

MT-PML-GZ-3P-GNF-500KVA-RT-DF-Z6-BB-CZ-2ZZ-M1

500 KVA Pad Mount Zig Zag Grounding Transformer - 4160Y/2400 Grounded Wye Nominal Voltage - Biodegradable Fluid

Product ID: 308803

Please see last page for supporting documentation for this product (certificates, CAD files & drawings, IES files, wiring diagrams, etc).



Image: MT-PML-GZ-3P-GNF-500KVA-RT-DF-Z6-BB-CZ-2ZZ-M1

Larson Electronics LLC manufactures a wide variety of products, including custom built to spec designs. The pictures displayed for this unit are a general representation of form factor for the product line and may not accurately represent this exact configuration in every detail due to custom builds and changes between similar products in our standard catalog. The specifics for this configuration are listed in the specification table and supporting documentation (CAD files, Dimensional Drawing, Name Plate Diagram, Wiring Diagram, etc.). This means that specific details (receptacles, plugs, wires, connections, mounting brackets, external finishes, etc.) may not be accurately represented in images vs specifications. Please review specifications and do not order based solely on images.

MT-PML-GZ-3P-GNF-500KVA-RT-DF-Z6-BB-CZ-2ZZ-M1 Pad Mount Zig Zag Grounding Transformer

Transformer Type: Pad Mounted, Compartmental-Type, Zig Zag Grounding Transformer

Transformer Configuration: Liquid Filled Pad Mounted

Transformer Feed Type: Radial Feed

Operation: Step-Down Operation (Not Approved for Step-Up)

