Larson Electronics LLC
9419 E US HWY 175, Kemp, TX 75143
Phone: 800.369.6671

www.LarsonElectronics.com
Email: sales@LarsonElectronics.com
Fax: 903.498.3364

MT-PSTH-R7-3P-DNF-1MVA-YE-HNS-LNS-A6-BM-CS-1PZ-M1

1 MVA Hermetically Sealed Substation Transformer - 4160V Delta Primary, 480Y/277 Wye-N Secondary - ONAN - Light Grey - NEMA 4X

Product ID: 312379

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-PSTH-R7-3P-DNF-1MVA-YE-HNS-LNS-A6-BM-CS-1PZ-M1 Substation Transformer	Ratings
Transformer Type: Substation Power Transformer, Hermetically Sealed Type	Listed for United States and Canada
Transformer Configuration: Liquid Filled Pad Mounted	Outdoor
Phase: Three Phase	Meets/Exceeds DOE 2016 Efficiency Ratings
Transformer Feed Type: Radial Feed	Meets/Exceeds CSA Efficiency Ratings
Capacity: 1 MVA (1,000 KVA)	Complies with ANSI / IEEE C57.12.00
Primary Voltage: 4160V	Complies with ANSI / IEEE C57.12.10
Primary Voltage Class: 5 kV	Complies with ANSI / IEEE C57.12.20
Primary BIL: 75 kV	Complies with ANSI / IEEE C57.19.02
Primary Phasor: Delta	Complies with ANSI / IEEE C57.19.04
Secondary Voltage: 480Y/277	Complies with ANSI / IEEE C57.13
Secondary Voltage Class: 1.2 kV	Complies with IEEE 693
Secondary Line BIL: 45 kV	Complies with NEMA TR-1
Secondary Neutral BIL: 45 kV	
Secondary Phasor: Wye-N	**Factory Tests:**
Vector Group: Dyn1	Power Factor
Frequency: 60 Hz	Capacitance Measurements
Temperature Rise: 65°C	Ratios and Polarity
Forced Air (Fans): N/A	Insulation Resistance
Radiator: Included, detachable, equipped with three lifting eyes. Two are located on the top and one on the bottom, provided with drain and venting plugs	Core Losses and Exciting Current
HV Tap Changer: 5-Position De-Energized Tap Changer, Manual	Copper Losses
HV Tap Qty: (2) FCAN Above Taps, (2) FCBN Below Taps	Positive Sequence Impedance Tests
HV Tap %: 2.5% Taps	Zero Sequence Impedance Test
HV Rating: 5 kV	Applied Potential Tests
LV Tap Changer: N/A	Induced Potential Tests

LV Tap Qty: N/A

LV Tap %: N/A

LV Rating: N/A

Impedance (@ 85°C): 5.75%
Primary Connection Type: Live Front
Primary Termination Arrangement: Side Mounted Porcelain Bushings, Cabinet Enclosed
Primary Connection: Porcelain, Class 5, Munsell™ 5BG 7.0/0.4 Light Grey (ANSI #70), W/ NEMA 4-Hole Spade Terminals

Primary Connection Qty: (3) Primary Connections

Primary Entry: Bottom
Primary Bushing Rating: 5 kV Class, 75 kV BIL
Primary Neutral Connection: N/A
Primary Surge Arrestors: N/A

Primary Surge Arrestor Voltage Rating: N/A

Primary Surge Arrestor MCOV Rating: N/A

Primary Over Current Protection (OCP): N/A

Primary Over Current Protection Method: N/A

Primary Over Current Protection Holder: N/A

Primary Current Transformer: N/A

Primary Neutral Current Transformer: N/A

Primary Grounding Provisions: Included

Secondary Connection Type: Live Front

Secondary Termination Arrangement: Side Mounted Porcelain Bushings, Cabinet Enclosed

Secondary Connections: Cable Connection

Secondary Connection Qty: (4)

Secondary Entry: Bottom

Secondary Connection Supports: N/A

Secondary Current Transformer: N/A

Secondary Neutral Connection: Included

Secondary Surge Arrestors: N/A

Secondary Surge Arrestor Voltage Rating: N/A

Secondary Surge Arrestor MCOV Rating: N/A

Seconday Over Current Protection (OCP): Included, (1) Circuit Breaker, 3Ph, 600V, 2000A, LSIG, Trip Unit (1400A Trip Setting), Bolt-On
Secondary Grounding Provisions: (1) NEMA Ground Bar attached to tank via (2) Welded Ground Bungs

Core Grounding Connection: In a weather proof box outside of tank

Insulation Fluid: Mineral Oil Insulating Fluid, Type II, Non-PCB Fluid
Fluid Capacity: TBD
Cooling Class: ONAN

Liquid Preservation System: Included, Sealed Tank Per IEEE C57.12.10

Liquid Level Gauge: Included, Magnetic Type, Qualitrol, with three auxiliary contacts
Liquid Temperature Gauge: Included, Dial Type, Qualitrol, with four auxiliary contacts minimum and sensor signal 4 to 20mA
Winding Temperature Gauge: Included, Dial Type, Qualitrol, with four auxiliary contacts minimum and sensor signal 4 to 20mA
Pressure/Vacuum Bleeder & Purge Valve: Included, Analog Type
Sudden Pressure Ralay: Included
Pressure Relief Device: Included, w/ Contacts and anti-corrosion protection C5M (XPRD00-00235201 CS-52804)
Fill Valve: Included
Drain Valve w/ Sampler Port: Included
Rapid Rise Relay: Included
Load Break Switch: N/A

