I-Line™ Circuit Breaker Power Distribution Panelboards

Information Manual
Class 2110

ENGLISH

Instruction Bulletin
80043-309-20

Retain for future use.

SQUARE D™
by Schneider Electric

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Hazard Categories and Special Symbols

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **can result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, **can result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury. The safety alert symbol is not used with this signal word.

NOTE: Provides additional information to clarify or simplify a procedure.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

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Introduction

This bulletin contains instructions for installing Square D™ brand I-Line™ circuit breaker panelboards. These panelboards are Underwriters Laboratories (cULus) listed and accept I-Line branch circuit breakers.

For technical support on the installation of this panelboard, contact the Schneider Electric at customer support 1-888-778-2733.

See the labels on the equipment for rating and safety information. Additional equipment labels are provided with this document.

Safety Precautions

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside the equipment.
- Always use a properly-rated voltage sensing device to confirm all power is off.
- Read and understand this entire instruction bulletin and the latest edition of the NEMA PB 1.1 standards publication included before installing, operating, or maintaining this equipment.
- Local codes vary, but are adopted and enforced to promote safe electrical installations. A permit may be needed to do electrical work, and some codes may require an inspection of the electrical work.
- Replace all devices, doors and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.

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Installation

This section provides instructions for the following I-Line panelboard procedures:

Interior Mounting into Square D Brand Enclosures

A separate standards publication, titled “General Instructions for Proper Installation, Operation, and Maintenance of Panelboards Rated 600 Volts or Less” (NEMA PB1.1-2007), has been provided with this equipment. Familiarize yourself with the content of this document before proceeding with any of the following procedures.

If you did not receive a copy of this document, or if you have any questions regarding this equipment, contact your local distributor or Schneider Electric representative.

NOTICE

HAZARD OF EXCESSIVE HEAT DUE TO LOOSE CONNECTION

- Ensure all connections are properly tightened.
- Refer to the torque information label provided on the panelboard before tightening the connections.

Failure to follow these instructions can result in equipment damage.

To properly mount and install the I-Line panelboard enclosure, please refer to the NEMA PB 1.1-2007 standards publication, and follow the instructions below for either “Surface Mounting (Enclosure Mounted on Wall)” or “Flush Mounting (Enclosure Recessed in Wall).”

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Surface Mounting (Enclosure Mounted on Wall)

1. Mount the enclosure as instructed in the NEMA PB 1.1 standards publication.
2. Install one elevating nut on each enclosure stud.
3. Remove the interior trim from the trim brackets.
4. Install the interior as described below:
   a. Set the interior on the enclosure studs and secure with flange nuts (see Figure 1). Screwdriver blade may be inserted in elevating nut slot to facilitate adjustment.
   b. Adjust each elevating nut to maintain a maximum distance of 0.125 in. between the interior trim and the front/door assembly.
   c. Tighten the flange nuts against the pan.
   d. Remount the interior trim after wiring.
5. If used as service entrance equipment, neutral bonding is required (see “Neutral Bonding Strap Installation” on page 12).
6. Apply equipment labels (located in the bag assembly) as directed by the instructions on the back of the equipment label sheet.

Flush Mounting (Enclosure Recessed in Wall)

1. Mount the enclosure as instructed in the NEMA PB 1.1-2007 standards publication.
2. Install one elevating nut on each enclosure stud.
3. Remove the interior trim from the trim brackets.
4. Install the interior as described below:
   a. Set the interior on the enclosure studs and secure with flange nuts (see Figure 1 on page 10). Screwdriver blade may be inserted in elevating nut slot to facilitate adjustment.
   b. Adjust each elevating nut to position the lip of the interior trim approximately 0.25 in. from the outside wall line.
   c. Tighten the flange nuts against the pan.
   d. Remount the interior trim after wiring.
5. If used as service entrance equipment, neutral bonding is required. See the “Neutral Bonding Strap Installation” instructions on page 12.
6. Apply equipment labels (located in the bag assembly) as directed by the instructions on the back of the equipment label sheet.

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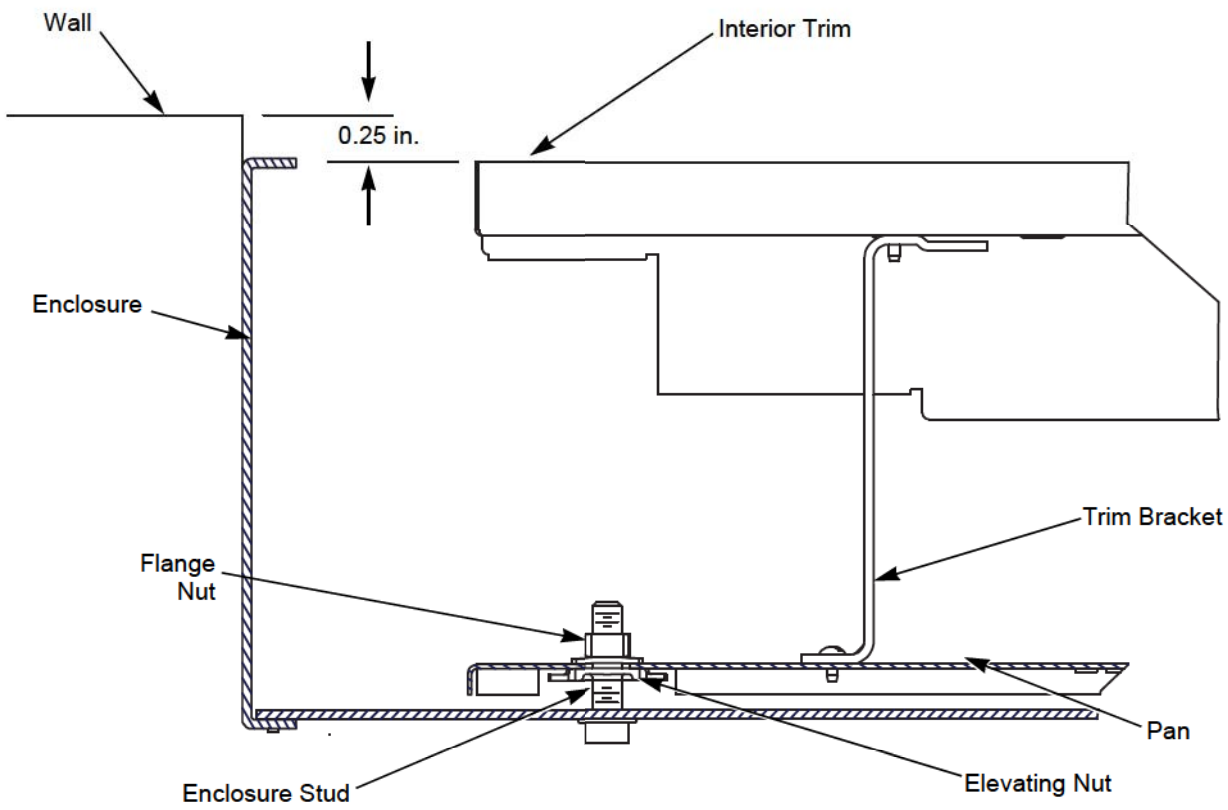
Figure 1: Interior Mounting into Square D Brand Enclosures



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Neutral Bonding Strap Installation

The neutral bonding strap should be used only when the panelboard is **installed** as service equipment.

