



***AMR* PEMCO**

PROVEN PARTNER IN TECHNOLOGY

WWW.AMRPEMCO.COM

Corporate Overview



- AMR PEMCO and sister companies operate to provide electronic monitoring, controls, communications, tracking, and collision avoidance systems as well as industrial buildings, circuit breakers, dry-type transformers, and automation integration.
- Markets served include global mining, aggregates, tunneling, power generation, utilities, transit, nuclear, water/wastewater, and general industry.
- Primary sales in the U.S., Canada, Mexico, India, South Africa, and South America with sales in many other countries around the world.

AMR est. 1975



ERM est. 1979



CMS est. 1995



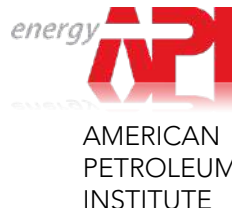
PEMCO est. 1960 - Acquired in 2016



Delivering Projects Worldwide



Codes and Certifications



American
Welding Society



Experience With Popular Brands



GE Infrastructure
Water & Process Technologies



Clients and Customers



NORTHROP GRUMMAN

Balfour Beatty



TMEiC



**Rockwell
Automation**



Core Capabilities



- Industrial & control buildings (ICB) and equipment enclosures including HVAC systems and design, installation and integration of all types of electrical equipment
- Complete skid mounted systems including switchgear, AC & DC Drives, transformers and control systems
- Complete skid mounted power centers and substations for harsh duty applications
- Custom designed dry type transformers up to 4 MVA and 25kV class.
- Specialty magnetics for custom applications including reactors, inductors, and rectifier duty transformers
- UL and CSA certified control panels with custom enclosure design and fabrication
- 3D modeling capabilities for all enclosures and bus assemblies.
- Electrical, mechanical, and transformer engineering



Underground & Surface Mining



- AMR PEMCO has supported the global metal and non-metal mining sector industry for nearly six decades
 - electrical ground check/ground fault monitoring
 - power centers
 - electronic circuit breakers
 - mine wide atmospheric monitoring systems
 - wireless communications
 - asset and personnel tracking solutions
 - variety of monitoring and control solutions
- Our products not only increase safety, efficiency, as well as productivity, but they assist in any operation to help achieve goals



**UNDERGROUND &
SURFACE MINING
INDUSTRY PRODUCT
SOLUTIONS**

Atmospheric Monitoring Solutions



Since 1987, AMR PEMCO has provided the most flexible and reliable mine monitoring system available to the global mining market. Our systems optimize operations through real-time monitoring and control, allowing operators to pinpoint unsafe or hazardous areas, trend machinery data for preventative maintenance, and control devices remotely.



MC-6410 Multi Gas Monitor

Self-contained atmospheric monitoring solution in a rugged, NEMA 4X polycarbonate enclosure. Monitors multiple gas types simultaneously in dozens of unique configurations, the sensors operate at low current for increased energy efficiency.



MC-6415 Smoke Sensor

AMR PEMCO's Patented MC-6415 Wireless Smoke Sensor provides monitoring for smoke and/or fire conditions in key locations. The sensor has the capability of wireless or wired communications.

Atmospheric Monitoring Solutions



MC-4210 Single Gas Monitors

- One compact surface mount PC board for sensor and communications
- Wide range four-digit display
- Calibrated without removing cover
- Non-intrusive sensor test and calibration with automatic surface reporting
- Available for eight different gases: CO, CH₄, O₂, NO, NO₂, H₂, H₂S, and SO₂



MC-4210-CO/NO

Designed to significantly reduce the nuisance alarms associated with using diesel equipment in coal mines. In addition to emitting carbon monoxide (CO), the diesel engine also emits nitric oxide (NO) in a CO/NO ratio of approximately 4:1. Using two gas sensing cells, the monitor employs the same CO sensing cell and circuitry used in the traditional MC-4210-CO gas monitor along with another NO cell and its associated sensing circuitry.

Atmospheric Monitoring Solutions



MC-4210-CH4-IR (Infrared)

The MC-4210-CH4-IR Addressable Sensor is a compact monitor designed to be used with our MC-4000 System. The MC-4210-CH4-IR offers a very low current draw and is easily addressable by using three rotary switches. Units can be configured for multiple communications protocols, analog operation, or stand-alone. The enclosure is coated with a RF shielding to prevent interference from two-way communication devices.



