

MINING SOLUTIONS



Thinking Mining Solutions? Think Hubbell.



As the mining industry continues to advance, Hubbell's innovative products are designed to support and drive its ongoing development. Technological advancements have resulted in safer working conditions and improvements in efficiencies.

Hubbell Incorporated combines dedicated, market leading brands within the Hubbell portfolio to provide a complete package for companies operating in some of the toughest environments on the planet. We are committed to providing quality products and services that will meet and exceed your expectations.

We specialize in designing and manufacturing tough, high-performance products built to withstand the harshest conditions and deliver lasting reliability. These include telephones and communication products, lighting, control gear and electrical connection products; all designed to operate primarily in extreme outdoor, hazardous and corrosive areas.

With the strength of a wide-ranging family of specialized companies, Hubbell has consistently delivered durable, high-quality solutions tailored for the extreme demands of mining environments—backed by over 75 years of combined expertise. As a group, we encourage engineering excellence and are driven to utilize leading edge technologies and manufacturing techniques to help fulfill your specific requirements.

Hubbell companies focused on the design and manufacturing of products suited for use in the mining industry are:

Austdac

- Conveyor Control and Monitoring
- Conveyor & Longwall Communication System
- Intrinsically Safe LED Lighting System
- Gas Monitoring and Control
- Power Supplies
- Voice Communication and Pre-start Alarm System
- Pullkey (cable-pull limit switch)

BURNDY

- Color Coded Connectors
- Splices
- Crimping Tools & Dies
- Long-barrel Connectors
- Narrow-tongue Connectors
- Grounding Products

Chalmit

- Surface-level Lighting

GAI-Tronics

- Ground Check Monitor
- Ground Fault Relay
- Mine Dial / Page Telephone
- Loudspeaking Telephone

Hawke

- Cable Glands
- Adapter Flanges
- Enclosures

Killark

- Rugged Lighting for Harsh and Hazardous Areas
- Versatile Control Stations
- Robust Plugs & Receptacles offered in Switched, Circuit Breaker, Standard Pin & Sleeve, or Straight Blade

Austdac was formed in 1983 to provide intrinsically safe telephone systems and communications equipment to the Australian coal industry. We now supply communications, gas monitoring systems, safety equipment, intrinsically safe lighting, power supplies and conveyor control equipment to coal mines and general industry in Australia and around the world.

Conveyor Control & Monitoring - SILBUS Range (System)

The unique ability of SILBUS to provide data transmission and power on the same simple twisted pair of wires has been further improved to allow reliable monitoring and control in systems up to 8000 meters in length. The range of signals that can be monitored include digital, safety (SIL3), voltage, current, temperature and frequency, all in a consistent family of DIN rail mounting or wire in modules.



The SILBUS control unit or channel generator, with its configurable logic resolvers, improved MODBUS interface, and system diagnostic facilities, further compliments the range and makes the implementation of a conveyor control or mine wide gas monitoring system a simple task.

Conveyor Control & Monitoring - HubBus Range (System)

HubBus is a distributed I/O system that allows communications from controller to field device and vice versa. HubBus is a long range data bus for I/O monitoring and control, with the unique feature of devices being downline powered from the one signal line.



Typical Applications

- Conveyors
- Coal/Ore loaders
- Stacker/Reclaimers
- Coal washeries
- Bulk material handling applications
- Pipelines
- Irrigation
- Building automation and security
- Parking stations
- Stadiums and arenas

Approvals

- IECEx TSA 07.0002X Ex ia I
- Nemko 07ATEX1033 Ex 1 M1 Ex ia I
- MSHA 18-ISA060002-0
- TÜV IEC61508 SIL3 (safety only)
- C-TICK
- UL Listed
- CSA Approved

Applicable Standards

- IEC 60079-0
- IEC 60079-11
- IEC 60079-25
- AS 1755

Intrinsically Safe LED Lighting System

- Provides Plant and Area Illumination in Group I and II Harsh and Hazardous Areas
- High Intensity
- High Efficiency LED Technology
- Area Lighting and Indicator Function
- Low Profile
- Magnetic or Bolt Mounting
- Long Life



Typical Application

Power Supplies

Model AC36W is an intrinsically safe power supply that has a nominal output voltage of 12 volts DC and an output current of up to 3A; suitable for use in Group I applications and may be used to power intrinsically safe apparatus located in zone 0, 1 or 2.



GRPI & GRPII



The Uninterruptible Power Supply (UPS) type 12/NMH/288 has been designed to provide battery backup for equipment located in hazardous areas that operates from a nominal 12Vdc supply.

