

MPD-MCS-VCB-3P3W-1.1M.13-7.2KV-2500A-31.5K-DO-FM-BEBE-R.M.-CU-N1-DF-M1

Metal Clad Switchgear, Vacuum Circuit Breaker, 3-Phase 3-Wire, 1 In / 1 Metering Section / 13 Out, 7.2kV, 2500A, Floor-Mounted, Bottom Entry/Bottom Exit, Relay + Meter, NEMA 1, Model 1
Product ID: 339703

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



Image: MPD-MCS-VCB-3P3W-1.1M.13-7.2KV-2500A-31.5K-DO-FM-BEBE-R.M.-CU-N1-DF-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.

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Metal-Clad Medium Voltage Switchgear

Unit Type: Draw-Out Vacuum Circuit Breaker Switchgear, 15-Section Lineup

Configuration: 3-Phase, 3-Wire, Dead Front

Assembly Type: 1 Main Incoming / 1 Metering / 13 Outgoing — Metal-Clad Switchgear Lineup

Nominal Voltage: 7.2kV

Short Circuit Rating: 31.5kA Symmetrical, 4 Second

Main Bus Continuous Current: 2500A

Mounting Style: Draw-Out Type, Floor-Mounted

Cable Entry: Bottom Entry / Bottom Exit

Bus Material: Copper, Rigid Bar, Continuous Tie Bus

Enclosure Type: NEMA 1, Dead Front

Main Incoming Section (Qty 1)

Draw-Out Vacuum Circuit Breaker, 2500A Continuous, 31.5kA Symmetrical/4s

Made in the USA

Features of Every Section

Draw-Out Vacuum Circuit Breaker Construction

Dedicated SEPAM 1000-Series Numerical Protection Relay, Each Breaker Position

Dual-Core Measurement + Protection CTs, Each Breaker Position

Earth Fault Protection, Every Feeder Position
Front-Accessible, Freestanding Construction

Ratings & Approvals

Designed in accordance with applicable ANSI/IEEE C37 series standards, including IEEE C37.20.2 (Metal-Clad Switchgear)

NRTL Listed Service Equipment

All grounding shall comply with applicable state and local codes and NEC requirements

Protection Relay: SEPAM 1000+S40
Protection Functions: 27, 46, 50, 50N, 50BF, 51, 51N, 59, 81L, 81H
Metering/Protection CT: 2500/5A, Dual Core (20VA 5P10 Metering + 15VA CI 0.5 Protection)
Local Voltage Transformer: $6.3/\sqrt{3} \div 0.11/\sqrt{3} \div 0.11/3$ kV, CI 0.5 50VA (Metering) / 6P 50VA (Protection) — supports 27, 59, 81L, 81H functions

Shipping

Shipped on pallet or skid
Crated shipment available upon request
Final shipping configuration subject to approved design

Metering Section (Qty 1)

Voltage Transformer Panel, Bus-Connected, No Breaker
VT Ratio: $6.3/\sqrt{3} \div 0.11/\sqrt{3} \div 0.11/3$ kV
Accuracy: Class 0.5, 50VA (Metering); 6P, 50VA (Earth-Fault Protection Winding)

Outgoing Feeders — 630A Class (Qty 11)

Draw-Out Vacuum Circuit Breaker, 630A Continuous, 31.5kA Symmetrical/4s (each)
8 Positions — Transformer-Fed Loads: 1# Kiln Inlet Distribution Transformer (1250kVA), 1# & 2# Coal Mill Distribution Transformers (1000kVA, 1250kVA), 1# & 2# Raw Mill Distribution Transformers (1000kVA, 1600kVA), and 3 VFD Drive-Transformer Feeders (1# ID Fan 3900kVA, 1# Coal Mill Main 800kVA, 1# Raw Mill Separator 560kVA)
3 Positions — Direct-On-Line Motor Loads: Kiln Waste Gas Fan Motor (1400kW), Hot Gas Fan Motor (280kW), 1# Coal Mill System Fan (710kW)
Protection Relay: SEPAM 1000+T20 (transformer-fed, 8 units) or SEPAM 1000+M41 (DOL motor, 3 units)
Earthing Switch, One per Feeder, Mechanically Interlocked
Visible Grounding Provisions, Each Feeder

