

CPI™ SYSTEMS General Specifications
Manufactured By Carolina Products, Inc.

Part 1 - General:

1.1 Overview

- A. The ***Control & Power Integration System*** is a U.L. Listed method of integrating all building electrical switchgear, electrical controls and, when applicable, energy management systems into a unitized package. For the remainder of this section, this unitized package may also be referred to as the CPI System or Unitized Switchgear.

1.2 Summary

- A. The CPI System shall be as manufactured by Carolina Products, INC.
B. The Unitized Switchgear shall incorporate:
1) All applicable switchgear consisting of Distribution Panel-board(s), Sub-Panel-board(s), neutral bars and ground bars.
2) All applicable electrical controls components and associated wiring.
3) All applicable sub-panel feeders, control wiring and branch circuit wiring. All wiring shall be copper conductors with a minimum insulation rating of 75°C.
C. Unitized Switchgear will include the various component's specification sheets and operation manuals. Carolina Products will supply two (2) copies of as built drawings to be shipped with the equipment. The above mentioned materials shall constitute a CPI System Manual. If additional manuals are required, they may be purchased through Carolina Products at (800) 736-4455.
D. The CPI System shall meet or exceed the applicable requirements of UL508A, UL 508 and UL 891 and is UL Listed as a complete assembly.
E. The CPI System enclosures are available in Type 1 and Type 3R configurations.

1.3 Enclosure Construction

- A. Enclosures shall be constructed of 1/8" thick aluminum and shall have a natural brushed finish.
B. Each enclosure shall be 84" tall by 10" deep by a maximum of 47" wide.
C. Each enclosure bottom shall have a minimum of 1 1/8" flange on all sides for stability. Remaining area shall be open for conduit entry.
D. Each enclosure shall have a 1/8" thick hinged aluminum door with a raised 1" flange on all sides. This will make the enclosure with its door a total of 11" deep.
E. Each enclosure door shall be hinged so that it can be easily removed when necessary, such as during installation. (Exception: If components mounted on the door require wiring interface, this door shall be mounted so that it can not be removed to prevent accidental damage of components and wiring.) The removal of the enclosure door shall not require the hinge system to be disassembled
F. Each enclosure door shall be held closed by 1 of 2 methods.
1) Bolted along the edge opposite of the hinge.
2) A three-point locking handle which consists of extension rods with rollers. This assembly shall be of high quality and ensure the ease of door operation. All locking handles shall be keyed alike.
G. Each enclosure shall have all applicable cut-outs to expose all circuit breakers.
H. Upon request, a hinged panel-board outer door will be supplied. This door shall be constructed of 1/8" thick aluminum and be non-removable. This door will be held closed by a non-locking "T" style handle. Upon request, this panel-board outer door may also have a locking handle. These handles shall be keyed alike.
I. An enclosure and the enclosure door shall constitute a cabinet section.
J. These cabinet sections shall be bolted together as needed to form a U.L. Listed complete assembly.
K. Each cabinet section shall be labeled as a Type 1 or Type 3R Enclosure.
L. Each cabinet section shall bear the appropriate U.L. Label on the outside of the enclosure door in plain sight.
M. Each cabinet section will have a metal plate mounted on the outside of the cabinet door and have the following information stamped onto the metal plate.
1) Carolina Products Project Number for project tracking
2) Section number X of X total sections

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- 3) Section Voltage & type of system (ex. 120/208V 3 phase 4 wire)
- 4) Section FLA (Full Load Amps)
- 5) Section Neutral FLA
- 6) Section Fault Current Rating (ex. 10K AIC)

1.4 Switchgear

- A. All switchgear supplied by Carolina Products shall be industrial grade manufactured by Square D, Cutler-Hammer or General Electric.
- B. Unless specified in writing to Carolina Products from bodies having authority, Carolina Products reserves the right to choose one of the switchgear manufacturers listed above.
- C. For the remainder of this section, the terms switchgear, service panel-board(s) or panel-board(s) shall include and apply to all manufacturers.

