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MT-PML-3P-13800D-500KVA-440Y.254-N3R

500 kVA Pad Mount Transformer - 13800V Delta Primary- 440Y/254 Wye-N Secondary- Oil Cooled- NEMA 3R

Product ID: 272721

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



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-3P-13800D-500KVA-440Y.254-N3R Pad Mount Transformer

Phase: Three Phase
Frequency: 60Hz
kVA: 500
Primary Voltage: 13800V Delta
Primary kV Class: 15kV
Primary Connection: Delta
Primary BIL: 95kV
Primary FCAN: 2 x 2.5%
Primary FCBN: 2 x 2.5%
Tap Changer: 100 Amp 5-Position Tap Changer
Tap Changer:
Primary Bushings: (6) 200 amp Cooper bushing wells with removable studs
Inserts: (6) 15 kV, 95 kV BIL Cooper load-break inserts
Load Breaking Switch: 15 kV, 630A 4-Position T-blade
Arresters: No
Overcurrent Protection: (3) Bayonet fuse in series with Partial-Range Current-Limiting Fuses
Expulsion Fuses: (3) Bayonet fuses
Bayonet Holder: (3) Copper Bayonet Fuse Holder
Secondary Voltage: 440Y/254V Wye
Secondary Connection: Wye
Secondary kV Class: 1.2kV
Secondary BIL: 30kV
Secondary Bushings: (4) 1" copper stud with 6-hole screw-on spade bushings

Ratings

Listed for United States and Canada
KNAN Cooling
IP24 Rated
Mineral Oil Filled
Dead Front
Loop Feed

On/Off Switch: Internal oil immersed gang operated On-Off switch
Selector Switch: A+B or AB selector switch for primary side
Accessories: Liquid Level Gauge
Accessories: Thermometer, dial-type
Accessories: Drain Valve with sampler in LV Compartment (1in)
Accessories: Schrader Valve
Accessories: Pressure relief device, 50 SCFM
Accessories: 1" Fill Valve
Tank Accessories: IEEE standard one-hole ground pads
Tank Accessories: Nitrogen Blanket
Cover: Bolted cover
Winding Material: Copper
Efficiency Standard: DOE 2010, 10 CFR Part 431
Cooling Class: KNAN
Insulating Fluid: Envirotemp FR3 Mineral Oil
Insulation Class: 105°C
Temperature Rise: 65°C
Ambient Temperature Rating: 40°C
Sound Level: NEMA TR1 Standard
Elevation: 1000M Above Sea Level
IEEE K-Dimension: Loop feed per IEEE C57.12.34-2009 Figure 11 minimum dimensions (without bails)
Cabinet: 20" Deep Cabinet
Cabinet Construction: Stainless Steel
Cabinet Hardware: Penta-Head Cabinet Door Bolts
Finish: Munsell Green (Munsell 7GY 3.29/1.5) Topcoat
Dimensions: (Approx) 50.00"H x 79.00"W x 52.00"D
Weight: 4400 lbs
Mounting: Pad Mount

Special Orders - Special Requirements
Contact us for special requirements

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The MT-PML-3P-13800D-500KVA-440Y.254-N3R 13800D 3 Phase Energy Efficient Pad Mount Dead Front Loop Feed Transformer from Larson Electronics is powerful, reliable and designed with the environment in mind. Suitable for both indoor and outdoor applications, the MT-PML-3P-13800D-500KVA-440Y.254-N3R 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 500kVA, the MT-PML-3P-13800D-500KVA-440Y.254-N3R transformer is a three phase unit with a primary voltage of 13800V Delta. It also provides a secondary voltage of 440Y/254 Wye-N. 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 and a 65°C temperature rise and is rated IP24. The MT-PML-3P-13800D-500KVA-440Y.254-N3R is designed so that no excess oil heating occurs from unbalanced loads or phase loss on the primary side.

Benefits: The MT-PML-3P-13800D-500KVA-440Y.254-N3R pad mount dead front loop feed 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: General 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.