To properly bond the neutral to the panelboard, follow the instructions for either “Standard Neutral Bonding Strap Installation” or “Neutral with Current Transformer Bonding Strap Installation” on pages 13 and 14, respectively.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462.
- Turn off all power supplying this equipment before working on or inside the equipment.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Always use a properly-rated voltage sensing device to confirm all power is off.
- The main bonding strap should be used only when the panelboard is installed as service equipment.
- Do not mix the mounting screws with the interior trim screws.

Failure to follow these instructions will result in death or serious injury.

NOTE: The bonding strap parts are found in the bag assembly provided with the interior.

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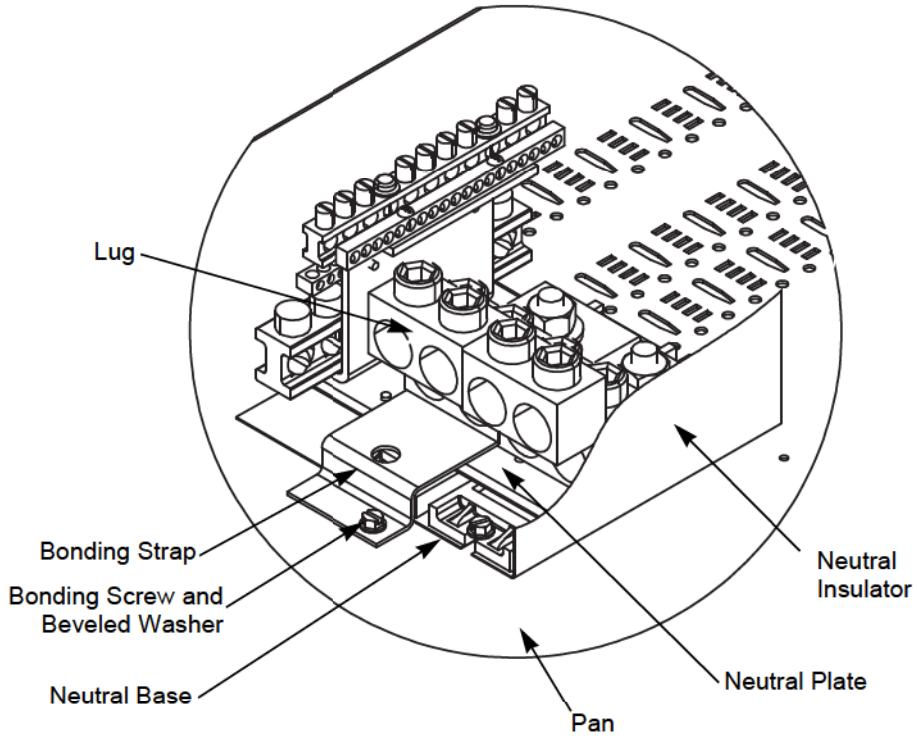
Standard Neutral Bonding Strap Installation

To install a neutral bonding strap on an I-Line panelboard, refer to Figure 2 and follow the instructions below.

1. Remove lug. Retain lug and fastening hardware.
2. Place bonding strap between neutral plate and lug, as shown.
3. Secure bonding strap to pan with bonding screw and beveled washer. Tighten the bonding screw to 65–75 lb-in (7.3–8.5 N•m).
4. Reinstall lug with the hardware retained in step 1. Tighten to 60–70 lb-in (6.8–7.9 N•m).

Figure 2: Standard Neutral Bonding Strap Installation



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Neutral with Current Transformer Bonding Strap Installation

To install a neutral bonding strap on an I-Line panelboard with a current transformer, refer to Current Transformer Neutral Bonding Installation Instructions, Schneider Electric document 80043-706-xx or 80043-789-xx, that is supplied with the current transformer neutral.

I-Line Circuit Breaker Installation and Removal

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly-rated voltage sensing device to confirm that all power is off.
- All unused spaces must be filled with blank fillers.
- Replace all devices, doors and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.

I-Line Circuit Breaker Installation

Refer to Figure 3 on page 16 for the following instructions:

1. Turn off all power to the panelboard.
2. Remove the interior trim barrier.
3. Turn the circuit breaker off. Position the circuit breaker jaws against the bus bar stack so the guiding boss on the bottom of the circuit breaker is oriented towards the alignment groove in the bus insulator base, and the “fingers” of the circuit breaker mounting bracket fit into the keyslots in the pan.

   NOTE: Install the main circuit breaker adjacent to the main lugs.
4. Place a screwdriver through the rectangular hole in the circuit breaker mounting bracket and into the screwdriver slot in the mounting pan. Ratchet the circuit breaker firmly into the bus bar stack and align the retaining screw with the 0.219 in. (5.6 mm) mounting hole in the pan.
5. Tighten the retaining screw securely to prevent the circuit breaker from moving.

   NOTE: Ensure the retaining screw is tight, but do not tighten it enough to bend the mounting bracket.
6. **For main circuit breakers only:**
   Attach the “Main Breaker” label to the circuit breaker cover.
7. Reinstall the interior trim barrier.
8. Re-energize the panelboard.
9. Turn the circuit breaker on.

NOTE: I-Line circuit breakers are supplied with factory-applied joint compound on the plug-on connectors. The compound must not be removed because it contributes to the overall performance of the connection.

Whenever an I-Line circuit breaker is removed and reinstalled, the joint compound must be reapplied. A two-ounce container of compound especially formulated for I-Line plug-on connectors is available for purchase (catalog number PJC-7201).

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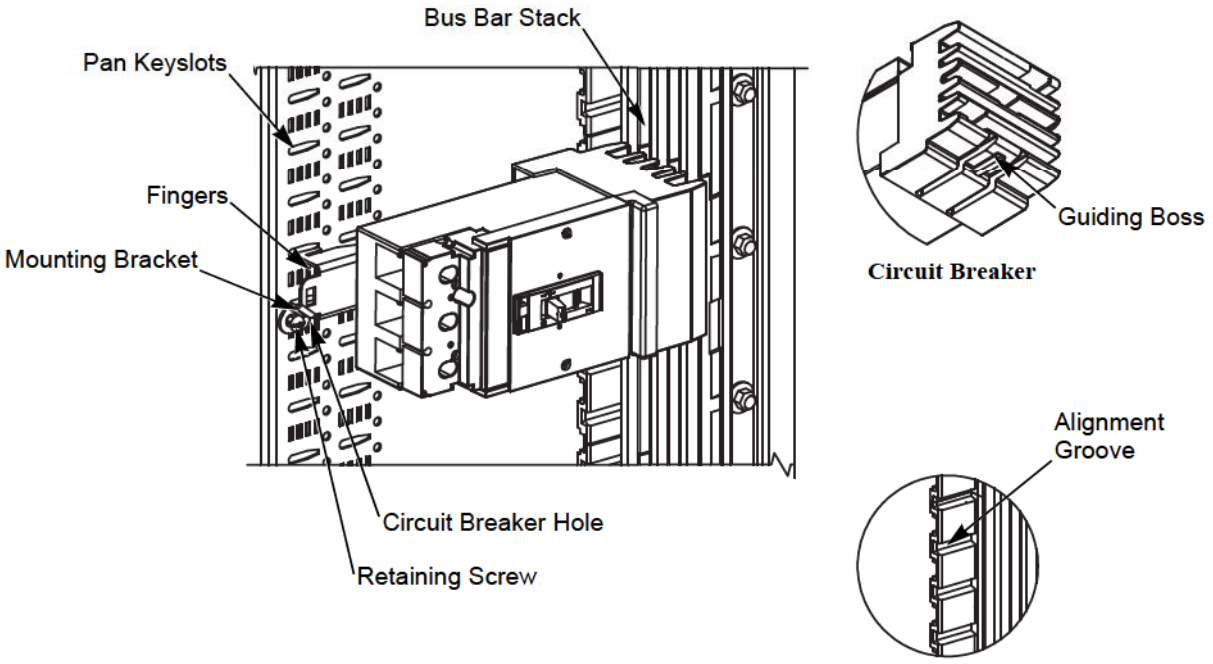
Figure 3: I-Line Circuit Breaker Installation and Removal



