

# Wireless Telemetry for Mine Monitoring and Emergency Communications



## Replacing Communication Cables Improves Safety, Efficiency, and Cost of Mining

The hard-wired systems currently used in mining to transmit production data, environmental monitoring data, and voice signals to the surface are not reliable in emergency situations because of shifting debris or other hazards. To solve these critical problems, a wireless, through-the-earth telemetry system has been developed with the assistance of the Department of Energy's Inventions and Innovation Program. The system eliminates the need for wire connections between the surface and mining sites underground.

In addition to improving safety for underground workers, such a system would be more reliable, useful, cost effective, and flexible. For example, if the new system is combined with a separate in-mine system, workers could communicate freely with other underground personnel as well as surface personnel. By using the wireless transmitters, mining operations would not need to invest in communications cables and their installation and maintenance.

Reports from installations in U.S. mines indicate that the technology is a significant source of cost and maintenance savings.

## Benefits

### Cost Savings

Costs are reduced by up to 25% by eliminating the need to purchase, install, and maintain communication cables. The new reliable system reduces unplanned downtime, thereby also saving costs.

### Worker Safety and Health

The new system increases the safety and acceptability of coal mining as an energy source, thereby augmenting the energy supply. Safety in the mine is improved by the system's ability to provide uninterrupted communications.

## Overview

- ◆ Invented by Transtek, Inc.
- ◆ Commercialized in 1998
- ◆ Being used in several U.S. mines in 2003

## Applications

- ◆ All mining situations and other underground work
- ◆ Steel-reinforced buildings, tunnels and transit systems

## Capabilities

- ◆ Offers greater flexibility and mobility in communications.
- ◆ Allows for continued transmission of production data and environmental monitoring data.
- ◆ Increases communications capabilities both from the surface to the mining site and among personnel underground.



*Wireless Telemetry Communication System*