Tag Board
Fatigue Management	Be alerted to employees who have spent excessive periods on-site without adequate breaks using the Minecom Electronic Tag Board

Electronic Tracking of Personnel and Assets

The Minecom Tracking System allows you to track the location of personnel and assets across the entire mine site for improved productivity and safety.

The system works using a network of 'Tag Readers' situated throughout the mine that communicate tracking information back to the 'Tracking Display' using the mine's existing Leaky Feeder system.

Tag Readers will detect any 'Tracker Tags' within a range of 150m (the Tracking Zone). Tracker Tags can be worn on a miner's belt, or attached to any mine asset you need to track.



Tag Reader

Features:

- Works over existing Leaky Feeder
- Local and remote Diagnostics



Tracker Tag

Features:

- Belt worn or vehicle mount
- In range indication
- Panic button feature
- 2 year battery life



Tracking Display

Features:

- Monitor and record the movement of personnel and assets
- Import mine map
- Last known location reporting

Vehicle Radio Enclosure

The Minecom Vehicle Radio Enclosure provides a ruggedised housing for a mobile radio.



Features:

- Splash proof
- Knock protection
- Vibration protection
- Option for 12 V vehicle operation.

Product Number: 43-00014

Leaky Feeder Cable Toolkit

The Minecom Toolkit includes all the tools required to work with Minecom Leaky Feeder cable.

Features:

- Weidmuller cable stripper
- LF Cable Shears
- 7mm Nut Driver
- Flat-head Screwdriver
- Pliers
- Includes carry pouch.

Product Number:
31-00002 - Minecom 5-piece Toolkit



Base Station Radio

The Minecom Base Station Radio provides reliable communications via AC power with battery backup. Its internal charger ensures that the backup battery is charged while mains power is present.

Features:

- Mains powered with internal battery backup
- Battery backup up to 3 hours at 5 Watt output power
- Ruggedised housing
- Omni-directional whip antenna with option for external remote antenna.

Product Number: 43-00000



Head End Combiner Kits

16/16 RF ports OR 8 LF ports

Allows expansion of Head End Combiners to either 16/16 RF ports OR 8 LF ports

Product Number: 42-00051

16/16 RF ports AND 8 LF ports

Allows expansion of Head End Combiners to 16/16 RF ports AND 8 LF ports

Product Number: 42-00053

Omni-directional Whip Antenna

Whip antenna to extend coverage past the end of the Leaky Feeder cable.

Product Numbers:

30-00047 - 403 MHz PL-259 Blue

30-00014 - 172 MHz PL-259 Yellow

Directional Antenna

Directional antenna to extend coverage past the end of the Leaky Feeder cable.

Product Number:

03-00156 - YAGI, UHF, 485 MHz

02-00168 - YAGI, VHF, 154 MHz

Antenna Towers

Surface coverage and site linking is achieved via antenna towers. Unique design and efficient materials ensure maximum loading whilst maintaining a lightweight tower profile. Free standing or in guyed formats available.

Product Number: Contact Minecom Sales

Non-radiating Cable

Non-radiating cable may be used to link components where no signal coverage is required.

Product Number:

20-00086 - Non-radiating cable, 500 metre (1640 ft) black, 75 Ohm, Standard

Other Services

Product Numbers:

40-00002 - On-site Technical Visit

40-00028 - On-site Technical Training

40-00018 - Minecom Training School



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