

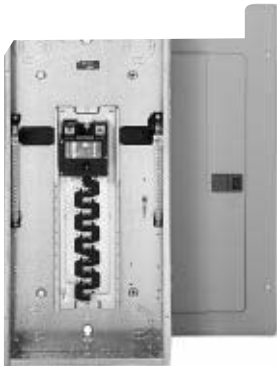
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## Loadcenter Selection Chart

<b>Service</b>	<ul style="list-style-type: none"> <li>Single-phase, three-wire, 120/240V AC</li> </ul>	<ul style="list-style-type: none"> <li>Three-phase, four-wire, 208Y/120V AC</li> <li>Three-phase, three-wire, 240V AC delta</li> </ul>
<b>Short Circuit Current Rating</b>	<ul style="list-style-type: none"> <li>10,000 AIC: All single- and three-phase loadcenters 70 through 225 amperes, 8 to 42 circuits.</li> <li>22,000 AIC: All convertible loadcenters using 125 amperes rated Type BRH main breakers or selected factory installed 125 ampere rated Type BRH main breaker.</li> </ul>	<ul style="list-style-type: none"> <li>25,000 AIC: All convertible and factory installed single-phase loadcenters rated 150 and 200 amperes using Type BWH main breakers.</li> </ul>
<b>Main Breaker/Main Lug Loadcenters</b>	<p>Single-Phase</p> <ul style="list-style-type: none"> <li>Main Breaker: 100, 125, 150, 200, 225, 400, 600 amperes.</li> <li>Main Lugs: 70, 125, 150, 200, 225, 400, 600 amperes.</li> </ul>	<p>Three-Phase</p> <ul style="list-style-type: none"> <li>Main Breaker: 100, 125, 150, 200, 225, 400, 600 amperes.</li> <li>Main Lugs: 100, 125, 150, 200, 225, 400, 600 amperes.</li> </ul>
<b>Convertible Loadcenters</b>	<ul style="list-style-type: none"> <li>Main Breaker: Single-phase up to 200 amperes and three-phase up to 100 amperes</li> <li>Main Lugs: Single-phase up to 200 amperes and three-phase up to 125 amperes</li> </ul>	
<b>Branch Breakers</b>	<ul style="list-style-type: none"> <li>Types BR, BRH, and BRH: 10 to 125 amperes. One-, two-, and three-pole. Selected amperages available in switching duty, HACR, shunt trip, and high magnetic setting.</li> <li>Type GFCB: 15 to 50 amperes. One- and two-pole ground fault breakers.</li> <li>Types BJ, and BJH: 125 to 225 amperes Two- and three-pole.</li> <li>Type BD Twin: 10 to 50 amperes Two of one-pole. Take one 1-inch (25.4 mm) space.</li> </ul>	<ul style="list-style-type: none"> <li>Type BQ and BQC Multibreaker: 15 to 30 amperes. Two of two-pole or one two-pole and two one-pole. Takes two 1-inch (25.4 mm) spaces.</li> <li>Type BRW: 15 to 30 amperes. Two-pole water heater breakers.</li> <li>Type BRSN: 15 to 30 amperes. Two-pole switching neutral breakers.</li> <li>Type BR 15 to 100 amperes. Two-pole, 240V AC delta breakers.</li> </ul>
<b>Enclosures</b>	<ul style="list-style-type: none"> <li>NEMA Type 1 indoor.</li> <li>NEMA Type 3R outdoor.</li> </ul>	Meets or exceeds UL requirements for indoor or outdoor applications
<b>Loadcenter and Breaker Accessories</b>	<ul style="list-style-type: none"> <li>Branch Circuit Breaker Auxiliary components. Hold Down Kits. Handle ties. Lockoffs. Lockdogs.</li> <li>Complete Line of Ground Bar Kits 5, 10, 14, and 21 circuit, some with additional #2/0 lugs. Each terminal will accommodate: (3) #14-#10 Cu/Al or (1) #14-#4 Cu/Al</li> <li>Main and Sub-feed Lugs 125, 150, 225 amperes – two- and three-pole.</li> <li>Shunt Trips</li> </ul>	<ul style="list-style-type: none"> <li>Surge Protection Single-phase plug-on surge protector. Single-phase bottle type surge protector. Three-phase bottle type surge protector. Single-phase whole home surge protector.</li> <li>Universal Rainproof Conduit Hubs Group One: 3/4, 1, 1-1/4, 1-1/2, 2 inches (19.6, 25.4, 31.8, 38.1, 50.8 mm) Group Two: 2, 2-1/2, 3 inches (50.8, 63.5, 76.2 mm) Adapter plate.</li> </ul>
<b>Bussing</b>	<ul style="list-style-type: none"> <li>Tin-plated aluminum as standard.</li> <li>Some copper bus panels available.</li> </ul>	