Gas and Monitoring Equipment

- IECEx certified
- Gas monitoring and control
- Engine start & emergency shutdown
- 4 to 20mA gas monitoring input
- Gas level display
- Battery level display
- Hazardous area replaceable battery
- Alternator powered
- Strobe output
- IP65



Intrinsically Safe Telephone System

The ST2 System provides the Intrinsically Safe Isolation Barrier between the Surface Telephone System (PABX or IP PABX) and the Underground Mine Phones. The Graphical User Interface (GUI) ensures real time monitoring of all connected Underground Mine Phones. The emergency features of the system allows the operator full control of all telephones even in the event of total failure of the surface telephone system.

The system is comprised of three main parts: the Main Rack which holds the power supply interface barriers and underground cable connections; the Mine Telephone; and the GUI.



Voice Communications and Pre-Start Alarm Systems

The PSASC2 system is designed to be used with longwalls and conveyors of all types where voice communications and pre start alarm functions are required along the entire length of the longwall or conveyor.

Data communication allows monitoring of the status of the intercoms along the conveyor belt and can report any faults to the head end controller. This allows the quick location of the faulty unit.



Pullkey

The Austdac pullkey or cable-pull limit switch type ESS3 finds many applications in controlling distributed plant such as conveyors or belts used in the mining or materials handling industries. The pull key is used to provide controlled stop functions for distributed plant or conveyors.

- Lanyard operated pull switch
- Latching function
- Optional slack rope detection
- IP66 Weather Rating
- Gland entry or plug and socket
- Visual status indication
- IEC 61508 SIL 2 or SIL 3 system capable
- Up to six individual changeover switches
- Wide operating temperature Range
- UL Listed under UL NKCR.E335081
- CSA Listed under NKCR7.E335081
- MSHA Approval 18-ISA060002-0



-50°C to +60°C
IP65/NEMA 4X



Chalmit was originally founded in 1910 to manufacture and supply equipment for the large marine market based on the River Clyde. Chalmit is a current world leading supplier of premium quality fluorescent, LED and HID lighting products for use in hazardous area, industrial and marine environments. We can provide a complete product range that complies with all international codes and standards.

Arran LED Floodlight

- Delivers a uniform photometric distribution and powerful performance of 130,000 maintenance free hours at 25°C
- Instant on crisp white light output
- Highly energy efficient
- Lower power consumption than HID lamps
- Low temperature applications to -50°C
- Allows a variety of mounting options from pendant to stanchion



Arran H/O Floodlight

- Delivers a uniform photometric distribution and impressive performance of 90,000 maintenance free hours at 25°C
- Instant on crisp white light output
- Highly energy efficient
- Lower power consumption than HID lamps
- Low temperature applications to -50°C
- Allows a variety of mounting options covering a wide range of Industrial installations



Protecta LED Linear

- The Protecta range has a proven robust enclosure, excellent IP and low maintenance features which are key to heavy industrial and marine environments
- Simple rugged construction
- Retrofit geartray available
- Battery monitoring and automatic self test
- Screwless mains terminals
- Hinged cover
- DTS-01 deluge tested
- Highly energy efficient





Miners are known for their perseverance, strength and commitment. At BURNDY, we share those values. Since 1924, we have been working to provide engineered product solutions across the mining industry.

HYGROUND® Compression Grounding

- An irreversible compression ground grid cross connector which allows adjustment of the compression elements prior to installation
- Only six connectors and four dies are required to install all combinations from #6 AWG solid through 500 kcmil
- UL467 Listed
- For direct burial in earth and concrete



Mechanical Grounding

Flexible Copper Braid Jumpers

- Flexible copper braid jumpers designed to take up linear expansion and contraction, compensate for misalignment and absorb vibratory movement of electrical equipment and devices
- Made of flat extra flexible, tinned, pure copper braid, with unplated, seamless, pure copper ferrules formed into a rectangular shape on each end



Connectors

- Copper Cable to Bar - TYPE GB separates cable from bar, GBM clamps cable directly onto bar surface
- UL 467 Listed for Grounding and Bonding applications
- CSA Certified
- High copper alloy cast body and DURIUM™ hardware make the connector suitable for direct burial in earth and concrete
- One-wrench installation
- Accommodates ¼" to 1" bar and #8 AWG - 500 kcmil cable



KC SERVIT® Posts

- SERVIT posts are used to ground one or two cables to steel structures, fence posts, transformers.
- Used to tap one or two cables from bus bar
- One-wrench installation



Static Discharge Reel

- Static Discharge reels are often used to dissipate static charge buildup developed while filling or dispensing fuel or other combustible liquids from fuel trucks or railcars. All reels are heavy duty and supplied with a 100 amp universal jaw-type grounding clamp, spring rewind and centrifugal brake.