MC-4231-CO

- One compact surface mount PC board for sensor and communications
- Wide range four-digit display
- Calibrated without removing cover
- Non-intrusive sensor test and calibration with automatic surface reporting
- Highly visible 360 degree LED array
- 103 decibel Sonalert alarm

Battery Indicators



Reduce production downtime with our line of Battery Indicators. AMR PEMCO offers reliable solutions to keep watch on your machine's batteries for improved preventative maintenance.



BI-800 Low Voltage

The BI-800 was developed by AMR PEMCO for the mining industry to satisfy the West Virginia Office of Miners' Health and Safety's laws that require this type of equipment. It is extremely easy to install and does not require a field modification of any explosion proof electrical enclosures.



BI-850 Explosion Proof

The AMR PEMCO BI-850, Explosion Proof Battery Indicator keeps watch on your expensive machine batteries. The BI-850 will extend the life of your machine's batteries, and reduce production downtime due to failing equipment. It is housed in a rugged XP enclosure, and is intended for machine mount.

Cable Fault Detectors



The CD-710 Cable Fault Detector is a portable system for easy identification of opens or shorts in exposed cable runs.

Transmitter

- Input power – 110 VAC
- Output frequency – 1.2 KHz
- Controls – phase select, test mode, & off-on

Detector

- Display – sequential LED
- Controls – sensitivity, short switch and open switch



CD-710

Collision Avoidance



- Designed to alert equipment operators of nearby personnel and other equipment, our Collision Avoidance Protection System (CAPS) reduces the risk of crushing and pinning accidents as well as vehicle-to-vehicle collisions
- This is done by detecting when a person or vehicle enters the "Customized Protection Zone" around the machine. When a tagged asset enters the protection zone, the system activates up to three open collector outputs for audible, visual, or other alert response systems to warn the equipment operator and nearby personnel of the dangerous situation.



C.A.P.S Vehicle Tag

Dry-Type Transformers



Dry-type Transformers

- 100 to 10,000 KVA (10 MVA)
- Primaries voltages up to 34.5 kV
- Meet all IEEE standards
- UL or CSA-approved varnish and VPI system
- Drive Rated, Rectifier Duty, Excitation and Static Start applications
- Custom enclosure and packaging options
- Retrofits, rebuilds, and custom-designed upgrades available!



E-Houses and Control Buildings



Industrial Control Buildings

- Custom Control Panels, Copper Bus Assemblies, Termination Compartments, and other accessories available
- E-Houses, Deposit on Base Enclosures (DOBE), skid-mounted, and other styles
- Mild, stainless, and galvanized steel construction available
- Complete installation and electrical integration of all equipment
- Installation to NEC guidelines for acceptable work practices and clearances
- Engineering services for electrical integration



Electrical Distribution Equipment



Custom Panels

- Turn key solutions
- Custom enclosure design and manufacturing
- CSA/UL/CE certifications available
- Power and control panels
- Custom 3D copper bus bar design and fabrication
- Breaker cabinets

Custom Electrical Equipment

- Industrial & Control Buildings (ICBs) and equipment enclosures including HVAC systems and design, installation and integration of all types of electrical equipment

Specialty Magnetics

- Custom applications including reactors, inductors, and rectifier duty transformers



Electronic Circuit Breakers



AMR PEMCO's CB series offers greater safety than conventional breakers.

- Replaces molded case breakers
- No external arcing
- Extremely long life of operation
- Indicator lights for all faults: Phase overcurrent, Ground fault, Phase undervoltage, Unit fault, Ground monitor trip, Fuse/contact failure, Phase loss
- Self Test circuitry
- All protection functions in one package
- Easily tested by breaker test unit (BT-1000)
- Capable of remote control by any data acquisition system or PLC's.



CB-100

The CB-100 offers state-of-the-art technology that meets the most stringent safety standards while providing the reliability you demand in one rugged compact package. The CB-100 is a companion to the successful CB-1000 and is comparable in size with a 225 Amp molded case circuit breaker. However, the comparison ends with size, because the CB-100 offers you levels of safety and reliability unheard of in molded case breakers

Electronic Circuit Breakers



CB-1000

For the ultimate in power, safety and reliability, the CB-1000 combines motor control and fault sensing circuitry in one rugged package. Ground fault, under-voltage phase loss, ground monitor, and over-current sensing are featured on plug-in printed circuit boards housed in an easily maintained electronic package. The CB-1000 can be easily interfaced using control systems with its digital in/out port.



