

## Magnum 6KM Mobile Ethernet Switches Network Mining Vehicles in Chile

### A Mobile Networking Application

#### MOBILE NETWORKING & MINING IN CHILE

Mining is the largest industry in Chile. In the last decade, technology has increasingly helped the mining industry to improve operating efficiencies. Technology companies are working with major mining companies to provide unique networking and communications solutions on-board mining vehicles, designed to meet the tough conditions and the mobile networking requirements of the mining industry. Heavy-duty mining trucks, shovels and bulldozers require industrial networking products that stand up to dirt, dust and outdoor temperatures, as well as vehicular shock and vibration.

#### ABOUT PROTAB S.A.

Protab S.A. entered the Chile mining industry in 2003 and developed several mining operations projects at a time when there was a huge gap between communications technology and operational reality. Protab S.A. offers system integration, development, and cutting-edge technology solutions to become an important ally in the mining operations field. Protab leverages specific technical knowledge and design services to solve communications issues in challenging mining environments. Many of Protab's technical solutions are now being replicated in the mining industry in Chile, Peru, and internationally.

#### THE CHALLENGE

Recently, Protab embarked upon a large integration project to network heavy-duty mining vehicles together and back to the mining base stations. Connectivity equipment was installed as part of a kit in mining trucks, shovels, drills, bulldozers, wheel dozers, and pickup trucks. The kit is a special kit in that it includes a wireless radio, mobile and military antennas, a mobile PoE injector, and a hardened mobile Ethernet switch--all of which have to be networked together and fit inside the NEMA 4X box.

Protab's criteria for selecting the mobile Ethernet switch included all of the following: must fit into NEMA enclosure with other equipment; must be hardened, must be designed for mobile applications, must be able to withstand vibration, and must be able to network with the other networking equipment.

#### THE SOLUTION

Protab turned to GarrettCom and its Magnum 6KM Mobile Ethernet Switches. The Magnum 6KM met all of Protab's criteria. The 6KM is purpose-built to withstand the shock

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### SOLUTION (CONT.)

and vibration of harsh mobile environments. The design of the 6KM features M12-type heavy-duty screw-type port connectors, technology borrowed from military equipment, that is designed to stand up to mobile vibration. The 6KM's sealed case keeps out dust and dirt while serving as a heat sink that enables it to operate in the harshest mobile environments. The Magnum 6KM is available for a full range of DC and AC voltages including both 24VDC and 12VDC. This voltage range is key as some of the mining vehicles operate at 24VDC while others operate at 12VDC.

### THE RESULTS

Protab has installed Magnum 6KM Mobile Switches in three different types of enclosures or kits: CBOX-PRO, operating at 24VDC on big mining trucks and shovels, with one wireless radio, two antennas, the mobile power injector for PoE, special mobile military antennas, and the Magnum 6KM; the LBOX-PRO for smaller mining vehicles such as

pickup trucks with much of the same networking equipment but a different range of antennas; and the PBOX-PRO portable box, operating at 12VDC for use in any car.

Both Protab and the miners have been impressed by how hardened the 6KM Switches are--particularly against the constant shock and vibration they experience--and plan to continue deploying them on mining vehicles.

### ABOUT THE MAGNUM 6KM

The Magnum 6KM Mobile Ethernet Switch is purpose-built to withstand shock and vibration in harsh mobile environments including mining equipment, railroad carriages, public service and emergency vehicles, shipboard, and military vehicles. The innovative design of the 6KM features M12-type heavy-duty screw-type port connectors, technology borrowed from military equipment that is designed to stand up to mobile vibration. Agency approvals include IEC 61373 and IEC 60068 for shock and vibration.



**Magnum 6KM Mobile Ethernet Switch,  
wireless radio in NEMA 4 enclosure**

### ABOUT GARRETTCOM

GarrettCom is the leading manufacturer of industrial networking products. GarrettCom offers a comprehensive line of hardened industrial Ethernet switches, routers, converters, and serial products for use in transportation, video surveillance, industrial, and automation environments. The company's management software supports redundant rings and secure web-based access to local and remote networks. GarrettCom markets its products to end users and through a network of system integrators, OEMs, resellers, and distributors worldwide. For more information on GarrettCom and its products, visit [www.GarrettCom.com](http://www.GarrettCom.com).



GarrettCom, Inc.

47823 Westinghouse Dr. • Fremont, CA 94539 • PH: (510) 438-9071 • FAX: (510) 438-9072  
Email: [mktg@garrettcom.com](mailto:mktg@garrettcom.com) • Web: [www.GarrettCom.com](http://www.GarrettCom.com)