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## MT-PSTH-R7-3P-DMP-10MVA-GNF-HNS-LNS-X6-CMF-CZ-2ZZ-M1

# 10/13 MVA Hermetically Sealed Substation Transformer - 13800V Delta Primary, 4160Y/2400 Grounded Wye Secondary - ONAN/ONAF - Grey - NEMA 4X

**Product ID: 312466**



**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-DMP-10MVA-GNF-HNS-LNS-X6-CMF-CZ-2ZZ-M1 Substation Transformer**

**Transformer Type:** Substation Power Transformer, Hermetically Sealed Type
**Transformer Configuration:** Liquid Filled Pad Mounted
**Phase: Three Phase**
**Transformer Feed Type:** Radial Feed
**Capacity (w/o Fans): 10 MVA (10,000 KVA)**
**Capacity (w/ Fans):** 13 MVA (13,000 KVA)
**Primary Voltage: 13800V**
**Primary Voltage Class:** 15 kV
**Primary BIL:** 110 kV
**Primary Phasor:** Delta
**Secondary Voltage: 4160Y/2400V**
**Secondary Voltage Class:** 5 kV
**Secondary BIL:** 60 kV
**Secondary Phasor:** Grounded Wye
**Vector Group:** DYn1
**Frequency: 60 Hz**
**Temperature Rise: 55°C/65°C**
**Forced Air (Fans): Included, 480VAC, 3PH, 60Hz, w/ 120VAC, 60Hz Control Cabinet**
**Radiator:** Included, Removable Cold Rolled Steel
**HV Tap Changer:** 5-Position De-Energized Tap Changer, Manual
**HV Tap Qty:** (2) FCAN Above Taps, (2) FCBN Below Taps
**HV Tap %:** 2.5% Taps
**HV Rating:** 15 kV
**LV Tap Changer:** 33-Position On Load Tap Changer (OLTC), Automatic
**LV Tap Qty:** (16) FCAN Above Taps, (16) FCBN Below Taps
**LV Tap %:** 5/8%
**LV Rating:** 5 kV

**Ratings**

Listed for United States and Canada
Meets/Exceeds DOE 2016 Efficiency Ratings
Meets/Exceeds CSA Efficiency Ratings
Complies with ANSI / IEEE C57.12.00
Complies with ANSI / IEEE C57 12.28
Complies with CSA C802.1
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 C57.12.110
Complies with ANSI / IEEE C57.12.131
Complies with ANSI / IEEE C62.11
Complies with ANSI / IEEE C62.22
Complies with ANSI / IEEE 386
Complies with ANSI / IEEE C2
Complies with ANSI / IEEE C37.47
Complies with ANSI Z535.4
Complies with ASTM D3487
Complies with ASTM D6871
Complies with NEMA 260-1996
Complies with 10 CFR Part 431
Complies with CSA C2.1-06
Complies with CSA C50
Complies with CSA C88
Complies with CSA C88.1
Complies with CSA C88-16

