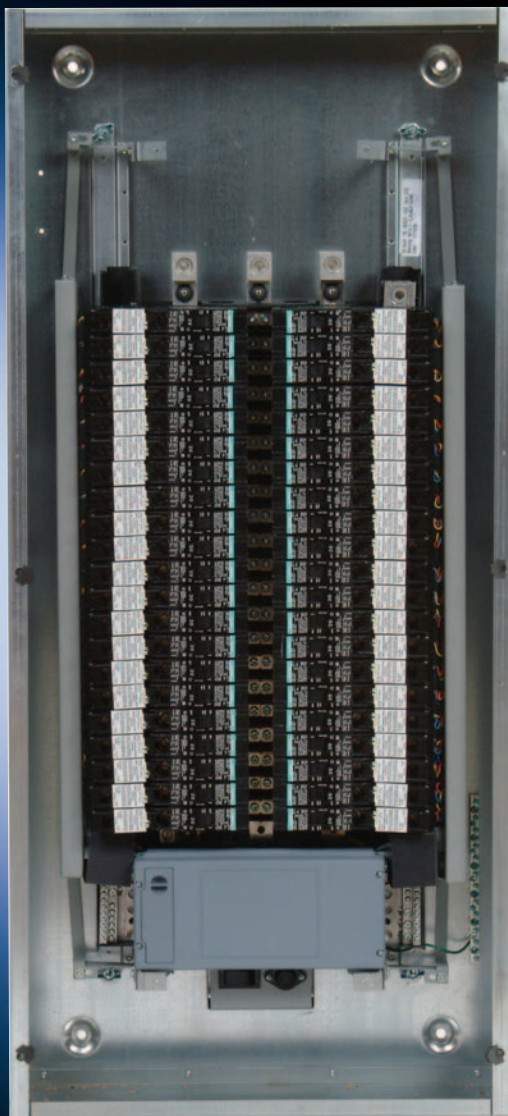


Installation / Replacement Instructions



p1 series LIGHTING PANEL

i-3 Control Technology™
Instruction Manual
P/N:12-A-1094-01 Rev. 1

SIEMENS

P1 Panel with i-3 Control Technology™



Safety Precautions

(a) Only qualified persons familiar with the construction and operation of this equipment should perform work described in this set of instructions. Such work should be performed only after reading this complete set of instructions.

(b) Follow safety related work practices, as described in NFPA 70E, part II, at all times.

(c) Hazardous voltages in electrical equipment can cause severe personal injury or death. Energizing this equipment for the first time after initial installation or maintenance is potentially dangerous. Inspection and maintenance should be performed on this equipment and equipment to which power has been cut off, disconnected, and electrically isolated so that no accidental contact can be made with energized parts.

(d) Some types of electrical equipment will cause harmonics in the electrical system which may result in overheating. Consider this condition when determining this equipment loading, as possible de-rating of equipment may be necessary.

Important

The information contained herein is general in nature and not intended for specific application purposes. It does not relieve the user of responsibility to use sound practices in application, installation, operation, and maintenance of the equipment purchased. Siemens reserves the right to make changes in the specifications shown herein or to make improvements at any time without notice or obligations. Should a conflict arise between the general

information contained in this publication and the contents of drawings or supplementary material or both, the latter shall take precedence.

Qualified Person

For the purpose of this manual and product labels, a qualified person is one who is familiar with the installation, construction, operation or maintenance of the equipment and the hazards involved. In addition, this person has the following qualifications:

(a) **is trained and authorized** to de-energize, clear, ground, and tag circuits and equipment in accordance with established safety practices.

(b) **is trained** in the correct care and use of protective equipment such as rubber gloves, hard hat, safety glasses or face shields, flash clothing, etc., in accordance with established safety practices.

(c) **is trained** in rendering first aid.

Signal Words

The signal words "Danger," "Warning" and "Caution" used in this manual indicate the degree of hazard that may be encountered by the user. These words are defined as:

Danger - Indicates an imminently hazardous situation which if not avoided, will result in death or serious injury.

Warning - Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

Caution - Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

Dangerous Procedures

In addition to other procedures described in this manual as dangerous, user personnel must

adhere to the following warnings:

(a) **Danger!** High Voltage. Qualified personnel only. Lock off all power to this equipment before working inside. Always work on de-energized equipment. Always de-energize equipment before performing any tests, maintenance or repair.

(b) **Warning!** Always perform maintenance on the interrupting device after the closing mechanism(s) are discharged.

(c) **Caution!** Always let an interlock device or safety mechanism perform its function without forcing or defeating the device.

(d) **Caution!** Hydrocarbon spray propellants and hydrocarbon compounds will cause degradation of certain plastics. Contact your local Siemens representative before using these products to clean or lubricate components during installation or maintenance.

P1 Panel with i-3 Control Technology

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P1 Panel with i-3 Control Technology

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These instructions do not purport all details or variations in equipment, nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the local Siemens sales office. The contents of this instruction manual shall not become part of or modify any prior or existing agreement, commitment or relationship. The sales contract contains the entire obligation of Siemens. The warranty contained in the contract between the parties is the sole warranty of Siemens. Any statements contained herein do not create new warranties or modify the existing warranty.

Chapter 1

Introduction

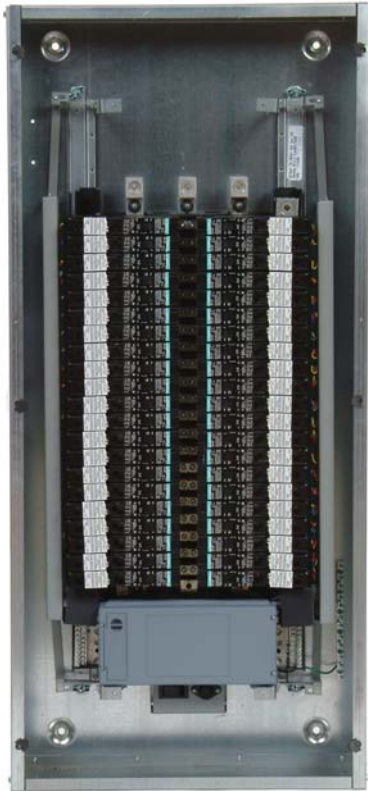


Figure 1.1
P1 Panel with i-3 Control Technology

Overview

Siemens P1 Series Lighting Panel with i-3 Control Technology is a Siemens P1 Series Panel integrated with i-3 Control Technology components within the panel. This i-3 Control Technology provides users the means of controlling the branch circuits remotely. In this manual, each individual i-3 Control Technology system component will be discussed in detail with assembly and removal instructions. Should additional information be desired, contact your Siemens Representative or call Customer Service provided in Appendix D - Customer Service Support Info.

Scope

The purpose of this manual is to assist the user in developing safe and efficient procedures for the installation, operation and maintenance of the equipment. The equipment described in this manual consists of P1 Series Lighting Panel with i-3 Control Technology System. This equipment may be used on systems up to 480Y/277 Volts max. A typical P1 Series Lighting Panel with i-3 Control Technology System assembly is shown in Figure 1.1.

The equipment manufactured has been designed to operate in a system having the short circuit interrupting specified in the job specification. If for any reason the equipment is later used in a different system, user must receive approval of intended changes from Siemens.

Siemens Type P1 Lighting Panel with i-3 Control Technology is designed to function efficiently under normal operation conditions. It is designed and manufactured in accordance with UL, NEMA and NEC standard requirements. Performance requirements of these standards have been met or exceeded by these designs.

The principal standards which apply are:

- National Electric Code NFPA 70
- NEMA PB1, NEMA 250
- UL: 67, 50 and 916. Listed by Underwriter's Laboratories, Inc., under File #E2269, #E4016 and #E173174.

For more information, refer to the latest edition of NEMA Standards Publication PB1.1 "General Instructions for Proper Installation, Operation, and Maintenance of Panelboards Rated 600 Volts or Less" which is shipped with the panel and also available on the NEMA web site (www.nema.org). Should additional information be desired, contact your Siemens Representative or call Customer Service provided in Appendix D - Customer Service Support Info.

Chapter 1

Introduction

Parts Illustration

Figure 1.2 below shows the front view of P1 panel with i-3 Control Technology components.

