



CATHODIC PROTECTION RECTIFIERS CIRCUIT Breakers Anodes



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Replacement Parts For
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Other parts available:
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Panel Wire
Capacitors Quick Change Knobs & Link Bar
Circuit Breakers
Anodes

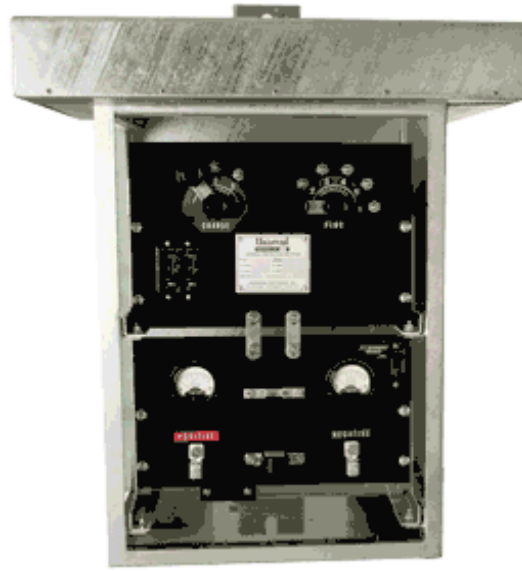
Made in USA

Air Cooled Standard Line Cathodic Protection Rectifiers

Heavy duty, pole mountable, air cooled cathodic protection rectifiers

Single Slideout Rack Max. 1200 Watts

Dual Slideout Rack 1201 Watts & up



The "Standard Line" air cooled, cathodic protection rectifiers are recognized as industry leading in quality, workmanship and service life. Many years of field-proven service prove their superior design. Conservative equipment ratings, controlled manufacturing techniques, plus many extra features ensure long and trouble-free operation.

Typical cathodic protection applications for the air cooled rectifier line include pipelines, tank farms, storage fields, and other non-hazardous locations where continuous duty, DC power is required.

Standard Features Air Cooled Standard Line

- Weatherproof to NEMA 3R
- Heavy duty 11-gauge hot dip galvanized cabinet with Stainless Steel Hardware
- Stainless Steel, perforated screens
- Front and side opening doors for easy maintenance

- Heavy duty, draw-pull, stainless steel cabinet latch
- Slide-out equipment racks, separate Transformer and Stack assemblies for units over 1200 watts
- Heavy duty transformer with 15% over-design for reserve capacity
- Minimum 18-step voltage control link bar taps
- Quick-change, heavy-duty knobs for changing tap link bars
- Minimum 5/16" diameter, soldered tap changing studs
- 3/16" Grade XX, Phenolic front panel
- Accessible front panel Total precision shunt
- Magnetic AC Input circuit breaker
- Magnetic AC Secondary Breakers on all units less than 100 amps (instead of fuses)
- Hoyt, separate analog, 2-1/2" round, volt and amp meters
- Silicon diodes protected by surge suppressors and current limiting breakers < 100 Amps or fuses
- All electrical connection hardware is Nickel Plated and double-nutted or soldered
- Multi-strand, high temperature, insulated flexible wiring
- Terminal block for AC input wires
- Primary tap change panel for dual input voltages (Single Phase)

Air Cooled UT & SW Series Cathodic Protection Rectifiers

Pole mountable, air cooled cathodic protection rectifiers with swing out and removable case for superior accessibility for routine maintenance & inspection.

Type "UT" Series



Type "SW" Series



The UT & SW Series air cooled cathodic protection rectifiers, are an alternative to Standard Line series air cooled cathodic protection rectifiers. The UT is the smallest model of the two series with a maximum of 400 watts, with all the same features as the

larger SW series. Both Series rectifier features swing out and removable design case, which permits superior accessibility for routine maintenance and inspection. Limited to 1,600 watts of DC output, the simplified rectifier design reduces manufacturing costs and provides an economical rectifier suited for most cathodic protection applications.