Single-Phase



Main Circuit Breaker

Three-Phase



Main Circuit Breaker

Convertible

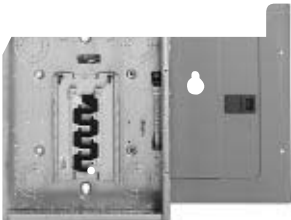


Main Circuit Breaker  
Commercial

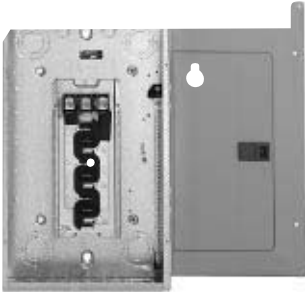


Main Circuit Breaker  
Commercial

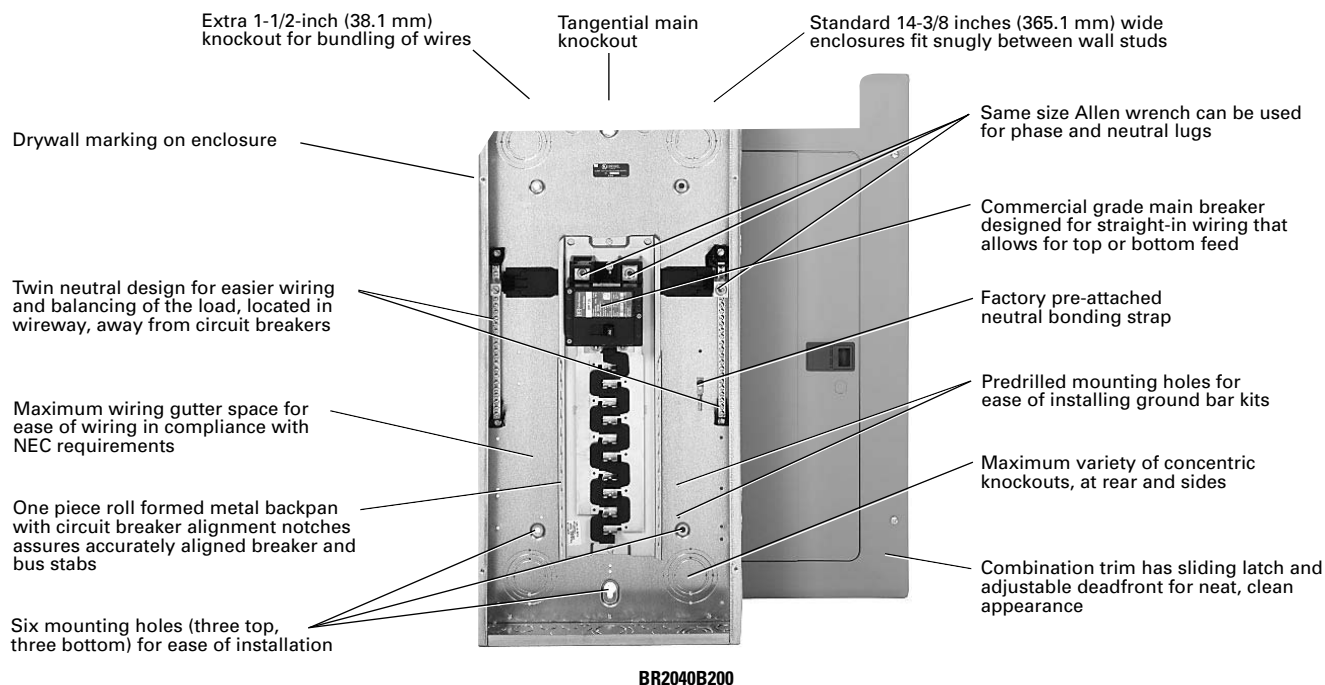
Circuit Breaker  
Unit Enclosures  
Outdoor