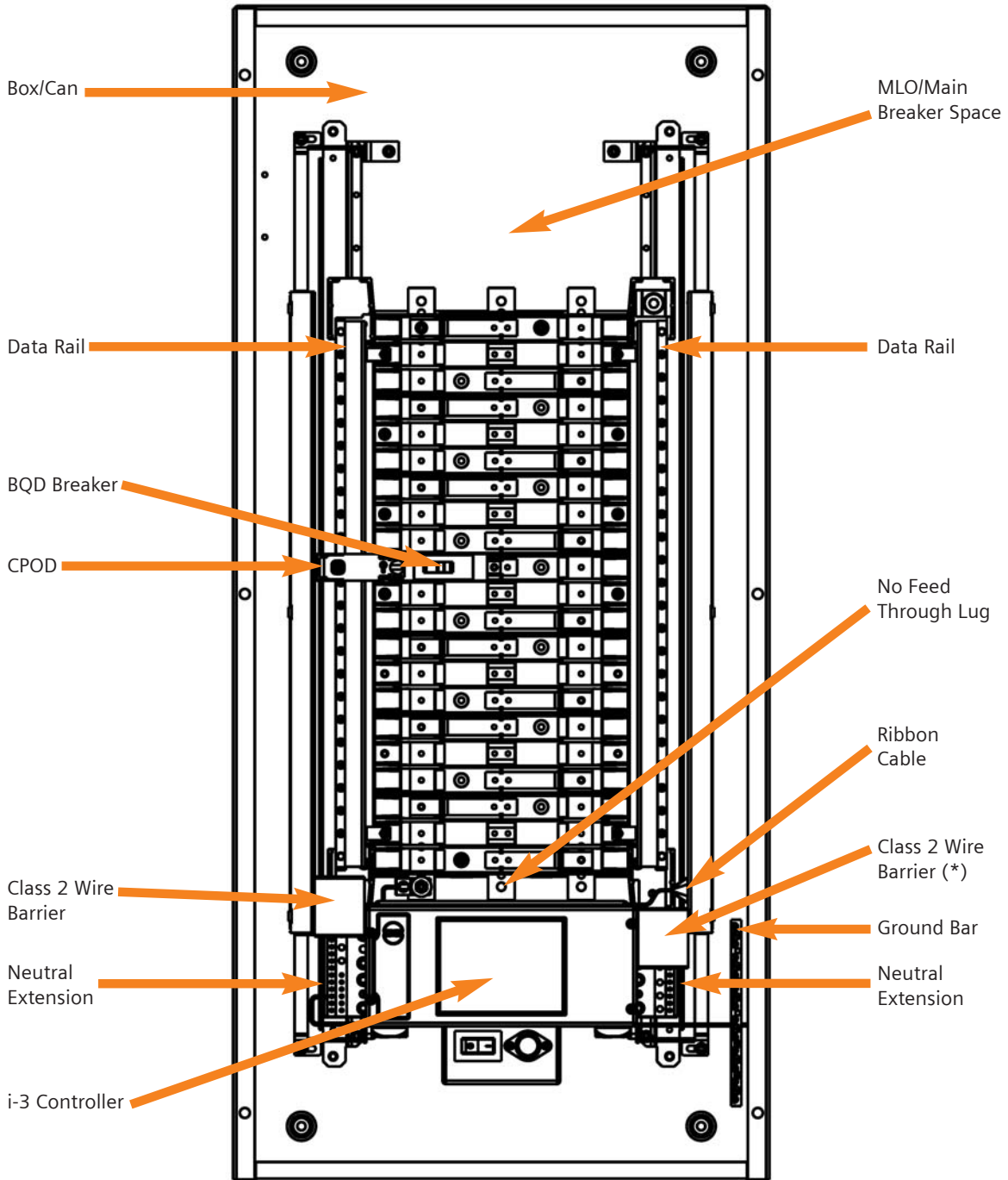


Figure 1.2
Panel Overview Diagram

Note: (*) Class 2 wire barrier is intentionally misplaced on the figure above to show the ribbon cable.

Chapter 2

Receiving, Handling and Storage

Receiving

Upon receipt of the product, an immediate inspection should be made for any damage which may have occurred during shipment. The inspection should begin with the packaging material and proceed to the equipment within. Be sure to look for concealed damage and do not discard the packing material. If damage is found, note damage on "Bill of Lading" prior to accepting receipt of the shipment, if possible.

The P1 Lighting Panel with i-3 Control Technology may be shipped as individual shipping units. In case the P1 enclosure is shipped ahead, the P1 Interior with i-3 Control Technology or i-3 Control Technology components are shipped later in a separate shipment package. Refer to the shipping slip information to identify all items included in the shipping package.

Identification

Each panel may be identified by the rating label showing the panel designation information which also appears on the shipping list. Refer to the general arrangement drawing for location of each lighting panel.

Inspection and Unpacking

Inspect the equipment as soon as possible after received for any damage that may have occurred during shipment. Carefully remove packing to inspect for any possible damage. Do not destroy any packing material for equipment storage or return shipment if necessary. Check the shipping list to be certain that all items have been received. The P1 Lighting Panel with i-3 Control Technology unit should include but is not limited to the following items.

- Panel Enclosure
- Panel Trim
- P1 Interior with
 - Main Device or Main Incoming Terminals
 - Circuit numbering (up to 42 per panel)
 - Mounting and Leveling Kit IMK3

- Branch Breakers (Note all breakers that are to have the CPOD (see page 25) attached must be BQD (15-20 amps) up to 42)
- i-3 Control Technology components
 - CPODs (up to 42 per panel)
 - A pair of data rails
 - A pair of 100% neutral extensions
 - A pair of sleeve conduits for low voltage wiring
 - i-3 Controller
 - Power supply (inside the i-3 Controller)
 - Fuse Element (inside the i-3 Controller)
 - Switch Element (inside the i-3 Controller)
 - Dry-contact input connectors (inside the i-3 Controller)

If there are any shortages or damages not previously noted, make certain it is noted on the delivery receipt and contact the carrier immediately. Notify the Siemens Sales Office of any shortages or damages.

Shipping Damage Claim Procedure

Note: Improper treatment by consignee of visible shipping damage prior to signing the delivery receipt can determine the outcome of the damage claim to be filed. Notification to carrier within the 15 day limit on concealed damage is essential if loss resulting from unsettled claims is to be eliminated or minimized.

1. When shipment arrives, note whether equipment is properly protected from the elements. Note trailer number on which the equipment arrived. Note blocking of equipment. During unloading make sure count agrees with delivery receipt.
2. Make immediate inspection for visible damage upon arrival, and prior to disturbing or removing packaging or protective wrapping.

This should be done prior to unloading when possible. When total inspection cannot be made on the vehicle prior to unloading, close inspection during unloading must be maintained and visible damage noted on the delivery receipt. Take pictures when possible.

3. Any visible damage must be noted on the delivery receipt and acknowledged with the driver's signature. The damage should be detailed as much as possible. It is essential that a notation "Possible internal damage, subject to inspection" be included on delivery receipt with damage noted, the shipment should not be signed for by the consignee or his agent.

4. Notify the Siemens sales office immediately of any damage.

5. Arrange for a carrier inspection of damage immediately. **IMPORTANT:** Do not remove equipment from the place it was set when unloading. Be sure this location is properly protected to ensure further damage will not occur. Equipment must be inspected by carrier prior to handling after receipt. This eliminates loss due to claims by carrier that equipment was damaged or further damaged on site after unloading.

6. Be sure equipment is properly protected from any further damage by covering it properly after unloading.

7. If practical, make further inspection for possible concealed damage while carrier inspector is on site. If inspection for concealed damage is not practical at the time the carrier inspector is present, it must be done within 15 days of receipt of equipment. If concealed damage is found, the carrier must be notified and inspection made prior to taking any corrective action to repair. Also notify the Siemens sales office immediately.

Chapter 2

Receiving, Handling and Storage

8. Obtain the original of the carrier inspection report and forward it along with a copy of the noted delivery receipt to the Siemens sales office. Approval must be obtained by Siemens from the carrier before any repair work can be performed. Before approval can be obtained, Siemens must have the documents. The carrier inspection report and/or driver's signature on the delivery receipt does not constitute approval or repair.

If the equipment is to be stored in a cool or damp area, do not completely cover the equipment, but provide heat to prevent condensation of moisture in the equipment.

Handling

P1 Series Lighting Panel with i-3 Control Technology should be handled with care to avoid damage to components and to the frame or its finish. Refer to Table 2.1 below for approximate weights of single panel with full control points which will be helpful in determining the required capacity of the handling means.

Panel Size	Estimated Weight
18 Circuit Panel	77 lbs
30 Circuit Panel	98 lbs
42 Circuit Panel	119 lbs

Table 2.1
P1 Panel Main Lug with i-3 Control Technology Estimated Weight

Storage

P1 Series Lighting Panel with i-3 Control Technology, which if not installed and energized immediately, should be stored in a clean dry area where a uniform temperature prevents condensation. Preferably, it should be stored in a heated building, with adequate air circulation and protected from dirt and water. It should be stored where it is not subject to mechanical damage.

If this equipment is to be stored for any length of time, prior to installation, restore the packing for protection during that period. Where conditions permit, leave the packing intact until it is at its final installation position.

Chapter 3

Installation



Preparation for Installation

Prior to installation of the panel, study this instruction manual and the drawing package, such as general arrangement, one line diagram, schematic drawings, wiring diagrams, panel arrangement and electrical bill of material.

Installation should be in accordance with the National Electrical Code, NEMA and UL Standards. Unless the panel has been designed for unusual service conditions, it should not be located where it will be exposed to ambient temperature above 40°C (105°F), corrosive or explosive fumes, dust, vapors, dripping or standing water, abnormal vibration, shock or tilting, or other unusual operating conditions.

For installation/replacement of i-3 Control Technology in Siemens P1 panel, the following conditions have to be met:

1. Branch circuit breakers are Siemens BQD type breakers up to 20A
2. The panel gutter has to be clear, only wires for electrical loads are allowed in this area
3. No feed through lugs, sub-feed breaker or TVSS installed
4. Sub-feed area is clearly designated for i-3 controller

For more detail information on the installation/replacement instruction of individual i-3 Control Technology components, refer to Chapter 6 - System Components.