HYDENT™ Compression Connectors (medium & large)

- Copper compression lug
- 1 or 2 hole
- Short or standard barrel, tin plated



U-Dies

- Stainless steel U Die, black, die index: 24
- Fits in Y7500HS tool



Cable Ties

- Smooth, rounded edges help ensure safe efficient handling
- Available in a wide range of lengths and widths
- Self locking steel ball design speeds installation and locks into place at any length
- Flame retardant and non-toxic for applications where safety from fire is critical
- Also offered in non-magnetic, 316 or 304 grade stainless steel for durability and extra corrosion resistance



Y7500HS Tool (for HYGROUND®, Medium & Large HYDENT™)

- Covers a wide range of applications with a lightweight, self-contained system and provides easy tool removal from continuous conductors with its C-shaped head
- Easy tool positioning with its 355° head rotation
- Patented rapid advance pump for faster crimps
- Comfort grip handles help ease operator fatigue with continuous use
- Supplied with high impact plastic carrying case



Y122CMR Tool (for small HYDENT™)

- Ergonomic hand tool for crimping uninsulated terminals and splices
- Overmolded comfort grip handles reduce fatigue during continuous use
- Easy groove identification with colour coded dies
- Full cycle ratchet tool to assure properly crimped connections
- Emergency release mechanism allows tool to open in case of misalignment or mistaken die choice
- UL Listed/CSA Certified connections when used with recommended BURNDY® terminals and splices
- 5-year limited warranty



Splices (HYLINK™)

- **YSV HYLINK™** is an insulated butt splice for stranded and solid copper conductors in virtually all heavy-duty industrial and general purposes applications.
- **YSM HYLINK™** is an insulated parallel splice that allows wire to be laid parallel inside the connector and then be spliced together.





GAI-Tronics has provided rugged communications equipment and solutions for demanding environments worldwide; supplying PA/GA systems, evacuation systems and intercom equipment to industry and the public sector for more than 70 years. The ability to withstand the unforgiving extremes of mining environments makes GAI-Tronics' equipment the optimum choice.

Loudspeaking Telephone

- Loudspeaker paging and handset party line conversation over a twisted telephone line
- Simple installation & operation
- High quality audio - voices sound clear
- Ease of service
- Portable
- Battery operation
- Rugged construction
- Environmentally protected
- #16 gauge stainless steel case
- MSHA permissible



Mine Dial/Page Telephone

- Telephone station with paging capabilities suitable for gaseous or dusty locations
- Selective and all-call paging
- Private conversations
- Place and receive calls
- Each station allows simultaneous, independent conversations on each phone
- Emergency page function is automatically enabled if switchboard is out of order, or if power fails
- Flashing light designed for use in noisy areas where a ring might not be heard; light also improves ability to locate phone in dark areas
- 8-hour minimum battery backup
- MSHA permissible



Ground Sentinel Systems

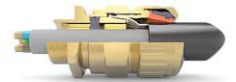
- Designed to monitor the integrity of the ground circuit of power distribution circuits in coal mines
- Option of three (3) different frequencies
- Eliminate monitor crosstalk
- Remove multiple ground problems
- Extended cable lengths are possible
- Monitor and control over power cables



Hawke International has provided peace of mind to contractors, installers and end users for more than 55 years. Our innovative range of cable connection and termination products, specifically designed with the customer in mind, have gained worldwide approval and credibility for the hostile conditions found in the mining industry.

453/RAC Cable Gland

- Provides armour clamping using one clamping arrangement for all armour/braid type
- Provides a seal on the cables inner sheath
- Provides a cable retention and low smoke and fume, zero halogen seal onto the cable's outer sheath
- Provides a barrier seal between the individual insulated cores within the cable and prevents entry of the products of an explosion into the cable



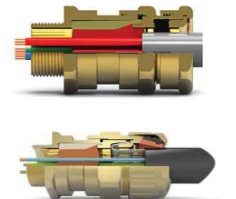
453/T Cable Gland



- Provides a cable retention and low smoke and fume, zero halogen seal onto the cable's outer sheath

623, 653/T Cable Gland

- Provides a diaphragm seal on the cables inner sheath which will not damage cable that has 'cold flow' characteristics
- Provides a cable retention and low smoke and fume, zero halogen seal onto the cable's outer sheath



453/Universal Cable Gland



- Provides a diaphragm seal on the cables inner sheath which will not damage cable that has 'cold flow' characteristics
- Provides a cable retention and low smoke and fume, zero halogen seal onto the cable's outer sheath

Adaptor Flange - Type 483

- Allows metric threaded Group I cable gland types, 653/Universal, 653/T, 623, 453/T, 453/Universal and 453/RAC to be used in size up spigot entries.
- Flameproof Exd / Dual Certified ATEX - IECEx



