ReliaGear® ND
ANSI narrow design metal-clad switchgear
Agenda

- Overview
- Ratings, certifications and construction
  - Breaker compartments and operation
  - PT/CPT compartments and operation
  - Instrument transformers
  - Configurations
- Vmax/A breaker
- Values
- Questions
## ReliaGear® ND

### Ratings, standards and certifications, and construction

- Metal-clad switchgear per IEEE C37.20.2-1999
- UL label available
- Narrow frame at 26” wide
- Utilizes the Vmax/A breaker

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<th>Voltage (kV)</th>
<th>Main bus</th>
<th>Isc (kA)</th>
<th>Interruption</th>
<th>Close &amp; latch</th>
<th>BIL</th>
<th>Low frequency withstand</th>
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ReliaGear® ND Construction

- Metal-clad construction using galvanized steel
- Modular compartments
- Available compartment types:
  - Breaker
  - Low-voltage
  - PT
  - CPT
  - Bus and Cable
- Dimensions:
  - One-high: 26x104x77”
  - Two-high: 26x104x85”
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Breaker compartment

- Epoxy breaker primary bushings
- Three breaker statuses
  - Disconnect: primary and secondary disconnected
  - Test: primary disconnected and secondary plug connected
  - Connected: primary and secondary connected.
- Breaker interlocks per IEEE C37.20.2-1999
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Breaker interlocks

- Breaker is in “disconnect” position when inserted and latched into the cubicle.
- The secondary plug is a self-aligning, rating encoded, quick disconnect secondary umbilical type plug.
- The breaker is blocked from racking until secondary umbilical plug is fully engaged.
- Breaker is in “test” position when the secondary disconnect is fully engaged.
- Breaker can be racked into “connected” position by inserting and rotating racking handle.
- Once racking begins, secondary umbilical plug is held captive and cannot be removed.
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PT and CPT compartments

- PT compartment uses a push-pull design with handle
- Configurations available:
  - Wye-wye
  - Open-delta
  - Line-line
  - Line-ground
- Delrin arc-snuffing technology
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Instrument transformers

- CTs: SCH-3U
- PTs:
  - VIZ-60
  - TJC5
  - VIZ-75-11
- CPT: CPT-IK
- Ground sensor CTs:
  - BYZ-S
  - BYZ-O
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Configurations – main with feeder breakers 1200 A
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Configurations – main with feeder breakers 2000 A
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Configurations – MTM 1200 A
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Configurations – MTM 2000 A
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Frame side views

One-high configuration
up to 2000A

Two-high configuration
up to 1200A
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Vmax/A breaker - overview

- Modular design using EL mechanism
- Quick change charge motor and trip/close coils
- Roll on floor option
- Standards
  - IEEE C37.04
  - IEEE C37.06
  - IEEE C37.09
- Average weight: 300 lbs.
ReliaGear ® ND Vmax/A breaker

- Secondary plug
- Manual charging handle
- Open/close buttons
- Breaker status
- Operations counter
- Roll on floor wheels
- Latching handles
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Vmax/A breaker – ratings and construction

Consists of three basic parts
- EL mechanism
- Charge motor
- Smart trip/close coils

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Vmax/A breaker – EL mechanism

- Largest installed base for MV indoor breakers worldwide.
  - EL mechanism is applied to the complete line of ADVAC, VD4, Vmax and Emax breakers
  - Approximately 750,000 installed globally
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Vmax/A breaker – trip/close coils and charge motor

- Smart coils have built in microprocessor for:
  - More efficient response
  - Over-current, short-circuit and over-temperature protections
  - Internal diagnostics for failure detection
- Quick and easy replacement of key components
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Values summary

- Small 26-inch wide footprint with two-high capabilities at 15 kV means more space savings
  - For PDC applications, cost per square foot is approximately $250
  - Small footprint means less weight = less shipping splits and faster installation time

- Vmax/A breaker:
  - Lightweight and maneuverable compared to industry standard
    - 300 lbs. versus 375 for comparable ratings
    - Roll on the floor option for easy removal
  - Modular quick change charge motor and coil design
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Questions?
Power and productivity for a better world™