Chapter 3

Installation

Lighting Control Assembly Layout

Figure 3.1 below illustrates parts included in panel interior and how

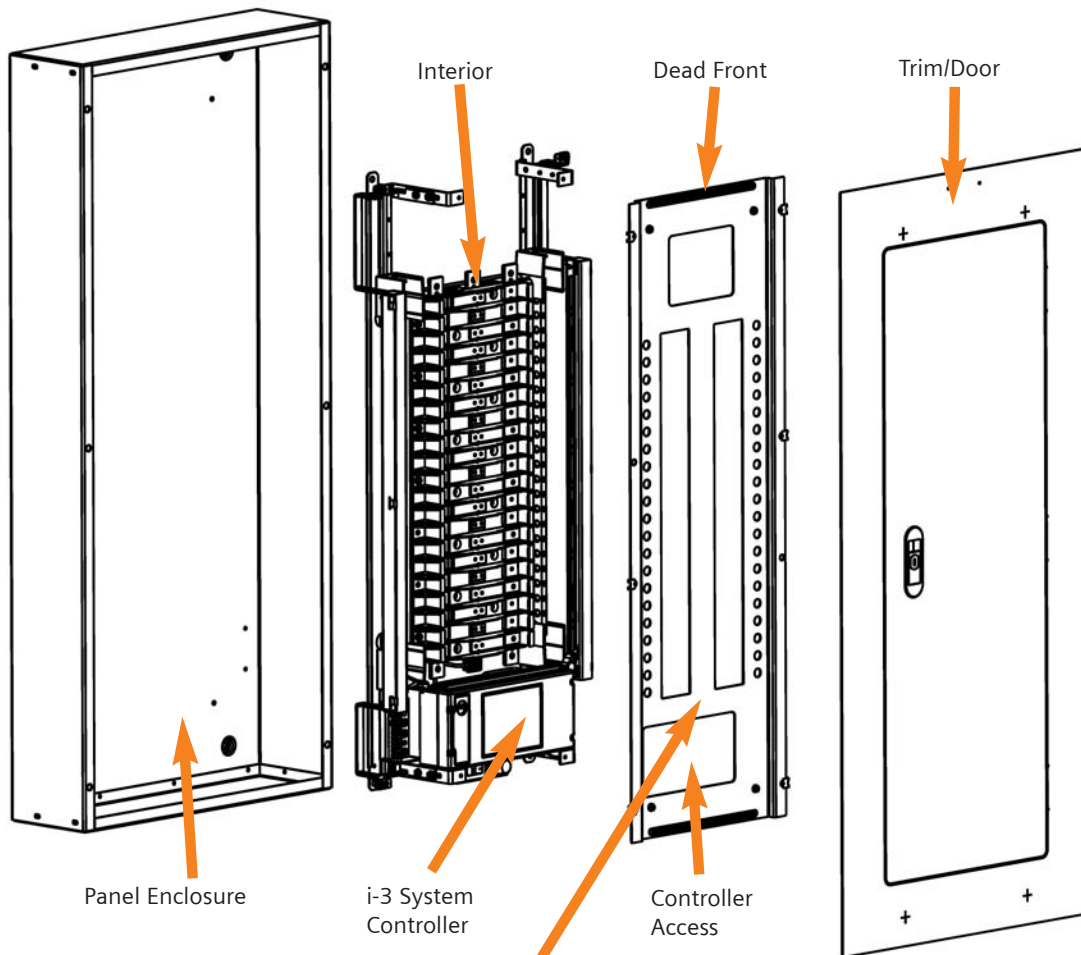


Figure 3.1
Panel Assembly

Note: Standard dead front may be used with i-3 Control Technology Controller installed. Control panels from the factory will have an extended opening to allow access to controller program input area. For retrofit desiring this feature contact a Siemens sales representative for ordering information.

Note: For repair or replacement of panel components, use existing hardware. If existing hardware is damaged or lost, contact Siemens technical assistance for hardware specifications.

Chapter 3

Installation

Figure 3.2 below illustrates i-3 Control Technology Components.

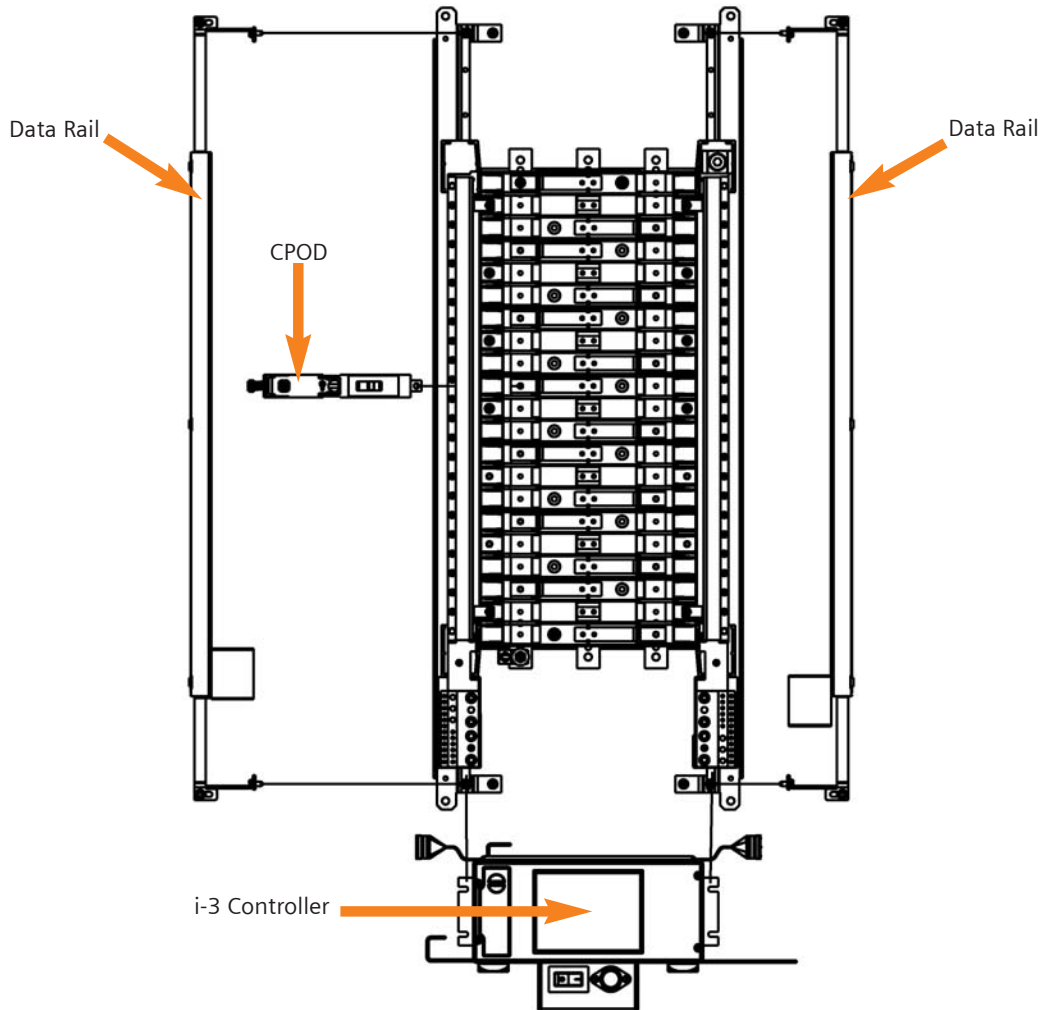


Figure 3.2
i-3 Control Technology Components

P1 Enclosure Mounting Installation

For the mounting location information of the Lighting Panel cabinet, refer to the latest edition of Nema PB 1.1 "General Instructions for Proper Installation, Operation, and Maintenance of Panelboards Rated 600 Volts or Less", Section 4.

P1 Interior with i-3 CONTROL TECHNOLOGY Installation

P1 Interior with i-3 Control Technology may be factory assembled, which means that P1 interior components and i-3 Control Technology components are installed and assembled prior to shipment. Figure 3.3 below shows the interior mounting holes location.

Chapter 3

Installation

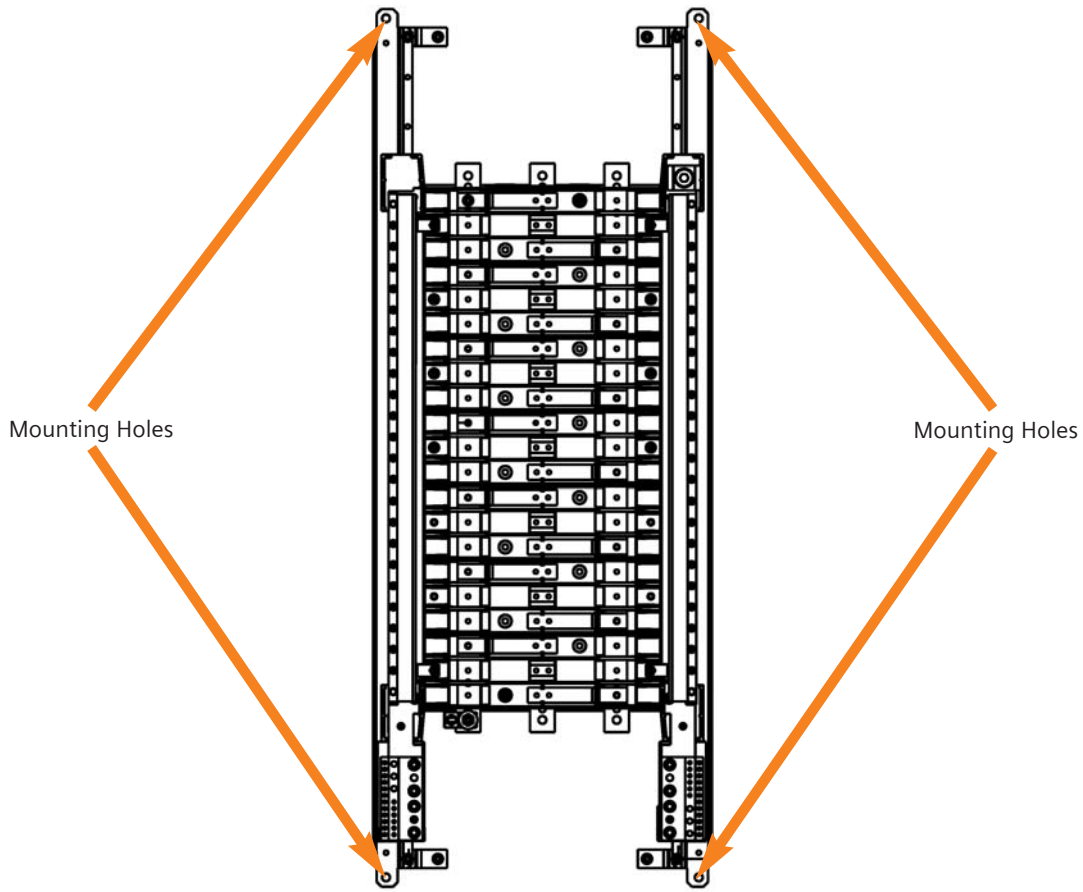


Figure 3.3
Interior Mounting Holes Location

Interior mounting holes are to be aligned with the bolt-on screws installed on the P1 enclosure base and tighten the provided wing nuts to secure the position of the interior.

