



Productivity and Safety through
Mine-Spec digital applications

IMPACT

WRN **wireless**
repeater node



Full Wireless Meshing

Portable and light weight with multiple mounting options

Dual hot-swap battery via unique Lachlan® wheel

Flexible antenna arrangements

Intrinsically safe

Applications

HARD ROCK MINES
COAL MINES
UNDERGROUND OPERATIONS
TUNNELS

The WRN (Wireless Repeater Node) is MST Global's (MST) industry leading mobile self-meshing network extender/access point. Intended for the ad-hoc extension of a mine's existing Wi-Fi network, for example MST's IMPACT Network, the WRN is fit for purpose for VoIP, tracking and data transport. The WRN is devised for short to medium term deployment in the dynamic areas of mining, including hazardous areas and development sections.

Converging data requirements onto a single network, the WRN simplifies the installation and maintenance of a mine's data highway, easily extending the existing Wi-Fi network.

The WRN is designed to enable multiple nodes in a redundant mesh implementation (the exact number of nodes will depend on actual network topology) effectively filling communication black spots or "gaps". In this manner, the WRN fills the communications void typically found between active mining faces and fixed infrastructure, bridging the signal between these dynamic mining areas.

Offering more than 120 hours of operation, the WRN is considerate of the 24-hour reserve required for emergency communications in certain mining laws, such as the US MINER Act.

The WRN's lightweight, small and easily portable design is fast, easy and simple to deploy, delivering connectivity into areas of the mine where cabling is difficult or dangerous to install and maintain.

Flexible

The WRN unit is specifically designed to be portable and/or used for short to medium term installation. It can be carried, used free standing, mounted or suspended with a versatile range of equipment, including the Carry Strap Anchor Bar (carabiners, webbing straps, cable hooks) or attached via a secondary shock mounted Roof/Rock Bolt and Keyhole Mounting Plate.

Optimisation

The WRN ensures Wi-Fi is available in all parts of the mine, even the most active. It is ideal to maintain Wi-Fi signal in temporary work areas, such as drilling and loading drives, or coal mine faces etc.

The dual battery system allows for "Hot Swapping" of the batteries so as to maintain any active links and keep the mesh "alive" whilst refreshed batteries are swapped with depleted units.

Safe

The intrinsically safe, self-contained WRN represents a huge advance in wireless mesh technology. The WRN utilises a unique mechanism called the Lachlan Wheel® (patent pending) to ensure that only one battery can be removed and replaced at a time. A secondary "Catch" mechanism is also utilised to ensure batteries are only disengaged or removed by a deliberate action.

A turnkey solution, from instrument sampling through to data hand over, the MST WRN is a perfect solution to extending the IP network of the modern mine.

Features and Benefits

WIRELESS MESHING

— Allows full Wi-Fi connectivity without any power or data cables

PORTABLE

— Light weight with multiple hanging and mounting options

LACHLAN WHEEL®

— Simple, safe battery change out

FLEXIBLE ANTENNA ARRANGEMENTS

— Fixed internal antennas, or can use variety of external antennas for special applications or signal requirements

Wi-Fi Communications for Hard Rock and Coal Mining

IMPACT
hard rock
mining

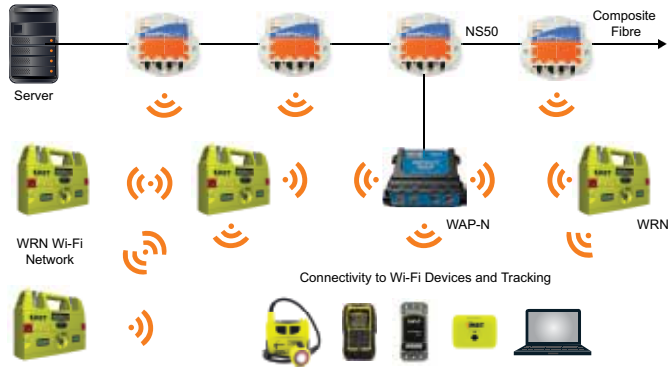


Fig1. IMPACT Network Diagram. Simplified hard rock mining network.