CB-PRO

- Reduction in maintenance downtime
- Eliminates molded case circuit breaker replacement
- Rated for 1 million trips useful life
- Increased trip accuracy leads to decreased troubleshoot time
- Eliminates nuisance tripping
- Prevents equipment damage
- Reduction in spare parts inventory

Ground Check Monitors



Ground Monitors continuously verify the integrity of the AC ground wire in heavy equipment trailing cables, and transmission lines between electrical distribution stations. Since 1975, AMR PEMCO has been a pioneer in ground monitor design and sold over 50,000 circuits worldwide. We offer pilotless and impedance style pilot wire versions for low to high voltage circuits up to 25KV.



GF-180

A ground fault occurs when one of the phase conductors of a cable comes in contact with the ground wire of that cable. This will cause current to be placed on the ground wire, giving it potential for electrical shock. Our GF-180 ground fault will detect a small amount of ground current and trip the circuit breaker.



GM-150

The GM-150 is pilotless and uses a 45 ohm trip resistance and a 250 ms time delay, which eliminates nuisance tripping from intermittent conditions in the cables and collector ring assemblies.

Ground Check Monitors



GM-200

The GM-200 Ground Monitor is pilot wireless, eliminating pilot wire costs, repair and lost downtime. The GM-200's installation cut-outs are compatible with many of the industry standards, so RETROFITTING on the modular output panels of the power distribution center can usually be done WITHOUT DRILLING ANY HOLES. Furthermore, we have SIMPLIFIED troubleshooting and repairs with our PLUG-IN DESIGN on all assemblies. Even replacing or adding cables requires no calibration.



GM-250

The GM-250 is the most advanced high voltage ground monitor on the market, available in both pilotless and pilot wire operation. Offering a 45 ohm trip resistance, 250 ms time delay for reduced nuisance tripping, and immunity to DC and AC stray currents. Easy installation and maintenance and approved to work with cable lengths to 10,000 feet, the GM-250 saves cable costs and repairs.

Ground Check Monitors



GM-300

AMR PEMCO's GM-300 Ground Check system is intended for use on all high voltage systems where a pilot wire is available. Ground Check systems using the GM-300 are suitable for applications on power systems up to 25kVAC including low and medium voltages. For power systems over 25kV, contact us for recommendations.



GM-105-XLD

The newest addition to the AMR PEMCO ground check monitoring line is the GM-105-XLD, "Extra Long Distance," impedance monitor. With an advanced 125 mA loop current, the XLD allows monitoring of cable lengths of up to 6.5km (4 miles).* The higher current loop provides more tolerance to connections or inline couplers, which can cause an increase in the resistance of the pilot circuit.

Mine Net Mesh Wi-Fi Systems



Mine Net Mesh is the second generation of AMR PEMCO's communications and tracking solutions adding real time voice and 802.11 data connectivity. The primary purpose of these systems is to expedite miner location and rescue efforts, but they also greatly increase productivity during daily operations.



VoIP Handset

The Voice over IP phone operates at 2.4 GHz and is IEEE 802.11 compliant. Capable of voice calls, Push-to-Talk (PTT), and preset or custom text messages, it allows the user to communicate with a single person, a specific group, or the entire network all at the same time.



MN-6400 Wireless Access Point

The wireless access point, or Node, provides the backbone of the Mine Net™ Mesh system by communicating all voice, tracking, and data throughout the mining facility via Wi-Fi and Ethernet connections. It communicates with the Central Monitoring Station for real-time communications and system management.

Mine Net Mesh Wi-Fi Systems



Personnel Tag

The MN-6425 Wi-Fi Ranging Tag is the latest in precision wireless tracking for underground environments such as mines and tunnels. The unit is lightweight, rechargeable, and includes an integrated clip allowing personnel to place it prominently on their mid to upper body.



MineWeb

MineWeb is a browser-based application for personnel and equipment tracking in underground mining operations. It complements the MineNet™ Mesh, Wi-Fi based communication and tracking system, and provides a graphical user interface for real-time location monitoring of personnel and equipment.

Mine Net Communication & Tracking



The Mine Net Communications and Tracking system is AMR PEMCO's original non-tethered, two-way communications network.



Mine Net Reader

The Intrinsically Safe Smart Readers are connected by twisted pair copper wire, or fiber optic cable, to create a comprehensive communications network. The Mine Net software program gathers information from the network to track personnel and assets by user defined zones, as well as provide real-time text communications with handheld messengers.