I-Line Circuit Breaker Removal

Refer to Figure 3 for the following instructions:

1. Turn off all power to the panelboard.
2. Turn the circuit breaker off.
3. Remove the interior trim barrier.
4. Loosen the retaining screw(s) in the circuit breaker mounting bracket until the screw(s) is completely removed from the 7/32 in. (5.6 mm) mounting hole in the mounting pan.
5. Place the screwdriver through the rectangular hole in the circuit breaker mounting bracket and into the screwdriver slot in the mounting pan. Ratchet the circuit breaker away from the bus bar stack.
6. Lift the circuit breaker away from the bus bars.
7. Install the blank fillers where the circuit breaker was removed, using Table 1 on page 18 as reference.
8. Secure the blank filler extensions to the interior trim barrier (HCPSU, HCP, and HCRU panelboards only), using Table 1 on page 18 for reference. Mount the extension over the mounting bracket in the deadfront as shown in Figure 4 on page 17.

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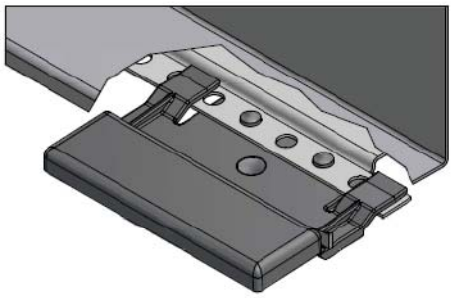
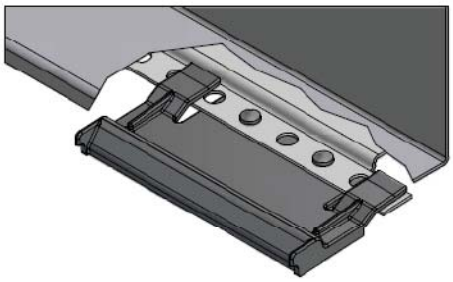
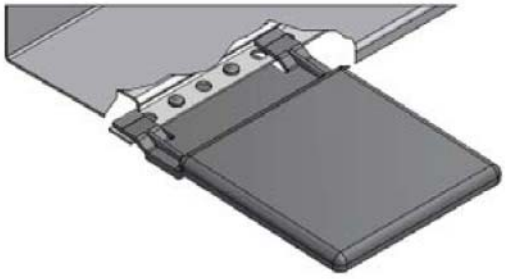
Figure 4: Blank Extension Installation



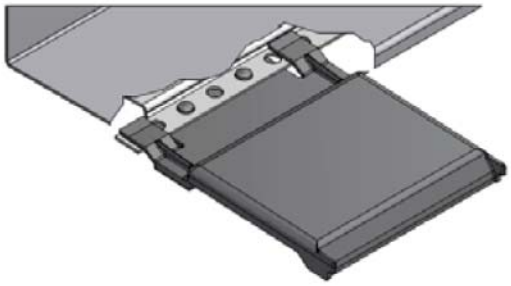
Blank Extension HLN4BL on narrow side



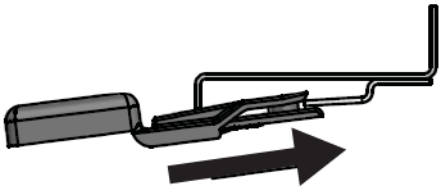
Blank Extension HLN4EBL on narrow side

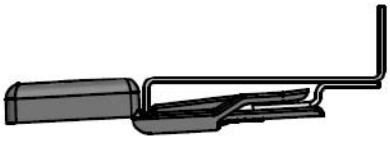


Blank Extension HLW4BL on wide side



Blank Extension HLW4EBL on wide side



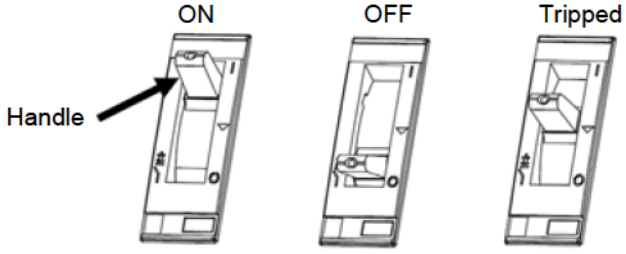


9. Reinstall the interior trim barrier.
10. Re-energize the panelboard.

Circuit Breaker Reset Instructions

If the circuit breaker is tripped, the handle will be at the mid-position between ON and OFF. To reset the circuit breaker, push the handle to the OFF position, then to the ON position.

Figure 5: Circuit Breaker Handle Positions



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Interior Trim Barrier Preparation

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Before energizing the panelboard, all unused spaces must be filled with blank fillers.
- Replace all devices, doors, and covers before energizing this equipment.

Failure to follow these instructions will result in death or serious injury.

Table 1: Blank Fillers and Blank Extensions Catalog Numbers

Blank Extensions

Circuit Breaker Frame	Circuit Breaker Mounting Height	Branch Circuit Side	Catalog Number
All applications except Powerpact H/J with Micrologic Trip Unit 5/6	1.5 in. (38.1 mm)	Wide Side	HLW1BL
	4.5 in. (114.3 mm)	Wide Side	HLW4BL
	1.5 in. (38.1 mm)	Narrow Side	HLN1BL
	4.5 in. (114.3 mm)	Narrow Side	HLN4BL
Only Powerpact H/J Frames with Micrologic Trip Unit 5/6	4.5 in. (114.3 mm)	Narrow Side	HLN4EBL
	4.5 in. (114.3 mm)	Wide Side	HLW4EBL

Blank Fillers

	Mounting Height	Catalog Number	
All Applications	1.5 in. (38.1 mm)	HNM1BL	—
	4.5 in. (114.3 mm)	HNM4BL	

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I-Line Stack Assemblies

NOTICE

RISK OF IMPROPER ASSEMBLY

- Do not disassemble the I-Line Bus Stack Assembly.
- If maintenance is required, contact Schneider Electric.

Failure to follow these instructions can result in severe equipment damage and will void the warranty.

I-Line Solid Neutral Assemblies

Table 2: I-Line Solid Neutral Assembly Catalog Numbers

Amps	Catalog Number
225	HC2SN
400	HC4SN [1], HCW4SN [2]
600	HC6SN [1], HCW6SN [2]
800	HC8SN [1], HCW8SN [2]
	HCPSU8SN [3]
800 [7]	HCPSU8SNCW [5]
1200 [2]	HCW12SN
1200 [2, 8]	HCWM12SN [4]
1200 [2, 7]	HCR12SNCTW [6]

1 Used on type HCN and HCM panelboards only.

2 Used on 400 A, 600 A, 800 A, 1200 A HCP (main lugs), and 600 A, 800 A (main circuit breaker).

3 Used on type HCP-SU panelboards only.

4 Used on type HCR-U panelboards only.

5 Used on type HCP-SU panelboards only.
For use with circuit breaker types PG, PJ, PK, PL.

6 Used on type HCR-U panelboards only.
For use with circuit breaker types PG, PJ, PK, RG, RJ, RK.

7 Including neutral CT for 3Ø4W systems.

8 Used on type HCR-U universal panelboards only.

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Appendix 1: Specifications

Typical Wiring

Table 3: Panelboard Typical Wiring [1]

	1-Phase Panelboards		3-Phase Panelboards	
Voltage AC [2]	Phase	Wires	Phase	Wires
208Y/120 [3]	—	—	3	4
120/240 [3]	1	3	—	—
240 [4]	3	3	—	—
600	1	2	—	—
480Y/277 [3]	—	—	3	4
240/120 [3, 6]	—	—	3	4 Delta
600	—	—	3	3 Delta
600Y/347 [3, 5]	—	—	3	4
125/250 Direct Current	—	3	—	—
250 Direct Current	—	2	—	—

1 Additional information is provided on the panelboard. See the main circuit breaker rating, if used.

2 Unless otherwise specified.

3 Requires use of solid neutral assembly. See panelboard.

4 For grounded “B” phase system.

5 For use in Canada only.

6 When wiring for delta systems, phases “A” and “C” must be 120 V to neutral, with phase “B” 208 V to neutral. Connect only circuit breakers rated 240 V AC minimum, not 120 V or 120/240 V to “B” phase.