Phase: Three Phase

Capacity: 500 KVA

Vector Group: ZN

Primary Voltage: 4160Y/2400

Primary Voltage Switch: N/A

Primary Voltage Class: 5 kV Class

Primary Phasor: Grounded Wye

Primary BIL: 60 KV

Rated Continuous Current: 69.4 A

Rated Thermal Current (10 seconds) : 100 A

Secondary Voltage: N/A

Secondary Voltage Class: N/A

Secondary Phasor: N/A

Frequency: 60 Hz

Temperature Rise: 65°C

Ratings

Meets/Exceeds DOE 2016 Efficiency Ratings

Meets/Exceeds CSA Efficiency Ratings

Complies with ANSI / IEEE C57.12.00

Complies with ANSI / IEEE C57 12.28

Complies with ANSI / IEEE C57 12.29

Complies with ANSI / IEEE C57 12.34

Complies with ANSI / IEEE C57 12.35

Complies with ANSI / IEEE C57.12.70

Complies with ANSI / IEEE C57.12.110

Complies with ANSI / IEEE C57.12.131

Complies with ANSI / IEEE C62.11

Complies with ANSI / IEEE C62.22

Complies with ANSI / IEEE C37.47

Complies with ANSI Z535.4

Complies with ANSI / IEEE 386

Complies with ANSI / IEEE C2

Complies with ASTM D6871

Complies with ASTM D3487

Complies with 10 CFR Part 431

Insulation Rating: Class E Insulation - 120°C, 248°F
Cooling Class: KNAN; Self-Cooled
Forced Air (Fans): None
Tap Changer: N/A
Tap Qty: N/A
Tap %: N/A
Tap Changer Switch Rating: N/A
Tap Changer Switch Location: N/A
Impedance: 46 Ω/Ph
Primary Connection Type: Dead Front
Primary Termination Arrangement: In line Terminal Arrangement
Primary Termination: Externally Clamped Integral Bushings w/ Removable Studs, 200A Load Break Elbows
Primary Connection Qty: (4) Primary Connections for Use w/ Elbow Connectors
Primary Parking Stand Qty: (4) Welded Brackets for Installing Accessory Parking Stand Bushings
Primary Bushing Rating: 5 kV Class, 60 kV BIL, Load Break connector plug-in
Primary Neutral Connection: Externally Clamped Integral Bushings w/ Removable Studs, 200A Load Break Elbows
Primary Surge Arrestors: Included, T-body arrester
Primary Surge Arrestor Voltage Rating: 5 KV
Primary Surge Arrestor MCOV Rating: 3 KV rms
Primary Over Current Protection (OCP): N/A
Primary Over Current Protection Method: N/A
Primary Over Current Protection Holder: N/A
Primary Grounding Provisions: (1) NEMA Ground Bar Attached to Tank via (2) Welded Ground Bungs in HV Cabinet
Ground Bushing Power Frequency Withstand : 10 kV for 1 minute
Secondary Connection Type: N/A
Secondary Termination Arrangement: N/A
Secondary Connections: N/A
Secondary Connection Qty: N/A
Secondary Connection Supports: N/A
Secondary Over Current Protection (OCP): N/A
Secondary Neutral Connection: N/A
Secondary Grounding Provisions: N/A
Metering Current Transformer (CT): Included, (1) per each phase, C200 (10% accuracy @ 20In as per C57.13), 200:5 Ratio & (1) per neutral, C200 (10% accuracy @ 20In as per C57.13), 200:5 Ratio
Metering Panel: N/A
Auxiliary Control Panel : N/A
Load Break Switch: N/A
Load Break Switch Qty: N/A
Load Break Switch Rating: N/A
Load Break Switch Location: N/A
Efficiency Standard(s): Meets DOE 2016 Standards, Meets CSA Standards Meets ANSI/IEEE Standards
K-Factor Rating (Harmonic Mitigation): K-1 (Standard)
Pulse Drive Rating: N/A
Insulation Fluid: Biodegradable Natural Vegetable Oil Ester Insulating Fluid - Non-PCB Fluid
Fluid (Oil) Capacity*: 172 Gallons
Fluid (Oil) Weight*: 781 lbs
Space Heater: Included, Internal, 120V
Liquid Level Indicator: Analog Dial Gauge, w/ (1) low level alarm contact
Temperature Indicator: Analog Dial Gauge, w/ alarm contacts
Vacuum Indicator: Included
Pressure/Vacuum Indicator: Analog Dial Gauge, w/ alarm contacts
Pressure Relief Device: Included, Automatic Action, with alarm contact

Complies with NEMA 260-1996
Complies with CSA C802.1
Complies with CSA C2.1-06
Complies with CSA C50
Complies with CSA C88
Complies with CSA C88.1
Complies with CSA C88-16
Complies with CSA C227.4
Complies with CSA C227.5
Complies with CSA C802-3

Features

Penta-head Bolt Entry Assembly
High-Fire Point Insulating Fluid
Non-PCB Insulating Fluid
Tamper Proof Housing
Hinged Front Compartment Doors, Pad Lockable
NEMA 3R Wiring Compartment
Hot Stick Included, HV Door Mount

Efficiency %: 99.00%

Based on transformer operating at 50% of nameplate base kVA.

Load Losses Based on 85°C Reference Temp.

No Load Loss (in watts): +/- 400W
Full Load Loss (in watts) at 100%: +/- 2,300W
Total Load Loss (in watts) at 100%: +/- 2,700W

Total Losses at 55°C LL Temp. & 20°C NL Temp.

Total Load Loss (in watts) at 50%: +/- 942W

Note: Losses offered are typical only, not guaranteed

Labeling:

Externally Stencilled (Painted) KVA Rating
Externally Stencilled (Painted) Voltage Rating
External Non-PCB Label
External Warning & Danger Label
External Barcode Label
Internal Busing & Accessory Labeling
Stainless Steel Riveted Nameplate

Factory Tests:

Winding Resistance Test
Insulation Resistance Test
Voltage Ratio Error Test
Pressure Integrity Test
Short-circuit Impedance Test
No-load Loss (Wattage) Test

Sudden Pressure Relay: Included , 125 VDC
Gas Sampler Valve: Included, Schrader Valve
Fill Valve: 1" NPT Port w/ Removable Bolt Plug
Fill Valve Location: Front Compartment
Drain Valve: 1" NPT Port w/ 5/8" NPT Sampler Valve
Drain Valve Location: Front Compartment
Winding Material: Copper
Ambient Temperature Rating: 40°C
Ambient Operating Temperature Range: -40°C to +40°C (-50°F to +104°F)
Sound Level: 55 dBA

