

MT-PML-R4-3P-DMR-13MVA-DVD-LT-DF-A6-BF-CZ-2C6-M1

13 MVA Step Up Pad Mount Transformer - 12470V Delta Primary, 25000V Delta Secondary - KNAN/Bell Green

Product ID: 317092

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



Image: MT-PML-R4-3P-DMR-13MVA-DVD-LT-DF-A6-BF-CZ-2C6-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-R4-3P-DMR-13MVA-DVD-LT-DF-A6-BF-CZ-2C6-M1 Pad Mount Transformer

Transformer Type: Pad Mounted, Compartmental-Type

Transformer Configuration: Liquid Filled Pad Mounted

Transformer Feed Type: Loop Feed

Operation: Step-Up Operation (Reverse Feed) or Step Down Operation

Phase: Three Phase

Capacity: 13 MVA (13000 KVA)

Vector Group: Dd0

Primary Voltage: 12470V

Primary Voltage Class: 15 kV Class

Primary Phasor: Delta

Primary BIL: 95 KV

Secondary Voltage: 25000V

Secondary Voltage Switch: N/A

Secondary Voltage Class: 25 kV Class

Secondary Phasor: Delta

Secondary BIL: 125 KV

Frequency: 60 Hz

Temperature Rise: 65°C

Insulation Rating: Class E Insulation - 120°C, 248°F

Cooling Class: KNAN; Self-Cooled

Ratings

Meets/Exceeds DOE 2016 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 C62.11

Complies with ASTM D3487

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

Electrostatically Shielded

Efficiency %: 98.00%

Based on transformer operating at 50% of nameplate base

Forced Air (Fans): None

Tap Changer: 5-position De-energized Tap Changer, Manual Type

Tap Qty: (2) FCAN Above Taps, (2) FCBN Below Taps

Tap %: 2.5%

Tap Changer Switch Rating: 600-Amp, 25 kV

Tap Changer Switch Location: High Voltage (HV) Front Compartment

Impedance: 5.75% $\pm$ 1.5%

Primary Connection Type: Live Front

Primary Termination Arrangement: Staggered Terminal Arrangement

Primary Connections: NEMA Spade Terminals, 14-Hole Spade, Externally Clamped, Accepts Up to (14) Double Lug Connections with (7) Cables per Side of Spade Connector

Primary Connection Qty: (4) Externally Clamped One-Piece Epoxy Bushings Copper Threaded Studs

Primary Neutral Connection: (1) X0 Neutral Grounded to Tank via 1/2"-13 UNC Tapped Hole, 7/16" Deep Bung & Copper Ground Strap

Primary Overcurrent Protection (OCP): N/A

Primary Grounding Provisions: Predrilled rectangular bar of annealed copper, 1/4 by 4 inches in cross section, min. 12 inch long, with 9/32-inch holes spaced 1-1/8 inches apart. Stand-off insulators for mounting shall comply with UL 891 for use in switchboards, 600 V and shall be Lexan or PVC, impulse tested at 5000 V

Primary Connection Supports: Phenolic Spade End Supports

Secondary Connection Type: Dead Front

Secondary Termination Arrangement: V Terminal Arrangement

Secondary Termination: Externally Clamped Integral Bushings w/ Removable Studs, 600A Load Break Elbows w/ Inserts. Size for 4/0 AWG Cable

Secondary Connection Qty: (6) Primary Connections for use w/ Elbow Connectors

Secondary Parking Stand Qty: (6) Welded Brackets for Installing Accessory Parking Stand Bushings

Secondary Bushing Rating: 25 kV Class, 125 kV BIL, 600A, Load Break

Secondary Neutral Connection: N/A

Secondary Surge Arrestors: Included, (3) High Voltage Elbow Surge Arrestors

Secondary Surge Arrestor Voltage Rating: 27 kV Class Elbow Arrestor

Secondary Surge Arrestor MCOV Rating: 22 kVrms

Secondary Overcurrent Protection (OCP): Bayonet Expulsion Fuses, In Series with Partial Range Current Limiting Fuses (150 kV BIL, 50 kA Symmetrical Interrupting Rating)

Secondary Overcurrent Protection Method: Fused, Oil-Immersed

Secondary Overcurrent Protection Holder: Bayonet Fuse Holder w/ Drip Shield

Secondary Grounding Provisions: Predrilled rectangular bar of annealed copper, 1/4 by 4 inches in cross section, min. 12 inch long, with 9/32-inch holes spaced 1-1/8 inches apart.