Main Lugs

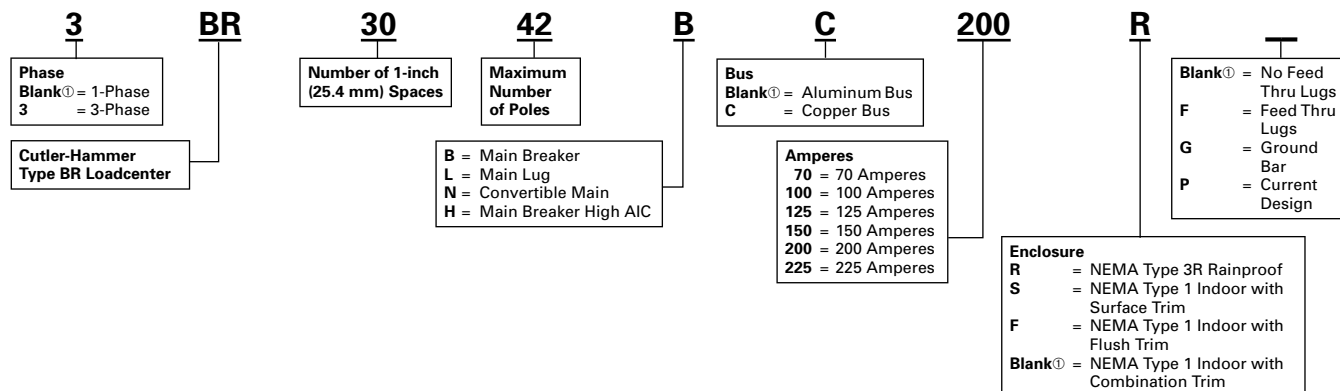


Main Lugs

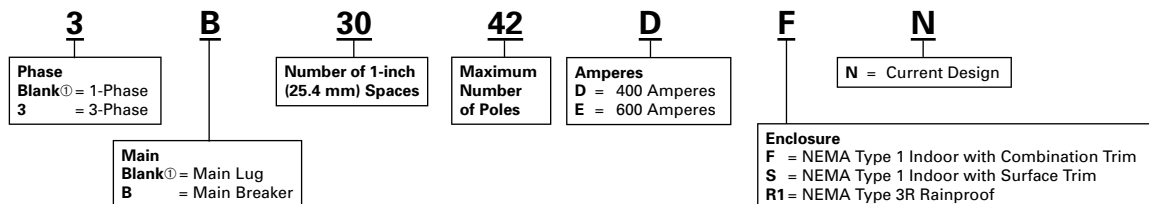


### Catalog Numbering System

#### Single- and Three-Phase Through 225 Amperes



#### Single- and Three-Phase 400 Amperes Through 600 Amperes



Example No. 1: BR1224L125G

1-Phase Cutler-Hammer Type BR Loadcenter Rated at 125 Amperes with Main Lugs, 12 Spaces Allowing 24 Poles, Indoor Combination Enclosure, Aluminum Bus, and Ground Bar.

Example No. 2: BR24L70RP

1-Phase Cutler-Hammer Type BR Loadcenter Rated at 70 Amperes with Main Lugs, 2 Spaces Allowing 4 Poles, Rainproof Enclosure with Aluminum Bus.

Example No. 3: 3B4242EFN

3-Phase Cutler-Hammer Type BR Loadcenter Rated at 600 Amperes with Main Breaker, 42 Spaces Allowing 42 Poles, Indoor Combination Enclosure.

<sup>①</sup> No character space used.

## Application Notes and Extended Warranty Highlights

### Application Information

#### Loadcenter Construction

Cutler-Hammer Type BR loadcenters have standard tin-plated aluminum bus with a limited availability of copper bus. The sum of the handle ratings connected to any stab is limited to 150 amperes maximum on the 100 and 125 ampere loadcenters, and 200 amperes on loadcenters with 150 ampere or higher main bus. NEMA Type 1 boxes or enclosures are manufactured from G60 16-gauge galvanized steel. Raintight boxes are manufactured from G60 16-gauge galvanized steel, then finished using an electrostatic powder coat, baked urethane paint process.