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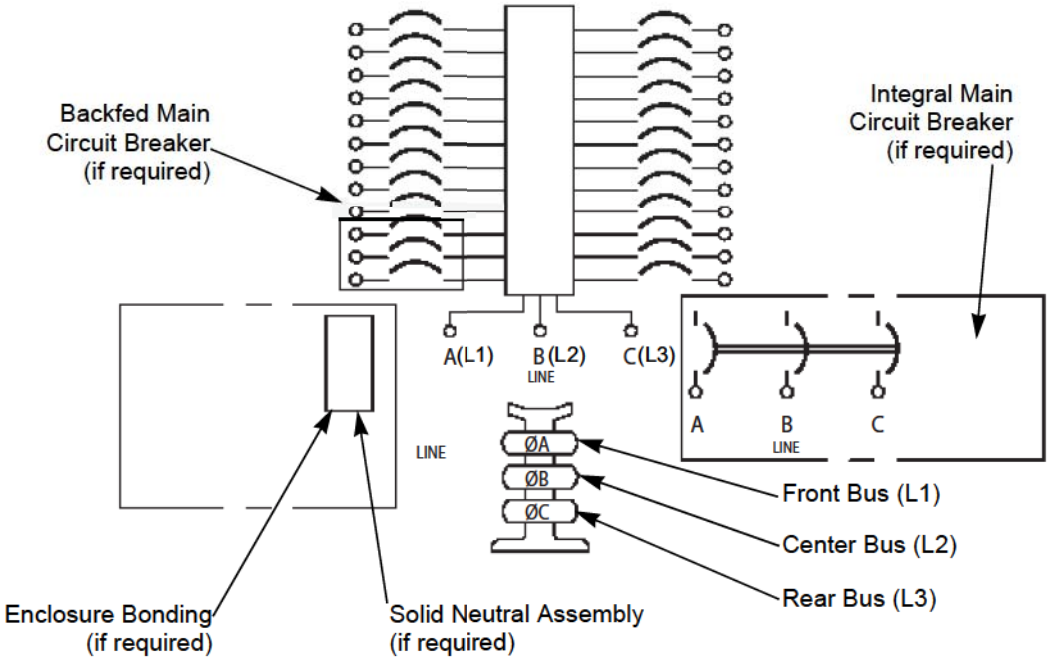
Figure 6: Main Lugs / Main Circuit Breaker Wiring Diagram



NOTE: For 1Ø systems, the center bus is not used.

NOTE: Branch connections phasing is determined by the circuit breaker selected. See the latest catalog or the Digest for circuit breaker selection.

NOTE: Assure that the circuit breaker voltage rating is appropriate for the system. With the selection of proper units, any of the listed voltage systems can be used.

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Panelboard Ratings

Refer to NEC section 110-22, 2011 Edition and CEC rule 12-014, 2002 Edition for more information. The series rated system label is located in the bag assembly. Short circuit tests are conducted at 100–105% of the maximum panelboard voltage. Interiors with CE mark meet IEC 61439-1 and IEC 61439-2.

Table 4: Series Connected Circuit Breaker Ratings (RMS Symmetrical)

Maximum System Voltage AC [2]	Maximum Short Circuit Current Rating	Square D Integral or Remote 2- or 3-Pole Main Circuit Breaker [1]	Square D Branch Circuit Breaker	
			Catalog Designation	Poles
120	42,000	MG	FY	1
	65,000	QG, LH	FA, FD	
	100,000	FJ, QJ	FD	
		QJ, LC	FA	
		LJ	FH	
	200,000	LR	FH, FY	
208Y/120	100,000	QJ	FA, FD	2, 3
		QJ, PH, PJ, RJ	QD, QG	
240	35,000	MG	FA	1
	42,000	KA	FD	1, 2, 3
		LA, MA	HD, JD, QD	2, 3
	50,000	MG	FA	
		MG	FA (25 A MAX.)	1
	65,000	HG, JG	FA, HD	2, 3
		JG	JD, QD	
		QG	FA, FD, QD	
		LH, MH, PA, PG, RG	HD, JD, QD	
		FG, FH, MH, MX, PJ	FD	1, 2, 3
		FC, KC, KH, LC, LH	FD, FG	
		LH	FA	
		LH	LA	2, 3
		MG	HD, JD, KA	
		DG	FH, HD, JD, KA, LA, MA	2, 3
		LG	HD, JD, KA, LA, MA	
		LG	LD	3
	85,000	RL	FH, KH	2, 3

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Table 4: Series Connected Circuit Breaker Ratings (RMS Symmetrical) *(Continued)*

Maximum System Voltage AC [2]	Maximum Short Circuit Current Rating	Square D Integral or Remote 2- or 3-Pole Main Circuit Breaker [1]	Square D Branch Circuit Breaker	
			Catalog Designation	Poles
240	100,000	FC, KC, LC, LX	FD, FG, FJ	1
		PH, PJ, RJ	QD, QG	2, 3
		QJ	FD	2
		FJ	FD	2, 3
		LJ	HD, HG, JD, JG, FH, KA, LA, MA, MG	
		LJ	LD, LG	3
		FC, KC	FA, FH, FD, FG, FJ	2, 3
		LC, LX	FH, FD, FG, FJ	
		KC, LC, LX	KA	
		KC, LC	KH	
		LC	LA, LH, MG	
		LC	FA	1, 2, 3
		HJ, JJ	FA, FH, HD, HG	2, 3
		JJ	JD, JG	
		LC, LX, MJ, PJ, RJ	HD, HG, JD, JG	
		MJ	LA, LH	
		DJ	FH, HD, HG, JD, JG, KA, LA, MA, MG	
	125,000	RL	RG	
		HL, JL	HD, HG, HJ, FA, FH	
		JL	JD, JG, JJ	
		PC, PH, PL, RL	HD, HG, JD, JG	
		PC, PL, RL	HJ, JJ	
	200,000	FI, KI, LI, LXI	HD, HG, HJ	
		KI, LI, LXI	JD, JG, JJ	
		FI, KI, LI, LXI	FD, FG, FJ	1
		FI, KI	FA, FH, FC, FD, FG, FJ	2, 3
		LI, LXI	FH, FD, FG, FJ	
		LI	FC	
		KI, LI, LXI	KA, QD, QG, QJ	
		LI	KC	
		JR	QD	
		LR	FH, HJ, HL, JJ, JL, QD, QG, QJ, LA, LH	