Outgoing Feeders — 1250A Class (Qty 2)

Draw-Out Vacuum Circuit Breaker, 1250A Continuous, 31.5kA Symmetrical/4s (each)
Positions: 1# Raw Mill Main Drive Motor (3600kW), 1# Raw Mill Fan Motor (4300kW) — both direct-on-line
Protection Relay: SEPAM 1000+M87 (motor protection with biased differential, switchgear-side CT — motor-terminal CT furnished by others to complete the loop)
Interfaces with customer-furnished power factor correction capacitor bank, each feeder
Earthing Switch, One per Feeder, Mechanically Interlocked
Visible Grounding Provisions, Each Feeder

Protection & Relay Configuration (ANSI/IEEE Device Numbers by Model)

SEPAM 1000+S40 — Main Incomer (1 unit): 27, 46, 50, 50N, 50BF, 51, 51N, 59, 81L, 81H
SEPAM 1000+T20 — Transformer-Fed Feeders (8 units): 26, 46, 50, 50N, 51, 51N, 63
SEPAM 1000+M41 — DOL Motor Feeders (3 units): 27, 46, 47, 48, 49, 50, 50N, 51, 51N
SEPAM 1000+M87 — Large Motor Feeders w/ Differential (2 units): 27, 46, 47, 48, 49, 50, 50N, 51, 51LR, 51N, 59, 63, 66, 87M

Construction

Draw-Out Vacuum Circuit Breaker Construction Throughout
Copper Bus, Rigid Bar, Bolted Connections
NEMA 1 Enclosure, Dead Front
Bottom Cable Entry / Bottom Cable Exit, Each Riser

Dimensions & Shipping

Overall Dimensions: 610 in W × 75 in D × 90 in H (estimated, 15-section lineup)
Approximate Weight: 41,100 lbs
Shipping Dimensions: TBD
Shipping Weight: TBD

Special Features

Draw-Out Vacuum Breaker Construction, Dedicated Numerical Protection per Feeder,
Biased Differential Protection on Large Motor Feeders

Special Orders – Special Requirements

Contact us for special requirements

Toll Free: 1-800-369-6671

Intl: 1-903-270-1187

Larson Electronics manufactures a wide variety of custom power distribution systems. The pictures displayed for this unit are a general representation of form factor and may not accurately represent this exact configuration in every detail due to being custom builds. The specifics for this configuration are listed in the specification table and applicable drawings.

Made in the USA

The Larson Electronics MPD-MCS-VCB-3P3W-1.1M.13-7.2KV-2500A-31.5K-DO-FM-BEBE-R.M.-CU-N1-DF-M1 Metal Clad Medium Voltage Switchgear is designed to provide dependable incoming power distribution, motor feeder protection, and transformer feeder switching for medium-voltage industrial process applications. This fixed, floor-mounted, 15-section switchgear lineup is housed in a NEMA 1 indoor enclosure with dead-front construction and bottom entry/bottom exit cable arrangement throughout. Rated for 7.2kV, the assembly carries a 2500A continuous main bus and a 31.5kA symmetrical, 4-second short-circuit withstand rating, and is built around draw-out vacuum circuit breaker technology with dedicated numerical protection relaying at every position.

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

The MPD-MCS-VCB-3P3W-1.1M.13-7.2KV-2500A-31.5K-DO-FM-BEBE-R.M.-CU-N1-DF-M1 is engineered as a complete switchgear lineup, combining a single main incoming section, a dedicated metering section, and thirteen outgoing feeder sections on a shared continuous copper tie bus. The assembly pairs draw-out vacuum breaker construction with SEPAM 1000-series numerical protection relays and indoor floor-mounted construction to provide coordinated, feeder-by-feeder isolation and protection across a mixed load profile of large motors, distribution transformers, and VFD drive transformers.