#### UL Listings

All Cutler-Hammer Type BR loadcenters are listed under UL file E52977 except the 2-8 circuit loadcenters, up through and including 125 amperes, which are listed under UL file E8741.

#### Neutrals

Cutler-Hammer Type BR loadcenters feature two types of neutrals:

**Split Neutrals** – Single-phase loadcenters 12 circuits and above feature a twin neutral (mounted on both sides of the interior assembly) with a cross bus connecting them unless otherwise noted. The neutral is bondable in the field by means of a bonding strap that is supplied with each loadcenter. The cross bus is not removable for separate ground and neutral bars. For sub-feed applications, a separate ground bar must be used. In a service entrance application, where the neutral is bonded, unused neutral connections may be used for equipment ground conductors.

**Single Neutral** – Single phase 2-8 circuit, three-phase and commercial loadcenters are supplied with a single insulated/bondable neutral. The three-phase loadcenter neutral is movable to the other side if desired. The neutral is bondable in the field by means of a bonding strap that is supplied with each loadcenter. For sub-feed applications, a separate ground bar must be used. In a service entrance application, where the neutral is bonded, unused neutral connections may be used for equipment ground protectors.

#### Grounds

Separate ground bars are supplied on those loadcenters having a "G" in the catalog number. For service entrance panels not having a separate ground bar, the extra neutral terminals may be used for equipment ground conductors. When using the loadcenter as a sub-feed, the bonding strap should not be attached, and a separate ground bar must be installed.

#### Neutral and Ground Terminals

The standard terminals on grounds and neutrals are rated to accept (3) – #14-#10 Cu/Al or (1) – #14-4. For larger cables, add-on neutral lugs may be ordered from the accessories on page C-16.

#### Bottom Fed Loadcenters

Where power cable is brought into the loadcenter from below the panel, main lug panels, and single-phase, 225 ampere and below loadcenters can be rotated 180 degrees to allow straight-in wiring of power cables to the main terminals. Because the main circuit breaker handle operates horizontally, the orientation of the main circuit breaker handle is consistent with the requirements of NEC Article 240-81.

#### Gutter Splicing

Loadcenters are not UL listed as wiring troughs. Therefore, gutter splicing of riser cables to tap off to the main device is not permitted.

#### Fire Rating

Due to the numerous openings in both loadcenter boxes and trims, they should not be mounted in firewalls. There is no approved method for sealing the enclosures for this application.

#### Date Code

The date of manufacture of each loadcenter is printed on the outside of the carton as well as inside the loadcenter. On the carton, the date code is printed on the end carton label. In the loadcenter, the date code is located on the small white label located on the right side wall (with the main device on top).

The date code is in the following format: F # # # = . The "F" is the numeric code for the Lincoln, IL plant, and the three numbers are the year and week of manufacture e.g. 623. The "=" sign at the end signifies the decade of the 1990s. Therefore, the date code F623= would indicate that the product was manufactured in the 23rd week of 1996. The 1980s are represented by a "+" sign at the end of the code.

#### Surge Protectors

The BRSURGE Surge Protector has indicating lights that indicate when the units should be replaced. The CHSA01 and CHSA03 Surge Protectors internally short, causing the circuit breaker feeding the surge protector to trip. All but the BRSURGE Surge Protector should be wired to the load side of 15 or 20 ampere feeder circuit breakers mounted adjacent to the main incoming device.

The CHSPCH Clipper Home Surge Protector is an externally mounted TVSS unit that provides industrial level surge protection in a residential design.

#### Circuit Breaker Case Interrupting Capacity

10,000 AIC Black 22,000 AIC Gray
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#### Extended Residential Warranty Highlights ①

- Five-year branch breaker warranty.
- Five-year loadcenter warranty.
- Both the loadcenter and branch circuit breaker warranties are extended to 10 years if a functioning surge protector is installed in the loadcenter.

① See Cutler-Hammer Publication Number SA-365 for complete details.