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Frequently Asked Questions (FAQ)

Q. Can this transformer be customized?

A. Yes, Larson Electronics allows for customization of all transformers. Please send customization requests to sales@larsonelectronics.com. If you have an engineered specification or engineered drawings, please provide those at the time of request.

Q. What is the warranty of this transformer?

A. 12 months from point of connecting electrical service to the transformer or 18 months from point of ordering, whichever comes first.

Q. Where is the detailed dimensional drawing for this unit?

A. We can provide a feature drawing that shows accessories and estimated form factor. Due to the variety of options and varying voltages, an exact dimensional drawing for the specific unit you have ordered is not available until after purchase and engineering has completed the drawing for your sales order. We do not offer completed detailed engineered drawings before purchase. The feature drawings are detailed enough for concrete pad designs and preliminary engineering site designs.

Q. Does my primary and secondary voltage matter for a transformer?

A. Yes, this matters greatly. For primary voltage, most transformers will be equipped with a tap changer for small primary voltage changes due to voltage drop for losses experienced in the transmission line. Some transformers will be equipped with dual voltage primaries with a voltage selector switch to choose which voltage to operate the transformer on. In both cases, these are designed to provide a steady output voltage. It is very important to confirm what voltage your primary voltage being delivered from the utility provider and what the required electrical voltage for the building or house is. You cannot only provide the KVA size, or the abbreviated primary voltage as there is not standardized voltage across the country and each region can be different. Once manufacturing has started, these cannot be changed.

Q. What is required for mounting this transformer?

A. For mounting requirements, please see the ASTM Certificate 2 link.

Q. What types of transformer protection are available?

A. For over-current protection, Larson Electronics offers Fuses, breakers and interrupters. For over-voltage protection, Larson Electronics offers arresters. Larson Electronics can provide both Primary and Secondary protection equipment.

Q. Do you have to ground this transformer?

A. In most cases the enclosure of the transformer is grounded for safety reasons. However, a transformer will function properly without being grounded. Be sure to research all grounding requirements for your specific application against the NETA and NEC as well as any local electrical codes.

Q. How many BTU's of heat does a transformer generate?

A. The heat a transformer generates is dependent upon the transformer losses. To determine air conditioning requirements multiply the sum of the full load losses (obtained from factory or test report) of all transformers in the room by 3.41 to obtain the BTUs/hour. For example: A transformer with losses of 2000 watts will generate 6820 BTUs/hour.

Q. What is the difference between copper and aluminum windings inside the transformer?

A. Transformers wound with aluminum or copper wire have similar losses and performance. The choice of using copper or aluminum windings depends upon the application and the individual preferences. The type of winding material does not affect the transformer's reliability. A transformer's life is defined by the life of its insulation system.

Q. What is the difference between Dead Front and Live Front?

A. Live-front: The voltage-carrying parts are exposed. Live-front terminations have high voltage connectors, arresters, or fuses are exposed to the operator after cabinet has been opened. Dead-front: Often referred to as dead-front bushings. Safety is enhanced as there are no current-carrying parts exposed to the operator. For overhead distribution transformers and underground submersible transformers, live front is common. For pad mount transformers, the primary is typically dead front and the secondary is live front. Protection barriers can be added to live front pad mounted transformers.

Q. What is the difference between Loop Feed and Radial Feed?

A. Radial feed Transformers will have three high voltage bushings (H1, H2, and H3). There is one bushing for each phase to allow for the incoming high voltage cables. On Wye and Grounded Wye connected Transformers, there will also be an H0 bushing. Loop feed Transformers will have six high voltage bushings (H1A, H2A, H3A, H1B, H2B, and H3B). There are two bushings for each phase. This allows the customer to connect all of their Transformers in a loop configuration. It will also allow the customer to bring two feeds to the Transformer. A four position switch can be used to switch between the A feed and the B feed.

