MATRIX

Maestro Digital Mine

Plexus PowerNet™

The gigabit coaxial cable network that delivers data and power to your coal mine

- **High-speed gigabit network uses coaxial cable to deliver data and power**
- **Wi-Fi voice communications and enabled devices**
- **Simple to adapt into existing infrastructure**
- **Easy to install, advance and maintain**

The Plexus PowerNet™ networking system delivers high-speed, digital communications via coaxial cable that provides PoE+ power to Wireless Access Points (WAPs), cameras and any other IP-based device. The system can be installed outby in coal mines and maintained by existing mine personnel – no special training is required!

As operational demand for real-time data continues to grow, Matrix works with all types of mining operations to provide the most cost-effective networking solution.

The Plexus PowerNet system is easy to install and can be quickly integrated into an existing infrastructure. Matrix Design Group is an authorized distributor of Maestro in the United States.

www.matrixteam.com

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FEATURES & BENEFITS

- The Maestro network can be extended up to 4,900 feet without being repowerd. With added power points, it has endless range.
- Data can reach up to 500 Mbps, which allows cameras, VoIP phones and Wi-Fi hot spots to be added.
- If the system cable breaks due to rock fall, Maestro is easy to repair with existing personnel.
- Plexus will soon be a leading network system in the US Coal Market due to its exceptional performance combined with Matrix service and support.

THE DIGITAL MINE

The Digital Mine concept is based on the capture and analysis of data to help increase production, reduce costs and enhance worker safety.

THE FIBER CHALLENGE

Most often, underground mines choose fiber optic cable to extend high-speed data connectivity from the surface to working areas. This method requires a separate power cable for the wireless access points. Fiber presents many other installation and maintenance challenges in an underground coal mine which often delay staying connected to an advancing face.

THE SIMPLER SOLUTION

Plexus PowerNet provides a robust, easy-to-install and advance single cable solution for network connectivity.

EZ Advance Nodes provide an easy way to terminate, troubleshoot and deploy standards-based IP devices from Plexus PowerNet's embedded network switch.

DATA & POWER VIA COAXIAL CABLE

Matrix Design Group is an authorized distributor of Maestro's Plexus PowerNet in the United States.

Our highly experienced team of mine network professionals can guide you through planning, installation and maintenance of this system.

Power

Easy-to-add DC power at any Node. A single power supply will power 8-10 Wireless Access Points (WAPs), reducing total infrastructure cost and time.

Connect

Connect directly to a level network switch. Combine power and network connectivity onto a single cable. Each node provides a 4 port PoE+ network switch in managed or unmanaged mode.

Advance

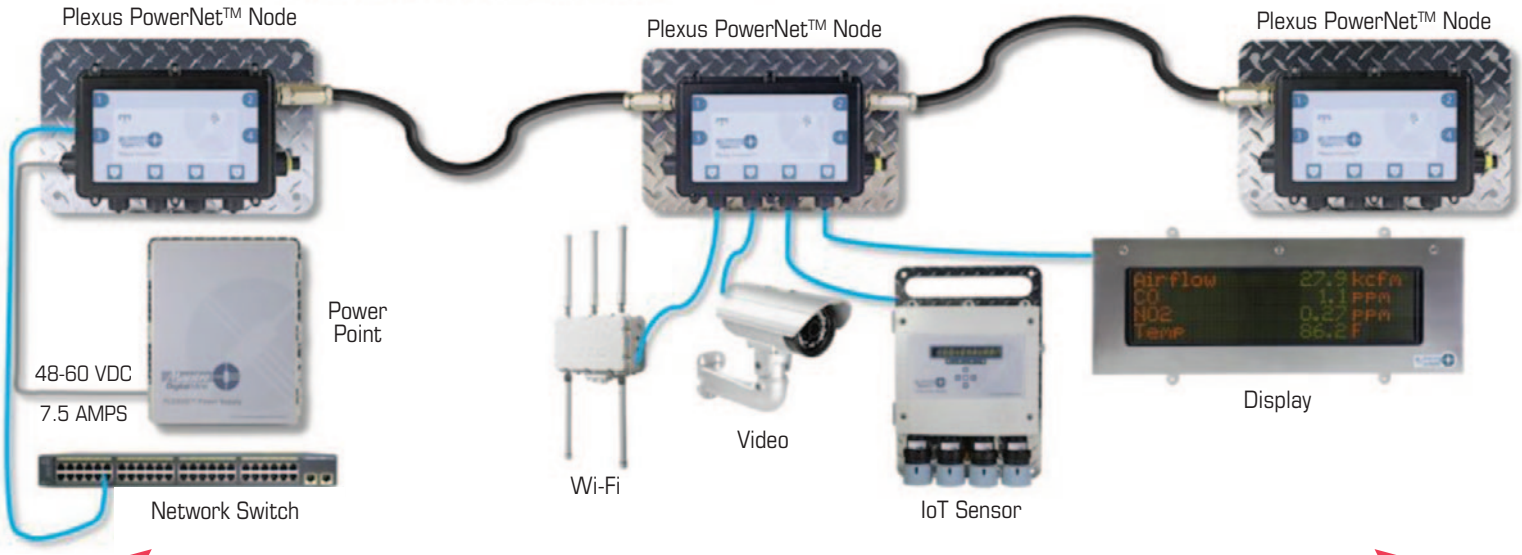
Add splitters and additional nodes. Install, extend, terminate and maintain can be done by in-house electrical trades or development miners.