## 1-Phase – Main Circuit Breaker Loadcenters 10,000/22,000 Amperes Interrupting Capacity

### 1-Phase 3-Wire — 120/240V AC — Insulated/Bondable Neutral

Main Breaker Type	Main Ampere Rating	Maximum Number 1-inch (25.4 mm)		Enclosure Type	Loadcenter Catalog Number with Combination <sup>②</sup> OR NEMA Type 3R Cover <sup>①②</sup>	List Price	Box Size <sup>③</sup>	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker
		Spaces	Poles						
BR 10 kAIC	100	8	16	Indoor	BR816B100	\$205.00	B1	17	#4 - 1/0 <sup>④</sup>
		10	20	Indoor	BR1020B100SP <sup>⑤</sup>	247.00	A1	65	
		10	20	Outdoor	BR1020B100RF <sup>④⑤</sup>	319.00	B2R	59	
		12	20	Indoor	BR1220B100	226.00	B2	19	
		12	24	Outdoor	BR1224B100R <sup>⑤</sup>	319.00	B2R	17	
		16	20	Indoor	BR1620B100	257.00	C1	60	
		16	24	Indoor	BR1624B100	258.00	C1	24	
		16	24	Outdoor	BR1624B100R <sup>⑤</sup>	363.00	C1R	24	
		20	20	Indoor	BR2020B100	258.00	C2	22	
		20	24	Outdoor	BR2024B100R <sup>⑤</sup>	368.00	C3R	10	
		30	30	Indoor	See Copper Bus Offering, Page C-13				
	125	16	24	Indoor	BR1624B125	417.00	C1	24	#4 - 2/0
		20	24	Indoor	BR2024B125	474.00	C1	10	
		20	24	Outdoor	BR2024B125R <sup>⑤</sup>	545.00	C3R	10	
BW 10 kAIC	150	8	16	Outdoor	BR816B150RF <sup>④⑤</sup>	505.00	C3R	18	#2 - 300 kcmil
		16	30	Indoor	BR1630B150	394.00	C4	25	
		20	30	Indoor	BR2030B150	467.00	C4	26	
		20	30	Outdoor	BR2030B150R <sup>⑤</sup>	605.00	D1R	26	
		20	40	Indoor	BR2040B150	505.00	D1	29	
		20	40	Outdoor	BR2040B150R <sup>⑤</sup>	605.00	D1R	29	
		24	30	Indoor	BR2430B150	494.00	G1	27	
		30	30	Indoor	BR3030B150	525.00	G1	28	
		30	30	Outdoor	BR3030B150R <sup>⑤</sup>	670.00	G1R	28	
		30	40	Indoor	BR3040B150	545.00	G1R	30	
	200	4	8	Outdoor	BR48B200RF <sup>④⑤⑧</sup>	456.00	8R	46	#2 - 300 kcmil
		8	16	Outdoor	BR816B200RF <sup>④⑤</sup>	491.00	C3R	18	
		16	32	Indoor	BR1632B200	422.00	C4	29	
		20	40	Indoor	BR2040B200	472.00	D1	29	
		20	40	Outdoor	BR2040B200R <sup>⑤</sup>	605.00	D1R	29	
		24	40	Indoor	BR2440B200	496.00	G1	61	
		30	40	Indoor	BR3040B200	565.00	G1	30	
		30	40	Outdoor	BR3040B200R <sup>⑤</sup>	670.00	G1R	30	
		40	40	Indoor	BR4040B200	660.00	L1	28	
		40	40	Outdoor	BR4040B200R <sup>⑤</sup>	935.00	L1R	28	
	225	42	42	Indoor	BR4242B225	720.00	L2	31	#1 - 250 kcmil
		42	42	Outdoor	BR4242B225R <sup>⑤</sup>	985.00	L2R	31	

Main Breaker Type	Main Ampere Rating	Maximum Number 1-inch (25.4 mm)		Enclosure Type	Commercial Loadcenter Catalog Number <sup>②⑩⑪</sup>		List Price	Box Size <sup>③</sup>	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker
		Spaces	Poles		With Flush or NEMA Type 3R Cover	With Surface Cover				
DK <sup>⑥</sup>	300	42	42	Indoor	BR304242F	BR304242F	\$3,375.00	24	36	(2) #3/0 - 250 kcmil
	400	42	42	Indoor	B4242DFN	B4242DFN	3,545.00	24	36	(2) #3/0 - 250 kcmil
		42	42	Outdoor	B4242DR1N <sup>⑤</sup>	—	4,115.00	47	36	
LA <sup>⑦</sup>	600	42	42	Indoor	B4242EFN	B4242EFN	5,580.00	24	36	(2) #3/0 - 500 kcmil

① All main circuit breaker loadcenters are listed for use as service entrance equipment and are shipped with a neutral bonding strap preattached. The maximum rating of the panel is the main circuit breaker rating when used as service entrance equipment.

