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## MT-PML-R7-3P-DRL-1.5MVA-GC-LT-DF-A6-BMF-CZ-1B6-M1

# 1.5 MVA Pad Mount Transformer - 11500V Delta Primary, 600Y/347 Grounded Wye Secondary - ONAN/ONAF - Bell Green

**Product ID: 331147**

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



Image: MT-PML-R7-3P-DRL-1.5MVA-GC-LT-DF-A6-BMF-CZ-1B6-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-R7-3P-DRL-1.5MVA-GC-LT-DF-A6-BMF-CZ-1B6-M1 3PH Pad Mount Transformer**

**Transformer Type:** Pad Mounted, Compartmental-Type
**Transformer Configuration:** Liquid Filled Pad Mounted
**Transformer Feed Type:** Loop Feed
**Phase:** Three Phase
**Capacity:** 1.5 MVA (1500 KVA)
**Vector Group:** Dyn11
**Primary Voltage:** 11500V
**Primary Voltage Class:** 15 kV Class
**Primary Phasor:** Delta
**Primary BIL:** 95 KV
**Secondary Voltage:** 600Y/347
**Secondary Voltage Class:** 1.2 kV Class
**Secondary Phasor:** Grounded Wye
**Secondary BIL:** 30 KV
**Frequency:** 60 Hz
**System Fault Current:** 25 $kA_{RMS}$, 3 sec.
**Minimum Creepage Distance:** 25 mm/kV
**Insulation System Class:** Class 120°C (Class E) Thermally Upgraded Paper Insulation

**Ratings**

Complies with ANSI / IEEE C57.12.70
Complies with ANSI / IEEE C57.12.00
Complies with ANSI / IEEE C57 12.28
Complies with ANSI / IEEE C57 12.34
Complies with ASTM D3487
Hot Stick Included, HV Door Mount
Penta-head Entry Assembly
High-Fire Point Insulating Fluid
Non-PCB Insulating Fluid
Tamper Proof Housing
Hinged Front Compartment Doors, Pad Lockable
40 Years Design Life

**Avg Winding Temperature Rise Above Max Ambient:** 65°C
**Max (Hottest Spot) Temp Rise Above Max Ambient:** 80°C
**Max Top-Oil Temp Rise Above Max Ambient:** 65°C
**Cooling Class:** ONAN/ONAF; Self-Cooled/Fan-Cooled
**Forced Air (Fans):** Included
**Anti-Condensation Space Heaters:** Included, Rated 240 VAC, Operate at 120 VAC
**Tap Changer:** 5-position Tap Changer
**Tap Qty:** (2) FCAN Above Taps, (2) FCBN Below Taps
**Tap %:** 2.5%
**Tap Changer Switch Location:** High Voltage (HV) Front Compartment
**Impedance:** 5.0-7.5% Typical, 5.75% Target
**Harmonic Factor:** Capable of carrying Harmonic Currents up to 5% PU per IEC 60076-1
**Primary Connection Type:** Dead Front
**Primary Termination:** Standoff Well Bushings w/ Removable Studs, 600A Dead Break Elbows
**Primary Connection Qty:** (6) Primary Connections w/ (6) Standoff Brackets for Parked Elbows
**Primary Surge Arrestors:** N/A
**Primary Surge Arrestor Voltage Rating:** N/A
**Primary Surge Arrestor MCOV Rating:** N/A
**Primary Overcurrent Protection (OCP):** Bayonet Fuses
**Primary Overcurrent Protection Method:** Fused
**Primary Overcurrent Protection Holder:** Bayonet Fuse Holder w/ Drip Shield
**Primary Current Transformers:** Included, (2) Per Phase, Bushing Type, 2000:5A, MR, 5P20 Accuracy Class, 15VA, 2.0 RF, w/ Shorting Type Terminals
**Secondary Connection Type:** Live Font
**Secondary Connections:** NEMA Spade Terminals, 6-Hole Spade, Externally Clamped, Accepts up to (3) Double Lug connections with (3) cables per side of Spade connector
**Secondary Connection Qty:** (4), Staggered Terminal Arrangement
**Secondary Overcurrent Protection (OCP):** N/A
**Secondary Line Current Transformers:** Included, (2) Per Phase, Bushing Type, 2000:5A, MR, 5P20 Accuracy Class, 100VA, 2.0 RF, w/ Shorting Type Terminals
**Secondary Neutral Current Transformers:** Included, (2) Bushing Type, 2000:5A, MR, 5P20 Accuracy Class, 15VA, 2.0 RF, w/ Shorting Type Terminals
**Grounding Provisions:** (1) Grounding lug
**Metering Current Transformer (CT):** N/A
**Metering Panel:** N/A
**Auxiliary Control Panel:** 120/240 VAC, 1-Ph and 125 VDC
**Load Break Switch:** 2-Position Load Break Switch
**Load Break Switch Qty:** (3)
**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)
**Pulse Drive Rating:** N/A
**Insulation Fluid:** Mineral Oil Insulating Fluid, Type II, Non-PCB Fluid
**Fluid Capacity:** 281 Gallons
**Liquid Level Indicator:** Analog Dial Gauge
**Temperature Indicator:** Analog Dial Gauge
**Pressure/Vacuum Indicator:** Analog Dial Gauge
**Pressure/Vacuum Bleeder:** Included
**Vacuum Connection for Vacuum Pump:** Included, Separated from the Upper Filter Valve
**Pressure Relief Device:** Included, Automatic Action
**Sudden Pressure Relay:** Included
**Fill Valve:** Removable Bolt
**Fill Valve Location:** Front Compartment
**Drain Valve:** Included, Drain Valve w/ Sampler

