Customer needs
KGHM is one of the largest producers of copper and silver in the world. Other products of KGHM include gold, lead, sulphuric acid, and rock salt. KGHM Polska Miedź S.A. owns shares of more than 30 entities, operating in various production and service-related areas.

Progress in mining technology, development of automation, control and safety systems, and modernization of underground connectivity are the main elements stimulating the development of broadband communication systems in mines.

Important aspects in mines are:
- High reliability
- Designed for harsh environment
- Coverage of underground and on surface nodes
- Transmission of different services (e.g. voice, control, data, etc.)
- Support for critical systems (e.g. ventilation, alarm)
- Transmission of SCADA signals
- Long expected operational lifetime

In different mining locations (e.g. Lubin, Polkowice-Sieroszowice) KGHM has chosen ABB for the communication backbone solution.

ABB’s solution
Considering the described customer needs, the Polska Miedź S.A. mines implemented the fiber optic data transmission system based on SDH (Synchronous Digital Hierarchy) technology with ABB’s FOX515 multiplexers.

A wide range of available interfaces and the advanced ability to configure them makes the FOX515 multiplexer a perfect solution for the transmission of various types of customer applications in the mining industry.

Customer benefits
- Environmental hardened communication platform
- Signal transmission based on copper or optical fiber
- Broadband solution for a wide range of applications
- Future-proof scalable solution using well-standardized protocols (e.g. SDH)
- Long product lifetime
- Minimized OPEX (Operational Expenditure) based on highly integrated FOX515 equipment and user-friendly GUI (Graphical User Interface)
- A unified solution for underground and on surface locations.
Project details
The purpose of the installation of the ABB broadband communication system is to cope with the current communication needs and to provide bandwidth for future applications.

The established transmission platform enables fast and reliable signal transmission coming from all production systems in a mine, making it possible to perform full system diagnostics and scalability as well as to provide fast transmission services for the systems emplaced in any part of the excavations and on-surface objects of the KGHM Polska Miedź S.A. mines.

FOX515 typically provides the backbone capacity for
- extending the telephone lines from the telephone exchanges to very remote sites with 2-wire interface
- wireless transmission system for hand-held equipments, which reaches a large coverage area.
- alarm system connected via RS-232 and 2 Mbit/s G.703 interfaces.
- supervision of electrical grid based on IEC61850 (Ethernet) covering long distances between switchgears.
- control and monitoring of conveyor belt system connected via RS-485/232

Scope of supply
- SDH access and backbone multiplexer FOX
- Assembling in heavy duty cabinets
- Network engineering
- Installation, testing & commissioning
- Training for operation and maintenance personnel

For more information please contact:

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