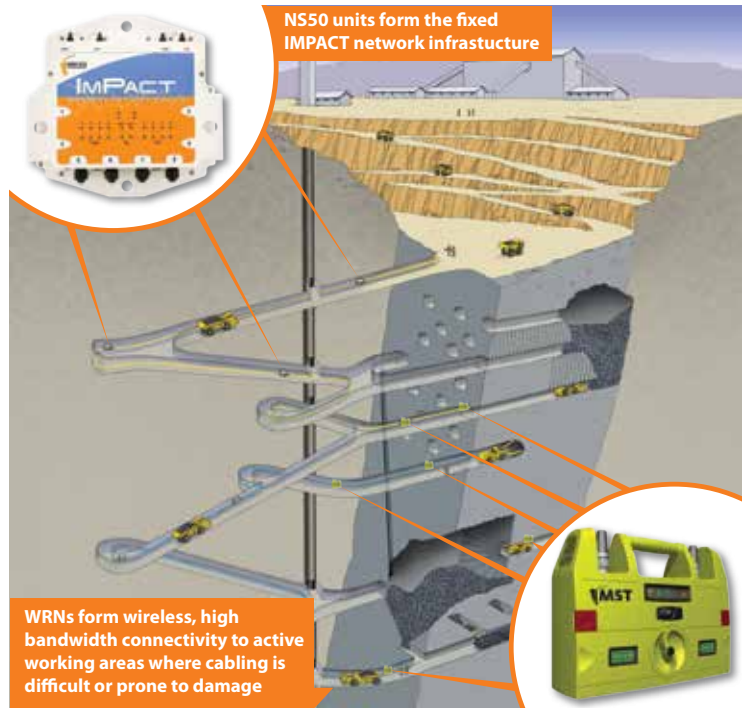


Fig2. WRN for Hard Rock Mining.

Wireless connectivity interfaces with NS50 fixed network infrastructure.

IMPACT
coal
mining

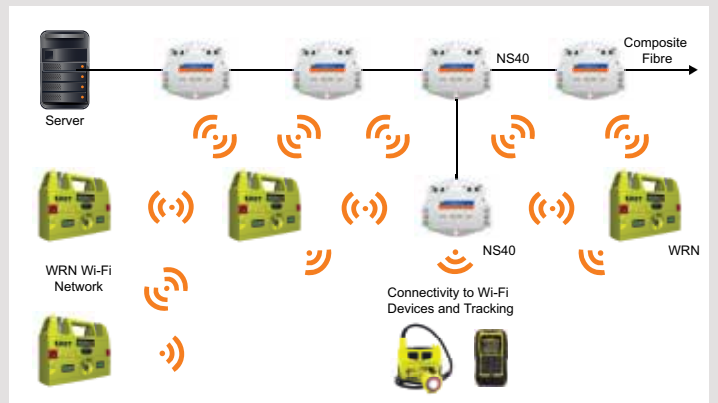


Fig3. IMPACT Network Diagram. Simplified coal mining network.

