

SECTION 16471101.P01  
LOW VOLTAGE POWER PANELBOARDS - Spectra Bolt-On™

PART 1 GENERAL

A. The requirements of the Contract, Division 1, and Division 16 apply to work in this Section.

1.01 SECTION INCLUDES

A. Low voltage power panelboards

1.02 RELATED SECTIONS

1.03 REFERENCES

The low voltage power panelboards and protection devices in this specification are designed and manufactured according to latest revision of the following standards (unless otherwise noted).

- A. ANSI/NEMA PB 1, Panelboards
- B. ANSI/NFPA 70, National Electrical Code
- C. Federal Specification W-C-375, Rev. B, Amend. 1, Circuit Breakers, Molded Case; Branch Circuit and Service
- D. Federal Specification W-P 115, Rev. C, Panel, Power Distribution
- E. Federal Specification W-S-865 - Heavy Duty Switches
- F. UL 489, Molded-Case Circuit Breakers and Circuit-Breaker Enclosures
- G. UL 50, Enclosures for Electrical Equipment
- H. UL 67, Panelboards
- I. UL 98, Enclosed and Dead Front Switches

1.04 DEFINITIONS

A. Overcurrent Protective Device - Single pole circuit breaker. Example: A 2-pole device is considered 2 protective devices.

1.05 SYSTEM DESCRIPTION

- A. Equipment shall be [{"indoor"}{"outdoor"}] deadfront power panelboards for molded-case circuit breakers.
- B. Panelboards shall meet service entrance requirements when specified.
- C. Panelboards shall have integrated short circuit rating. Fully rated panel rating is that of lowest rated device in panelboard. Series rating are for the UL tested main-branch combination.

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1.06 SUBMITTALS

A. Manufacturer shall provide copies of following documents to owner for review and evaluation in accordance with general requirements of Division 1 and Division 16:

1. Product Data on specified product;
2. Shop Drawings on specified product;
3. Trip curves for each specified product;

1.07 PROJECT RECORD DOCUMENTS N/A

1.08 INSTALLATION, OPERATION AND MAINTENANCE DATA

A. Manufacturer shall provide copies of installation, operation and maintenance procedures to owner in accordance with general requirements of Division 1 and Division 16.

1.09 QUALITY ASSURANCE (QUALIFICATIONS)

A. Manufacturer shall have specialized in the manufacture and assembly of low voltage power panelboards for [25] years.

B. Low voltage power panelboards shall be listed and/or classified by Underwriters Laboratories in accordance with standards listed in Article 1.03 of this specification.

1.10 REGULATORY REQUIREMENTS N/A

1.11 MOCK-UPS (FIELD SAMPLES) N/A

1.12 DELIVERY, STORAGE, AND HANDLING

A. Contractor shall deliver, store, protect, and handle products in accordance with recommended practices listed in manufacturer's Installation and Maintenance Manuals.

B. Ship each low voltage power panelboard section in individual shipping splits for ease of handling. Each panelboard section shall be mounted on shipping skids and wrapped for protection.

C. Contractor shall inspect and report concealed damage to carrier within specified time.

D. Contractor shall store in a clean, dry space. Maintain factory protection or cover with heavy canvas or plastic to keep out dirt, water, construction debris, and traffic.

E. Contractor shall handle in accordance with manufacturer's written instructions to avoid damaging equipment, installed devices, and finish.

1.13 PROJECT CONDITIONS (SITE ENVIRONMENTAL CONDITIONS)

A. Follow (standards) service conditions before, during and after panelboard installation.

B. Low voltage power panelboards shall be located in well-ventilated areas, free from excess humidity, dust and dirt and away from hazardous materials. Ambient temperature of area will be between minus [30] and plus [25] degrees C. Indoor locations shall be protected to prevent

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moisture from entering enclosure.

1.14 SEQUENCING AND SCHEDULING N/A

1.15 WARRANTY

A. Manufacturer warrants equipment to be free from defects in materials and workmanship for 1 year from date of installation or 18 months from date of purchase, whichever occurs first.

1.16 MAINTENANCE SERVICE N/A

1.17 EXTRA MATERIALS N/A

1.18 FIELD MEASUREMENTS

A. Contractor shall make all necessary field measurements to verify that equipment shall fit in allocated space in full compliance with minimum required clearances specified in National Electrical Code.

PART 2 PRODUCTS

2.01 MANUFACTURER

A. General Electric Company products have been used as the basis for design. Other manufacturers' products of equivalent quality, dimensions and operating features may be acceptable, at the Engineer's discretion, if they comply with all requirements specified or indicated in these Contract documents.

2.02 MANUFACTURED ASSEMBLIES

A. Furnish GE Spectra Bolt-On™ Low Voltage Power Panelboards (or equal) as indicated in drawings.

2.03 COMPONENTS

Refer to Drawings for: actual layout and location of equipment and components; current ratings of devices, bus bars, and components; voltage ratings of devices, components and assemblies; and other required details.

