



**N-Connex**



## Networks for harsh environments

**N-Connex  
Digital Network**



- Plug n' play, high speed modular network
- No need to splice fiber underground
- No installation specialists required
- A true, turnkey data and communications solution
- Install the modules you need as required
- Connect and future proof your mine

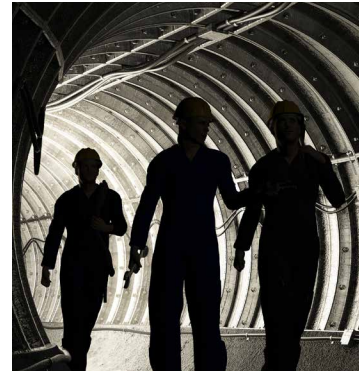
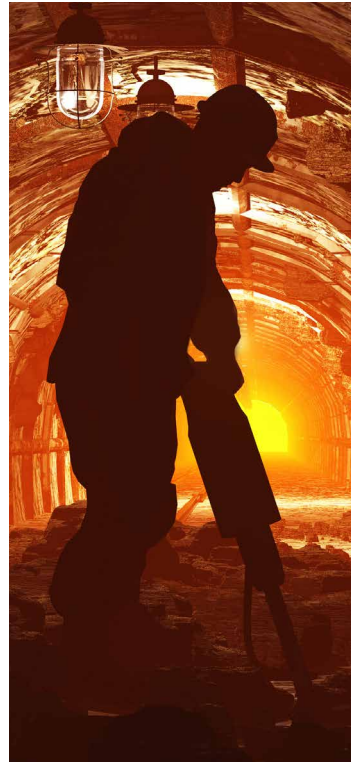


Northern Light Technologies

[www.nltinc.com](http://www.nltinc.com)

# N-Connex

## Networks for harsh environments



## Transition to a more connected mine

N-Connex networking solution is designed for harsh environments such as underground mines, tunnels, prep-plants and heavy industries.

N-Connex (gigabit version) uses an NLT supplied mil-spec two (2) core pre-terminated fibre for the high speed network backbone. The system can also work with the other fibre combinations. Access to the network is provided by N-Connex Bolt Access Points and/or PoE ports on the core distribution module. The system is fully 802.11 compatible, therefore any WiFi or Ethernet client can function over N-Connex.

It is an IP67 rated modular solution that simplifies installation and maintenance while allowing easy expansion of the network and solutions offered. While a range of modules to suit most requirements is offered, the proprietary IP67 enclosures easily supports new functions and solutions or new modules.

The N-Connex modules are simply clipped to the customised frame and connected via a Cat5 cable to the main distribution module, as all devices support power over ethernet (PoE) connectivity.

Take the smarter, integrated approach to your mine's connectivity.

Voice communications, data networking, monitoring and control systems, video, personnel and vehicle tracking and all of today's modern applications demand an advanced and connected mine.



N-Connex

## Network Connectivity

N-Connex being fully compatible with industry 802.3 and 802.11 standards supports all Ethernet and WiFi devices. NLT's range of solutions can be used over the N-Connex network including voice, data and video solutions.

Some of the solutions include:

- Voice** IP radio handsets and VoIP phones can be used for two-way voice communications.
- Data** Network connectivity allows access to intranets and the internet.
- Video** Monitor critical points through your operation.
- Tracking** Know where your people and assets are via WiFi (or RFID) tracking and make use of NLT's powerful digital mine software suite.
- Monitoring** Ventilation, gas levels, environmental conditions or ground strata changes can all be monitored.
- PLC's** Ethernet connectivity for PLC networks to remotely control and monitor electrical equipment.



# Modules

- Distribution** Provides connectivity to a one (1) Gigabite Fibre backbone via four (4) fibre ports. Also includes eight (8) managed PoE ports.
- Power** This module converts 110/240 VAC to 48VDC which is used to power all other modules and remote PoE devices.
- Battery** Battery backup in the event of power failure.
- Control** Digital and analogue input/output capability to control and monitor electrical equipment eg: pumps or fans.
- Alarm** A module combining both a siren and strobe, as well as an initiating point for emergency evacuation.
- Edge** A stand-alone network switch and access point that eliminates the need for fibre. The edge can also be used to provide fibre free branches on the gigabit system. Edge provides 100mb backbone connectivity.
- Bolt** IP67 access point to provide WiFi connectivity throughout the mine, tunnel or facility. The bolt also supports tracking firmware which enables personnel and asset tracking.
- Frame** The customised mounting frame supports the modules and allows easy installation and removal.
- Custom** Electronics and harsh environments don't mix well until now. N-Connex enclosures, enable an unlimited range of hardware to be packaged to withstand the harsh conditions.

## N-Connex Specifications

<b>Standards</b>	<ul style="list-style-type: none"> <li>• IEEE 802.3 10Base-T Ethernet</li> <li>• IEEE 802.3u 100Base-TX Fast Ethernet</li> <li>• IEEE 802.3ab 1000Base-T Gigabit Ethernet</li> <li>• IEEE 802.3z 1000Base-X Gigabit Ethernet</li> <li>• IEEE 802.3x Flow Control and Back Pressure</li> </ul>	<b>Jumbo Frames</b>	9K Bytes
<b>Interface</b>	8 x 10/100/1000 Mbps RJ45 Ports 4 x 1000/1000 Base SFP slots	<b>Fast Failover Protection Rings</b>	Link loss recovery <20ms Single & multipurpose rings supported
<b>RJ45 Ports</b>	<ul style="list-style-type: none"> <li>• Support straight or cross wired cables</li> <li>• 10/100/1000 Mbps speed aut-negotiation; full and half duplex</li> <li>• 1500 VRMS 1 minute ethernet isolation</li> </ul>	<b>Spanning Tree Protocol</b>	IEEE 802.1D STP, IEE 802.1w RSTP, IEEE 802.1s MSTP
<b>ODC Ports</b>	Support 100FX SFP transceiver Support 100/1000BaseT SFP transceiver ODC fibre bulkheads Typical 8 or 9/125 µm for single mode (sm)	<b>Max VLANs</b>	256
<b>Operating Mode</b>	Store and forward, L2 wire-speed/non-blocking switching engine	<b>LLDP</b>	IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
<b>Environment</b>	Operating temperature: -20 to +55 Humidity: 5 to 95% RH (non-condensing)	<b>Priority</b>	IEEE 802.1p QoS
		<b>DHCP</b>	Client, server, relay, snooping, option 82
		<b>PoE Management</b>	Scheduling, power control, PoE PD power consumption
		<b>Input Voltage Range</b>	46-57 VDC
		<b>Total PoE Output Power</b>	240W
		<b>Housing</b>	IP67 protection
		<b>Dimensions</b>	458mm(L) x 257mm(H) x 197mm(D)
		<b>Weight</b>	9.6kg
		<b>MAC Addresses</b>	8K

