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MT-PML-R4-3P-DE-500KVA-GMP-LT-DF-A6-BM-CS-2B6-M1

500 KVA Solar Step Up Pad Mount Transformer - 480V Delta Primary, 13800Y/7970 Grounded Wye Secondary - Copper, Mineral Oil/ONAN, 304 Stainless Steel, Bell Green

Product ID: 327326

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



Image: MT-PML-R4-3P-DE-500KVA-GMP-LT-DF-A6-BM-CS-2B6-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-DE-500KVA-GMP-LT-DF-A6-BM-CS-2B6-M1 3PH Solar Step Up Pad Mount Transformer

Transformer Type: Pad Mounted, Compartmental-Type
Transformer Configuration: Liquid Filled Pad Mounted
Transformer Feed Type: Loop Feed
Phase: Three Phase
Capacity: 500 KVA
Vector Group: YNd1
Primary Voltage: 480V
Primary Voltage Class: 1.2 kV Class
Primary Phasor: Delta
Primary BIL: 30 kV
Secondary Voltage: 13800Y/7970
Secondary Voltage Class: 15 kV Class
Secondary Phasor: Grounded Wye
Secondary BIL: 60 kV

Frequency: 60 Hz

Temperature Rise: 65°C
Cooling Class: ONAN; Self-Cooled
Forced Air (Fans): None

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 12.34
Complies with ANSI / IEEE C57.12.70
Complies with ASTM D3487
Penta-head Entry Assembly
High-Fire Point Natural Ester Insulating Fluid
Non-PCB Insulating Fluid
Tamper Proof Housing
Hinged Front Compartment Doors, Pad Lockable
Hot Stick Included, HV Door Mount

Efficiency %: 99.10%
Based on transformer operating at 50% of nameplate base kVA.

Load Losses Based on 85°C Reference Temp.
No Load Loss (in watts): +/- 700W

Tap Changer: 5-Position Tap Changer
Tap Qty: (2) FCAN Above Taps, (2) FCBN Below Taps
Tap %: 2.5%
Tap Changer Switch Location: Secondary (Medium Voltage) Side
Impedance: 5.0-7.5% Typical
Primary Connection Type: Live Front w/ End Supports for Spade Terminals
Primary Connections: NEMA Spade Terminals, 6-Hole Spade, Externally Clamped, Accepts up to (6) Double Lug Connections with (3) Cables per side of Spade Connector. Size for 4/0 AWG Cable.
Primary Connection Qty: (3), Staggered Terminal Arrangement
Primary Overcurrent Protection (OCP): N/A
Secondary Connection Type: Dead Front w/ Ground Strap
Secondary Termination Arrangement: V Terminal Arrangement
Secondary Termination: Externally Clamped Well Bushings w/ Removable Studs, 200A Load Break Elbows w/ Inserts
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: 15 kV Class, 60 kV BIL, 200A, Load Break, IEEE 386 Color Red
Secondary Surge Arrestors: Included, (3) High Voltage Elbow Surge Arrestors
Secondary Surge Arrestor Voltage Rating: 15 kV
Secondary Surge Arrestor MCOV Rating: 12.7 kV
Secondary Overcurrent Protection (OCP): Bayonet Fuses
Secondary Overcurrent Protection Method: Fused
Secondary Overcurrent Protection Holder: Bayonet Fuse Holder w/ Drip Shield
Grounding Provisions: (1) Grounding Lug
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 Location: Secondary (Medium Voltage)
Efficiency Standard(s): Meets DOE 2016 Standards, Meets ANSI/IEEE Standards
K-Factor Rating (Harmonic Mitigation): K-1 (Standard)
Pulse Drive Rating: N/A
Insulation Fluid: Mineral Oil Insulating Fluid, Non-PCB Fluid
Fluid Capacity: 167 Gallons
Fluid Weight: 1,281 Lbs
Liquid Level Indicator: Analog Dial Gauge
Temperature Indicator: Analog Dial Gauge
Pressure/Vacuum Indicator: Analog Dial Gauge
Pressure Relief Device: Included, Automatic Action
Fill Valve: Removable Bolt
Fill Valve Location: Front Compartment
Drain Valve: Included, Drain Valve w/ Sampler
Drain Valve Location: Front Compartment
Winding Material: Copper
Ambient Temperature Rating: 40°C
Sound Level: 56 dBA
Elevation Rating: 3300ft (1000 meters) Above Sea Level
Core Material: Grain Oriented Steel
Tank Material: 304 Stainless Steel
Cabinet Material: 304 Stainless Steel
Base Platform Material: 304 Stainless Steel
Enclosure Rating: NEMA 3R Weatherproof
Housing Type: Compartmental Air-Filled Cabinet w/ Locking Doors, HV Compartment Left, LV Compartment Right, Steel Barrier Separation
Paint Type: Weatherproof and UV Resistant Epoxy Coating and Undercoating
Finish Color: Munsell™ 7.0 GY 3.29/1.5 Bell Green