Repair

No skilled labor required to troubleshoot or replace components, saving time and increasing production rates.

NODE OVERVIEW

The core of the network are the Plexus PowerNet™ nodes, each of which has four PoE+ ports and provides power to the wireless access points or end-point devices. The nodes also have a USB port that can allow an easy upgrade of firmware and backup of configurations. Simple port diagnostics on the devices make it easy to see power consumption, voltage and data rates.



Maximum 4,900 FT (1,590 M) between Power Points. Can handle 8-10 Wireless Access Points (WAP). Add new power points and network length is endless!

APPLICATIONS

- Voice over IP (VoIP)
- Telemetry to drills, loaders and support equipment
- Support for Short Interval Control and connectivity to tablet, smart devices
- IoT sensors such as environmental or seismic
- Autonomous and tele-remote vehicles
- Connected worker video, voice and augmented reality
- Asset tracking
- PoE-based IP cameras for paste fill
- PLC connectivity

Plexus PowerNet™ is currently installed and expanding at mines in the United States, Canada, Spain and Finland. The system, which can be used in mines with or without a fiber optic network, is designed for the quickest deployment for the “last mile” of communication.

PLEXUS POWERNET™ HARDWARE SPECIFICATIONS	
4 PoE+ Ports	PoE 802.3af, 12.95 W typical (15.4 W maximum)
	PoE+ 803.2at, 25.50 W typical (30.0 W maximum)
	4 x RJ-45 Circular bayonet receptacle (IP67 – dust tight, waterproof) for 10
	BASE-T / 100 BASE-TX / 1000 BASE-T Ethernet
	Auto medium dependent interface (MDI) and MDI crossover (MDI-X)
	Auto negotiate
	1 x USB Type-A console port / configuration / firmware update (IP67)
	1 x DC Bi-directional power receptacle (15A Max. insertion) (IP67)
	1 x Coaxial bulkhead port (Type-A, Type-C) or
	2 x Coaxial bulkhead ports (Type-B) (IP) connectivity onto a single c
LAYER 2 SPECIFICATIONS	
LEDs	DC power, health, link/activity, PoE-enabled
VLAN	Port-based and 802.1Q tag-based VLANs
IPv4	Protocol-based VLAN
IPv4 Applications	Management VLAN
LLDP	Link layer discovery protocol
SOFTWARE MANAGEMENT SPECIFICATIONS	
Web User Interface	Built-in web user interface for easy browser-based configuration (HTTP)
	Administrator and user access levels
	Diagnostics, port up/down, voltage, amperage
SNMP	Simple Network Management Protocol – Version 3
RADIU	RADIUS client
SSH	Secure Shell Protocol
SolarWinds©	NCM and NPM compatibility
Other Management	Single IP management
	Dynamic Host Configuration Protocol (DHCP) client
	VLAN and Trunk configuration
ENVIRONMENTAL SPECIFICATIONS	
Enclosure Dimensions	10.787" x 6.811" x 3.937" (273.99 mm x 172.99 mm x 100.00 mm) (length x width x height)
Enclosure Rating	IP67, NEMA 1,2,4,4X,12,13
Weight	6 lbs (2.7kg)
Certification	CE Mark, FCC Part 15
Operating Temperature	+14°F to 122°F (-10°C to +50°C)
Voltage Range	20 – 60 VDC
PRODUCT WARRANTY	
	Two-year limited lifetime warranty with return to factory replacement
	Two-year telephone support and software updates for the warranty term

Information and specifications contained in this document are subject to change without notice.

Plexus PowerNet™ is a trademark of Maestro Digital Mine, Sudbury, Ontario, Canada.

FOLLOW US!

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