

1. GENERAL

1.1 References

- .1 EEMAC G8-3.3, Metal-Enclosed Interrupter Switchgear Assemblies.

1.2 Shop Drawings Product Data

- .1 Submit shop drawings and product data in accordance with Section 16010 - Electrical General Requirements.
- .2 Indicate on shop drawings:
 - .1 Floor anchoring method and foundation template.
 - .2 Dimensioned cable entry and exit locations.
 - .3 Dimensioned position and size of bus.
 - .4 Overall length, height and depth of complete switchgear.
 - .5 Dimensioned layout of internal and front panel mounted components.
- .3 Indicate on product data:
 - .1 Time-current characteristic curves for air circuit breakers.

1.3 Maintenance Data

- .1 Provide maintenance data for secondary switchgear for incorporation into manual specified in Section 16010 - Electrical General Requirements.
- .2 Six (6) copies maintenance data for complete switchgear assembly including components.

1.4 Maintenance Materials

- .1 Provide maintenance materials in accordance with [Division 01 - Maintenance Materials, Special Tools and Spare Parts].

1.5 Storage

- .1 Store switchgear on site in protected, dry location. Cover with plastic to keep off dust and contaminants.
- .2 Provide energized strip heater in each cell to maintain dry condition during storage.

2. PRODUCTS

2.1 Materials

- .1 Switchgear assembly: to EEMAC G8-3.3.

2.2 Rating

- .1 Secondary switchgear: indoor, 600 V, 2000 A, 3 phase, 4 wire, 60 Hz, minimum short circuit capacity 65 kA (rms symmetrical).

2.3 Secondary Switchgear

- .1 Secondary switchgear: 347/600 V, 2000 A, 3 phase, 4 wire.
- .2 Secondary switchgear to consist of the following equipment, not attached to primary switchgear:
 - .1 2000 A metal enclosed drawout switchgear.
 - .2 TVSS surge protection – bus connect.
 - .3 2000A, 600V main breaker with digital overcurrent protection.
 - .4 2000 A, 600 V distribution switchboard – CDP – 1.
- .3 Acceptable manufacturers
 - .1 Cutler-Hammer.
 - .2 Schneider.
 - .3 Seimens.

2.4 Enclosure

- .1 Main incoming section to contain:
 - .1 Air circuit breaker sized as indicated.
- .2 Distribution sections to contain:
 - .1 Moulded case circuit breaker sized as indicated.
 - .2 Copper bus, from main section to distribution sections including vertical bussing.
- .3 Blanked off spaces for future units.
- .4 Metal enclosed, free standing, floor mounted, dead front, indoor CSA Enclosure 1 cubicle unit.

- .5 Ventilating louvres: vermin, insect proof.
- .6 Access from front and rear.
- .7 Steel channel sills for base mounting in single length common to multi-cubicle switchboard.
- .8 UV distribution equipment shall match 5 kV switchgear enclosure construction.

2.5 Busbars

- .1 Three phase and full capacity neutral bare busbars, continuous current rating 2000 A self-cooled, extending full width of cubicle, suitably supported on insulators.
- .2 Main connections between bus and major switching components to have continuous current rating to match major switching components.
- .3 Busbars and main connections: 99.30% conductivity copper.
- .4 Silver surfaced joints, secured with non-corrosive bolts and Belleville washers.
- .5 Identify phases of busbars by suitable marking.
- .6 Busbar connectors, when switchboard shipped in more than one section.

2.6 Grounding

- .1 Copper ground bus not smaller than 50 x 6 mm extending full width of cubicle and situated at bottom.
- .2 Lugs at each end for size 4/0 AWG grounding cable.

2.7 Air Circuit Breaker

- .1 Air circuit breakers: 600 V class, continuous current rating 2000 A, trip rating 2000 A, interrupting rating 65 kA.
- .2 Drawout type breaker with dual magnetic direct-acting trips on each pole providing adjustable over-current and instantaneous protection:
 - .1 Delayed direct-acting trips with coil rating calibration range, for overcurrent conditions from 80% to 160% of coiled rating.
 - .2 Instantaneous trips with calibration from 500% to 1500% of ampere rating of breaker for short circuit protection
 - .3 Normal stored energy, closing mechanism to provide quick make operation.
 - .4 Motor charged, stored energy, quick-make, closing mechanism with emergency manual spring charging handle and switch to isolate power supply to spring charging motor.

- .5 On-off indicator and spring charging indicator.
- .3 Accessories:
 - .1 Microprocessor based trip unit including:
 - .1 Long time delay.
 - .2 Short time delay.
 - .3 Instantaneous time delay.
 - .4 Ground fault protection.
 - .5 Flux-transfer shunt trip.
 - .6 Acceptable product: Cutler-Hammer Digitrip 520.
 - .4 Acceptable products:
 - .1 Cutler-Hammer Magnum DS Series.

2.8 Molded Case Circuit Breakers

- .1 Refer to Section 16477 – Molded Case Circuit Breakers

2.9 Finishes

- .1 Apply finishes in accordance with Section 16010 - Electrical General Requirements.
 - .1 Cubicle exteriors gray.
 - .2 Cubicle interiors white.

2.10 Equipment Identification

- .1 Provide equipment identification in accordance with Section 16010 - Electrical General Requirements.
- .2 Nameplates:
 - .1 White plate, black letters, size 7.
 - .2 Complete switchgear labelled: "600 V".
 - .3 Main cubicle labelled: "Main Breaker".
 - .4 Distribution units labelled: "Feeder No. 1", "Feeder No. 2".

3. EXECUTION

3.1 Installation

- .1 Locate switchgear assembly as indicated and bolt to floor.
- .2 Connect main secondary power supply to main breaker or bus.
- .3 Connect load side of breakers in distribution cubicles to distribution feeders.
- .4 Check factory made connections for mechanical security and electrical continuity.
- .5 Run one grounding conductor 4/0 AWG bare copper in 25 mm conduit from ground bus to ground.
- .6 Check trip unit settings against co-ordination study to ensure proper working and protection of components.

END OF SECTION