② Ground bar kits priced separately.

See page C-16.

③ Refer to page C-25 for dimensions.

④ Includes through-feed lugs for both phase and neutral conductors.

⑤ Rainproof panels are furnished with hub closure plates. For rainproof hubs, refer to page C-16.

⑥ Type DK main circuit breaker is rated 65,000 AIC at 240V AC and allows a 22,000 AIC series rating on the panel when Types BR, BD and BJ branch circuit breakers are used.

⑦ Type LA main circuit breaker is rated 42,000 AIC at 240V AC. Type LA circuit breaker is not series rated with Types BR, BD and BJ branch circuit breakers.

⑧ Supplied with adapter plate to use DS Group 1 hubs on page C-16. If 2-1/2-inch (63.5 mm) hub is needed, remove adapter and use ARP00007CH25 hub.

⑨ Neutral is bonded – suitable for service entrance only – can not be converted for sub-feed application.

⑩ The maximum rating of the panel is the main circuit breaker rating when used as service entrance equipment.

⑪ Door lock and key included with loadcenter.

⑫ Combination style covers may be used in surface or flush applications.

⑬ Loadcenter has surface cover no flush offering available.

⑭ Wire range size for BR1020B100SP is #6 - #1 Al/Cu.

Discount Symbol 22CD

**1-Phase – Main Circuit Breaker Loadcenters  
22,000/25,000 Amperes Interrupting Capacity****1-Phase 3-Wire — 120/240V AC — Insulated/Bondable Neutral**

Main Breaker Type	Main Ampere Rating	Maximum Number 1-inch (25.4 mm)		Enclosure Type	Loadcenter Catalog Number with Combination Cover <sup>①②</sup>	List Price	Box Size <sup>③</sup>	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker
		Spaces	Poles						
BRH <sup>④</sup> 22 kAIC	100	20	24	Indoor	BR2024H100 <sup>④</sup>	\$296.00	C2	10	#2/0 - 300 kcmil
BWH <sup>⑤</sup> 25 kAIC	150	20	30	Indoor	BR2030H150 <sup>⑤</sup>	580.00	C4	26	#2/0 - 300 kcmil
	200	20	40	Indoor	BR2040H200 <sup>⑤</sup>	545.00	D1	29	#2/0 - 300 kcmil
		30	40	Indoor	BR3040H200 <sup>⑤</sup>	645.00	G1	30	
		40	40	Indoor	BR4040H200 <sup>⑤</sup>	755.00	L1	28	

① All main circuit breaker loadcenters are listed for use as service entrance equipment and are shipped with neutral bonding strap preattached. The maximum rating of the panel is the main circuit breaker rating when used as service entrance equipment.

② Ground bar kits priced separately. See page C-16.

③ Refer to page C-25 for dimensions.

④ 22,000 AIC series combination rating is obtained when Types BD, BR, BQ, BQC and GFCB 10,000 AIC branch breakers are used in series with Type BRH main breaker.

⑤ 25,000 AIC series combination rating is obtained when Types BD, BR, BQ, BQC and GFCB 10,000 AIC branch circuit breakers are used in series with Type BWH main breaker.

