

Northern Light Digital™ Network Architecture

NLT offers a full family of nodes to provide optimal network design.

NetPort: Standard node configured to run on a CAT5 or fibre backbone; supports all voice, video and data communications. Optional features include custom electronics such as PLCs and enclosure temperature control.

NetPort IS: Intrinsically safe (IS) node configured to run on a CAT5 or fibre backbone; supports all voice, video and data communications. Approved for use by MSHA and IECEx.

The Northern Light Digital™ Network is designed to provide coverage where it is needed. Wireless bridging is available to provide coverage at the face without wired infrastructure. Coverage is optimized through flexible antenna selection.



A representation of a Northern Light Digital™ communications network in a hard rock mine.



A representation of a Northern Light Digital™ communications network in a coal mine.

Northern Light Digital™ Network

At the heart of the Northern Light Digital™ Mine is the Northern Light Digital™ Network. This broadband network is today's solution for total communications underground. The Northern Light Digital™ Network is a modular, resilient, network infrastructure designed for underground environments.

The philosophy behind the Northern Light Digital™ Network makes it the ideal solution for communication in the underground environment. An Open Standards approach using best-in-class technology offers flexible design solutions and is the best way to improve safety and productivity while ensuring the longevity and durability of your investment.

NetPort

Northern Light Digital™ NetPort is a Standard node configured to run on a CAT5 or fibre backbone that supports all voice, video and data communications.

- Rated Intrinsic Safe by MSHA and IECEx
- Mine-hardened: prevents ingress of dust and moisture and withstands rigours common to the underground environment
- Modular design: contains only required components with room for future expansion
- Supports IP-enabled devices including voice, video and data communications.



With the Northern Light Digital™ Network you will:

- Enable hard-wired and wireless data applications
- Improve day-to-day and emergency coordination with modern mobile telephone communications
- Reduce network management costs by converging all systems onto a unified network architecture
- Enable network stability with built-in redundancy
- Reduce operational costs related to network support and maintenance
- Save money by installing only required components.



The Northern Light Digital™ Voice over WiFi

Voice over WiFi is an IEEE 802.11-compliant communication solution that enables voice and text communications and integrates easily with existing infrastructure.

- Increase safety by enabling immediate notification of conditions
- Improve productivity by delivering a more efficient method of connecting people and information
- Easy and flexible integration into an existing network environment
- Reduce capital expenditure by leveraging existing infrastructure.



The Northern Light Digital™ Messenger Solution

Messenger is an integrated two-way text messaging cap lamp. Workers can receive and respond to messages through any 802.11-compliant network. Messages are managed through the Northern Light Digital™ Mine software, which allows messages to be sent, sorted and searched.

- Real-time two-way communication underground.
- Mine-wide emergency alerts and improved emergency response time
- Operator-initiated emergency calling
- MSHA and IECEx approved.



The Northern Light Digital™ Tracking Solution

Tracking is a real-time location solution designed for mining and tunnelling. NLT offers both RFID Tracking and WiFi Tracking to provide optimal coverage; both systems integrate seamlessly into the Northern Light Digital™ Network. Location information is managed through the Northern Light Digital™ Mine software, which provides location information according to zone, time or asset.

- Improve safety by monitoring the location of personnel or equipment in real-time
- Enhance emergency response by knowing location of personnel
- MSHA and IECEx approved.



The Northern Light Digital™ Environmental Monitoring Solution

Measures environmental parameters such as gas concentrations, temperature, humidity and airflow. Environmental levels are managed through the Northern Light Digital™ Mine software which monitors levels according to zones and triggers alarms when thresholds are exceeded.

- Automate environmental monitoring and reduce need for manual surveys
- Improve flow balancing with bi-directional airflow measurement
- Interface to existing PLCs and data networks
- Integrate standard fixed gas sensors and other environmental monitoring devices.

The Digital Mine

Northern Light Digital™

In 2004 NL Technologies (NLT) leveraged its Research and Development (R&D) and over 20 years of experience in the industry to launch the Northern Light Digital™ Division to focus on designing communication networks and applications for the underground environment.

Northern Light Digital™ uses industry standards to develop products that are protected against obsolescence while ensuring that customers are not locked into proprietary investments. The Northern Light Digital™ approach provides a complete working solution with best-in-class original equipment manufactured products while facilitating incremental deployment by taking a modular approach to services and devices.

With over 20 years of experience in mining, NL Technologies has built a team of experts to evaluate new and emerging technologies and where possible adapt those technologies for use in the mining and tunnelling industries. NL Technologies invests more than 10% of its annual revenue in new product development. Continuously investing in R&D ensures that we can provide our customers with the best possible products, solutions and services.

NLT Corporate

33 Laird Drive
Toronto, Ontario
Canada
M4G 3S8
Tel. +1 (416) 425-6559
Fax. +1 (416) 425-5960
E-mail: sales@nltinc.com

NLT Chile Ltda.

Espronceda 539
Ñuñoa, Santiago
Chile
Tel. (56-2) 343 05 06/343 05 09
Fax. (56-2) 274 23 90
E-mail: info@nltchile.cl

NLT Australia Pty Ltd.

Unit 1 & 2
22-26 Cessna Drive
Caboolture, QLD 4510
Australia
Tel. +61 7 5495 2944
Fax. +61 7 5495 2966
E-mail: info@nltinc.com.au



Northern Light Digital™