Mine Net Tag

The Mine Net Communications and Tracking system utilizes actively transmitting tags which continuously transmit a unique Identification number to the Smart Readers. The Smart Readers are connected by twisted pair copper wire, or fiber optic cable, to create a comprehensive communications network throughout the underground mining or tunneling operation.

Remote Racking Systems



- Rated for 1 million phase to phase faults
- Includes the user interface, a 300-600 Amp vacuum contactor, and selectable voltages from 480-995
- Designed to allow the circuit to be removed and repaired without having to de-energize the entire load center
- The racking of the drawer can be done remotely from up to 30 feet away with motorized attachment, to safeguard against possible arc flash exposure
- Once racked out, work can be performed throughout the drawer safely without exposure to the energized mobile load center
- Approved U.S. Patent



CB-RRS Series

With a molded case circuit breaker, a miner is placed in front of potential arcing hazards. With AMR PEMCO's patented CB Remote Racking System (RRS), the miner is only exposed to 5 Volts, and the built-in time delay allows the miner to be safely removed from potential arcing hazards.

Remote Telemetry



- AMR PEMCO is an authorized distributor for High Tide Technologies, a US-based technology company. High Tide offers a complete, but simple, SCADA solution utilizing Remote Telemetry Units (RTU's) via satellite or cellular.
- TelemetryVIEW enables easy access to information about remote equipment run times, electrical consumption, flow rates, tank levels, and more.
- Applications include:
 - Grinder Pump Status
 - Simple Alarm Systems
 - Remote Storage or Water Tanks
 - Field Instrumentation Monitoring
 - Managing Treatment Plants
 - Ventilation Fan Monitoring
 - Natural Gas Wells and Compressor Stations



Speed Sensors



The "Little Speedy" LS-3000 series is a compact "all-in-one" Slip or Sequence Control Switch utilizing a ferrous metal inductive pickup. "All-in-one" means the pickup with associated speed, delay, and control circuitry is an "all-in-one" package.



LS-3000

- Test button
- Environmentally sealed against dust and moisture
- Solid State Design
- Standard 25 foot cable – 18AWG, 5 conductor
- Mounting bracket included
- Relay Output – C, NO, NC – 120VAC, 5 Amp



LS-3000-LR

- Test button
- Environmentally sealed against dust and moisture
- Solid State Design
- Standard 25 foot cable – 18AWG, 5 conductor
- Mounting bracket included
- Relay Output – C, NO, NC – 120VAC, 5 Amp

Speed Sensors



LS-3020

- Test button
- Environmentally sealed against dust and moisture
- Solid State Design
- Standard 25 foot cable – 18AWG, 5 conductor
- Mounting bracket included
- Relay Output – C, NO, NC – 120VAC, 5 Amp



LS-3040

- Environmentally sealed against dust and moisture
- Solid State Design
- 15 FT (4.5m), 18AWG, 2 conductor cable
- U-Bolts included for mounting
- Solid State Output Switch – 120VAC @ 2 A

Tip Switches



AMR PEMCO's Tip Switches are simple and versatile units used to sense material levels at underground mines, strip mines, preparation plants and stone quarries. The TS-1900 switches have no moving parts and are potted to increase their durability. They are designed to be hung vertically, using the attached eyehook.



TS-1905-NO

- Standard 6 foot cable – 16AWG, 3 conductor
- Integral I-bolt for mounting
- Stainless steel construction with fins
- Activation – 30 Degree
- Contact Output – NO – 120VAC, 7 Amp



TS-1915

- Standard 6 foot cable – 16AWG, 3 conductor
- Integral I-bolt for mounting
- Stainless steel construction with fins
- Activation – 15 Degree
- Contact Output – NC – 120VAC, 7 Amp

Tip Switches



TS-1925

- Standard 6 foot cable – 16AWG, 3 conductor
- Integral I-bolt for mounting
- Galvanized pipe with bell
- Activation – 15 Degree
- Contact Output – NC – 120VAC, 7 Amp



TS-1930

- Standard 6 foot cable – 16AWG, 3 conductor
- Integral I-bolt for mounting
- Stainless steel construction
- Activation – 30 Degree
- Contact Output – NC – 120VAC, 7 Amp



For more information please contact us at:

+1.276.928.1712

SALES@AMRPEMCO.COM

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