Spigot Flange - Type 484

- Allows metric threaded Group I cable gland types, 653/Universal, 653/T, 623, 453/T, 453/Universal and 453/RAC to be used in size up spigot entries.
- Flameproof Exd / Dual Certified ATEX - IECEx

Banking Flange - Type 470

- To close unused cable gland entries and maintain the flameproof integrity of the equipment
- Flameproof Exd / Dual Certified ATEX - IECEx



EJB Series Enclosure

- 316 L stainless steel
- Flameproof Exd / Dual Certified ATEX - IECEx





Established in 1913, Killark is a leading global provider of harsh and hazardous location products. The Killark range encompasses industrial and explosion proof equipment engineered to withstand the toughest environments offered by the mining industry.

HAZCON™ Controls



- Reliable electrical control solutions
- Start/Stop stations made of rugged glass fiber reinforced polyester
- Up to 20A continuous and horse power ratings up to 1HP
- 316 stainless steel enclosures also available
- Emergency Stop buttons with three forms of release; Push Pull, Push Twist and Push Key Release.



- A variety of sizes and configurations
- LED pilot lights standard on all HAZCON control stations

Versamate® Plugs/Receptacles



- VersaMate® metallic pin & sleeve plugs and receptacles are designed for heavy industrial use
- 600VAC / 250VDC Max; 50-400 Hz electrical ratings; NEMA 4X weather ratings
- 30, 60, 100, 150 and 200A configurations
- Style 1 (2P2W, 3P3W, 4P4W) and style 2 (2P3W, 3P4W) pin configurations

Explosion-Proof Versamate® Plugs/Receptacles



- Switched and interlocked receptacles for explosion-proof locations
- VSQ (Switched) and VBQ (Circuit Breaker Protected) configurations available
- 30, 60A configurations (VSQ) and 30, 60, 100A configurations (VBQ) available
- Switches/Handles are padlockable for lockout/tag out purposes



Explosion-Proof Acceptor® “Quick-Wire” Plugs/Receptacles



- Rated for explosion-proof applications; NEMA 3 Raintight Weather Ratings
- “Quick-Wire” construction allows for faster installation time, resulting in lower labour costs
- Standard NEMA configurations (20A-125V, 20A-250V, 15-125V, and 15-250V)
- Available in wall-mount, connector, and panel-mount configurations



LAL Series Linear



- Wide variety of lumen levels (1,500 to over 16,000 lumens)
- Supplemental 20KA/10KV surge protection for 120-277 VAC, 10KA/10KV for 347-480 VAC
- Emergency models available – 90 or 180 minute emergency exit
- Impact-resistant polycarbonate lens
- Quad Listed NEC/CEC/IECEX/ATEX

LALFP & WLALFP Series



- 1,500 – 16,000 lumen outputs available
- -40°C to +65°C ambient suitable on select models
- Clear anodized housing for superior corrosion protection
- Impact-resistant polycarbonate lens offered in clear or diffuse
- NFPA 101® compliant intelligent battery backup available
- IP66/IP67, Type 4X, & Marine Hosedown Weather Protection
- Standard supplementary surge 20kA / 10kV for 120-277 VAC fixtures
- NSF Certified

KFL Series Floodlight



- Wide variety of lumen levels 6,000 to nearly 22,000 lumens.
- Supplemental 20KA/10KV surge protection for 120-277 VAC, 10KA/10KV for 347-480 VAC
- Ambient suitability -50°C to 55°C up to 125W
- Impact-resistant polycarbonate lens available

KFL2H Series



- 43,000 – 80,000 lumen outputs available
- -40° to +55°C ambient suitable on select models
- Quad Listed NEC/CEC/IECEX/ATEX & INMETRO
- Type 3, 4X & IP66 Rated
- Corrosion-resistant copper-free aluminum housing
- Suitable for use in Class 1 Division 2 hazardous locations
- Standard supplemental surge 20 kA / 10 kV for 120-277 VAC fixtures

VML-X Series



- Mounts directly to existing Crouse Hinds VMV and VMVL Series without the need for an adaptor
- No additional sealing or gasketing needed
- Emergency battery backup options available
- Light output ranges from 5,000 to 18,000 lumens with various optics

MBL-X Series



- Compact size low bay fixture for low mounting heights or small space areas
- Lightweight, shallow depth and diameter
- Variety of mounting methods including ceiling, pendant, wall, and stanchion
- MBL-X fixture housings can be retrofitted to existing MB series splice boxes
- Energy savings with up to 143 lumens/watt
- Warm and cool LED colour options
- Patented thermal foldback protection included as standard
- Emergency battery backup options
- Standard 6KV surge protection with additional surge protection options
- Glass globe and guard preassembled to fixture tank





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