Standard Features UT & SW Series

- Weatherproof to NEMA 3R Heavy duty
- 11-gauge hot dip galvanized cabinet with Stainless Steel Hardware
- Stainless Steel, perforated screens
- Components mounted on galvanized plate for easy removal
- Heavy duty, draw-pull, stainless steel cabinet latch
- Heavy duty transformer with 15% over-design for reserve capacity
- Minimum 18-step voltage control taps
- 3/16" Grade XX, Phenolic front panel
- Accessible front panel Total precision shunt
- Magnetic AC Input circuit breaker
- Magnetic AC Secondary Breakers (instead of fuses)
- Hoyt, separate analog, 2-1/2" round, volt and amp meters
- Silicon diodes protected by surge suppressors and current limiting
- breakers
- All electrical connection hardware is Nickel Plated and double-nutted or soldered
- Multi-strand, high temperature, insulated flexible wiring
- Terminal block for AC input wires
- Safety shield panel supplied on all units over 65 Volts DC

Air Cooled Gas Station Series Cathodic Protection Rectifiers

Low-cost CP rectifiers limited to 1,500 watts of DC output



The "Gas Station Series" air cooled cathodic protection rectifier, is a low-cost rectifier option with the same reliability as the standard air cooled rectifier line. Limited to 1,500 watts of DC output, this smaller rectifier is used for applications such as gas stations, pipelines, storage tanks or other non-hazardous locations where continuous duty, DC power is required.

Standard Features Gas Station Series

- Weatherproof to NEMA 3R
- 16-gauge, White powder coated cabinet with front opening door
- Wall mounting tabs top and bottom (pole mount Channel is optional)
- Heavy-duty transformer with 15% over-design for reserve capacity
- Heavy duty, draw-pull, stainless steel cabinet latch
- Slide-out galvanized chassis
- 20-step voltage control with link bar taps
- Hinged 3/16" Grade XX, Phenolic front panel
- Accessible front panel Total precision shunt
- AC Input circuit breaker
- Magnetic AC Secondary Breakers (instead of fuses)
- Hoyt, separate analog, 2-1/2" round, volt and amp meters
- Time elapsed indicating meter
- Silicon diodes protected by surge suppressors and current limiting breakers
- All electrical connection hardware is Nickel Plated and double-nutted or soldered
- Multi-strand, high temperature insulated flexible wiring
- Terminal block for AC input wires
- Safety shield panel supplied on all units over 65 Volts DC

Oil Cooled Cathodic Protection Rectifiers

Heavy-duty, rugged rectifiers for operation under severe conditions

Non Hazardous Locations (Standard)



Hazardous Locations



The "oil cooled" cathodic protection rectifiers, are recognized as industry leading in quality, workmanship and service life. Many years of field-proven service have led to the superior design of these rectifiers. Conservative equipment ratings, controlled manufacturing techniques, plus many extra features ensure long and trouble-free operation.

Typical cathodic protection applications for the oil cooled rectifier line include severe environmental conditions due to high humidity, dust, or other situations that would shorten the life of a standard air cooled rectifier.

Hazardous location models are used for Class 1, Div. 2, Group D locations and comply with U.L. Standard 698. While similar to the standard oil cooled rectifiers, the explosion proof units are fitted with special hazardous area fittings to eliminate possibility of an ignition source.

Standard Features Oil Cooled

- Heavy duty 11 gauge hot dip galvanized cabinet with hinged top lid and stainless steel hardware.
- External cabinet fins for added strength and cooling.
- Heavy duty, draw-pull, stainless steel cabinet latches.
- Separate instrument compartment with hinged door and stainless steel hardware.
- Separate lift-out component racks for the transformer and rectifier stack.
- Heavy duty transformer with 15% over design for reserve capacity.
- Minimum 18-step voltage control link bar taps.
- Quick-change heavy duty knobs for changing tap link bars.
- Minimum 5/16" diameter, solder tap changing studs
- 3/16" Grade XX, Phenolic panels
- AC Input circuit breaker
- Magnetic AC secondary circuit breakers on all units less than 100 amps (instead of fuses)
- Hoyt, separate analog, 2-1/2" round, volt and amp meters
- Silicon diodes protected by surge suppressors and current limiting breakers < 100 Amps or fuses
- All electrical connection hardware is Nickel Plated and double-nutted or soldered
- Multi-strand, high temperature, insulated flexible wiring
- Terminal block for AC input wires (Non-Hazardous models only)