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Table 4: Series Connected Circuit Breaker Ratings (RMS Symmetrical) *(Continued)*

Maximum System Voltage AC [2]	Maximum Short Circuit Current Rating	Square D Integral or Remote 2- or 3-Pole Main Circuit Breaker [1]	Square D Branch Circuit Breaker	
			Catalog Designation	Poles
277	18,000	LD	FY	1
	25,000	FH, KA	FD	
	35,000	FG, KH, LH	FD	
		DG, LG	FH, FY	
	65,000	FJ	FD	
		FC, KC	FA, FH, FY, FD, FG	
		LC, LX (400 A MAX.)	FH	
		LC, LX (600 A MAX.)	FY, FD, FG	
		DJ	FH, FY	
		LL	FY	
		LJ	FH, FY	
	100,000	DL, LL	FH, FJ	
	200,000	FI, KI	FA, FH, FY, FD, FG, FJ	
		HR, JR	FA, FY, FJ	
		LI, LXI, (400 A MAX.)	FH	
		LI, LXI, (600 A MAX.)	FY, FD, FG, FJ	
		LR	FH, FY	
480	22,000	MG	FA	2, 3
	30,000	KH, LA, MA, MX, PA, PC, PX, PJ	FH	
		LA, MA, PA, PC, PX	KA	
		LA, MA, PA	HD, JD	
		MG	FA (25 A MAX.), FH, KA	
	35,000	MH, MX, PA	HD, JD	
		HG, JG	FA, HD	
		JG	JD	
		LH, MG, PG, RG	HD, JD	
		LH	HG, JG	2, 3
		DG	FH, HD, JD, KA, LA, MA	
		LG	LD	3
		LG	HD, JD, FH, KA, LA, MA	2, 3

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Table 4: Series Connected Circuit Breaker Ratings (RMS Symmetrical) *(Continued)*

Maximum System Voltage AC [2]	Maximum Short Circuit Current Rating	Square D Integral or Remote 2- or 3-Pole Main Circuit Breaker [1]	Square D Branch Circuit Breaker	
			Catalog Designation	Poles
480	42,000	MJ	FH (25 A MAX.)	2, 3
		RL	RG	
	50,000	MJ	KA, KH	
	65,000	FC, KC	FA, FH	
		HJ, JJ	FA, FH, HD, HG	
		JJ	JD, JG	
		LC, LI, LX, LXI	HD, HG, JD, JG	
		LC, LX, (400 A MAX.)	FH	
		KC, LC, LX	KA	
		LC, LX	LA	
		DJ	FH, HD, HG, JD, JG, KA, LA, MA	
		LJ	LD, LG	3
		LJ	HD, HG, JD, JG, FH, KA, LA, MA	2, 3
	100,000	HL, JL	FA, FH, HD, HG, HJ	2, 3
		JL	JD, JG, JJ	
		JR	FA	
		LI, LXI (600 A MAX.)	KA	
		PC, PH, PL, RL	HJ, JJ	
		RL	RG	
		DL	FH, HD, HG, HJ, JD, JG, JJ, KA, LA, MA	
		LL	LD, LG, LJ	3
		LL	HD, HG, HJ, JD, JG, JJ, FH, KA, LA, MA	2, 3
	200,000	FI, KI	FA, FH, FC, HD, HG, HJ	
		HR	FA, HD, HG, HJ, HL	
		JR	HD, HG, HJ, HL, JD, JG, JJ, JL	
		KI	JD, JG, JJ, KA	
		LI	FC, KA, KC, LA, HJ, HL, JJ, JL	
		LXI	KA, HJ, HL, JJ, JL	
		LR	FH, HJ, HL, JJ, JL, LA, LH	

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Table 4: Series Connected Circuit Breaker Ratings (RMS Symmetrical) *(Continued)*

Maximum System Voltage AC [2]	Maximum Short Circuit Current Rating	Square D Integral or Remote 2- or 3-Pole Main Circuit Breaker [1]	Square D Branch Circuit Breaker	
			Catalog Designation	Poles
480Y/277	25,000	FH, KA	FD	2, 3
	35,000	FG, KH, LH	FD	
	65,000	FJ	FD	
		FC, KC	FD, FG	
		LC, LX (600 A MAX.)	FD, FG	
	200,000	FI, KI	FD, FG, FJ	
		LI, LXI (600 A MAX.)	FD, FG, FJ	
600	18,000	HG, JG	FA, HD	
		JG	JD	
		MG, PG, RG	HD, JD	
		MG	FA	
		LG	LD	3
		LG	HD, JD	2, 3
	25,000	HJ, JJ	FA, HD, HG	
		JJ	JD	
		PJ, RJ	MG	
		LJ	LD, LG	3
		LJ	JD, JG, HD, HG, MA	2, 3
	35,000	LC	FH, HD, HG, HJ, JD, JG, JJ, LA	2, 3
	50,000	HL, JL	FA, HD, HG, HJ	
		JL	JD, JG, JJ	
		PK	HJ, JJ, MJ	
		LL	LD, LG, LJ	3
		LL	HD, HG, HJ, JD, JG, JJ, MA	2, 3
	100,000	FI, KI	HD, HG, HJ	
		KI	JD, JG, JJ	
		HR	FA, HD, HG, HJ, HL	
		JR	FA, HD, HG, HJ, HL, JD, JG, JJ, JL	
		KI, LI	FH	
		LI	LA	

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Table 4: Series Connected Circuit Breaker Ratings (RMS Symmetrical) *(Continued)*

Maximum System Voltage AC [2]	Maximum Short Circuit Current Rating	Square D Integral or Remote 2- or 3-Pole Main Circuit Breaker [1]	Square D Branch Circuit Breaker	
			Catalog Designation	Poles
600Y/347	18,000	MG	FA (25 A MAX.)	1
	25,000	MJ	FA (25 A MAX.)	
	50,000	HL, JL	FJ	

1 LD, LG, LJ, and LL are only available in 3-pole configurations.

2 For indicated circuit breakers rated less than this maximum voltage the indicated short circuit current rating also applies, but at the voltage rating of the circuit breaker.

Table 5: Series Connected Fuse Ratings (RMS Symmetrical)

Maximum System Voltage AC [1]	Maximum Short Circuit Current Rating	Remote Main Fuse		Square D Branch Circuit Breaker Catalog Designation (2- or 3-Pole) Unless Otherwise Stated
		Max A	Class	
120/240 1Ø 208Y/120	100,000	1200 A	L, T (300 V)	QD, QG
		800 A	T (600 V)	
		600 A	J, RK5	
240	65,000	1200 A	L, T (300 V)	QD
		800 A	T (600 V)	
		600 A	J, RK5	
	100,000	1200 A	L, T (300 V)	QD, QG (2-Pole)
		800 A	T (600 V)	
		600 A	J, RK5	
			J, T (600 V)	FA, FH, KA, KH, KC, LA, LH, MA, MH, MX, PG
			RK5	FH, KA, KH, LA, LH, MA, MH, MX, PG, HD, HG, HJ, HL, JD, JG, JJ, JL
			J	HD, HG, HJ, HL, JD, JG, JJ, JL
		800 A	T (600 V)	FH, KA, KH, LA, LH, MA, MH, MX, PG
			T (300 V)	PG
			L	FH, KA, KH, LA, LH, MA, MH, MX, PG
		1200 A	L	FH, KH, LA, LH, MA, MH, MX, PG
			T (600 V)	HD, HG, HJ, HL, JD, JG, JJ, JL
		1600/2000 A	L	KH, MA, MH, MX, PG
		4000 A	L	HD, HG, HJ, HL, JD, JG, JJ, JL