**Impedance (Typical):** 5.0-7.5%
**Primary Connection Type: Live Front**
**Primary Termination Arrangement:** Side Mounted Porcelain Bushings
**Primary Connection:** Cable Connection
**Primary Connection Qty:** (3) Primary Connections
**Primary Size:** 2 x 1C-500 MCM per Phase NEMA 4-hole connectors to be supplied on bushings
**Primary Entry:** NEMA 4X Terminal Box (top & bottom entry) - Bushing with silicon rubber insulators
**Primary Bushing Rating:** 15 kV Class, 110 kV BIL
**Primary Neutral Connection:** Included
**Primary Surge Arrestors:** Included, (3) High Elbow Surge Arrestors
**Primary Surge Arrestor Voltage Rating:** 15 KV
**Primary Surge Arrestor MCOV Rating:** 15 KV rms
**Primary Over Current Protection (OCP):** N/A
**Primary Over Current Protection Method: N/A**
**Primary Over Current Protection Holder:** N/A
**Primary Current Transformer:** Included, (2) Per Each Phase, C400 Accuracy Class, 600:5A MR
**Primary Neutral Current Transformer:** N/A
**Primary Grounding Provisions:** N/A
**Secondary Connection Type:** Live Front
**Secondary Termination Arrangement:** Side Mounted Porcelain Bushings
**Secondary Connections:** Cable Connection
**Secondary Connection Qty:** (4)
**Secondary Size:** 5 x 1C-500 MCM per phase
**Secondary Entry:** NEMA 4X Terminal Box (top & bottom entry) - Bushing with silicon rubber insulators
**Secondary Connection Supports:** N/A
**Secondary Over Current Protection (OCP):** N/A
**Secondary Current Transformer:** Included, (2) Per Each Phase, C400 Accuracy Class, 2000:5A MR
**Secondary Neutral Connection:** Neutral Grounding Resistor (NGR), 400A - 10s, 40A continuous
**Neutral Current Transformer:** Included, (2) Per Each Phase, 2.5L100 Accuracy Class, 400:5A MR
**Secondary Surge Arrestors:** Included, (3) High Elbow Surge Arrestors
**Secondary Surge Arrestor Voltage Rating:** 5 KV
**Secondary Surge Arrestor MCOV Rating:** 3 KV rms
**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 (NEMA 4X)
**Insulation Fluid:** Mineral Oil Insulating Fluid - Non-PCB Fluid
**Fluid Capacity: TBD**
**Cooling Class: ONAN/ONAF**
**Liquid Preservation System:** Included, Sealed Tank Per IEEE C57.12.10
**Liquid Level Gauge: Included, Magnetic Type, w/ Contacts (Device 71)**
**Top Oil Liquid Temperature Gauge: Included, Analog Type, w/ Contacts (Device 49)**
**Winding Temperature Gauge:** Included, Analog Type, w/ Contacts (Device 49)
**Pressure/Vacuum Bleeder & Purge Valve: Included, Analog Type**
**Pressure/Vacuum Gauge: Included**
**Fault Pressure Device: N/A**
**Pressure Relief Valve: Included, w/ Contacts**
**Sudden Pressure Relay (Device 63): Included, Automatic Action w/ Seal In Relay**
**Cut-Off Switch:** Included
**Fill Valve: Included**
**Lower Oil Drain Valve w/ Sampler Valve: Included**
**Upper Oil Sampler Valve: Included**
**Rapid Rise Relay: Included**
**Load Break Switch: N/A**
**Winding Material: Copper**
**No Load Loss: TBD**
**Full Load Loss: TBD**
**Service Location:** Outdoor
**Ambient Temperature Rating: 50°C**
**Sound Level: < 78 dBA**
**Environment:** Trace amounts of H2S, SO2 and coke dust, corrosive environment
**Cabinet Rating: NEMA 4X Weatherproof**
**Paint Type: Light Grey (ANSI #70), high gloss white inside tank**
**Mounting: Pad Mounted**

Complies with CSA C227.4
Complies with CSA C227.5
Complies with CSA C227.5
Complies with CSA C802-3

**Features**

Hot Stick Included, HV Door Mount
High-Fire Point Insulating Fluid
Non-PCB Insulating Fluid
Tamper Proof Housing
Hinged Front Compartment Doors, Pad Lockable
NEMA 4X Wiring Compartment

**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
Operational Test on Auxiliary Devices

**Special Tests:**

Temperature Rise Test
Insulation Power Factor Test
Impulse Tests
Sweep Frequency Response Analysis Test

**Shipping Tests:**

Impact Recorder Charts

**Special Orders - Special Requirements**

Contact us for special requirements
**Toll Free: 1-800-369-6671**

**Conduit Opening: TBD**
**Dimensions: TBD**
**Weight: TBD**

**Intl: 1-903-270-1187**
**Fax: 1-903-498-3364**
**E-mail: sales@larsonelectronics.com**

**The MT-PSTH-R7-3P-DMP-10MVA-GNF-HNS-LNS-X6-CMF-CZ-2ZZ-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 13800 Delta and a secondary voltage of three-phase 4160Y/2400 Grounded Wye. This system is rated for 10 MVA (10,000 KVA) [Natural Cooled] / 13 MVA (13,000 KVA) [Fan Cooled]. 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-DMP-10MVA-GNF-HNS-LNS-X6-CMF-CZ-2ZZ-M1 has 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 10 MVA (10,000 KVA) [Natural Cooled] / 13 MVA (13,000 KVA) [Fan Cooled]. 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-DMP-10MVA-GNF-HNS-LNS-X6-CMF-CZ-2ZZ-M1 features mineral oil fluid (ONAN/ONAF). We offer transformers with biodegradable or FR-3 fluids, if needed.

**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 comes with surge arresters on both primary and secondary sides. 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-DMP-10MVA-GNF-HNS-LNS-X6-CMF-CZ-2ZZ-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-DMP-10MVA-GNF-HNS-LNS-X6-CMF-CZ-2ZZ-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.

# Frequently Asked Questions (FAQ)