Main Incomer Section:

The assembly incorporates one draw-out vacuum circuit breaker in the main incoming position, fixed and floor-mounted, rated 2500A continuous at 7.2kV with a 31.5kA symmetrical, 4-second withstand rating. The breaker is protected by a SEPAM 1000+S40 relay providing undervoltage, negative sequence, overcurrent (first and second stage), earth fault (first and second stage), breaker failure, overvoltage, and under/over frequency protection, with dual-core 2500/5A current transformers supporting metering and protection independently. A dedicated local voltage transformer supports the relay's voltage- and frequency-dependent functions (undervoltage, overvoltage, under/over frequency), rated $6.3/\sqrt{3} \div 0.11/\sqrt{3} \div 0.11/3$ kV, Class 0.5 metering accuracy with a 6P broken-delta protection winding for ground-fault voltage sensing.

Metering Section:

A dedicated, bus-connected potential transformer panel provides system voltage sensing with no breaker in this position. The voltage transformers are rated at a $6.3/\sqrt{3} : 0.11/\sqrt{3} : 0.11/3$ kV ratio, Class 0.5 accuracy for revenue-grade metering, with a secondary 6P winding for earth-fault protection sensing.

Feeder Sections — 630A Class:

Eleven draw-out vacuum circuit breaker feeder positions are provided, each rated 630A continuous at 7.2kV with a 31.5kA symmetrical, 4-second withstand rating. Eight positions are equipped with SEPAM 1000+T20 protection relays serving distribution and drive transformer loads; three positions are equipped with SEPAM 1000+M41 protection relays serving direct-on-line motor loads. Each feeder includes a mechanically interlocked earthing switch and visible grounding provisions.

Feeder Sections — 1250A Class:

Two draw-out vacuum circuit breaker feeder positions are provided, each rated 1250A continuous at 7.2kV with a 31.5kA symmetrical, 4-second withstand rating, serving the two largest connected motor loads in this lineup. Both positions are equipped with SEPAM 1000+M87 protection relays, providing motor protection plus biased differential protection via a switchgear-side CT, with the matching motor-terminal CT required to complete the differential loop furnished by others. Each position interfaces with a customer-furnished power factor correction capacitor bank in addition to a mechanically interlocked earthing switch.

Protection & Relay Configuration:

Protection is provided by SEPAM 1000-series numerical relays assigned by feeder class. The main incomer carries a SEPAM 1000+S40 relay (ANSI 27, 46, 50, 50N, 50BF, 51, 51N, 59, 81L, 81H). Transformer-fed feeders carry SEPAM 1000+T20 relays (ANSI 26, 46, 50, 50N, 51, 51N, 63). Direct-on-line motor feeders carry SEPAM 1000+M41 relays (ANSI 27, 46, 47, 48, 49, 50, 50N, 51, 51N). The two large motor feeders carry SEPAM 1000+M87 relays (ANSI 27, 46, 47, 48, 49, 50, 50N, 51, 51LR, 51N, 59, 63, 66, 87M).

Bus System:

The assembly utilizes a 2500A copper main bus, rigid bar construction with bolted connections, together with a copper ground bus, continuous across all 15 sections and sized consistent with the assembly's 31.5kA symmetrical withstand rating.

Assembly Construction:

The switchgear is furnished as a complete floor-mounted lineup incorporating the main incomer, metering section, and thirteen feeder sections on the shared copper tie bus system, with draw-out breaker construction used throughout to allow individual breaker withdrawal for maintenance without de-energizing adjacent sections.

Construction:

The enclosure is fabricated from heavy-gauge steel, rated NEMA 1 for indoor service. Construction features dead-front bushing arrangement and bottom entry/bottom exit cable configuration at each riser, with mechanically interlocked earthing switches and visible grounding provisions at every feeder position.

Special Features:

This unit includes draw-out vacuum breaker construction throughout, dedicated numerical protection relaying at every position, and biased differential protection on both large motor feeders.

Ratings & Approvals:

The assembly is designed in accordance with applicable ANSI/IEEE C37 series standards, including IEEE C37.20.2 for metal-clad switchgear. All grounding provisions shall comply with applicable national, state, and local electrical codes and NEC requirements.