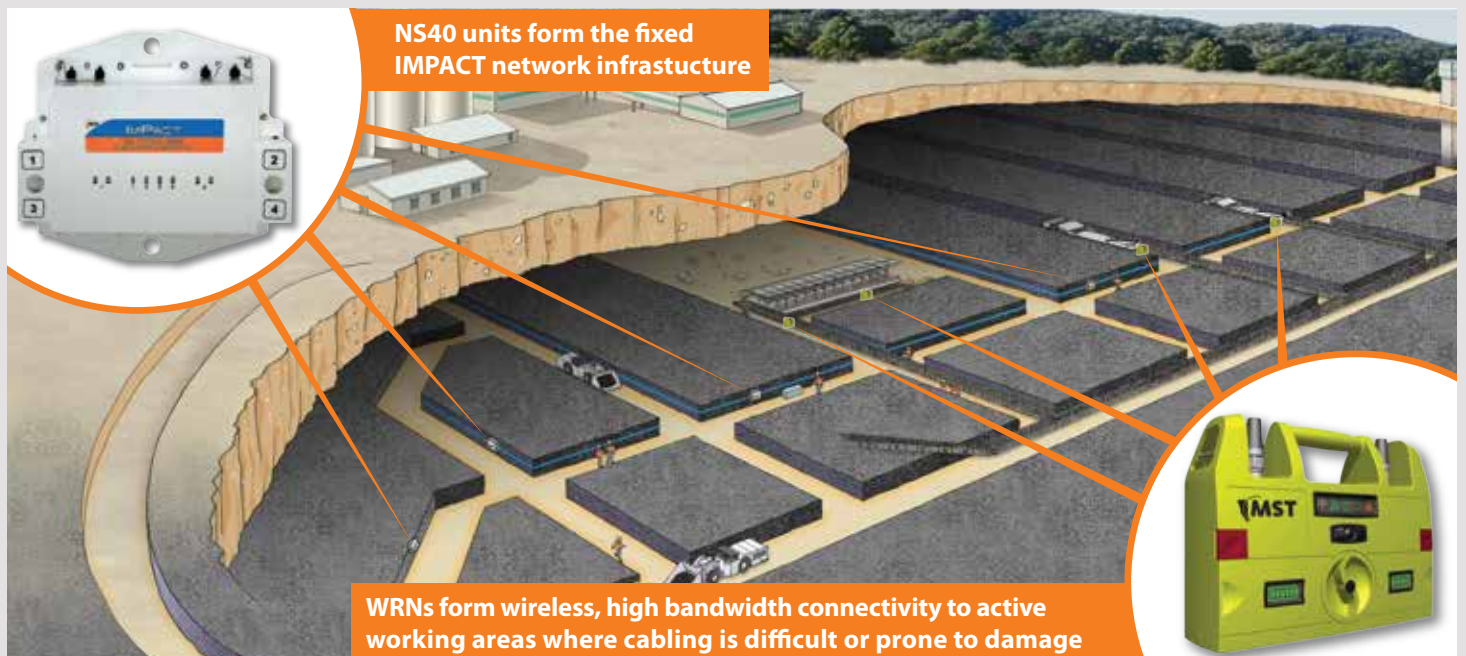
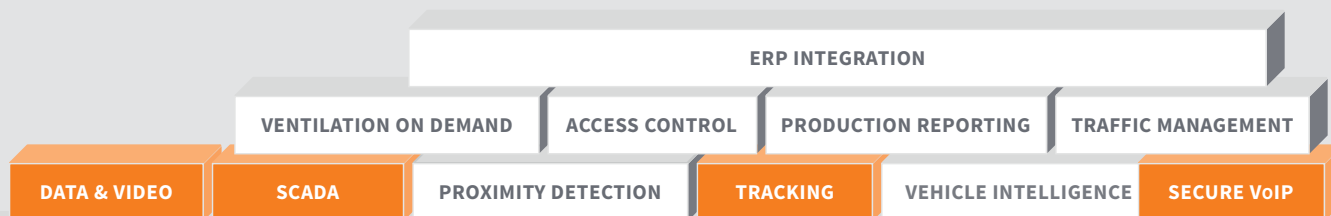


Fig4. WRN for Coal Mining. Wireless connectivity interfaces with NS40 fixed network infrastructure.



WIRELESS REPEATER NODE (WRN)

- 1 x 802.11b/g/n wireless radio
- Modulation: CCK, OFDM, BPSK, DQPSK
- TX Power: 16dBm
- 1 x N-Type Male antenna connector
- 1 x 2dBi Omni-directional antenna
- 2 x 96 W/h hot swappable Li-Ion batteries
- Typical operational time with fully charged batteries is more than 120 hours (the actual time will vary depending on the environment and the amount of transmitted data)
- AeroScout® and MST Tag reading capability, allowing real time tracking of assets and personnel
- Low power consumption
- Simple Network Management Protocol (SNMP) support for remote monitoring
- Trivial File Transfer Protocol (TFTP) based central configuration management
- Support of 802.11s meshing
- Weight: 3.45kg (complete with two batteries)
- Dimensions: 233 x 310 x 92mm
- Operating Temperature: 0 to 50°C



IMPACT WIRELESS DIGITAL INFRASTRUCTURE



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

www.mstglobal.com
solutions@mstglobal.com

Australia
Sydney
Tel: +61 (0)2 9491 6500

United States
Denver
Tel: +1 303 951 0570

Russia
Moscow
Tel: +7 (499) 978 72 11

South Africa
Centurion
Tel: +27 12 345 6100

Chile
Santiago
Tel: +56 (2) 2 656 7673

China
Hangzhou
Tel: +86 571 8580 3320 Ext 206