1.5 Service Panel-board(s) shall meet the following criteria:

- A. U.L. Listed equipment
- B. Rated for a maximum 600 VAC.
- C. Rated and labeled for use as Service Entrance Equipment.
- D. Copper Bus rated for 1000A PSI (per square inch).
- E. Meet all requirements as specified on drawings unless otherwise approved.
- F. Rated equal to or greater than the maximum available Fault Current.
- G. Include all branch circuit breakers as specified on drawings unless otherwise approved
- H. All lugs, including branch circuit breakers, shall be rated for a minimum of 75°C.
- I. When surge suppression is required, Liebert or Customer specified Surge Suppression System shall be factory installed and wired by Carolina Products.

1.6 Panel-board(s) rated at 480 VAC shall meet the following criteria:

- A. U.L. Listed equipment
- B. Copper Bus
- C. Meet all requirements as specified on drawings unless otherwise approved.
- D. Rated equal to or greater than 14,000 AIC
- E. Include all branch circuit breakers as specified on drawings unless otherwise approved
- F. All branch breakers shall be bolt-on type circuit breakers.
- G. All lugs, including branch circuit breakers, shall be rated for a minimum of 75°C.
- H. When surge suppression is required, Liebert or Customer specified Surge Suppression System shall be factory installed and wired by Carolina Products.

1.7 Panel-board(s) rated at 240 VAC or less shall meet the following criteria:

- A. U.L. Listed equipment
- B. Copper Bus
- C. Meet all requirements as specified on drawings unless otherwise approved.
- D. Rated equal to or greater than 10,000 AIC
- E. Include all branch circuit breakers as specified on drawings unless otherwise approved
- F. All branch breakers shall be bolt-on type circuit breakers.
- G. All lugs, including branch circuit breakers, shall be rated for a minimum of 75°C.
- H. When surge suppression is required, Liebert or Customer specified Surge Suppression System shall be factory installed and wired by Carolina Products.

1.8 Factory Assembled Specifications

- A. Switchgear
 - 1) Service panel-board(s) and sub-panel-board(s) shall be mounted so that their dead-fronts are flush with the enclosure doors. Also, branch circuit breakers shall be accessible without opening the enclosure door.

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- 2) All panel-board(s) provided by Carolina Products that are specified as remote mounted will be shipped as loose items including pane-board, breakers, can and cover.
 - 3) All panel-board(s) shall be clearly labeled.
 - 4) Panel-board(s) shall be provided with a computer generated circuit directory card that will be placed in a metal frame with a plexi-glass cover and pop riveted in place.
 - 5) All ground bars and neutral bars shall be provided and mounted by Carolina Products.
 - 6) All feeder and branch circuit wiring shall be copper conductors with a minimum insulation rating of 75°C.
- B. Electric Controls
- 1) Typical control components may consist of but not limited to relays, transformers, contactors, pilot lights, switches, terminal strips, CPI System Controller or other owner specified building management system.
 - 2) Components will vary depending upon application and additional components other than those mentioned above may be required.
 - 3) All components shall be factory mounted and wired by Carolina Products unless otherwise specified.
 - 4) All component wiring shall be copper conductors with a minimum insulation rating of 75°C.
- C. Testing & Quality Control
- 1) Complete System shall pass a dielectric test per UL 891 standards.
 - 2) Complete System shall be reviewed for proper assembly.
 - 3) All components and associated wiring shall be tested for defects and proper operation.

1.9 Installation

- A. When the unitized switchgear is required to ship in multiple sections, the electrical contractor shall assemble these sections according to the accompanying drawings.
- B. Contractor shall install all bolts, which are provided by Carolina Products, required to join the cabinet sections.
- C. When necessary, the electrical contractor shall reconnect all wiring plugs or terminate all wires between cabinets as marked by Carolina Products.
- D. Electrical contractor shall terminate all field wiring, such as non-controlled branch circuit wiring, as specified on the drawings provided with the CPI system.
- E. Electrical contractor shall conduct all work associated with the CPI system in a neat and professional manner.

1.10 Pricing, Ordering & Technical Information

Carolina Products, Inc.
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(800) 736-4455