Elevation (Altitude): 3300ft (1000 meters) Above Sea Level
Core Material: Grain Oriented Steel
Tank Material: Coated Steel
Cabinet Material: Coated Steel
Base Platform Material: Coated Steel
Grounding Pads: NEMA 2-holes, stainless steel
Portability: Lifting lugs, Provisions for Jacking Under Base, w/ Base Construction Suitable for Using Rollers or Skidding
Housing Type: Compartmental Air-Filled Cabinet w/ Locking Doors
Enclosure Rating: NEMA 3R Weatherproof Wiring Cabinet, Sealed Tank
Seismic Rating: Yes
Paint Type: Weatherproof and UV Resistant Epoxy Coating and Undercoating
Finish Color: Munsell™ 7.0 GY 3.29/1.5 Bell Green
Mounting: Pad Mounted
Conduit Opening: Bottom Feed Underground Entry/Exit
HV Compartment Base Wireway Dimensions*: 20"-W x 5"-D
LV Compartment Base Wireway Dimensions*: 16"-W x 5"-D
MV/LV Compartment Cabinet Depth*: 20"-D
Tank Cover Access Handhole: N/A
Dimensions*: 78"-W x 62"-D x 67"-H
Dry Weight (w/o Oil)*: 1820 lb
Total Weight (Liquid Filled)*: 5,100 lb

*Please note that numbers are approximate and subject to change

Load Loss (Wattage) Test
Induced Voltage Withstand Test
Separate Source Voltage Withstand Test

Shipping:

Shipped on pallet on open flatbed
Palletized on Wooden Pallet w/ Skid Pockets
Pallet Skid Facing Outward Sides of Truck
Note: Crated shipping in lieu of palletizing can be done upon request for an additional fee

Special Orders - Special Requirements

Contact us for special requirements
Toll Free: 1-800-369-6671
Intl: 1-903-270-1187
Fax: 1-903-498-3364
E-mail: sales@larsonelectronics.com

The MT-PML-GZ-3P-GNF-500KVA-RT-DF-Z6-BB-CZ-2ZZ-M1 is a 4160V 3 Phase Energy Efficient Pad Mount Zig Zag Grounding Transformer from Larson Electronics is powerful, reliable, and designed with the environment in mind. Suitable for both indoor and outdoor applications, the MT-PML-GZ-3P-GNF-500KVA-RT-DF-Z6-BB-CZ-2ZZ-M1 provides increased reliability and protection against critical equipment failures. The lower operating costs, lower heat emissions, and lower cost of ownership make this transformer ideal for a wide range of applications and businesses.

****PLEASE NOTE: ANY FREE SHIPPING OFFERS DO NOT APPLY TO POWER DISTRIBUTION PANELS, TRANSFORMERS, OR SUBSTATIONS****

Transformer Features: With a transformer rating of 500 KVA, the MT-PML-GZ-3P-GNF-500KVA-RT-DF-Z6-BB-CZ-2ZZ-M1 grounding transformer generates a neutral. On an ungrounded three-phase system, this type of transformer creates a grounded neutral connection which provides a path for ground-fault zero sequence currents. This zig zag transformer is a three phase unit with a nominal voltage of 4160Y/2400 Grounded Wye. Featuring robust construction, this unit's cores are manufactured with non-aging, cold-rolled silicon steel laminations using state of the art technology.

This unit boasts a low cost of ownership and is highly energy efficient. Lower heat emissions mean less cooling is needed as well. The Standard NEMA Type 3R enclosure makes the unit

suitable for both indoor and outdoor applications and it can be pad mounted. The unit also features mineral oil cooling, class A insulation, a 65°C temperature rise. The MT-PML-GZ-3P-GNF-500KVA-RT-DF-Z6-BB-CZ-2ZZ-M1 is designed so that no excess oil heating occurs from unbalanced loads or phase loss on the primary side.

Enclosure Design: This pad mounted transformer is a compartmental design. The tank and housing are fabricated from steel. The front electrical enclosure carries a NEMA 3R rating. The high voltage and low voltage compartments are located in front of the transformer tank, with the high voltage compartment on the left side and low voltage compartment on the right side. The HV and LV compartments are air filled and separated by a full length steel barrier between the compartments. A removable steel plate at the base of the HV and LV compartments prevents rodents and other intrusions from entering the enclosure once installed. This steel plate allows for underground conduit entry into the enclosure compartments. Two hinged exterior doors allows for access into the compartments. A single pad lockable handle on the low voltage compartment door allows for securing the transformer. A spring loaded pin within the low voltage compartment prevents the high voltage door from being opened without pulling the safety pin. A hot stick is included in the high voltage compartment, mounted to the HV door.

Insulation Fluid: The MT-PML-GZ-3P-GNF-500KVA-RT-DF-Z6-BB-CZ-2ZZ-M1 grounding transformer features biodegradable cooling fluid (KNAN) with a capacity of 167 gallons. We offer transformers with FR-3 oil fluid, if needed.