**Efficiency %:** 99.30%
*Based on transformer operating at 50% of nameplate base kVA.*

**Load Losses Based on 85°C Reference Temp.**
**No Load Loss (in watts):** +/- 1,900W
**Full Load Loss (in watts) at 100%:** +/- 10,500W
**Total Load Loss (in watts) at 100%:** +/- 12,400W

**Total Losses at 55°C LL Temp. & 20°C NL Temp.**
**Total Load Loss (in watts) at 50%:** +/- 4,375W

***Note:*** Losses offered are typical only, not guaranteed

**Drain Valve Location:** Front Compartment
**Winding Material:** Copper
**Winding Type:** Wire Wound, Rectangular
**Ambient Temperature Rating:** -35°C to +40°C
**Sound Level:** 60 dBA, Less than NEMA TR-1 2013
**Elevation Rating:** 3300ft (1000 meters) Above Sea Level
**Wind Velocity:** 60 mph together with a gust factor 1.2 plus a coating of 12.5 mm thick ice, 90 mph with a gust factor 1.2 and no ice
**Relative Humidity:** 10-90%, Non-condensing
**Core Material:** Grain Oriented Steel
**Tank Material:** Coated Steel
**Cabinet Material:** Coated Steel
**Base Platform Material:** Coated 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
**Mounting:** Pad Mounted
**Conduit Opening:** Bottom Feed Underground Entry/Exit
**Dimensions:** 75"-W x 73"-D x 73"-H
**Weight:** 9,800 lbs
*Please note that numbers are approximate and subject to change

**Special Orders - Special Requirements**
Contact us for special requirements
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**The MT-PML-R7-3P-DRL-1.5MVA-GC-LT-DF-A6-BMF-CZ-1B6-M1 from Larson Electronics is an Industrial 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 1500 KVA (1.5 MVA), the industrial transformer features a rated primary voltage of three-phase 11500V Delta and a secondary voltage of three-phase 600Y/347 Grounded Wye. The unit has a primary loop feed for daisy chain installations and dead-front primary connections. This transformer features a 5-position tap changer 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-R7-3P-DRL-1.5MVA-GC-LT-DF-A6-BMF-CZ-1B6-M1 has fans for forced air cooling.

**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 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 1500 KVA (1.5 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-R7-3P-DRL-1.5MVA-GC-LT-DF-A6-BMF-CZ-1B6-M1 features mineral oil cooling fluid (ONAN/ONAF) with a capacity of 281 gallons. 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 doesn't come with high elbow surge arresters on the primary 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.

**Load Break Switch:** This transformer is equipped with three independently operated 2-position load break switches. One is for the transformer, one is for the Primary A lines, and one is for the Primary B lines.

**Valves:** The MT-PML-R7-3P-DRL-1.5MVA-GC-LT-DF-A6-BMF-CZ-1B6-M1 is equipped with a pressure relief valve, fill valve, and drain valve with sampler port.

**Protection Fuses:** This transformer contains protection fuses. 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-R7-3P-DRL-1.5MVA-GC-LT-DF-A6-BMF-CZ-1B6-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:** General purposes, industrial sites, electrical rooms, underground vaults, manufacturing facilities, steel plants, offshore, commercial, military, processing plants, electric power distribution, utilities, public locations, 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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**Export Control Classification Number (ECCN):** EAR99

Links (Click on the below items to view):

- **Operations Manual**( https://www.larsonelectronics.com/images/product/Manual/331147.PDF )
- **HigResPic1**( https://www.larsonelectronics.com/images/product/HigResPic1/331147.JPG )
- **HigResPic2**( https://www.larsonelectronics.com/images/product/HigResPic2/331147.JPG )
- **HigResPic3**( https://www.larsonelectronics.com/images/product/HigResPic3/331147.JPG )
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- **HigResPic10**( https://www.larsonelectronics.com/images/product/HigResPic10/331147.JPG )
- **Video1**( https://www.youtube.com/watch?v=KIzsyVtvSWM )
- **Video2**( https://www.youtube.com/watch?v=mN2qPmdLwW4 )
- **ISO 9001 Certification**( http://larsonelectronics.com/images/pdfdocs/ISO9001.PDF )
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