Discount Symbol 22CD

## 2 Circuits 70 Amperes



Surface



Flush



Outdoor

## 4, 6, and 8 Circuits 125 Amperes



Surface no Door



Flush with Door



Outdoor

## 2 Circuits 125 Amperes



Surface



Flush



Outdoor

## 1-Phase – Main Lug Loadcenters

### 1-Phase 3-Wire — 120/240V AC — Insulated/Bondable Neutral

Main Ampere Rating	Maximum Number 1-inch (25.4 mm)		Type of Enclosure	Type of Trim	Loadcenter Catalog Number	List Price	Box Size <sup>②</sup>	Wiring Diagram Figure Number	Wire Size Range for Cu/Al 60°C or 75°C for Main Lugs
	Spaces	Poles							
70	2	4	Indoor	Surface no Door	BR24L70SP <sup>①⑨</sup>	\$ 41.00	5	1	#8 - #2
	2	4	Indoor	Surface no Door	BR24L70SGP <sup>⑥⑨</sup>	43.60	5	1	
	2	4	Outdoor	—	BR24L70RP <sup>①⑤⑨</sup>	80.00	5R	1	
	2	4	Indoor	Flush no Door	BR24L70F <sup>①⑨</sup>	41.00	5	1	
	2	4	Indoor	Flush no Door	BR24L70FGP <sup>⑥⑨</sup>	43.60	5	1	
125	2	4	Indoor	Surface no Door	BR24L125SP <sup>①⑨</sup>	51.00	6	1	#14 - 1/0
	2	4	Outdoor	—	BR24L125RP <sup>①⑤⑨</sup>	88.00	6R	1	
	2	4	Indoor	Flush no Door	BR24L125FP <sup>①⑨</sup>	51.00	6	1	
	4	8	Indoor	Surface no Door	BR48L125SP <sup>①⑩</sup>	66.00	7	2	#14 - 1/0
	4	8	Indoor	Surface no Door	BR48L125SGP <sup>⑥⑩</sup>	76.00	7	2	
	4	8	Outdoor	—	BR48L125RP <sup>①⑤⑩</sup>	109.00	7R	2	
	4	8	Indoor	Flush no Door	BR48L125FP <sup>①⑩</sup>	66.00	7	2	
	4	8	Indoor	Flush with Door	BR48L125FDP <sup>①②⑩</sup>	85.00	7	2	
	4	8	Indoor	Flush with Door	BR48L125FGP <sup>⑥⑩</sup>	76.00	7	2	
	6	12	Indoor	Surface no Door	BR612L125SP <sup>①⑪</sup>	78.00	7	3	#14 - #1
	6	12	Indoor	Surface no Door	BR612L125SGP <sup>④⑪</sup>	86.00	7	3	
	6	12	Indoor	Surface with Door	BR612L125SDP <sup>①②⑪</sup>	88.00	7	3	
	6	12	Indoor	Surface with Door	BR612L125SDGP <sup>②④⑪</sup>	96.00	7	3	
	6	12	Outdoor	—	BR612L125RP <sup>①⑤⑪</sup>	118.00	7R	3	
	6	12	Indoor	Flush no Door	BR612L125FP <sup>①⑪</sup>	78.00	7	3	
	6	12	Indoor	Flush no Door	BR612L125FGP <sup>④⑧⑪</sup>	86.00	7	3	
	6	12	Indoor	Flush with Door	BR612L125FDP <sup>①②⑪</sup>	88.00	7	3	
	6	12	Indoor	Flush with Door	BR612L125FDGP <sup>②④⑧⑪</sup>	96.00	7	3	
	8	16	Indoor	Surface no Door	BR816L125SP <sup>①⑪</sup>	98.50	7	4	
	8	16	Indoor	Surface no Door	BR816L125SGP <sup>⑦⑪</sup>	110.00	7	4	
	8	16	Indoor	Surface with Door	BR816L125SDP <sup>①②⑪</sup>	110.00	7	4	
	8	16	Indoor	Surface with Door	BR816LC125SDP <sup>①②③⑪</sup>	140.00	7	4	
	8	16	Indoor	Surface with Door	BR816L125SDGP <sup>②⑦⑪</sup>	120.00	7	4	
	8	16	Outdoor	—	BR816L125RP <sup>①⑤⑪</sup>	174.00	7R	4	
	8	16	Indoor	Flush no Door	BR816L125FP <sup>①⑪</sup>	98.50	7	4	
	8	16	Indoor	Flush no Door	BR816L125FGP <sup>⑦⑧⑪</sup>	110.00	7	4	
	8	16	Indoor	Flush with door	BR816L125FDP <sup>①②⑪</sup>	127.00	7	4	
	8	16	Indoor	Flush with Door	BR816LC125FDP <sup>①②③⑪</sup>	140.00	7	4	
	8	16	Indoor	Flush with Door	BR816L125FDGP <sup>②⑦⑧⑪</sup>	120.00	7	4	

① Ground bar kits priced separately. See page C-16.  
 — For 2/4 circuit loadcenters use GBK5 or GBK520 Ground Bar.  
 — For 4/8, 6/12 and 8/16 circuit loadcenters use GBK10 Ground Bar.  
 — Ground bars mount to the left side wall of the enclosure for the 4/8, 6/12 and 8/16 circuit loadcenters

② Refer to page C-25 for dimensions.