Efficiency Standard(s): Meets DOE 10 CFR Part 431 Subpart K Standard

K-Factor Rating (Harmonic Mitigation): K-1 (Standard)

Winding Material: Copper
No Load Loss: TBD
Full Load Loss: TBD

Impulse Tests
One hour induced potential test with corona discharge measurements every five minutes
Dissolved gas analysis (gas in oil) as per IEEE C57.104, latest edition
Detection of PCB content in oil
Noise tests
Core insulation
Oil test (breakdown, power factor and acidity) for both fill oil during testing and residual oil.
CT tests after installation (insulation resistance, TTR, saturation)
Temperature Rise
Control and Protection Wiring tests
Winding resistance
Sweep frequency Response Analysis

Service Location: Outdoor

Ambient Temperature Rating: 50°C
Sound Level: Complies With NEMA TR-1-2013

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

Environment: Trace amounts of H2S, SO2 and coke dust, corrosive environment

Seismic Rating: Complies With IEEE 693

Wind Velocity Rating: 160 mph, w/ 1.1 Overload Factor

Core Material: Grain Oriented Silicon Steel

Tank Type: Rectangular

Tank Material: 304 Stainless Steel

Cabinet Material: 304 Stainless Steel

Base Platform Material: 304 Stainless Steel

Portability: (4) Lifting Lugs, (4) Lifting Eyes For Cover Lifting, Provisions for Jacking Under Base, w/ Base Construction Suitable for Using Rollers or Skidding

Housing Type: Metal Casing Liquid Filled Transformer

Cabinet Rating: NEMA 4X Weatherproof

Paint Type: Weatherproof and UV Resistant Epoxy Coating and Undercoating

Finish Color: Munsell™ 5BG 7.0/0.4 Light Grey (ANSI #70)
Mounting: Skid Type Base w/ Lifting Lugs
Conduit Opening: Bottom entry
Manholes: 10" x 16" Min. Diemsnions
HV Bushing Height: 54.38 inches
Dimensions*: 81.5"-W x 108"-D x 76.75"-H
Weight: TBD

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-PSTH-R7-3P-DNF-1MVA-YE-HNS-LNS-A6-BM-CS-1PZ-M1 Hermetically Sealed Substation Transformer from Larson Electronics offers powerful, reliable and efficient power distribution in outdoor locations. The low operating costs, low heat emissions and low cost of ownership makes this transformer ideal for a wide range of applications and businesses. This transformer ensures extra space for storing oil and is equipped with breathers to facilitate air flow. The conservator transformer should be installed on supporting structures.
PLEASE NOTE: ANY FREE SHIPPING OFFERS DO NOT APPLY TO POWER DISTRIBUTION PANELS, TRANSFORMERS, OR SUBSTATIONS*
Transformer Features: The industrial transformer features a primary voltage of three-phase 4160V Delta and a secondary voltage of three-phase 480Y/277 Wye-N. This system is rated for 1 MVA (1,000 KVA). We offer systems with loop or radial feed, as well as dead front or live 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 for voltage.
The system features Copper windings for high strength and thermal/electrical conductivity. This transformer consists of rectangular coil and 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-PSTH-R7-3P-DNF-1MVA-YE-HNS-LNS-A6-BM-CS-1PZ-M1 doesn't have fans for forced air cooling. This non-sealed system features breathers for cooling when operating temperatures increase.
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 1 MVA (1,000 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-PSTH-R7-3P-DNF-1MVA-YE-HNS-LNS-A6-BM-CS-1PZ-M1 features mineral oil fluid (ONAN). We offer transformers with biodegradable or FR-3 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.

Fault Pressure Devices: There are no fault pressure devices on the unit. Fault pressure devices are used to detect high rates of pressure rise within the tank.

Rapid Rise Relay: There is a rapid rise relay 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 surge arresters on the primary side. Surge arresters are 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 Breaker Switch: The transformer is not equipped with load breaker switches.

Valves: The MT-PSTH-R7-3P-DNF-1MVA-YE-HNS-LNS-A6-BM-CS-1PZ-M1 is equipped with a pressure relief valve, fill valve and drain valve with sampler port.

Protection Fuses: This transformer does not have bayonet protection fuses on the primary side. For units without protection fuses, up stream protection is provided. We recommend provisions for protection fuses when possible, as blown fuses may require more frequent oil changes.

Mount: This substation transformer should be installed on supporting structures, such as the roof of the transformer main tank.

Benefits: The MT-PSTH-R7-3P-DNF-1MVA-YE-HNS-LNS-A6-BM-CS-1PZ-M1 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 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.

Larson Electronics LLC
9419 E US HWY 175, Kemp, TX 75143
Phone: 800.369.6671

www.LarsonElectronics.com
Email: sales@LarsonElectronics.com
Fax: 903.498.3364

Frequently Asked Questions (FAQ)

Warranty: 24 Months.

Export Control Classification Number (ECCN): EAR99

Links (Click on the below items to view):

- **HigResPic1**
- **Video1**
- **ISO 9001 Certification**
- **Business Certificate**
- **Shipping Time Map**