

Human Operator Interface for Epiroc underground loader



Customer challenge

Leading mining group Epiroc wanted to significantly improve safety at its complex underground mining operations, specifically in rock excavation and loading.

Underground mining operations that involve rock excavation and loading are complex and require a high degree of precision to ensure that materials are handled in a safe way. Typically, human operators control the underground loaders which could leave them exposed to a hazardous environment.

Cavotec solution

Working closely with Epiroc, Cavotec developed a solution incorporating a modular Human Operator Interface (HOI) system and long range wireless communication between the loader and operator. A Media Base Unit (MBU), installed on the machine, connects all the cameras and broadcasts live video feedback through a wireless network (Wi-Fi). The live video feedback is received and displayed on a portable tablet, mounted on the Radio Remote Control (RRC) which allows the loader to be maneuvered and controlled remotely. Typically in such applications, Radio Remote Controls (RRC) are used in the vicinity of loader trucks to allow operators to see the path of the loader and material to be transported.

The RRC increases operational efficiency by removing the operator of the loader from the proximity of potentially hazardous areas where the loader operates, especially in the areas of the mine where the rocks are not stable and which could potentially put the operator at risk. The HOI video systems gives the operator a wider view of the operation itself which in turn allows a more efficient loading process which translates into an overall increased operational efficiency.

This rugged, versatile HOI system can be used on several different machine types without altering its design. It is possible to install the system on new machines, and also retrofit existing equipment.

Operator

Epiroc

Application

ST14 underground loader

Location, date

Russia

Date of installation

August 2016

Cavotec solution and scope of supply

Human Operator Interface - Video system

- Equipment on Loader: 3 x camera, 1 x Media Base Unit (MBU) + antenna.
- Remote control: tablet.

Main benefits

- Increased safety of operators
- Improved productivity of rock excavation processes
- Flexible solution with modular system design
- Robust system able to withstand harsh mining environment (dust, humidity, extreme temperatures)

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ST14 underground loader equipped with cameras and Media Base Unit



Operator maneuvering the ST14 underground loader with the Radio Remote Control mounted with tablet

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Epiroc is a worldwide known solutions developer for customers in more than 180 countries with expertise in compressors, vacuum solutions, air treatment systems, construction and mining equipment, power tools and assembly systems. The company works closely with Cavotec in addressing operational challenges in Mining and Tunneling sector.