In case of the interior level needs to be adjusted, refer to "Mounting and Leveling Kit IMK1" instruction sheet which is provided during the shipment of the panel.

In case of i-3 Control Technology components needing to be installed in the panel, please refer to the step-by-step installation instructions described on Chapter 6 - System Components.

Additional BQD Breaker and CPOD Installation

In case additional BQD breakers and CPODs need to be installed in the panel, please refer to the step-by-step installation instructions described on Chapter 6 - System Components under BQD Breaker and CPOD sections.

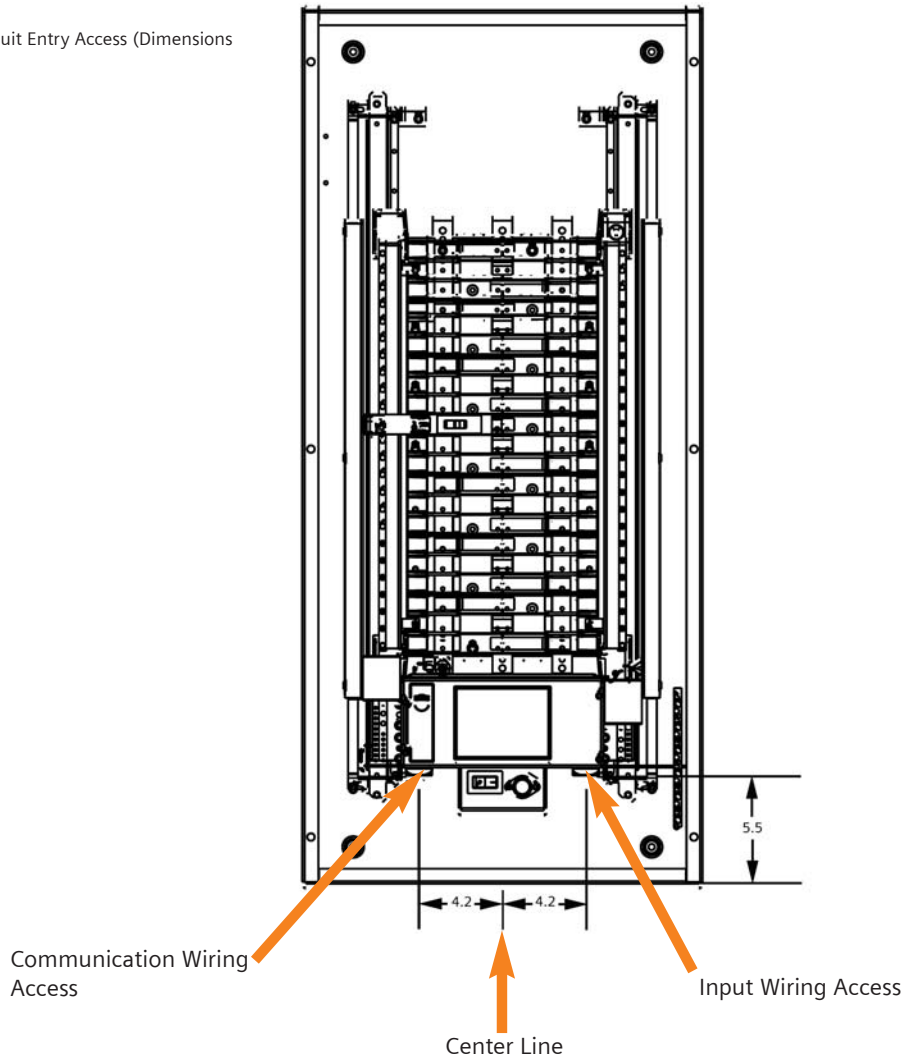
Location for Low Voltage Conduit

Figure 3.4 below illustrates the location for the low voltage conduit entry access on i-3 controller.

Chapter 3

Installation

Figure 3.4
Low Voltage Conduit Entry Access (Dimensions are in inches.)



Sleeve conduits for input and communication wiring barriers are provided during the shipment of the panel with i-3 Controller.

Wiring Installation

For electrical load wiring information, refer to Breaker rating label located on the face of the breaker.

For ground wire installation, ground wire needs to be installed after the panel enclosure is mounted on the wall and the P1 interior is installed. Ground wire will not be installed at the factory. Ground terminations to the enclosure should be made after

the P1 interior is installed in the enclosure to prevent physical interference with wires.

Configuring i-3 Controller

For complete detail on i-3 controller configuration, refer to "i-3 I/O Controller User Guide", P/N: 12-A-1095-01 for the i-3 I/O Controller or "i-3 System Controller User Guide", P/N: 12-A-1095-02 for i-3 System Controller.

Deadfront Installation

Prior to completing the installation of panel dead front and trim, first examine the Inspection section in

Chapter 4 - Inspection and Testing.

1. Make sure the dead front is installed prior to closing of the panel.
2. Insure that all breakers extend properly through the dead front openings and any provisions or spaces are properly covered with dead front fillers. Normal unit space opening may use QF3 filler plates.

Trim/Door Installation

For trim/door installation, refer to "Trim Mounting Instructions", which is provided during the shipment of the trim.

Chapter 4

Inspection and Testing



Overview

Before the equipment is energized, it must be thoroughly inspected and tested. Any deviation must be corrected prior to energizing.

Inspection

Check the following points:

1. All mechanical connections for tightness as factory connections may loosen during shipment and storage.
2. All accessible electrical connections are tightened to the torque specifications on the panel labeling.
3. All bolt-on screws connecting breakers and phase bus bar are properly installed and tightened.
4. Connections between CPODs and BQD breakers are properly made and secured.
5. Connections between CPOD connectors and Data Rails are properly made and secured.
6. Both ribbon cable connections between Data Rails and i-3 Controller I/O Board are properly made and secured.
7. All blocking supports packing materials have been removed from all component devices and lighting panel.
8. All ground connections are properly made (Note: ground wire to be installed after the panel box is mounted on the wall).
9. Remove all foreign materials from the panel and enclosure before installing the dead front and trim.
10. Before energizing - Dead front is properly aligned and securely installed.
11. Before energizing - Trim is securely installed and mounted onto the P1 enclosure.

Testing

Perform the following tests prior to energizing the panel:

1. Disconnect the i-3 Control Technology controller from the bus by pulling the fuse and moving the handle of the switch to "OFF" position prior to running dielectric or megger testing on the panel and/or system.
2. All breakers should be exercised prior to energizing.
3. The CPOD may be manually closed to allow circuit testing prior to commissioning of the controller.

Energizing

1. Panelboard deadfront and trim must be installed before energizing
2. In order to minimize risk of injury or damage, there should be no load on the P1 panel when it is energized.
3. The equipment should be energized in sequence by starting at the source end of the system and working towards the load end. In other words, energize the main devices, then the feeder devices, and then the branch circuit devices.
4. After all upstream devices have been turned on, loads such as lighting circuits may be turned on to verify that the system operates as intended.

System Diagnostic Test

For Controllers without touch screen (I/O Controller) - A computer with the Configurator Tool program is required to be connected to perform the system diagnostic test. Refer to the "i-3 I/O Controller User Guide" for more information on using the Configurator Tool program.

For Controllers with touch screen (System Controller) - Once energized, the controller will prompt the user for basic setup information. It will then run system diagnostics to determine which and how many control points are attached. If control points

that should be attached do not show on the controller screen then de-energize the panel, remove the dead front and check all connections. Once all CPOD modules are connected and operating properly, refer to the "i-3 System Controller User Guide" for further instruction on set up and commissioning.

Chapter 5

Maintenance



For the maintenance procedures of this equipment, refer to the latest edition of NEMA Standards Publication PB1.1 "General Instructions for Proper Installation, Operation, and Maintenance of Panelboards Rated 600 Volts or Less" which is shipped with the panel and also available on the NEMA web site (www.nema.org).

This checklist does not represent an exhaustive survey of maintenance steps necessary to ensure safe operation of the equipment. Particular applications may require further procedures. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the local Siemens sales office.

Dangerous voltages are present in the equipment which can cause death, serious injury or property damage. Always disconnect and lock off all power to the equipment before maintenance. Maintenance should be performed only by qualified personnel.

The use of unauthorized parts in the repair of the equipment, or tampering by unqualified personnel will result in dangerous conditions which can cause death, serious injury or equipment damage. Follow all safety instructions contained herein.

Chapter 6

System Components

BQD Circuit Breaker

Description

Figure 6.1 and 6.2 below illustrate BQD circuit breaker layout information.