Air Cooled ES Line Cathodic Protection Rectifiers

Low output, low cost, lightweight cathodic protection rectifiers for underground storage tanks and other low DC power cathodic protection application maximum 200 watts & 10 amps

Model "ES-I" Rectifier



Standard Features ES-I Line

- 120V AC single phase input only
- All Circuit breakers - No Fuses
- Heavy duty aluminum case for post or wall mount
- Unique opening cabinet for total access to components
- Assembly only 13" high x 5" wide x 5.5" deep
- Ammeter only
- 18-step voltage control taps
- Silicon rectifying elements
- AC and DC lightning protection
- AC input terminal block
- Accessible front panel Total precision shunt
- Standard outputs: 6V-5A, 6V-10A, 12V-5A, 12V-10A, 20V-5A, 20V-10A, 30V-5A, 40V-5A.
- Other outputs available not exceeding 200W and 10A

Model "ES-II" Rectifier



Standard Features ES-II Line

- 120V AC single phase input only
- All Circuit breakers - No Fuses
- Heavy duty aluminum case for post or wall mount
- Metering viewing windows
- Unique opening cabinet for total access to components
- Assembly only 13" high x 7.5" wide x 5.5" deep
- Voltmeter and ammeter
- 18-step voltage control taps
- Silicon rectifying elements
- AC and DC lightning protection
- AC input terminal block
- Accessible front panel Total precision shunt
- Standard outputs: 6V-5A, 6V-10A, 12V-5A, 12V-10A, 20V-5A, 20V-10A, 30V-5A, 40V-5A.
- Other outputs available not exceeding 200W and 10A

Air Cooled Watertank Line Cathodic Protection Rectifiers

Low output, low cost, lightweight cathodic protection rectifiers for underground storage tanks and other low DC power cathodic protection applications maximum 200 watts & 10 amps

The "W" series auto potential controlled rectifier is specifically designed for the Water Tank Industry. Using proven, dependable solid state control boards to maintain strict "Standard On" or "I.R.Free" potentials. Easy read Bright LED Digital meters for accurate readings of volts, amps and potentials. This compact, lightweight rectifier can easily be mounted on tank walls or posts by one person.

IR Free" Potential Watertank



Standard Potential Watertank



Standard Features Watertank Line

- Nema 4x Diamond Shield CSA Approved enclosure with "Solarguard" double UV protection
- Stainless steel hinge and latches.
- All major components mounted on an aluminum chassis with Universal's unique cooling design.
- Non conductive shock resistant front panel for safety
- All Circuit Breakers - No Fuses
- Universal's proven solid state potential control circuit with built in voltage and current control modes.

- Fully protected input and output circuits with fast-acting re-settable circuit breakers (NO FUSES).
- Separate Digital LED meters for volts, amps and potential w/ amp readings down to 10 milliamps
- All readings can be verified from front panel.
- Accessible front panel Total precision shunt
- Hinged front panel for easy access to components
- Multiple reference cell operation with built in reference cell failure shut down.
- Automatic or Manual operation.
- Versatile mounting for post, rack or wall
- Most models weighing less than 35 pounds.
- Wide range of output ratings available.