Biodegradable Fluid: Biodegradable cooling fluid (vegetable oil) has a higher heat capacity compared to mineral oil, making the liquid safer to use and more reliable during operations. Vegetable oil has a higher flash point and fire point than mineral oil, hydrocarbon oil, silicone oil and synthetic ester. This cooling fluid is also non-toxic and can tolerate higher breakdown voltages than mineral oil. When operating at high temperatures, biodegradable cooling liquid sustains up to 120% load conditions, which helps preserve the transformer's lifespan and performance.

Gauges: The following gauges are included with the system: liquid level, temperature, and pressure/vacuum gauges. Standard liquid level, temperature, and pressure/vacuum gauges are analog, manual reading types. These gauges have auxiliary contacts.

Fault Pressure Devices: This zig zag transformer features an automatic action fault pressure device. Fault pressure devices are used to detect high rates of pressure rise within the tank.

Rapid Rise Relay: There is a rapid rise relay (Sudden pressure relay)-125 Vdc on the unit. This safety component is designed for protection when a rapid increase in tank pressure occurs. The relay is suitable for detecting sudden pressure fluctuations above predetermined safe limits.

Valves: The MT-PML-GZ-3P-GNF-500KVA-RT-DF-Z6-BB-CZ-2ZZ-M1 is equipped with a pressure relief valve, fill valve, and drain valve with sampler port.

Load Break Switch: This grounding transformer is not equipped with load break switches.

Benefits: The MT-PML-GZ-3P-GNF-500KVA-RT-DF-Z6-BB-CZ-2ZZ-M1 pad mount zig zag transformer offers many benefits to the consumer. Precision cut copper transformer winding

material help to improve performance. The close tolerances used during manufacturing also eliminates burrs which hinder performance. Each core is specially coated to prevent the ingress of moisture and are electrically balanced to minimize axial forces during short circuit situations.

This transformer provides owners with significant energy savings as well as offering environmental benefits. Higher efficiency not only extends the life of the transformer, but also turn into cost savings for owners in the form of lower energy bills and decreased cost of ownership.

Applications: Grounding transformer purposes.

Larson Electronics is a manufacturer and as such can build stationary and portable transformer systems to your specifications. Although we carry several models of power distribution transformer systems, we can deliver custom ordered units almost as quickly as our prebuilt units. If this model does not meet your needs, please contact us at 1-800-369-6671 or sales@larsonelectronics.com to discuss your specific requirements.



Frequently Asked Questions (FAQ)

There are no Faqs



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Export Control Classification Number (ECCN): EAR99



Links (Click on the below items to view):

- **Operations Manual** (<https://www.larsonelectronics.com/images/product/Manual/308803.PDF>)
- **HigResPic1** (<https://www.larsonelectronics.com/images/product/HigResPic1/308803.JPG>)
- **HigResPic2** (<https://www.larsonelectronics.com/images/product/HigResPic2/308803.JPG>)
- **HigResPic3** (<https://www.larsonelectronics.com/images/product/HigResPic3/308803.JPG>)
- **HigResPic4** (<https://www.larsonelectronics.com/images/product/HigResPic4/308803.JPG>)
- **HigResPic5** (<https://www.larsonelectronics.com/images/product/HigResPic5/308803.JPG>)
- **HigResPic6** (<https://www.larsonelectronics.com/images/product/HigResPic6/308803.JPG>)
- **HigResPic7** (<https://www.larsonelectronics.com/images/product/HigResPic7/308803.JPG>)
- **HigResPic8** (<https://www.larsonelectronics.com/images/product/HigResPic8/308803.JPG>)
- **HigResPic9** (<https://www.larsonelectronics.com/images/product/HigResPic9/308803.JPG>)
- **HigResPic10** (<https://www.larsonelectronics.com/images/product/HigResPic10/308803.JPG>)
- **Video1** (<https://www.youtube.com/watch?v=4-JEyYeYcn8>)
- **ISO 9001 Certification** (<http://larsonelectronics.com/images/pdfdocs/ISO9001.PDF>)
- **Business Certificate** (<https://www.larsonelectronics.com/images/pdfdocs/w9.PDF>)
- **Shipping Time Map** (<https://www.larsonelectronics.com/images/product/ShippingTimeMap/ShippingTimeMap.pdf>)