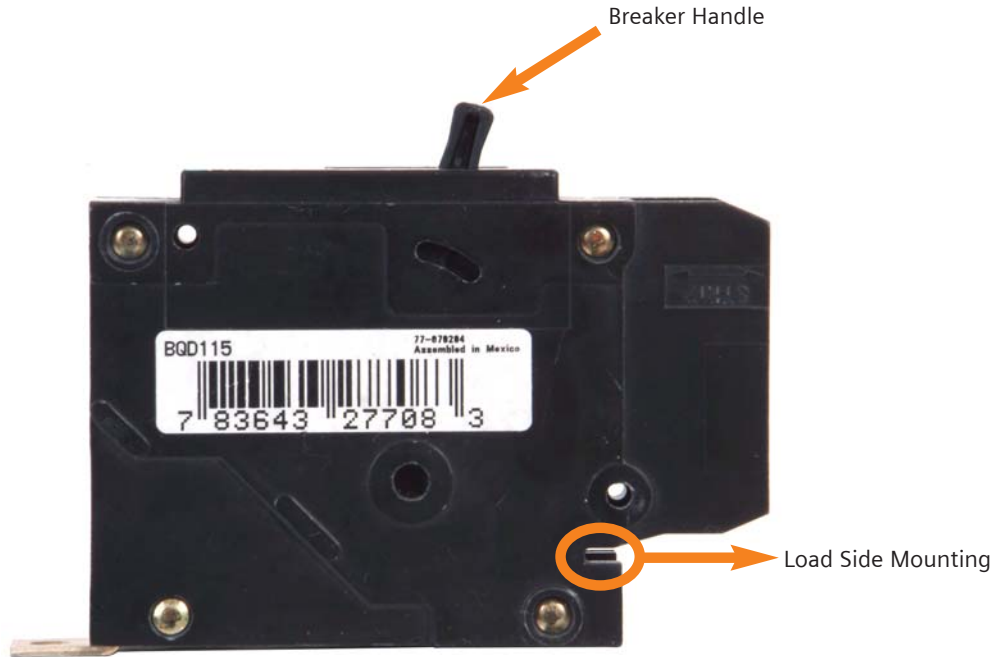


Figure 6.1
BQD 15A Breaker Side View



Figure 6.2
BQD 15A Breaker Top V

Catalog Numbers

Continuous Current Rating @ 40° C	1-Pole 120 - 277V AC Catalog Number	2-Pole* 240 - 480Y/270V AC Catalog Number
15A	BQD115	BQD215
20A	BQD120	BQD220

Table 6.1
BQD Catalog Numbers

*Available in April 2007.

Interrupting Ratings

Number of Poles	RMS Symmetrical Amperes (KA)			
	Volts AC			
	120	240	277	480
1	65	-	14	-
2*	-	65	-	14

Table 6.2
BQD Interruption Ratings

Chapter 6

System Components



Installing BQD Circuit Breakers Into Panel

1. Disconnect and lock off all power sources supplying this panel
2. Remove the P1 Panel trim and dead front.
3. Make sure that the handle is at off position before installing the circuit breaker.
4. Select the desired circuit position.
5. If the bolt-on screw is screwed down into the tapped hole on the panel bus bar, unscrew and remove the screw first, otherwise go to the next step.
6. Engage the load side mounting of the BQD breaker into the slot of the top barrier to secure the breaker position as shown in figure 6.3 below.
7. Align the BQD line connection hole with the tapped hole on the panel bus bar as shown in figure 6.4 below.
8. Install and tighten the screw to the torque requirements found on the panel labeling.

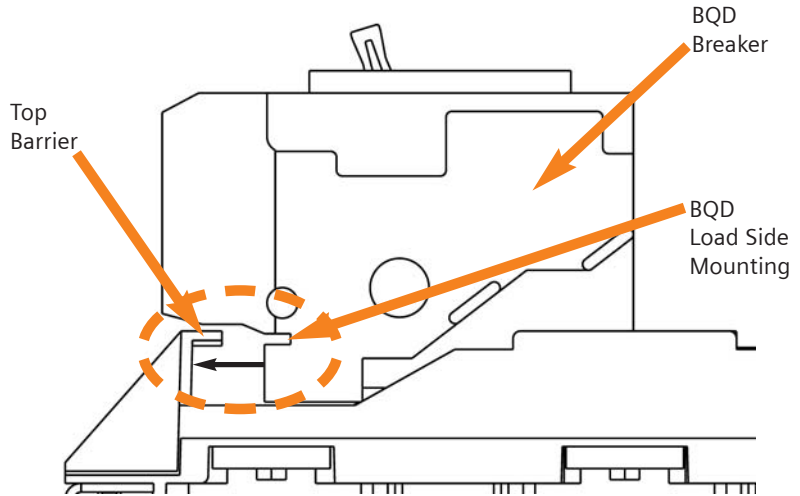


Figure 6.3
BQD 15A Breaker Side View

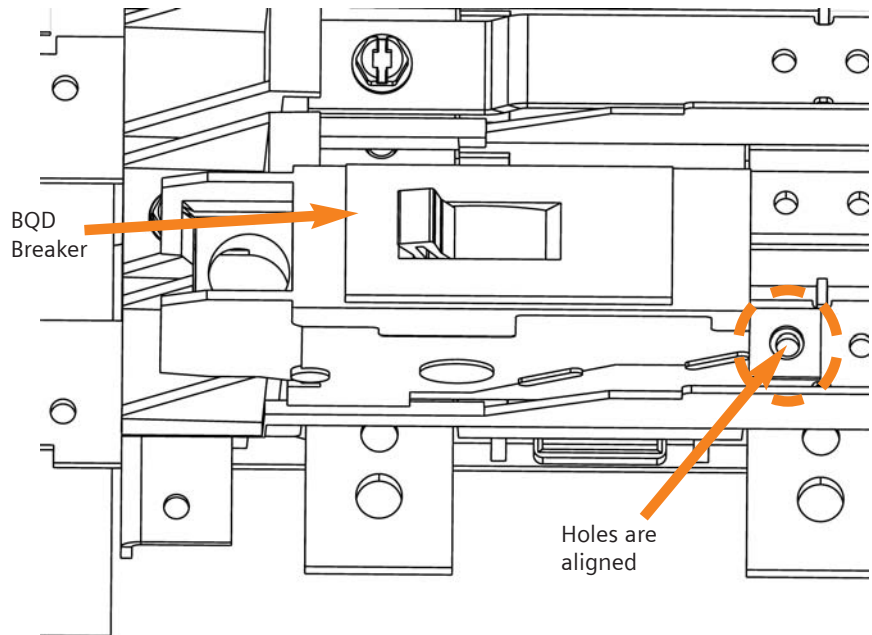


Figure 6.4
Installing screw into the tapped hole

Chapter 6

System Components



Removing BQD Circuit Breakers From Panel

1. Disconnect and lock off all power sources supplying this panel.
2. Remove P1 Panel trim and dead front.
3. Unscrew the screw connecting the BQD line bar connection with the panel bus bar.
4. If CPOD is connected to the BQD breaker, unplug the CPOD connector from the data rail connection, remove the load wire attached to the CPOD load terminal and loosen the BQD load lug to remove the CPOD.
5. Grip the BQD breaker and pull it in the direction towards the center of the panel or away from the top barrier to remove it.

Control POD (CPOD)

Description

CPOD is a remotely operated electro-mechanical contactor device that is attached to Siemens BQD molded case circuit breaker. The purpose of a CPOD is to allow switching of a load, both on and off, from a remote location or according to a pre-arranged time schedule. The CPOD will connect to the load side of the breaker using a conductor tab inserted into the breaker load lug. The wiring to the loads will be connected to the load lug of the CPOD. The CPOD has a lug of the same size as the circuit breaker on the opposite side from the tab for installing a load wire.

The CPOD also contains electronics which will allow it to communicate to an I/O controller board in the panel. The CPOD connector has a 4 wire connection to the data rail. A data rail will provide the means of connecting the CPODs to the controller board of the panel.

The 4 wire connections to the data rail are:

- A common line
- A 24 volt power for the electronics and operation of the solenoid
- A selector line used by the I/O Controller Board to select a CPOD
- A serial communication line

When the select line is asserted, the CPOD will listen for messages on the serial interface. These messages can either be commands to Open or Close, Requests for status, or other operational parameters. The command messages can either be broadcasts or point to point communications. A microprocessor will manage the timing of the application of power to the solenoid to minimize power required from the 24 volt source and also to insure the proper operation of the solenoid.

Chapter 6

System Components

Figures 6.5 and 6.6 below are the snapshots of a 1-pole CPOD.

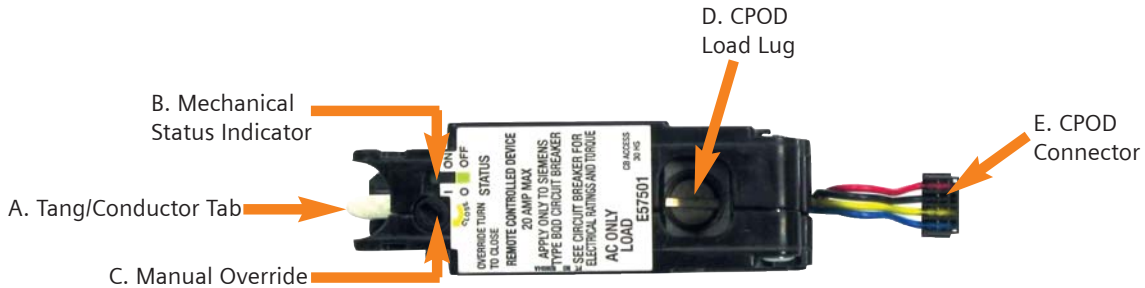


Figure 6.5
CPOD Top View



Figure 6.6
CPOD Side View

CPOD Catalog No.	For Use With
BQD-20-CPOD-1	BQD115 & BQD120
BQD-20-CPOD-2	BQD215 & BQD220

Table 6.3
CPOD Catalog Number

	Components	Description
A	Tang/Conductor Tab	The conductive element that connects the circuit breaker to the CPOD
B	Mechanical Status Indicator	Provides the open/close status of the CPOD contacts
C	Manual Override	Allows the customer to override the remote command to close the CPOD contacts
D	CPOD Load Lug	The terminal that connects CPOD to the lighting loads
E	CPOD Connector	4-pin connector that links CPOD to the data rail

Table 6.4
CPOD Components

Chapter 6

System Components

A. Tang/Conductor Tab

Tang/conductor tab electrically connects the circuit breaker to the CPOD. In order to secure the connection of CPOD to the breaker, the tang needs to be inserted into the load lug of the circuit breaker and tightened to torque requirements found on the circuit breaker labeling.

