Productivity and Safety through Mine-Spec digital applications

Converges data onto a single, high bandwidth network

RFID Tracking

Remote monitoring & equipment control

Handheld device data transfer

IP Telephony

Remote video, fixed & mobile

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The IMPACT technology suite is designed to lead mining communications and digital network infrastructure into the future. The IMPACT infrastructure has been specifically developed for the mining and tunnelling industries to operate within the harsh environments encountered in all underground operations.

The underground network is the heart of a scalable, high-speed data and communications system. It is able to cope with time-sensitive, high-bandwidth applications, enabling functionality such as Voice over Internet Protocol (VoIP), video streaming, remote PLC programming, mobile data acquisition, real-time vehicle diagnostics and asset / personnel tracking. The IMPACT system delivers improved capabilities for current and future mine requirements through higher reliability and support for open standards. It also elegantly addresses the challenge of power distribution in an underground environment. The IMPACT system provides a quantum leap forward from traditional technologies, being specifically designed for ease of installation in the unique topology of an underground mine and the limited access to power.

### Features and Benefits

**MOBILE DEVICE DATA DOWNLOADS**
- Enables handheld devices (PDAs, tablets etc) to transfer data wirelessly whilst underground

**POWER OVER ETHERNET (POE) SUPPORT CAPABILITY**
- Quick & easy node extensions, with four PoE ports
- Other peripherals can be directly connected (Video cameras, Refuge bays, PLCs) no need to run additional power cables

**PORTABLE WIRELESS NETWORK ELEMENTS**
- Allows for temporary network extensions into working faces and mines rescue

**OPERATES ON TOUCH VOLTAGE**
- Eliminates the need for expensive high voltage armoured cable

**MULTI FUNCTION DEVICE WITH TAG READING ABILITY**
- Reduced cost through all-in-one device

**“PLUG AND PLAY” SYSTEM**
- Faster deployment with lower maintenance costs and improved system up time
- Optic fibre and power in a single composite cable with simple connectors and improved system up time

**REDUNDANCY THROUGH ROUTING OF MULTIPLE RETURN PATHS**
- Greater reliability and uptime

**MANAGED ETHERNET NETWORK SUPPORTING QOS, SNMP & VLANS**
- Allows defined services to be prioritised, and the switches to be managed

**GIGABIT BACKBONE**
- Multi service capabilities today and a safe investment for future technologies

For IT Professionals
Typical IMPACT Installation for SCADA, tracking, voice and video applications

The IMPACT product range is designed to form the foundation of, or extend, a robust, multi-service underground network. The innovative Wireless Network Switches (NS50) and PoE wireless access points can be combined with existing underground network nodes to take the network easily and inexpensively into working areas of the mine. The devices support industry standards, but pack more capability into a single enclosure than devices designed for conventional enterprise networks.

Traditional surface enterprise networks have a star topology which requires power at every network node. This is not a cost effective solution underground. The challenge of limited power availability underground is overcome by using a composite cable, which acts as a power distribution system, as well as carrying the optic fibre data cores. The devices operate as low as 10V allowing their usage at the end of long cable runs without the need to inject power. As well as being 802.11-compliant Wi-Fi hotspots, the devices have built-in tag-reading capabilities and can support two separate Wi-Fi radio cards which maximises coverage from each node and allows monitoring of travel direction. They operate with MSTs’ Active Wi-Fi tags, built into the ICCL cap lamps, or stand-alone on personnel, vehicles and other assets.

With the best functionality on the market, the IMPACT network has a proven history of success in supporting the many devices and applications required in the modern mine in the most efficient and cost-effective manner.

**WIRELESS NETWORK SWITCH**
- Operates from 10 - 50 Volts DC
- Contains up to 2 wireless access points (Mine Site Technologies or third party)
- 4 x Fibre optic Gigabit Ethernet switch ports
- 4 x rugged 10/100 ports supplying Power over Ethernet (PoE)
- Support for VLANS, SNMP & Quality of Service (QoS) management
- Voltage and Current monitoring of all power rails
- Internal 48V step up converter (for third party access points) and PoE outlets
- IP66 Rugged stainless steel housing

**WIRELESS ACCESS POINT**
- Easily deployable PoE wireless access point
- Receives power & data via a single Cat 5e cable
- IP66 Rugged housing
- Mounted directly on to the side or roof / back of the mine
- Cat 5e cables able to be cut and terminated underground
- Semi-skilled labour installation
- Low power consumption

**WIRELESS REPEATER NODE (WRN)**
- Full wireless meshing
- Portable, light weight with multiple mounting options
- Dual hot-swap battery via unique Lachlan® wheel
- Intrinsically safe

**COMPOSITE CABLE**
- Composite fibre and power cable
- 4 fibres as standard available in multi mode or single mode
- Pre terminated (no underground termination required)

**NETWORK SERVICES**
- Hosted application service
- Proactive network monitoring
- Monthly uptime reports
- Telephone support
**VEHICLE INTELLIGENCE PLATFORM**

- View vehicle diagnostics in real-time
- Payload data in real-time
- Acquire vehicle location data
- Report productivity information with greater accuracy
- Integrate with leading manufacturers’ equipment (such as Caterpillar etc)
- Complements your existing Mine Site Technologies Ethernet system

**ASSET TRACKING**

- Locate and track personnel and asset movement in real time
- Quickly identify and locate all personnel in crisis situations
- Manage mine assets more effectively
- Identify bottlenecks and efficiency deficits faster
- Control area access
- View vehicle location data
- Increase control of personnel / vehicle interactions

MST offices and support centers are strategically located in the world’s primary mining regions.

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