Junction Boxes for Cathodic Protection Rectifiers

Custom heavy duty and lightweight junction boxes for cathodic protection rectifiers



Enclosures Available	
Fiberglass (standard)	Galvanized 16ga (standard)
Galvanized Hot-dip 11ga	Aluminum
Aluminum / Anodized	Aluminum / Anodized / Clear coat
Stainless Steel	Explosion Proof (cast aluminum)



Model TB

- 6 ckt
- KPA-25 Header lug
- KA-4C circuit lugs



Model TB-S

- 6 ckt
- RS Shunts (5 amp)
- KPA-25 Header lug
- KA-4C circuit lugs



Model TB-S

- 6 ckt
- SW Shunts (50 amp)
- KPA-25 Header lug
- lug KA-4C circuit lugs



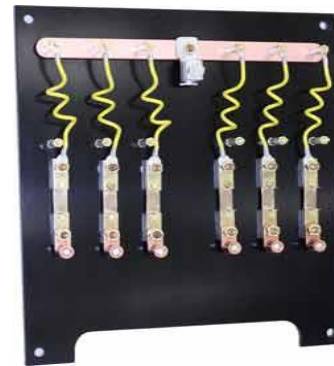
Model TB-SR

- 6 ckt
- RS Shunts (5 amp)
- KPA-25 Header Lug
- KA-4C circuit lugs
- 50 watt - 1 ohm resistors



Model TB-SR

- 6 ckt
- Resistors
- SS Shunts (25 amp)
- KPA-25 Header lug
- KA-4C circuit lugs



Model TB-SR

- 6 ckt
- SW Shunts (50 amp)
- KPA-25 Header lug
- KA-4C circuit lugs
- Space / 50 watt resistor

Portable Test Rectifiers

Model TR-3

Portable Test Rectifier

Model LTR

Portable Test Rectifier

Listed Rectifiers



Air Cooled Standard Line

with Optional ETL Listing

ETL Listed Conforms to UL STD 1012 Certified to CSA STD C22.2 No. 107.1



Single Phase & Three Phase
with maximum ratings 150 volts DC & 250 amps DC

Air Cooled Gas Station

with Optional ETL Listing



Maximum rating 1500 watts & 30 amps DC

Air Cooled ES Line with Optional ELT Listing

ES-I Line



ES-II Line



Maximum rating 200 watts & 10 amps D

CIRCUIT BREAKERS

Low Voltage Power Circuit Breakers

Medium Voltage Air Circuit Breakers

Medium Voltage Vacuum Circuit Breakers

CBS Maxi-Vac Vacuum Circuit Breakers

Gas, Substation, Oil Circuit Breakers

Insulated Case Circuit Breakers

Molded Case Circuit Breakers

TOUGH DUTY CIRCUIT BREAKER

SWITCHGEAR

MEDIUM VOLTAGE MOTOR CONTROL

LOAD-BREAK SWITCHES

PROTECTIVE RELAYS

VACUUM INTERRUPTERS

POWER TRANSFORMERS

RENEWAL AND REPLACEMENT PARTS

REMOTE RACKING/SWITCHING

UNIT SUBSTATIONS

LOW VOLTAGE MOTOR CONTROL

Made in USA

ANODES

Aluminum Anodes

Aluminum anodes are available with a wide variety of core configurations, to accommodate different anode specifications and applications. If your requirements are for a new structure, or to retrofit an existing platform.

Zinc Anodes

Zinc Anodes are available to the I Mil-Spec also are covered by the ASTM-418-95 Type I Alloy. Other types of Zinc Anode Alloys manufactured would meet or exceed the latest ASTM-418-95 Type II Alloy.

Applications

Ship Hulls, Ballast Tanks, Sea Chest, Engine Room, Pipelines, Piers, Docks, & Buoys

Magnesium Anodes

Magnesium anodes are available in a variety of shapes and sizes for use in seawater, brackish water, and fresh water cathodic protection systems.

Applications

Hulls of ships, barges, tugs and boats, Ballast tanks of ore carriers and similar vessels, Bulkheads, Water storage tanks, Piers and piling, Pipelines, Heat exchangers, Travelling screens