B. Mechanical Status Indicator

The status indicator is used to convey the current state of the CPOD contacts, open or closed position. This feature is visible through the round-hole opening on the dead front provided for each circuit. The color definitions are as follow:



"Green - CPOD contact is in "OPEN" or "OFF" position



"Clear - CPOD contact is in "CLOSED" or "ON" position.

C. Manual Override

Manual override is a feature of the CPOD that provides the customer the ability to override the remote commands to the CPOD. The contact on the CPOD can be forced to a closed position by manually rotating the switch in clock-wise direction using a flat-head screwdriver or similar device as shown in figure 6.7 below. To re-open contacts, system must be commissioned. This feature is designed to apply current on the circuit prior to commissioning system.

D. CPOD Load Lug

The CPOD load lug has the same form and appearance as the BQD circuit breaker load lug. The torque requirements can be found on the circuit breaker labeling. For electrical load wiring information, refer to Breaker rating label located on the face of the breaker.

E. CPOD Connector

CPOD connector is a 4-pin connector that connects CPOD to data rail. CPOD connector has to be connected to the data rail connector to enable the communication between CPOD and i-3 controller.

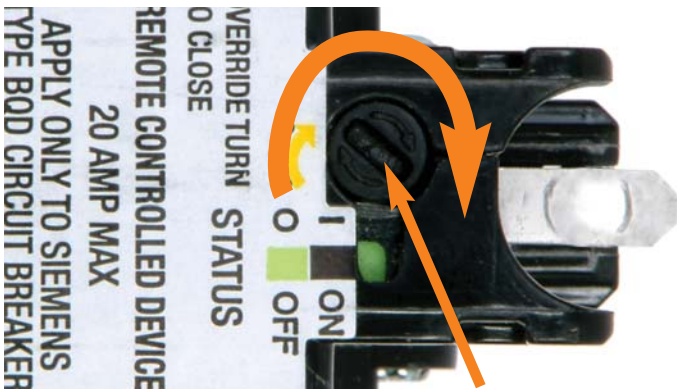


Figure 6.7
Manual Override Switch

Manual
Override
Switch

Chapter 6

System Components



Installing CPOD Into Panel

1. Disconnect and lock off all power sources supplying this panel.
2. Remove the P1 Panel trim and dead front.
3. Verify that the circuit breaker is Siemens Type BQD rated 20 amps or less. Information is located on the circuit breaker label.
4. Move the handle of the breaker to "OFF" position.
5. Ensure that the terminal screw of the circuit breaker is loosened. Never completely loosen the screw such that it falls out of the lug. If a load wire is present, remove it from the circuit breaker terminal (a CPOD and wire cannot be installed into the same terminal).
6. Engage the CPOD tang with the BQD breaker load lug as shown in figure 6.8 and 6.9. Ensure that the CPOD tang engages into the terminal of the breaker.
7. Tighten the screw of the BQD terminal to the torque requirements found on the circuit breaker labeling to ensure electrical connection is established.
8. If the data rail is already installed, install the CPOD data wire connector into the respective data rail connector as shown in figure 6.10. CPOD data wire connector is equipped with keying/polarized feature, which means that it can only be installed on one orientation.

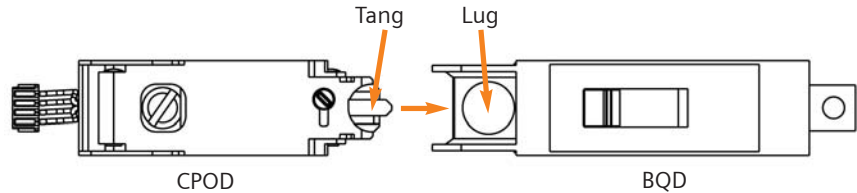


Figure 6.8
Top View

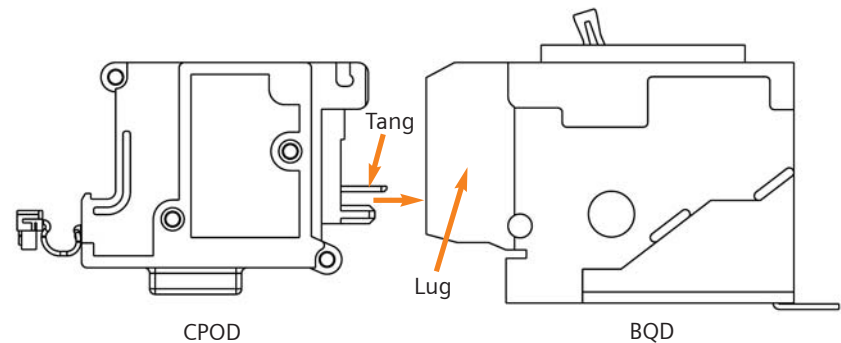
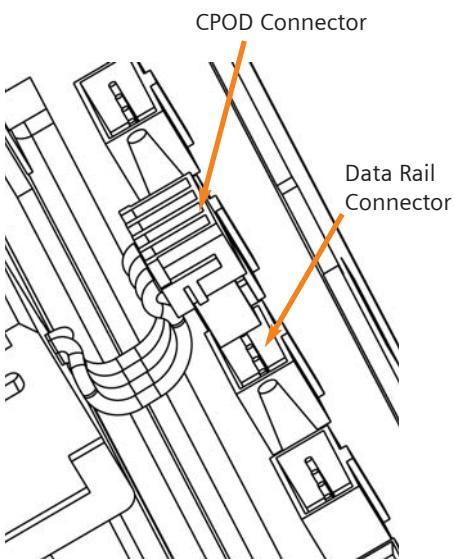


Figure 6.9
Side View



Note: Do not force inserting the connector with the opposite orientation as it could damage the plastic and cause malfunction of the CPOD.

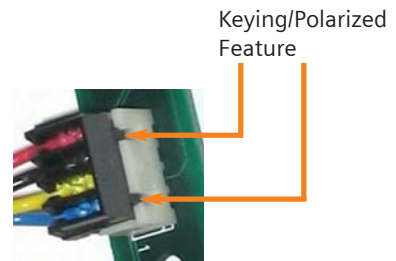


Figure 6.10
CPOD - Data Rail Connection

Chapter 6

System Components



Removing CPOD From Panel

1. Disconnect and lock off all power sources supplying this panel.
2. Remove P1 Panel trim and dead front.
3. Disconnect/unplug the CPOD data wire connector from the data rail connector.
4. If a load wire is present, remove it from the CPOD terminal.
5. Loosen the terminal screw of the BQD breaker so that CPOD tang disengages from the terminal of the breaker. Do not completely loosen the screw such that it falls out of the lug.
6. Pull the CPOD away from the BQD breaker.

Data Rail Description

Data rail is a shielded communication bus that allows communication among up to 21 CPODs (on one side) and the I/O printed circuit board. There are 2 data rails on a lighting panel. The data rail provides a barrier to isolate the power wiring from the Class 2 signal wiring used to operate the relays. Each CPOD connects to data rail via a connector that extends out of the CPOD. The connector has 4 wire leads as described in CPOD section. On the end of the data rail, a 26 wire ribbon connector is used to connect data rail to I/O printed circuit board. There are 3 available data rail sizes depending on the panel size:

1. 5WG1 716 - 8XY11 - 9" Data rail for 9 circuits (each side)
2. 5WG1 716-8XY31 - 15" Data rail for 15 circuits (each side)
3. 5WG1 716-8XY51 - 21" Data rail for 21 circuits (each side)

Figures 6.11 and 6.12 below are snapshots of DR09 assembly and PCB.

Screws into panel deadfront support bracket (4 total)

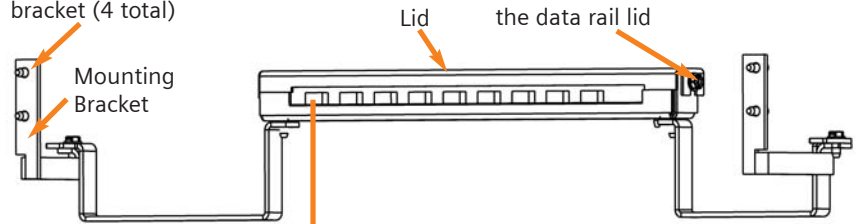


Figure 6.11
DR09 Assembly

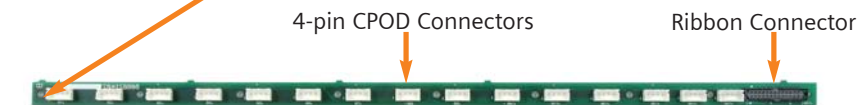


Figure 6.12
DR09 PCB

Chapter 6

System Components



Installing Data Rail Into Panel

1. Disconnect and lock off all power sources supplying this panel.
2. Remove panel trim and deadfront.
3. Follow these guidelines for data rail orientation.
 - a. Data rail PCB is facing upward.
 - b. Ribbon connector is positioned at the i-3 controller side.
4. Align the mounting holes of the data rail brackets to the holes of the panel deadfront support bracket as shown in figure 6.13.
5. Install and tighten the screws (4 total on each data rail) to secure the data rail position.
6. Loosen the screw (2 total) that secures the data rail lid as shown in figure 6.14 to open the lid for CPOD and ribbon cable connections.
7. Close the lid and tighten the screws to secure the data rail lid once all the connections are properly made.

