SM-620P

Installation, Operation and Maintenance Instructions

POWERTROL SILICON RECTIFIER POWER SUPPLIES

ERIEZ MAGNETICS HEADQUARTERS: 2200 ASBURY ROAD, ERIE, PA 16506–1402 U.S.A.
WORLD AUTHORITY IN SEPARATION TECHNOLOGIES

Introduction

This manual details the proper steps for installing, operating and maintaining the Eriez Powertrol Silicon Rectifier Power Supply.

Careful attention to these requirements will assure the most efficient and dependable performance of this equipment.

If there are any questions or comments about the manual, please call Eriez at 814/835-6000 for Powertrol Silicon Rectifier Power Supply assistance.

⚠ CAUTION

Safety labels must be affixed to this product. Should the safety label(s) be damaged, dislodged or removed, contact Eriez for replacement.

⚠ WARNING!!!

High voltage AC/DC - shock hazard - consult a qualified electrician.

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SUSPENDED PERMANENT MAGNETS

General Description

Eriez Silicon Rectifiers have been especially designed for use with various types of electromagnetic equipment. They are built to the highest electrical standards and will give years of satisfaction and trouble-free operation when properly installed and operated.

Powertrol Rectifiers feature convection cooling, a full wave bridge circuit, double wound transformers and 14 gauge steel cabinets for wall mounting. A plainly marked terminal strip is provided for AC line and DC load connections. Good voltage regulation is inherent, and rectifier output is unfiltered with ripple being on the order of 4%.

Installation

Unpacking
Take care in unpacking so as not to break the pilot light or damage the rectifier housing. Remove the rectifier cover and make a physical inspection of rectifier for shipping damage. If damage has occurred in shipping, notify and file a claim with the carrier.

Location
The rectifier should be located as you would any other electrical equipment. Standard NEMA 12 and NEMA 4 units are designed for operation in ambient temperatures less than 100°F (40°C). Avoid direct sunlight. If not possible, install a canopy for protection. For operation in higher ambient temperatures, derating is necessary. Consult Eriez for information on derating.

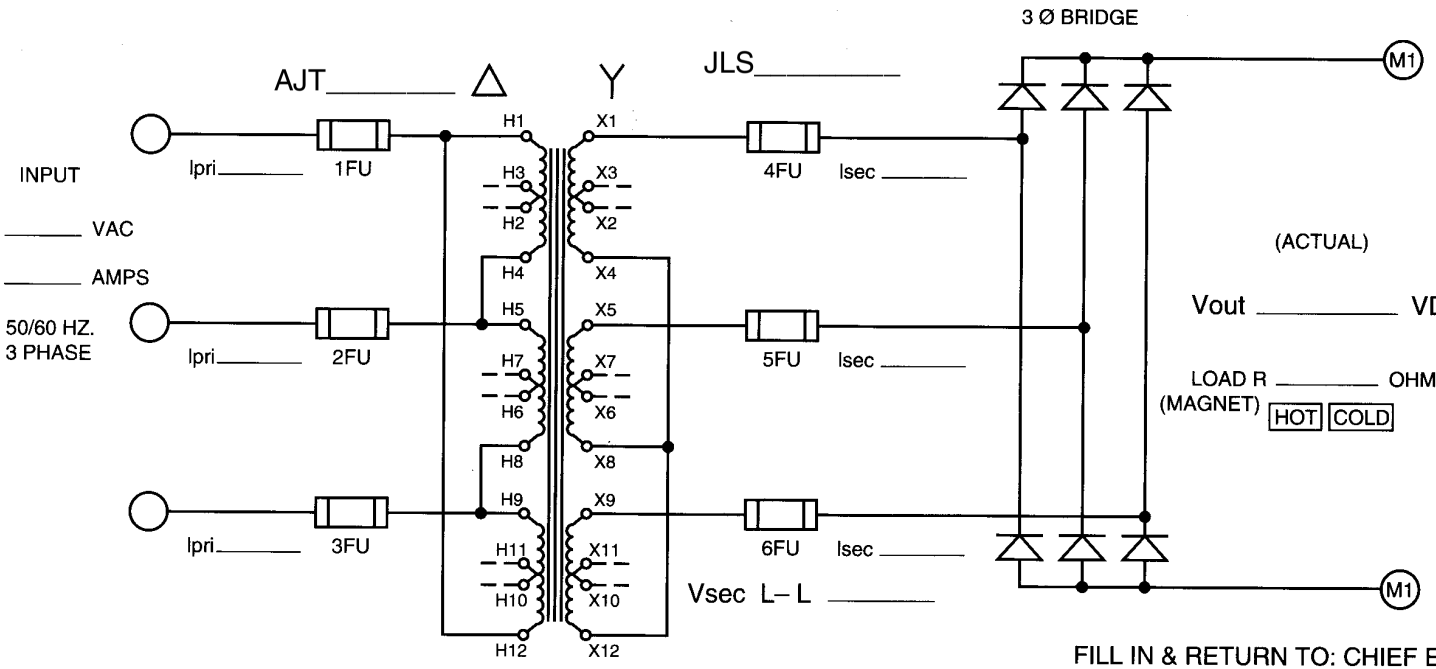
Mounting
When installing the wall mounted unit, be sure the mounting surface is reasonably flat. Space Rectifier Cabinet at least 1.5" off of wall to ensure proper cooling.