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Table 5: Series Connected Fuse Ratings (RMS Symmetrical) *(Continued)*

Maximum System Voltage AC [1]	Maximum Short Circuit Current Rating	Remote Main Fuse		Square D Branch Circuit Breaker Catalog Designation (2- or 3-Pole) Unless Otherwise Stated
		Max A	Class	
240	200,000	600 A	J, T (600 V)	FA(3 POLE ONLY) FH, FC, KA, KH, KC, LA, LH, LC, MA, MH, MX, NA, NC, NX, PG, PJ, PL
			RK5	FH, FC, HD, HG, HJ, HL, JD, JG, JJ, JL, KH, KC, LA, LH, LC, MA, MH, MX, NC, NX, PG,PJ, PL
			J	HD, HG, HJ, HL, JD, JG, JJ, JL
		800 A	T (600 V)	FH, FC, KA, KH, KC, LA, LH, LC, MA, MH, MX, NA, NC, NX, PG, PJ, PL
			T (300 V)	PG, PJ, PL
			L	FH, FC, KH, KC, LA, LH, LC, MA, MH, MX, NA, NC, NX, PG, PJ, PL
		1200 A	L	FC, KH, KC, LC, MA, MH, MX, NA, NC, NX, PG, PJ, PL
			T (600 V)	HD, HG, HJ, HL, JD, JG, JJ, JL
		1600/2000 A	L	NA, NC, NX, PJ, PL
		4000 A	L	HD, HG, HJ, HL, JD, JG, JJ, JL
480	100,000	400 A	J, T(600 V)	HD, HG, HJ, HL, JD, JG, JJ, JL
		600 A	J, RK5	HJ, HL, JJ, JL
		600 A	J, T (600 V)	FC, KA, KH, KC, LA, LH, LC, MA, MH, MX, NA, PG, PJ
			RK5	FC, KA, KH, KC, LA, LH, LC, MA, MH, MX, NA, PG, PJ
		800 A	L, T(600V)	FC, KA, KH, KC, LA, LH, LC, MA, MH, MX, NA, PG, PJ
		1200 A	L	FC, KH, KC, LA, LH, LC, MA, MH, MX, NA, PG, PJ
			T (600 V)	HJ, HL, JJ, JL
		1600 A	L	KC, LC, MA, MH, MX, NA, PG, PJ
		2000 A	L	KC, LC, MH, MG, MJ, MX, NA, PG, PJ
		4000 A	L	HJ, HL, JJ, JL
	200,000	200 A	RK5	HJ, HL
		400 A	J	FA, FH, FC, HJ, HL, JJ, JL, KA, KH, KC, LA, LH, LC, MA, MH, MX, NA, NC, NX, PG, PJ, PL
			T (600 V)	FA, FH, FC, HJ, HL, JJ, JL, KA, KH, KC, LA, LH, MA, MH, MX, NA, NC, NX
		600 A	J	FC, KA, KH, KC, LA, LH, LC, MA, MH, MX, MG, MJ, NA, NC, NX, PG, PJ, PL
			T(600 V)	KA, KH, KC, LA, LH, MA, MH, MX, NA, NC, NX
			RK5	KC, LA, LH, LC, MA, MH, MX, MG, MJ, NC, NX, PG, PJ

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Table 5: Series Connected Fuse Ratings (RMS Symmetrical) *(Continued)*

Maximum System Voltage AC [1]	Maximum Short Circuit Current Rating	Remote Main Fuse		Square D Branch Circuit Breaker Catalog Designation (2- or 3-Pole) Unless Otherwise Stated
		Max A	Class	
480	200,000	800 A	T(300 V)	PG, PJ, PL
			T(600 V)	KA, KH, KC, LA, LH, MA, MH, MX, MG, MJ, NA, NC, NX, PG, PJ, PL
			L	KC, LA, LH, LC, MA, MH, MX, NA, NC, NX, PG, PJ, PL
		1200 A	L	KC, LC, MA, MH, MX, MG, MJ, NA, NC, NX, PG, PJ, PL
		1600/2000 A	L	NA, NC, NX
600	100,000	30 A	CC	HG, JG (Molded Case Switches)
		200 A	J	HD, HG, HJ, HL, JD, JG, JJ, JL
		400 A	J, T (600 V)	HJ, HL, JJ, JL
		600 A	R	MG, MJ
		1200 A	L	MG, MJ
	200,000	600 A	J	MG, MJ
		800 A	T (600 V)	MG, MJ

1 For indicated circuit breakers rated less than this maximum voltage. The indicated short circuit current rating also applies, but at the voltage rating of the circuit breaker.

Additional Short Circuit Current Ratings

Square D I-Line plug-on lugs installed in this panelboard and protected by indicated Square D circuit breakers are suitable for use where the available short circuit current is not greater than that shown in the following table. The short circuit current rating cannot exceed the rating marked on the protecting circuit breaker. The protecting circuit breakers may be the main, or if plugged onto the same I-Line bus stack, may be downstream from the plug-on lugs.

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Table 6: Short Circuit Current Ratings for Plug-On Lugs with Protective Circuit Breakers[1]

Catalog Number and Ampere Rating	Protecting Circuit Breakers			Maximum Available Short Circuit Current	
	Catalog Prefix	Number of Poles	Maximum Amperes	RMS Sym. kA	Volts AC
SL100, 100 A SL225, 225 A SL250, 250 A SL400, 400 A SL800, 800 A SL800M5, 800 A SL1200, 1200 A SL1200P5, 1200 A SL1200P6, 1200 A SL1200P7, 1200 A S33930, 1200 A S33931, 1200 A	FA	2, 3	100	25	240
				18	480
				14	600
	FH	2, 3	100	65	240
				25	480
				18	600
	FD	2, 3	100	25	240
				18	480Y
	FG	2, 3	100	65	240
				35	480Y
	FJ	2, 3	100	100	240
				65	480Y
SL225, 225 A SL400, 400 A SL800, 800 A SL800M5, 800 A SL1200, 1200 A SL1200P5, 1200 A SL1200P6, 1200 A SL1200P7, 1200 A S33930, 1200 A S33931, 1200 A	KA	2, 3	225	42	240
				25	480
				22	600
	KH	2, 3	225	65	240
				35	480
				25	600
	KC	2, 3	225	100	240
				65	480
	KI	2, 3	225	200	240
				200	480
				100	600
SL400, 400 A SL800, 800 A SL800M5, 800 A SL1200, 1200 A SL1200P5, 1200 A SL1200P6, 1200 A SL1200P7, 1200 A SL33930, 1200 A SL33931, 1200 A	DG	3	400	65	240
				35	480
	DJ	3	400	100	240
				65	480
	DL	3	400	125	240
				100	480
SL800, 800 A SL800M5. 800 A SL1200, 1200 A SL1200P5, 1200 A SL1200P6, 1200 A SL1200P7, 1200 A S33930, 1200 A S33931, 1200 A	DG	3	600	65	240
				35	480
	DJ	3	600	100	240
				65	480
	DL	3	600	125	240
				100	480

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Table 6: Short Circuit Current Ratings for Plug-On Lugs with Protective Circuit Breakers[1] *(Continued)*