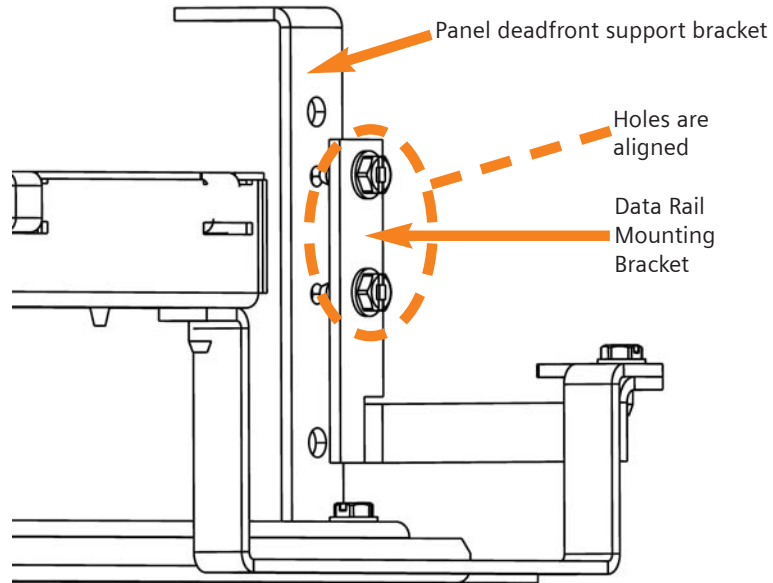


Figure 6.13
Installing data rail mounting bracket screws

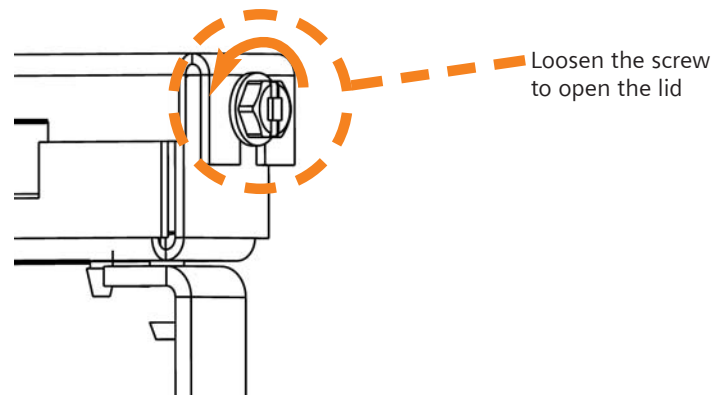


Figure 6.14
Opening the data rail lid

Chapter 6

System Components



Removing Data Rail From Panel

1. Disconnect and lock off all power sources supplying this panel.
2. Remove panel trim and deadfront.
3. Loosen the screw (2 total) that secures the data rail lid as shown in figure 6.14 to open the lid for CPOD and ribbon cable connections access.
4. Disconnect/unplug all of CPOD connectors from data rail connector.
5. Disconnect/unplug the ribbon cable from the ribbon connector.
6. Loosen and uninstall the screw (4 total) from the data rail mounting bracket and panel deadfront support bracket

Neutral Extension

Description

The neutral extension is an adapter piece that mounts to the neutral of the panel. This device allows the user to gain additional low amperage neutral connections when the CPODs partially cover the normal neutrals. The neutral extension provides connection for 18 wires ranging from #6-#14 AWG and 3 wires ranging from 1/0-#14 AWG (21 connections in total).



Figure 6.15
Left Neutral Extension for
Bottom-feed Panel



Figure 6.16
Right Neutral Extension for
Bottom-feed Panel

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Installing Neutral Extension Into Panel

1. Disconnect and lock off all power sources supplying this panel.
2. Remove the P1 Panel trim and deadfront.
3. Refer to figure 6.15 and 6.16 for orientation of the neutral.
4. Align the mounting holes of the neutral extension to the holes of the neutral bar as shown in figure 6.17.
5. Install and tighten the screws (total 2 on each side) to secure the neutral extension connection to the sub-feed neutral bar. Torque requirements are on the back of panel deadfront.

Removing Neutral Extension From Panel

1. Disconnect and lock off all power sources supplying this panel.
2. Remove P1 Panel trim and dead front.
3. Remove all neutral wires connected to the neutral extension connection points.
4. Loosen and uninstall the screws (total 2 on each side) from the neutral extension bar and sub-feed neutral bar.

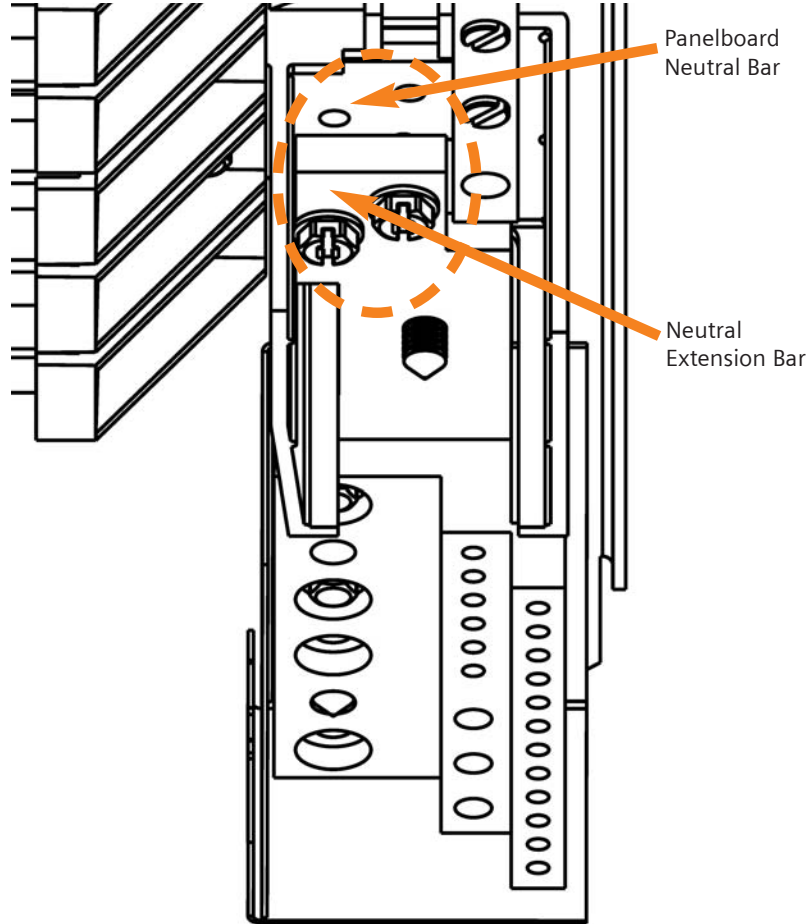


Figure 6.17
Installing neutral extension screws
from bottom panel view

Chapter 6

System Components

i-3 Controller

Description

Figure 6.18 below shows the front view of i-3 controller

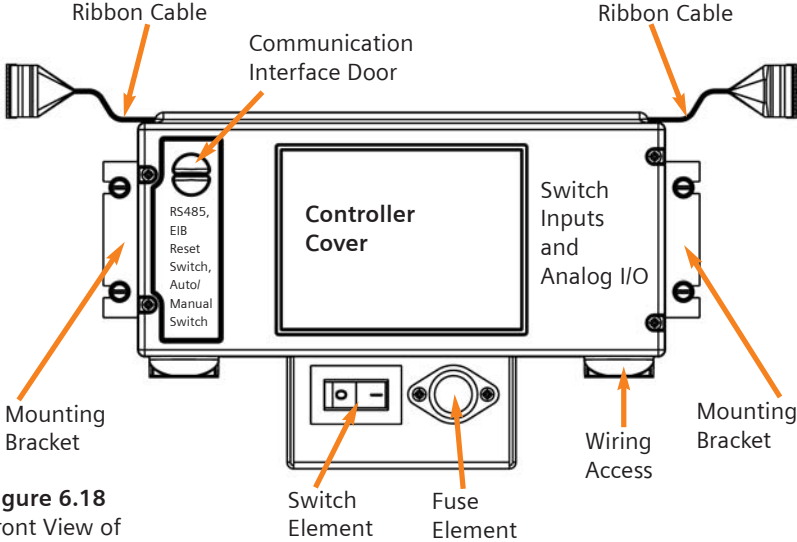


Figure 6.18
Front View of
i-3 Controller

For more detailed information about the i-3 Controller configuration and set-up procedures please refer to the i-3 Controller User Guide.

Chapter 6

System Components



Installing i-3 Controller Into Panel

1. Disconnect and lock off all power sources supplying this panel.
2. Remove the P1 Panel trim and deadfront.
3. Remove the neutral extensions if installed.
4. Align the controller mounting bracket holes to the holes of base rail as shown in figure 6.19.
5. Install and tighten the screws (4 total) into the mounting holes as shown in figure 6.19 to secure the i-3 controller position.
6. Attach terminal to one of the main bus as shown in figure 6.21 and tighten per torque requirement on the back of panel deadfront.
7. Connect red wire to phase terminal installed in step 6 as shown in figure 6.21.
8. Connect white wire to neutral terminal as shown in figure 6.21.
9. Connect green wire to panelboard ground terminal as shown in figure 6.21.