A. Enclosures

1. Panel box shall be galvanealed code gauge sheet steel with removable end walls.

2. Enclosures shall be surface mounted.

3. Enclosures shall be NEMA [1]{3R}{12}.

B. Fronts

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1. Provide a four piece front to cover wiring gutter and wiring access areas. <{Provide a lockable hinged door} with semi-concealed hinges to cover access to circuit breakers.>

<{2. Hinged door fronts, when specified, shall be provided with (select one of the following three options) }{a lockable inner door with leaf hinges.}{door-in-door.}{a front-hinged to box.} An inner door shall cover the circuit protective devices and shall be able to be locked.>

<{3. Door locks shall be }{GE Valox style}{Yale #511}{National, flush lift latch}{3 point latch}.>

#### C. Interiors

1. Panelboard interior shall be designed and assembled such that circuit protective devices shall be solidly connected to the distribution panel vertical bus. The bus bars shall be attached to the feeder device by bolts and to the vertical bus by bolts and anti-turn methods.

2. Circuit breaker connectors shall be designed so that circuit breakers may be removed without disturbing adjacent devices.

3. Panelboards shall be rated as indicated in drawings. Main devices shall have maximum rating of 1200 amperes.

4. Panelboards shall have three vertically aligned bus bars.

5. Bus bars shall be [{aluminum}{copper}]. The bus bars shall have sufficient cross sectional area to meet UL 67 temperature rise requirements through actual tests. The bus bars shall be [{standard density rated for 1000 amperes per square inch copper}{standard density rated for 750 amperes per square inch aluminum}{reduced density rated for 800 amperes per square inch copper}{reduced density rated for 600 amperes per square inch aluminum}].

6. Bus bars shall be phase-sequenced and rigidly supported by high impact resistant, insulated bus supporting assemblies to prevent vibration or short circuit mechanical damage.

7. Neutral bus shall be [{fully rated}{200 percent rated}] where indicated on the drawings.

8. All solderless terminations shall be suitable for [{copper}{aluminum}] UL listed wire or cable and shall be tested and listed in conjunction with appropriate UL standards. Terminations shall be rated for use with conductor ampacity as assigned in the NEC 75 degree C table.

9. Ground wire terminations shall be provided as an optional kit for installation by panelboard installer without voiding UL label.

#### D. Main and Branch Devices

##### 1. Circuit breakers

a. Main and branch circuit breakers shall be quick-make, quick break, and trip indicating, GE Type low voltage molded-case (or equal).

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- b. Circuit breaker case shall have ON/OFF and International I/O position indicators.
- c. Breaker faceplate shall list current rating, UL and IEC certification standards, and AIC ratings.
- d. Circuit breakers shall be factory sealed and shall be date coded on breaker case.
- e. Breakers shall be UL listed for reverse connection without restrictive line or load markings. Circuit breakers shall be able to mount in any operating position.
- f. 3-pole breakers with ampere ratings greater than [150] ampere shall have interchangeable rating plugs.
- g. All circuit protective devices shall have the following minimum symmetrical current interrupting capacity [18kA]{25kA}{35kA}{50kA}{65kA}{100kA}]. Interrupting rating of breakers shall not be less than maximum short circuit current available at incoming line terminals as shown on plans.
- h. Breakers shall have UL listed series ratings, if specified in drawings.
- i. Main breakers and lugs shall be convertible by installer for top or bottom incoming feed.
- <j. Where indicated on the drawings, the main breaker shall be provided with integral ground fault pick-up and delay settings and adjustable long time, {and }{instantaneous }{and short time }{settings.}>

E. Series Ratings

- 1. Panelboard series-connected ratings shall be attached to the panelboard enclosure.

2.04 ACCESSORIES

- A. <{Dual}{Through-feed}> lugs
- B. Padlocks
- C. Grounding bars. (Neutral bus shall have grounding lug for Service Entrance applications.)
- D. Exterior mounted equipment label
- E. Furnish nameplates for each device as indicated in drawings. Color schemes shall be as indicated on drawings.
- F. Provide a TVSS as specified in Section 16479010

2.05 TESTING

2.06 FINISH

- A. Standard panelboard boxes shall be galvanealed (zinc finished) or galvanized.

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B. Fronts shall be coated with phosphatized rust inhibitor and finish coated with ANSI 61 light gray baked on powder coat.

C. Screw fasteners shall be zinc coated to retard corrosion.

PART 3 EXECUTION

3.01 EXAMINATION

A. The following procedure shall be performed by the contractor.

1. Verify that low voltage panelboards are ready to install.
2. Verify field measurements are as shown on Drawings.
3. Verify that required utilities are available, in proper location and ready for use.
4. Beginning of installation means installer accepts conditions.

3.02 LOCATION

3.03 INSTALLATION

Additional provisions and editing may be required for this part.

A. Contractor shall install per manufacturer's instructions.

B. Contractor shall install required safety labels.

3.04 FIELD QUALITY CONTROL N/A

3.05 ADJUSTING N/A

3.06 CLEANING N/A

END OF SECTION