Wiring
Knockouts are provided in NEMA 1 and NEMA 9 cabinets for conduit connection to line and load. Other cabinets require knockout punching at installation. Read the nameplate ratings carefully to determine the line voltage. Check the supply line voltage to be sure it corresponds to the nameplate. Make AC line connections to terminals marked L1, L2, and L3 (marked LINE). Take care not to apply the higher line voltage to the rectifier when it is connected for the lower voltage; this can burn out the transformer and destroy the silicon diodes and the pilot light along with its resistors. Read the AC and DC amps on nameplate to determine the proper wire size. The wire size should conform to National Electrical Code or local code for current carrying capacity.

Install a fused safety switch ahead of the “Powertrol” for short circuit protection. The fuses should not exceed the capacity of the conductors between the switch and the “Powertrol.” Connect the DC load directly to terminals marked M1 and M2 on the panel. On highly inductive apparatus, such as electromagnets, NO DC switch should be used when supplying only one piece of equipment. All on and off switching should be done in the AC circuit by means of a manual switch or magnetic contactor. For installations where one rectifier supplies several pieces of equipment, a DC switch can be used in each circuit. If DC switching is necessary, it must be done by switches employing surge suppressors, (such as those manufactured by Cutler-Hammer, Allen-Bradley, etc., called automatic drop controllers), or by switches specifically designed to absorb the high transient voltage generated upon interruption of a DC line. If remote operation is desired, the manual switch must be replaced by an AC magnetic contactor and a stop-start switch located where desired.

Line Voltage Limitations
Line voltage should be within + or -5% of nameplate rating, + 10% being the maximum allowable. Continuously impressed AC voltages higher than 10% above nameplate rating can result in a rectifier failure and should be corrected by the use of auto transformers.

Operation
After wiring is completed and the load connected, the unit is ready for operation. Close the fused line safety switch and then turn the AC switch on. The pilot light should go on, indicating the unit is in operation.



(ACTUAL)

Vout _____ VDC

LOAD R _____ OHMS
(MAGNET) HOT COLD

DATA FROM NAMEPLATE

Vout _____ VDC

Iout _____ amps

SERIAL No. _____

STYLE No. _____

RATING: Ex. 10K42
10000 WATTS (DC) OUTPUT
4 = 460 VAC INPUT
2 = 230 VDC OUTPUT

FILL IN & RETURN TO: CHIEF ELECTRICAL ENGR.
ERIEZ MAGNETICS
OUR FAX No. 814-838-4960

YOUR FAX No. _____

NAME _____

SYMPTOM: _____

_____

_____

_____

_____

_____

Troubleshooting

⚠ WARNING!!!
High voltage AC/DC - shock hazard - consult a qualified electrician.

Open the manual switch (or safety switch) and check the wiring, input fuses and output fuses. If fuses are blown, attempt to locate the short circuit by first checking all of the silicon rectifier diodes. To check the diodes isolate the rectifier assembly from the transformer by removing the 3 output fuses, and from the load by disconnecting terminals marked M1 and M2. Then take Ohmmeter readings directly across each diode, first with one polarity and then with reversed polarity. If the diode is good, the resistance will be very high with one polarity and very low with the reversed polarity. High resistance readings with both polarities indicate an open diode, and low readings indicate a shorted diode. Replace the rectifier assembly if a short or open is detected.

If fuses and diodes check out good, inspect all wiring for possible short circuits or opens.

Maintenance, Repair and Alteration

No scheduled maintenance is necessary or required. However improved life can be obtained from the unit by keeping it clean and all connections tight.

Repair, alteration or disassembly of this equipment in the field, without written authorization and instructions from Eriez, nullifies the responsibility and guarantee of the manufacturer.

Longterm Storage of "Powertrol" Rectifier Power Supplies

Upon receiving the power supply, thoroughly inspect the equipment. Any damage should be reported to the carrier, and the supplier should also be notified immediately.

The units should be stored indoors in a room where the temperature is in the range of -5°F to 140°F (-20°C to +60°C). For storage up to one year for Nema 1 (IP23) type cabinets, a desiccant should be placed inside and the vents and door should be sealed with tape and plastic film. Other cabinets, such as Nema 12 - 4 (IP55, IP66), etc. require only the placement of a desiccant inside and reclosing of the cabinet, retightening its latches.

For storage longer than one year, it is recommended the terminals inside the control be treated with a corrosion inhibitor spray in addition to the steps mentioned above. If the storage area is known to be prone to high humidity and fungus growth, the internal wiring should be treated with a fungus-proof coating.

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