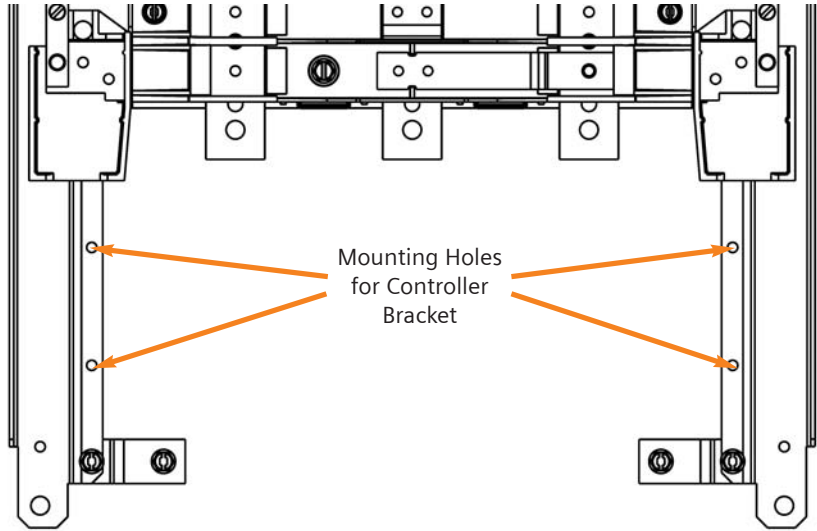


Figure 6.19
Installing i-3 Controller Screws

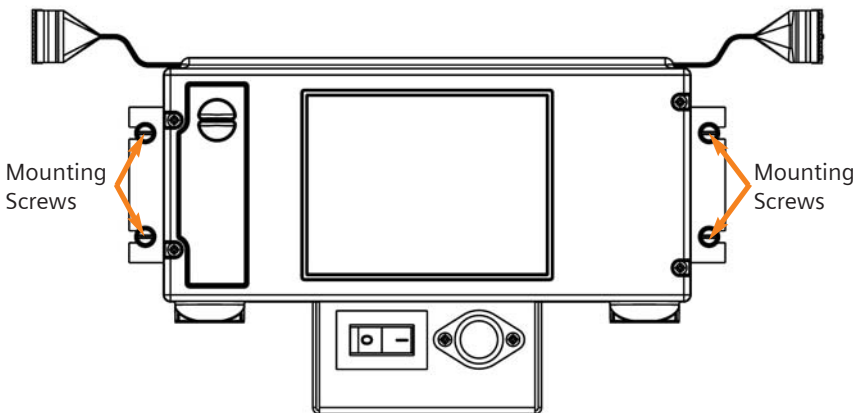


Figure 6.20
Mounting Screw Locations

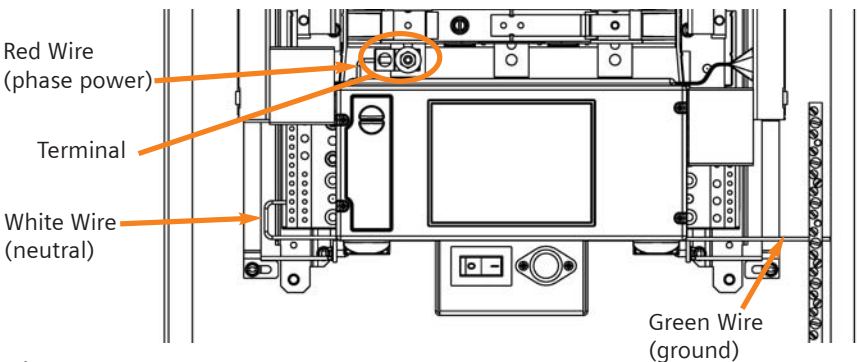


Figure 6.21
i-3 Controller Connections

Chapter 6

System Components



Removing i-3 Controller From Panel

1. Disconnect and lock off all power sources supplying this panel.
2. Remove P1 Panel trim and dead front.
3. Disconnect/unplug the ribbon cable connector from the data rail.
4. Loosen the terminal of the main bus and remove the red wire.
5. Remove the green wire from the panelboard ground terminal.
6. Remove the white wire from the neutral terminal.
7. Remove the neutral extensions.
8. Loosen and uninstall the screws (4 total) from the mounting brackets.
9. The i-3 controller is ready to be removed.

Ribbon Cables

Description

Ribbon cable is a 26-wire connection used to connect the I/O Board and a data rail. Ribbon cable carries two-way communication data from I/O Board to CPODs and vice versa, including power and ground. A pair of ribbon cables is required for each panel, one for each side. On each end of the ribbon cable are the connectors, one end is the connector for I/O Board and another end is the connector for the data rail.



Figure 6.22
Ribbon Cable

Chapter 6

System Components



Ribbon Cable Connections

The ribbon cable has symmetrical connectors, so that either connector can be used for either connection. In order to eliminate the risk of installing the connector in the wrong orientation, each connector of the ribbon cable is equipped with keying/polarized feature, which means that the connector can only be installed in one orientation.

Figures 6.23 and 6.24 show the ribbon cable connection to the I/O board.

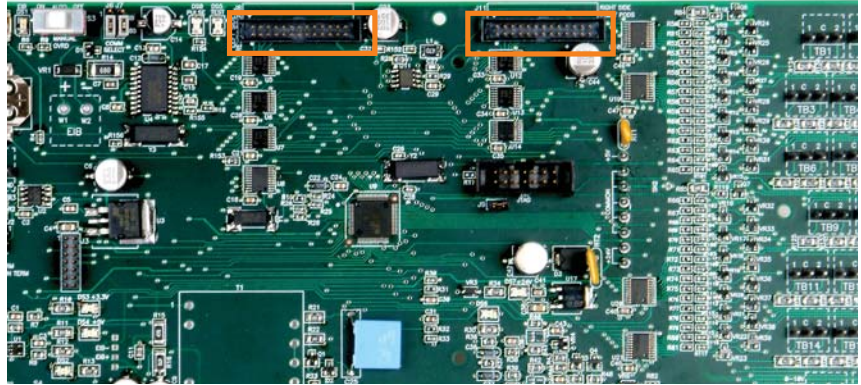
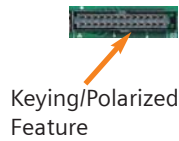


Figure 6.23
i-3 Controller I/O Board with cover removed

Note: Do not force inserting the ribbon cable connector on the opposite orientation as it could damage the plastic and cause malfunction of the I/O Board.

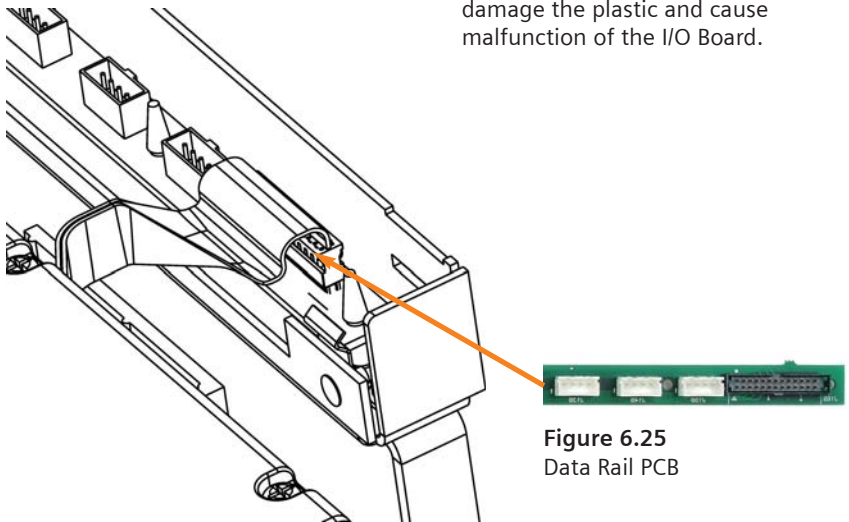


Figure 6.24
Ribbon Cable Connection to Data Rail

Appendix A

P1 with i-3 Control Technology Panel Specification

The table below lists the specifications of a P1 with i-3 Control Technology.

Table A1 Panel Specification

Max Voltage	480Y/277V AC Max
System	1-Phase, 3-Wire 3-Phase, 4-Wire
Mains	
Main Lugs	125A - 250A
Main Breaker	100A - 250A
Panel Circuits	18, 30, 42
Branch Ratings	15-20A
Branch Disconnect Device	BQD
Feed Through Lugs	N/A
Remote Operated Relay Ratings	15-20A
Remote Operated Relay Device	CPOD
Data Rail	9, 15, 21 circuits (each side)
Power Supply Ratings	120 - 277V AC
Fuse Ratings	2A Class CC
Enclosure Heights Inches - (in.)	32, 38, 44

Appendix B

Label Information

The table below lists all labels provided on the P1 with i-3 Control Technology Panel.

Table B1 Label information

Part Number	Description	Label Location
15-A-1047-01	Deadfront kit label	On the inside of the deadfront below the controller's cutout
11-C-1044-01	Data Rail rating label	On the top cover of the data rail housing
11-C-1045-01	Controller rating label	On the top face of the controller to the right side
11-C-1047-01	Fuse rating label	On the side of the fuse housing next to the On/Off Switch

Appendix C

i-3 Control Technology Spare Parts

For an i-3 Control Technology replacement parts list, please refer to i-3 P1 deadfront kit label, P/N: 15-A-1047-01 which is located on the inside of the panel deadfront.

Appendix D

Customer Service Support Information

Siemens Energy & Automation, Inc.
3333 Old Milton Parkway
Alpharetta, GA 30005

For Technical Support:
Call us at 1.800.427.2256 or visit www.sea.siemens.com/power

For Nearest Sales Office:
Call us at 1.800.964.4114 or visit www.sea.siemens.com/sales/salesoffices.html

Warranty Support and Customer Service:
Contact local sales office.

For complete details on i-3 Controller configuration:
Refer to
i-3 I/O Controller User Guide, **P/N: 12-A-1095-01**
i-3 I/O Controller or i-3 System Controller User Guide,
P/N: 12-A-1095-02



Siemens Energy & Automation, Inc.

3333 Old Milton Parkway
Alpharetta, GA 30005

1-800-964-4114

info.sea@siemens.com

www.sea.siemens.com/power/product

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