Catalog Number and Ampere Rating	Protecting Circuit Breakers			Maximum Available Short Circuit Current	
	Catalog Prefix	Number of Poles	Maximum Amperes	RMS Sym. kA	Volts AC
SL250, 250 A SL400, 400 A SL800, 800 A SL800M5, 800 A SL1200, 1200 A SL1200P5, 1200 A SL1200P6, 1200 A SL1200P7, 1200 A S33930, 1200 A S33931, 1200 A	HD/JD	2, 3	150/250	25	240
				18	480
				14	600
	HG/JG	2, 3	150/250	65	240
				35	480
				18	600
	HJ/JJ	2, 3	150/250	100	240
				65	480
				25	600
	HL/JL	2, 3	150/250	125	240
				100	480
				50	600
	HR/JR	2, 3	150/250	200	240
				200	480
				100	600
	KI	2, 3	250	200	240
				200	480
				100	600
SL400, 400 A SL800, 800 A SL800M5, 800 A SL1200, 1200 A SL1200P5, 1200 A SL1200P6, 1200 A SL1200P7, 1200 A S33930, 1200 A S33931, 1200 A	LA	2, 3	400	42	240
				30	480
				22	600
	LH	2, 3	400	65	240
				35	480
				25	600
	LD	3	400	25	240
				18	480
				14	600
	LG	3	400	65	240
				35	480
				18	600
	LJ	3	400	100	240
				65	480
				25	600
	LL	3	400	125	240
				100	480
				50	600
	LR	3	400	200	240
				200	480
				100	600
SL400, 400 A SL800, 800 A SL1200, 1200 A S33930, 1200 A S33931, 1200 A	LC/LX	2, 3	400	100	240
				65	480
				35	600
	LI/LXI	2, 3	400	200	240
				200	480
				100	600

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Table 6: Short Circuit Current Ratings for Plug-On Lugs with Protective Circuit Breakers[1] *(Continued)*

Catalog Number and Ampere Rating	Protecting Circuit Breakers			Maximum Available Short Circuit Current	
	Catalog Prefix	Number of Poles	Maximum Amperes	RMS Sym. kA	Volts AC
SL800, 800 A SL800M5, 800 A SL1200, 1200 A SL1200P5, 1200 A SL1200P6, 1200 A SL1200P7, 1200 A S33930, 1200 A S33931, 1200 A	LD	3	600	25	240
				18	480
				14	600
	LG	3	600	65	240
				35	480
				18	600
	LJ	3	600	100	240
				65	480
				25	600
	LL	3	600	125	240
				100	480
				50	600
	LR	3	600	200	240
				200	480
				100	600
SL800, 800 A SL1200, 1200 A S33930, 1200 A S33931, 1200 A	LC/LX	2, 3	600	100	240
				65	480
				35	600
	LI/LXI	2, 3	600	200	240
				200	480
				100	600
	MA	2, 3	800	42	240
				30	480
				22	600
	MH/MX	2, 3	800	65	240
				65	480
				25	600
SL800M5, 800 A SL1200P5, 1200 A SL1200P6, 1200 A SL1200P7, 1200 A	MG, PG	2, 3	800	65	240
				35	480
				18	600
	MJ, PJ	2, 3	800	100	240
				65	480
				25	600
	PK	2, 3	800	65	240
				50	480
				50	600
	PL	2, 3	800	125	240
				100	480
				25	600
	MA/MH/MX	2, 3	800	65	240
				65	480
				25	600

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Table 6: Short Circuit Current Ratings for Plug-On Lugs with Protective Circuit Breakers[1] *(Continued)*

Catalog Number and Ampere Rating	Protecting Circuit Breakers			Maximum Available Short Circuit Current	
	Catalog Prefix	Number of Poles	Maximum Amperes	RMS Sym. kA	Volts AC
SL1200, 1200 A S33930, 1200 A	NA	2, 3	1200	100	240
				50	480
				25	600
	NC/NX	2, 3	1200	125	240
				100	480
				65	600
SL1200P5, 1200A SL1200P6, 1200A SL1200P7, 1200A	PG/RG	2, 3	1200	65	240
				35	480
				18	600
	PJ/RJ	2, 3	1200	100	240
				65	480
				25	600
	PK	2, 3	1200	65	240
				50	480
				50	600
	RK	2, 3	1200	65	240
				65	480
				65	600
	PL	2, 3	1200	125	240
				100	480
				25	600
	RL	2, 3	1200	125	240
				100	480
				50	600
S33930, 1200 A S33931, 1200 A	MG	2, 3	800	65	240
	PG	2, 3	1200	35	480
				18	600
	MJ	2, 3	800	100	240
	PJ	2, 3	1200	65	480
				25	600
	PK	2, 3	1200	65	240
				50	480
				50	600
	PL	2, 3	1200	125	240
				100	480
S33930, 1200 A	RG	2, 3	1200	65	240
				35	480
				18	600
	RJ	2, 3	1200	100	240
				65	480
				25	600
	RL	2, 3	1200	125	240
				100	480
				50	600
	RK	2, 3	1200	65	240/480/600

[1] S33930, S33931, SL1200P5, SL1200P6, SL1200P7, SL kits are rated 1200 A and may be applied to 1200 ampere loads when installed into HCRU panelboards restrictively on the wide side.

CE Marking

Interiors with the "CE" mark meet the IEC 61439-1 and IEC 61439-2 standards. Main Lug interiors with the "CE" mark have been tested to withstand 42,000 RMS symmetrical amperes for 30 cycles. Only IEC rated circuit breakers may be used with "CE" marked interiors and the short circuit rating of the interior is limited to the lowest IEC rated branch breaker unless series rated with an IEC rated main breaker in Table 4. (See Digest for details)

Appendix 2: Accessory Kits

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An assortment of field-installable accessory kits are available for I-Line panelboards:

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Equipment Ground Bar Kits

Equipment ground bar kits, suitable for copper or aluminum wire, meet the grounding needs of I-Line panelboards. Select the required kit according to the interior catalog number. Kits can be field installed.

Table 7: Equipment Ground Bar Kits Specifications

Panelboard	Use Ground Bar Kit Catalog Number	
	Aluminum [1]	Copper [2]
HCN	PK27GTA	PK27GTACU
HCM, HCP, HCRU	PK32DGTA	PK32DGTACU

1 Aluminum bars suitable for 60° C or 75° C Copper or Aluminum conductors.

2 Copper bars suitable for 60° C or 75° C Copper conductors.

NOTE: Ground bar mounting locations are identified by the ground symbol ⏚ stamped into the back wall of the enclosure.

Mechanical Interlock Kits

Kits can be field installed.

Table 8: Mechanical Interlocks Specifications

Catalog Number	Circuit Breaker Combinations		Panelboard Type
	Mains	Auxiliary	
HFK3DTI	FA	FA	HCN, HCM, HCP, HCRU
HFM3DTI	LA	FA	HCRU
HLM3DTI	LA	LA	HCP, HCRU
HPFK3DTI	MG/MJ	FA/KA	HCP, HCPSU, HCRU
HPHJ3DTI	MG/MJ	H/J	HCP, HCPSU, HCRU
HPL3DTI	MG/MJ	LA	HCP, HCPSU, HCRU
HPP3DTI	MG/MJ	MG/MJ	HCP, HCPSU, HCRU

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Main Lug Kits

Versa-Crimp® and Versatile™ Kits can be field installed.

