www.yieldpoint.com

d-Mesh:
Wireless Mesh Networking Solution for Geotechnical Instrumentation

d-MESH is a high performance radio solution that takes data from dozens of instruments and relay with the mines communications backbone.

Peer-to-peer system: in the wireless mesh network topology used, every node can send and receive messages and functions as a repeater for its neighbors as well. Wireless data will find its way to its destination, passing through intermediate nodes with reliable communication links, which is important when operating in harsh mining environments.

Self-Configuring Network: self-organizing without need for manual configuration. Adding or relocating a radio is as simple as plugging it in and turning it on. The network discovers the new radio and automatically incorporates it into the existing system: the mesh network is inherently reliable and highly adaptable.

Self-Healing Network: Loss of one or more nodes doesn't affect the network's operation as the nodes will find ways for re-routing of messages.

Redundancy and Scalability: The network is deliberately over-designed for redundancy, so each device has two or more paths for sending data. The reach can be extended, redundancy added, and general reliability of the network improved simply by adding more nodes.

Simplicity, reliability, scalability are the most important attributes of a wireless network for industrial control and sensing applications.
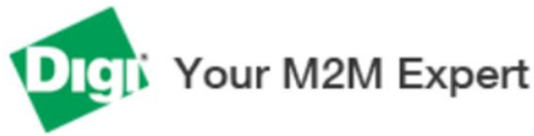
Autonomy: all sensor radios are powered by 4 x D-Cells contained in a sealed pack. Batteries can be replaced easily.

- ▲ *Uses standard off-the-shelf open radio technology from world leader*
- ▲ *Digi International XBee-PRO DigiMesh 900MHz High Power embedded RF modules*
- ▲ *Peer-to-peer DigiMesh protocol*
- ▲ *Self-Healing Mesh Network*
- ▲ *Mobile and simple to deploy*
- ▲ *Robust, easily scalable & expandable*
- ▲ *Virtually unlimited network size*
- ▲ *Adapted to harsh mining conditions*
- ▲ *Ideal for power sensitive applications relying upon batteries or power harvesting technology for power.*
- ▲ *Remotely configure, upgrade, monitor and troubleshoot remote devices*
- ▲ *Interfaces with YP data logger, Ethernet, existing leaky feeder and 3rd party wireless*
- ▲ *Improve productivity, speed and efficiency.*

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d-Mesh: Wireless Mesh Networking Solutions for Geotechnical Instruments

Deployment

Deployment is simple:

- Deploy all equipment at the surface (office, warehouse)
- Turn on all radio units
- They synchronize automatically
- Take them underground
- Install Coordinator Radio near existing communication backbone gateway and connect to AC
- Walk away towards location of instruments
- Install sensor radios as you go using Network Configuration Assistant
- Connect sensor radios to data loggers
- Connect data loggers to geotechnical instruments
- Systems is running
- Detailed software user manual available

Heading #7 Intersection
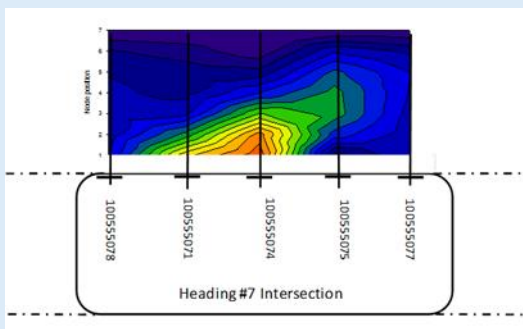
Illustration

A network of underground radio nodes read all the geotechnical instruments and relays the data to a gateway device connected to the mine's communication backbone. This can be Ethernet, leaky feeder or main wireless system.

YieldPoint's main concerns are safety and productivity in the mines. We contribute by providing highly accurate and durable digital instruments for geotechnical and structural monitoring of infrastructure components including underground excavations, tunnels, dams, bridges, buildings.

- Extensometers
- GMMs, Tilt Sensors, U-Cells
- Instrumented Rock Bolts
- Instrumented Cables
- Instrumented Rebars
- Water Content & other digital sensors

To order, provide mine plans and specify number of geotechnical instruments to read and locations of clusters.

- For any additional support go to:
  http://ftp1.digi.com/support/documentation/90000991.pdf