Stand-off insulators for mounting shall comply with UL 891 for use in switchboards, 600 V and shall be Lexan or PVC, impulse tested at 5000 V

Metering Current Transformer (CT): N/A

Metering Panel: N/A

Auxiliary Control Panel: N/A

Load Break Switch: 2-Position Load Break Switch

Load Break Switch Qty: (3)

Load Break Switch Rating: 600-Amp, 25 kV, 12 kA Make-And-Latch Rating

Load Break Switch Location: High Voltage (HV) Front Compartment

Efficiency Standard(s): Meets DOE 2016 Standards, Meets ANSI/IEEE Standards

K-Factor Rating (Harmonic Mitigation): K-1 (Standard), Complying with UL 1562.

Pulse Drive Rating: N/A

Insulation Fluid: FR-3 Insulating Fluid, Non-PCB Fluid

Fluid Capacity*: 1,320 Gallons

Fluid Weight*: 10,164 lbs

Liquid Level Indicator: Magnetic Analog Dial Gauge, with high and low alarm contacts

Temperature Indicator: Analog Dial Gauge, with alarm contacts

Pressure/Vacuum Indicator: Analog Dial Gauge w/ (2) Dry Type Form C Auxiliary Contacts

kVA.

Load Losses Based on 85°C Reference Temp.

No Load Loss (in watts): +/- 15,778W

Full Load Loss (in watts) at 100%: +/- 52,279W

Total Load Loss (in watts) at 100%: +/- 68.069W

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

Total Load Loss (in watts) at 50%: +/- 29,140W

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

Short-circuit Impedance Test

No-load Loss (Wattage) Test

Load Loss (Wattage) Test

Induced Voltage Withstand Test

Separate Source Voltage Withstand Test

Pressure Integrity Test

Dissolved Gas Analysis

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

for Remote Alarms (1NO + 1NC) located in Aux Control Cabinet

Pressure Relief Device: Included, Automatic Action

Sudden Pressure Relay: Included, with seal-In Relay

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

Sound Level: 67 dBA

Elevation Rating: 3300ft (1000 meters) Above Sea Level

Core Material: Grain Oriented Steel

Tank Material: Coated Steel

Cabinet Material: Coated Steel

Base Platform Material: Coated Steel

Portability: Lifting Lugs on Top & Side, Provisions for Jacking Under Base, w/ Base Construction Suitable for Using Rollers or Skidding

Housing Type: Compartmental Air-Filled Cabinet w/ Locking Doors, HV Compartment Left, LV Compartment Right, Steel Barrier Separation, HV Door Spring-Loaded Release Pin in LV Compartment

Cooling Fins: Rear Mounted Only

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: HV - Bottom Feed Underground Entry/Exit, LV - Base Side Opening Entry/Exit with Roxtec Assembly Kit Number 225469

HV Compartment Base Wireway Dimensions*: 21"-W x 8"-D

LV Compartment Base Wireway Dimensions*: 28"-W x 11"-D

MV/LV Compartment Cabinet Depth*: 30"

Tank Cover Access Handhole: 19" x 15" Bolted Tank Access Hole on Top of Tank Lid

Dimensions: 96"-W x 108"-D x 94"-H

Dry Weight (w/o Oil)*: 25,387 lbs

Total Weight (Liquid Filled)*: 27,356 lbs

*Please note that numbers are approximate and subject to change

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-R4-3P-DMR-13MVA-DVD-LT-DF-A6-BF-CZ-2C6-M1 from Larson Electronics is a Step Up Pad Mount Transformer that offers powerful, reliable, and efficient power distribution in indoor, outdoor, and public locations. The low operating costs, low heat emissions, and low cost of ownership make this transformer ideal for a wide range of applications and businesses. An enclosed design caters to installations on concrete pads without protective fencing.

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

Transformer Features: With a transformer rating of 13000 KVA (13 MVA), the industrial transformer features a primary voltage of three-phase 12470V Delta and a secondary voltage of three-phase 25000V Delta. This transformer is designed for reverse feed applications, including stepping up low voltage output for feeding to the local utility grid.

The unit has a secondary loop feed for dual installations and live-front primary connections. This step up transformer features a 5-position tap changer on the secondary side with two

+2.5% taps above and two -2.5% taps below to allow small changes in voltage.

Copper transformer winding material helps improve performance, reduce weight, and lower cost. Compared to aluminum, copper windings have lower eddy losses due to higher resistivity. This transformer consists of a rectangular coil and a five-legged wound core design with three coils and four core loops (this is for three-phase transformers only; single-phase units have one coil and two core loops).

The MT-PML-R4-3P-DMR-13MVA-DVD-LT-DF-A6-BF-CZ-2C6-M1 is air cooled and does not have fans or mounting provisions for fans.