Q. What is the lifespan of a transformer?

A. The average lifespan of a liquid filled transformer is 25 years. Many transformers will survive past the 25 year mark and are still in service for up to 35 years.

Q. Is this transformer UL Listed? Is this transformer CSA Listed?

A. By default, no. The majority of medium voltage transformer installations do not require certification by a Nationally Recognized Testing Laboratory (NRTL) unless being installed inside a building. Medium voltage equipment is built to and complies to ANSI, ASTM, DOE, IEEE, and NETA standards. UL is one of multiple NRTLs per OSHA certification for testing facilities for USA standards. CSA is one of multiple NRTLs per Canada certification standards. For an additional fee, we can submit your order for NRTL testing after completion of build. This testing service is per order, requires payment of testing fees, and will increase lead time.

Q. What are the transformer ratings?

A. IEEE Std C57.12.20 (Overhead Type), IEEE Std C57.12.34 (Three-Phase Pad-Mounted Compartmental), IEEE Std C57.12.38 (Single-Phase Pad-Mounted), IEEE Std C57.12.36 (Distribution Substation Transformers). For more detailed list of standards, please see the ASTM Certificate 1 link.

Q. Do Larson Electronics transformers contain PCB?

A. All dry-type and liquid filled transformers manufactured by Larson Electronics are PCB (polychlorinated biphenyl) free at the time of shipment. Mixtures of polychlorinated biphenyls (PCB's) were banned commercially for use as transformers cooling fluids in 1977 due to being toxic, bio-accumulative, not at all biodegradable, and difficult to dispose of safely. None of Larson Electronics transformers contain PCB and only use PCB-free fluids.

Q. What is the difference between FR3 fluid and biodegradable fluid?

A. Envirotemp FR3 is a brand name of biodegradable ester oils made by Cargill. Cargill is not the only manufacturer of

biodegradable ester fluids used for cooling liquid filled transformers. Larson Electronics stocks RAPO biodegradable fluid that exceeds testing for ASTM D6871. Cargill Envirotemp FR3 can be used in substitution of the standard biodegradable fluid. This substitution will increase cost and lead times.

Q. What is the difference between mineral oil (ONAN) and biodegradable fluid (KNAN)?

A. Mineral oil has a flash point of 147-165°C. Biodegradable insulation fluids have a higher flash point up to 350°C. Using biodegradable fluids reduce the risk of potential fire due to the transformer overheating. Utilizing biodegradable fluids extends the lifespan on the transformer due to better insulation, higher flash point, better moisture resistance, and higher maximum voltage breakdown points over mineral oils.

Q. What types of transformer liquids does Larson Electronics use?

A. Larson Electronics offered mineral oil fluid (ONAN) and biodegradable fluid (KNAN). On request we can provide brand name FR3 fluid or other brand name fluids for additional cost and lead time. All fluids offered by Larson Electronics are non-PCB containing fluids.

Q. What are the main benefits of a liquid filled transformer?

A. Liquid filled transformers have higher energy efficiency, durability, short circuit strength, low sound level, lower maintenance costs, and longer useful life expectancy compared to dry type transformers.

Q. What type of transformers does Larson Electronics offer?

A. Larson Electronics offered dry type transformers and liquid filled transformers. For liquid filled transformers, Larson Electronics' offers overhead distribution transformers (utility pole mount), pad mounted distribution transformers (mounts to a concrete pad), pad mounted power transformers, underground submersible distribution transformers, and substation transformers.

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Product ID: 272721

Harmonized System (HS) Code: 85043300

Export Control Classification Number (ECCN): EAR99

Links (Click on the below items to view):

- **ANSI Certificate 1**
- **ANSI Certificate 2**
- **Catalog Page - Product Series**
- **FCC Certificate (Federal Communications Commission, USA)**
- **MSDS (Material Safety Data Sheet**
- **Operations Manual**
- **HigResPic1**
- **ISO 9001 Certification**
- **Business Certificate**
- **Shipping Time Map**