Table 9: Versa-Crimp Lugs and Versatile Compression Lug Kits — Aluminum

Panelboard Amps	Wire Range	Kit Catalog Number	Versa-Crimp® Tool	Crimp Lug Adapter Kit
225 A	4–300 kcmil AL/CU 21.1–151 mm^2	VCEL-030-516H1	VC-6 Series	—
400 A				HCN400VCA HCM400VCA HCW400VCA
	500–750 kcmil AL 253–380 mm^2	VCEL-075-12H1	VC-6FT, VC-8	—
600 A	2/0–500 kcmil AL/CU 67.4–253 mm^2	VCEL-050-38H1	VC-6 FT	HCN600VCA HCM600VCA HCW600VCA
800 A		VCEL-050-12H1		HCM800VCA HCW800VCA
1200 A	500–750 kcmil AL 253–380 mm^2 500 kcmil CU 253 mm^2	VCEL-075-12H1 [1]	VC-6FT, VC-8	HCW1200VCA

[1] When this lug is installed, the box extension HC-4212-DEX (F or S) must be added to the incoming cable end of the enclosure.

Table 10: Versa-Crimp Lugs and Versatile Compression Lug Kits — Copper

Panelboard Amps	Wire Range	Kit Catalog Number	Versa-Crimp® Tool	Crimp Lug Adapter Kit
225 A	2/0–300 kcmil CU 67.4–151 mm^2	VCELC-030-38H1	VC-6-3 VC7 VC6-FT VC7-FT	—
400 A				HCN400VCA HCM400VCA HCW400VCA
	400–750 kcmil CU 203–380 mm^2	VCELC-075-12H1	VC-6FT VC7-FT VC8	—
600 A	250–500 kcmil CU 127–253 mm^2	VCELC-050-12H1	VC6-3 VC7 VC6-FT VC7-FT	HCN600VCA HCM600VCA HCW600VCA
800 A				HCM800VCA HCW800VCA
1200 A	400–750 kcmil CU 203–380 mm^2	VCELC-075-12H1	VC-6FT VC7-FT VC8	HCW1200VCA

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Circuit Breaker Lug Kits

Versa-Crimp® and Versatile™ Kits can be field installed.

Table 11: Versa-Crimp Lugs and Versatile Compression Lug Kits [1]

Aluminum	Wire Range [2]	Versa-Crimp Tool	Copper	Wire Range [2]	Versa-Crimp Tool
VC100FA VC100FD	8–1/0 8.36–53,5 mm²	VC-6	CVC100FA CVC100FD	6–1/0 CU 13.3–53.5 mm²	VC-6 Series
VC250KA3	4–300 kcmil 21.1–151 mm²		CVC250KA3	2/0–300 kcmil CU 67.4–151 mm²	
VC250KA35	250–350 kcmil 127–177 mm²		CVC400LA3	4–300 kcmil CU 21.1–151 mm²	
VC400LA35	250–350 kcmil 127–177 mm²		CVC400LA5 CVC600MA5	250–500 kcmil CU 127–253 mm²	
VC400LA3	4–300 kcmil 21.1–151 mm²		CVC1200NE5	2/0–500 kcmil 67.4–253 mm²	
VC400LA5	2/0–500 kcmil 67.4–253 mm²		CVC1200NE7	500–750 kcmil AL 253–380 mm² 500 kcmil CU 253 mm²	
VC400LA7	500–750 kcmil AL 253–380 mm² 500 kcmil CU 253 mm²	VC-6 FT VC-8			
VC400LA7	2/0-500 kcmil 67.4–253 mm²	VC-6 Series	—		
VC800MA7	500–750 kcmil AL 253–380 mm² 500 kcmil CU 253 mm²	VC-6 FT VC-8			
VC1200NE5	2/0–500 kcmil 67.4–253 mm²	VC-6 Series			
VC1200NE7	500–750 kcmil AL 253–380 mm² 500 kcmil CU 253 mm²	VC-6 FT VC-8			
YA060HD	# 6–#2 AWG	[3]	CYA060HD	# 6–1/0 AWG CU	[3]
YA150HD	# 1–4/0 AWG		CYA150JD	# 4–2/0 AWG CU	
YA150JD	# 1–3/0 AWG		CYA150HD	# 6–1/0 AWG CU	
YA250J35	3/0–350 kcmil		CYA250J3	1/0–350 kcmil CU	

1 Always ensure compression lugs are installed in panelboards that will provide wire bending space in accordance with NEC Article 312.6, 2011 Edition.

2 Unless otherwise specified, wire sizes apply to both aluminum and copper conductors.

3 Use crimp tools in accordance with instructions that are provided within each lug kit.

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Table 12: Compression Lug Kits for L-, MG-, MJ-, P-, and R-Frame Circuit Breaker [1]

Aluminum	Wire Range [2]	Versa-Crimp Tool	Copper	Wire Range [2]	Versa-Crimp Tool
YA250P3	2/0–300 kcmil 67.4–151 mm²	4, 5	CYA400P5	4/0–500 kcmil CU 107–253 mm²	4, 5
YA300P5	4/0–500 kcmil 107–253 mm²		CYA600P5	4/0–500 kcmil CU 107–253 mm²	
YA400P3	2/0–300 kcmil 67.4–151 mm²		CYA800P7	500–750 kcmil CU 253–380 mm²	
YA400P7	500–750 kcmil 253–380 mm²		CYA1200R5	4/0–500 kcmil CU 107–253 mm²	
YA600P5	4/0–500 kcmil 107–253 mm²		CYA1200R7	500–750 kcmil CU 253–380 mm²	
YA800P7 [3]	500–750 kcmil 253–380 mm²		—		
YA1200R3	2/0–300 kcmil 67.4–151 mm²				
YA1200R5	4/0–500 kcmil 107–253 mm²				
YA1200R7	500–750 kcmil 253–380 mm²				
YA400L31K3 [7]	#4–300 kcmil 21–151 mm²	4	CYA400L31K3 [7]	2/0–300 kcmil 67.4–151 mm²	4
YA600L32K3 [7]			CYA600L32K3 [7]		
YA400L51K3 [7]	2/0–500 kcmil 67.4–253 mm²		CYA400L51K3 [7]	250–500 kcmil 127–253 mm²	
YA600L52K3 [7]			CYA600L52K3 [7]		
YA400L71K3 [6, 7]	500–750 kcmil 253–380 mm²		—		

1 Always ensure compression lugs are installed in panelboards that will provide wire bending space in accordance with NEC Article 312.6, 2011 Edition.

2 Unless otherwise specified, wire sizes apply to both aluminum and copper conductors.

3 When this lug is installed on a vertically mounted main circuit breaker, in an HCP interior, add box extension HC-4212-DEX (F or S) to the end of that enclosure.

4 Use crimp tools in accordance with instructions that are provided within each lug kit.

5 Always ensure compression lugs are installed in panelboards that will provide wire bending space in accordance with NEC Article 312.6, 2011 Edition. I-LINE panelboards with a Type 1 enclosure require a 5.0 in. extended width box when the branch breakers use these lugs (these compression lugs may not be used in weatherproof enclosures). Contact your local Schneider Electric representative for assistance.

6 This lug is only allowed in HCP/HCPSU panelboards with Type 1 enclosures with a 5.0 in. wide side extension.

7 For L-frame circuit breakers only.

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Extension Kits

Table 13: Extension Kits for HCN, HCM, HCRU and HCP Panelboards

Catalog Number	For Use With
HC2609EX [1]	HC26--B [2]
HC2609DEX [1]	HC26--DB [2]
HC3209EX [1]	HC32--B [2]
HC4212DEX [1]	HC42--DB [2]
HC4406DEX [1]	HC44--DB [2]
HC4412DEX [1]	HC44--DB [2]

[1] Add “F” for flush, “S” for surface as required.

[2] Series E1 Enclosures.

NOTE: Kits can be field installed. Extension kit must be attached to enclosure before mounting enclosure to wall.

ENGLISH

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