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Frequently Asked Questions (FAQ)

There are no Faqs



Image: MPD-MCS-VCB-3P3W-1.1M.13-7.2KV-2500A-31.5K-DO-FM-BEBE-R.M.-CU-N1-DF-M1

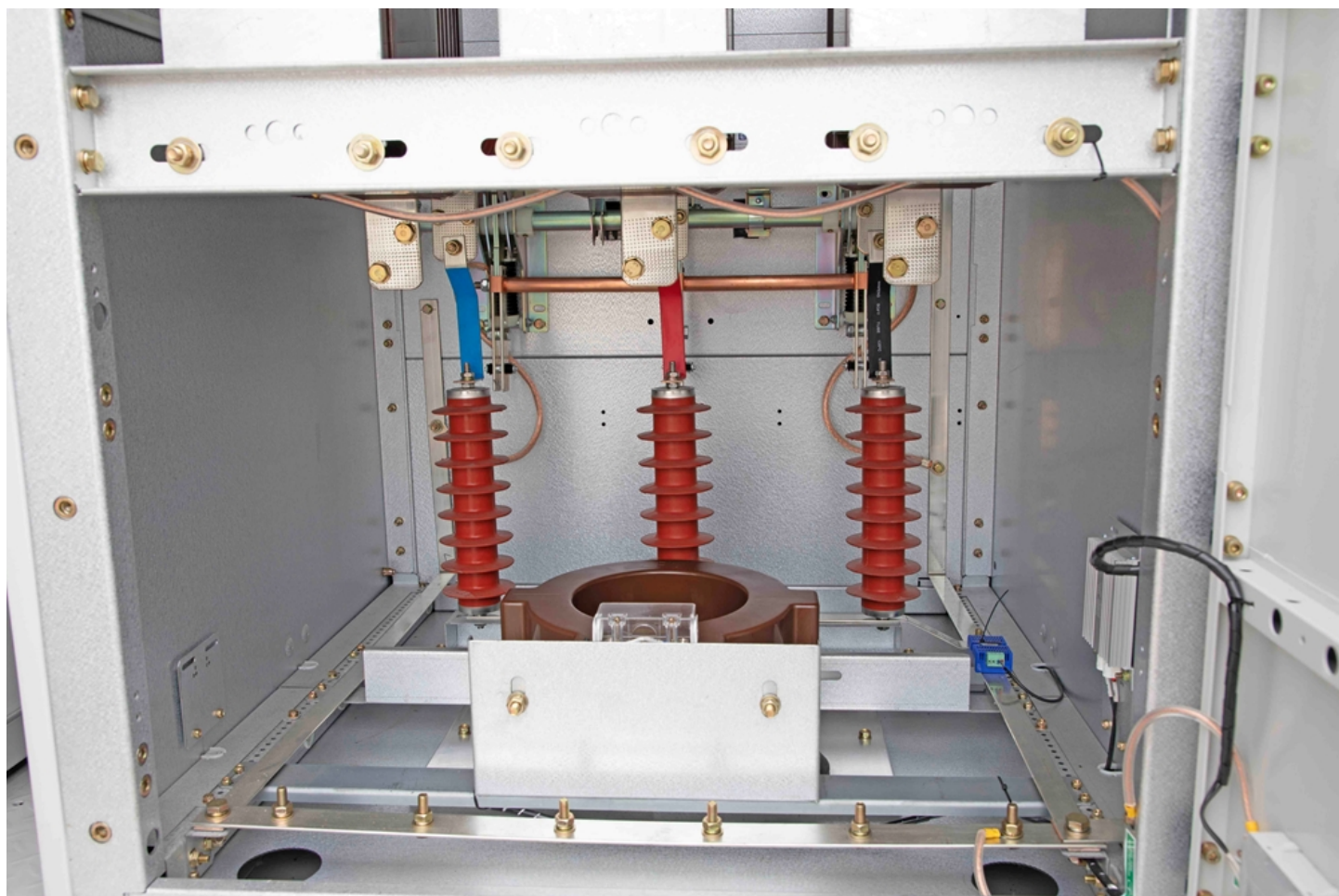


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Export Control Classification Number (ECCN): EAR99

Links (Click on the below items to view):

- **Single Line Diagram (One-Line Diagram)**(<https://www.larsonelectronics.com/images/product/Online/339703.PDF>)
- **HigResPic1**(<https://www.larsonelectronics.com/images/product/HigResPic1/339703.JPG>)
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