Enclosure Design: This pad mounted transformer is a compartmental design. It features an individual high voltage compartment with locking cabinet on the front of the transformer. The high voltage compartment is flanked on either side by low voltage locking compartments; one on the left side and one on the right side. The low voltage cabinets each feature two wireway cable tray cutouts which include a removable block plate. This allows operators to install a single wireway tray and have the other cutout block off when not in use. A separate accessory cabinet with locking door is mounted above the high voltage compartment. The accessory cabinet holds gauges and the fill valve. The tank and housing are fabricated from steel. The enclosure carries a NEMA 3R rating. A hot stick is included in the high voltage compartment, mounted to the HV door.

Temperature Rise: This unit features 65°C temperature rise for reduced heat waste, increased reliability and longer life. At 65°C temperature rise, the transformer offers 13000 KVA (13 MVA). The transformer meets standard efficiency requirements. The combination of low temperature rise and high efficiency makes this unit suitable for use in electrical rooms, air conditioned spaces in buildings, underground vaults, and similar locations, in addition to outdoor areas.

Insulation Fluid: The MT-PML-R4-3P-DMR-13MVA-DVD-LT-DF-A6-BF-CZ-2C6-M1 features FR-3 cooling fluid (KNAN) with a capacity of 1,320 gallons. We offer transformers with biodegradable 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 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 are no rapid rise relays 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.

Surge arresters: This system comes with high elbow surge arresters on the secondary (medium voltage) side. Designed for over-voltage and transient voltage protection, the components prevent damage caused by lightning, internal switching or voltage surges. We can offer models without high elbow surge arresters that have mounting provisions for customer-provided surge arresters.

Valves: The MT-PML-R4-3P-DMR-13MVA-DVD-LT-DF-A6-BF-CZ-2C6-M1 is equipped with a pressure relief valve, fill valve, and drain valve with sampler port.

Load Break Switch: This transformer is equipped with three independently operated 2-position load break switches on the secondary (medium voltage) side. One is for the transformer, one is for the secondary A lines, and one is for the secondary B lines.

Protection Fuses: This transformer is equipped with bayonet fuses on the secondary (medium voltage) side. For units without protection fuses, upstream protection is provided. We recommend provisions for protection fuses when possible, as blown fuses may require more frequent oil changes.

Mount: The heavy-duty enclosure makes the unit suitable for both indoor and outdoor applications. This power distribution system can be pad mounted on concrete pads.

Benefits: The MT-PML-R4-3P-DMR-13MVA-DVD-LT-DF-A6-BF-CZ-2C6-M1 pad mount transformer offers many benefits to consumers. 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 turns into cost savings for owners in the form of lower energy bills and decreased cost of ownership.

Applications: BESS (Battery Energy Storage System) systems such as the Tesla Megapack XL system.

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 Fags

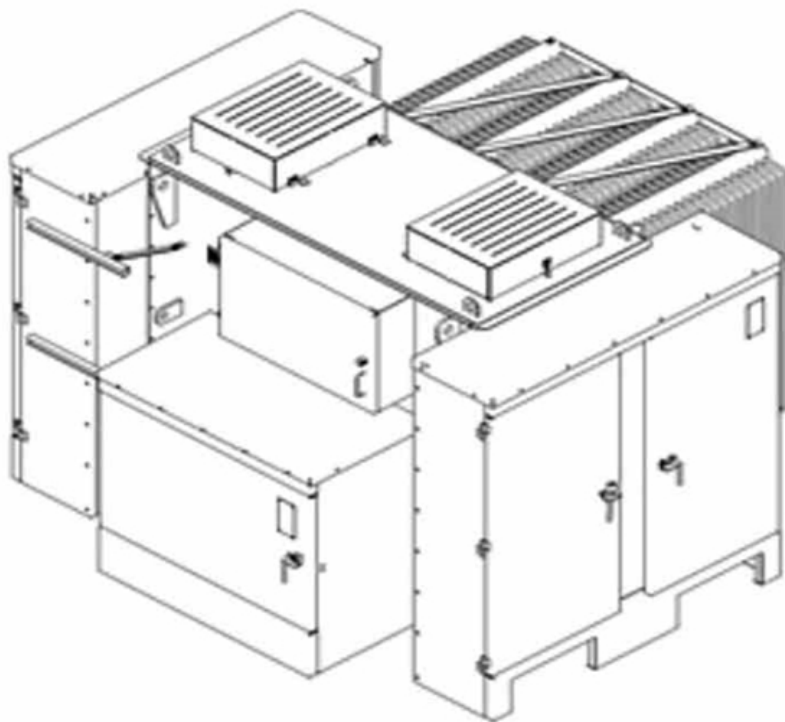


Image: MT-PML-R4-3P-DMR-13MVA-DVD-LT-DF-A6-BF-CZ-2C6-M1



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Export Control Classification Number (ECCN): EAR99



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- **Video1**(<https://www.youtube.com/watch?v=KlZsyVtvSWM>)
- **Video2**(<https://www.youtube.com/watch?v=mN2qPmdLwW4>)
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