

# Leaky Feeder



## PBE's Leaky Feeder System provides a simple and reliable underground communication system

Radio waves travel through the air by line-of-sight, making radio communication underground difficult. PBE's Leaky Feeder solves this problem by forming an antenna that is installed throughout the mine, providing complete radio communication coverage. Leaky Feeder cable is strong and flexible, so there is no problem installing the network around corners and turns.

PBE's Leaky Feeder cable is a type of coaxial cable that 'leaks' radio signals throughout the mine. Amplifiers are installed along the Leaky Feeder cable to boost the signal and compensate for cable loss. Branch units can be used to provide service down different pathways.

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

### Benefits

- Compatible with Voice and Data communications
- Compatible with FM based digital and analogue radios
- Local Diagnostics
- Battery backup
- Automatic Gain Control
- Saddle and clamp connections
- Minimum IP55/NEMA4X rated enclosure
- VHF and UHF

### Options include:

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



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## Communications Rack

The Communications Rack can be located above or below 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 16 analogue radio repeaters
- Power Supply with optional Battery Backup



## Bi-Directional Line Amplifier Gen-3

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



Model	Frequency Band	Model	Frequency Band	Model	Frequency Band
02-00149	VHF GEN-3 154/172 MHz	03-00041	UHF GEN-3 485/455 MHz	02-00156	VHF GEN-3 146/162 MHz

## Bi-Directional Line Amplifier Gen-4 (BDA-4)

- Local and optional remote diagnostics
- Downlink Auxiliary Band (UHF amplifiers only)
- AutoGain with manual override
- VHF and UHF versions
- IP55/NEMA4X rated enclosure
- High Noise Immunity
- Ground loop detection
- Three Multi-Platform Communications Adapter (MPCA) slots



Models	Frequency Bands	Models	Frequency Bands
BDA-4	VHF 154/172 MHz		UHF 408/433 MHz
			UHF 485/455 MHz

## Leaky Feeder Distribution Equipment

### Leaky Feeder Cable

- 20-00041 (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.

### 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.

### Single Branch Unit

02-00030



Single Branch Units are used to split an additional path in the Leaky Feeder cable.

### Joiner Box

02-00039



Joiner Box joins Leaky Feeder cable.

### Dual Branch Unit

02-00029



Dual Branch Units are used to split two additional paths in the Leaky Feeder cable.

### Termination Box

02-00048



Termination Box is used to terminate the ends of 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.

### Antenna Coupler

- 03-00086 (PL-259/UHF connector)
- 03-00087 (N-Type connector)



Antenna Coupler terminates Leaky Feeder cable and provides an antenna connection to extend radio coverage in difficult areas.

Specifications			
Operating Voltage:	12, 24 and 48 Volts DC	Operating Temperature:	-20°C to 55°C   -4°F to 131°F
Downlink Frequency:	VHF: 151 – 157.5 MHz UHF: 480 – 490 MHz	Uplink Frequency:	VHF: 170 – 174.5 MHz UHF: 450 – 460 MHz
Uplink Bandwidth:	VHF: 4.5 MHz UHF: 10 MHz	Downlink Bandwidth:	VHF: 6.5 MHz UHF: 10 MHz
System Impedance:	75 ohms	Maximum Gain:	VHF: 28 dB; UHF: 34 dB
Enclosures:	Minimum IP55/NEMA4X rated (excluding Head End Combiner)	Head End Combiner Transmit / Receive Channels:	8 / 8 (expandable to 16/16 analogue or 32/32 digital)

## About Us

PBE Group ("PBE") provide an adaptive and flexible integrated solution where a reliance on safety and productivity is essential. PBE is a true global systems provider for the mining, tunnelling, construction and associated markets. Our specialised engineering team integrates our industry specific manufactured products and best in class 3rd party products to ensure a sophisticated, robust and commercially viable solution. Our growth in international markets is based on the key verticals of Technology, Power and Service Delivery – fundamental in any industrial project. ◆

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PBE/LEAKY-FEEDER/V.1/2020

## Contact Us

For further information please contact:

### UNITED STATES

sales.usa@pbegrp.com  
T: +1 276 988 5505

### ASIA

sales.asia@pbegrp.com  
T: +65 6661 6888

### CANADA

sales.canada@pbegrp.com  
T: +1 705 222 0020

### EUROPE

sales.europe@pbegrp.com  
T: +44 203 943 5185

### LATIN AMERICA

sales.lam@pbegrp.com  
T: +569 58060806

### OCEANIA

sales.aus@pbegrp.com  
T: +61 2 4961 9619

### SOUTH AFRICA

sales.sa@pbegrp.com  
T: +27 12 379 9497



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