Full Load Loss (in watts) at 100%: +/- 5,000W
Total Load Loss (in watts) at 100%: +/- 5,700W

Total Losses at 55°C LL Temp. & 20°C NL Temp.
Total Load Loss (in watts) at 50%: +/- 1,889W
Note: Losses offered are typical only, not guaranteed

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

Special Orders - Special Requirements
Contact us for special requirements

Mounting: Pad Mounted
Conduit Opening: Bottom Feed Underground Entry/Exit
Dimensions: 63"-W x 61"-D x 71"-H
Weight: 4,802 Lbs
*Please note that numbers are approximate and subject to change

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The MT-PML-R4-3P-DE-500KVA-GMP-LT-DF-A6-BM-CS-2B6-M1 from Larson Electronics is a Solar 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. The MT-PML-R4-3P-DE-500KVA-GMP-LT-DF-A6-BM-CS-2B6-M1 is designed to step up power fed to it from renewable energy sources and feed that current to the grid.

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

Transformer Features: With a dual transformer rating of 500 KVA, the industrial transformer features a primary voltage of three-phase 480V Delta and a secondary voltage of three-phase 13800Y/7970 Grounded Wye. This transformer is designed for reverse feed applications, including stepping up low voltage output from solar inverters for feeding to the local utility grid. The MT-PML-R4-3P-DE-500KVA-GMP-LT-DF-A6-BM-CS-2B6-M1 is ideal for use in renewable energy systems. It is designed to take power fed to it from customer provided solar inverters that are part of renewable energy systems, such as solar panel fields, step up that current, and feed it into the electrical grid.

The unit has a secondary loop feed for daisy chain installations and dead-front secondary connections. This solar 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.

The system features copper windings for high strength and thermal/electrical conductivity. 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-DE-500KVA-GMP-LT-DF-A6-BM-CS-2B6-M1 is air cooled and does not have fans or mounting provisions for fans.

Enclosure Design: This pad mounted transformer is a compartmental design. The tank and housing are fabricated from stainless 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 allow 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.

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 500 KVA. 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-DE-500KVA-GMP-LT-DF-A6-BM-CS-2B6-M1 features mineral oil cooling fluid (ONAN). We offer transformers with biodegradable or FR-3 oil fluids, 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% loan 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 do not 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-DE-500KVA-GMP-LT-DF-A6-BM-CS-2B6-M1 is equipped with a pressure relief valve, fill valve, and drain valve with sampler port.

Load Breaker Switch: The transformer is equipped with a load break switch [(3) two-position load break switch].

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-DE-500KVA-GMP-LT-DF-A6-BM-CS-2B6-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: Solar step up power distribution, solar panels, electric power distribution, utilities, reverse feed solar, and more.

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.

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Frequently Asked Questions (FAQ)

There are no Faqs

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