③ Copper bus is included.

④ Ground bar GBK10 is installed.

⑤ Rainproof panels are furnished with hub closure plates. For rainproof hubs refer to page C-16.

⑥ Ground bar GBK5 is installed.

⑦ Ground bar GBK14 is installed.

⑧ CSA and UL approved.

⑨ Suitable for use as service equipment when not more than two service disconnecting mains are provided or when not used as a lighting and appliance panelboard (see Article 384-14 of the NEC).

⑩ Suitable for use as service equipment when not more than two service disconnecting mains are provided or when not more than six service disconnect-

ing mains are provided and when not used as a lighting and appliance panelboard (see Article 384-14 of the NEC).

⑪ Suitable for use as service equipment when a main breaker is used or when not more than six service disconnecting mains are provided and when not used as a lighting and appliance panelboard (see Article 384-14 of the NEC).

Discount Symbol 22CD

**1-Phase – Main Lug Loadcenters, Continued****1-Phase 3-Wire — 120/240V AC — Insulated/Bondable Neutral**

Main Ampere Rating	Maximum Number 1-inch (25.4 mm)		Enclosure Type	Loadcenter Catalog Number with Combination or NEMA Type 3R Cover <sup>①</sup>	List Price	Box Size <sup>⑭</sup>	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs
	Spaces	Poles						
125	12	12	Indoor	BR1212L125 <sup>③⑥⑦⑧</sup>	\$ 117.00	B1	9	#6 - 2/0
	12	24	Indoor	BR1224L125 <sup>③⑦⑧</sup>	125.00	B1	6	
	12	24	Indoor	BR1224L125G <sup>③⑦⑧⑨</sup>	133.00	B1	6	
	12	24	Indoor	BR1224L125DG <sup>③⑦⑧⑩</sup>	166.00	B1	6	
	12	24	Outdoor	BR1224L125R <sup>②③⑧</sup>	192.00	B1R	6	
	16	24	Indoor	BR1624L125 <sup>③⑦</sup>	163.00	B2	7	
	16	24	Indoor	BR1624L125G <sup>③⑦⑩</sup>	177.00	B2	7	
	16	24	Outdoor	BR1624L125R <sup>②③</sup>	230.00	B2R	7	
	20	24	Indoor	BR2024L125 <sup>③⑦</sup>	207.00	C1	8	
	20	24	Indoor	BR2024L125G <sup>③⑦⑩</sup>	219.00	C1	8	
	20	24	Outdoor	BR2024L125R <sup>②③</sup>	270.00	C1R	8	
	24	24	Indoor	BR2424L125 <sup>③⑦</sup>	207.00	C2	5	
	24	24	Indoor	BR4242L125G <sup>③⑦⑩</sup>	219.00	C2	5	
150	16	30	Indoor	BR1630L150 <sup>④⑦</sup>	195.00	C1	62	#1 - 300 kcmil
	20	30	Indoor	BR2030L150 <sup>④⑦</sup>	221.00	C2	11	
200	8	16	Outdoor	BR816L200RF <sup>②⑧⑬</sup>	239.00	B2R	63	#1 - 300 kcmil
	12	24	Indoor	BR1224L200 <sup>④⑦⑧</sup>	197.00	B2	12	
	12	24	Outdoor	BR1224L200R <sup>②④⑧</sup>	261.00	B2R	12	
	20	40	Indoor	BR2040L200 <sup>④⑦</sup>	257.00	C2	12	
	20	40	Outdoor	BR2040L200R <sup>②④</sup>	355.00	C3R	12	
	24	40	Indoor	BR2440L200 <sup>④⑦</sup>	282.00	C4	64	
	30	40	Indoor	BR3040L200 <sup>④⑧</sup>	304.00	D1	15	
	30	40	Outdoor	BR3040L200R <sup>②④</sup>	498.00	D1R	15	
	40	40	Indoor	BR4040L200 <sup>④⑦</sup>	415.00	G1	5	
	40	40	Outdoor	BR4040L200R <sup>②④</sup>	665.00	G1R	5	
225	42	42	Indoor	BR4242L225 <sup>⑩</sup>	455.00	L1	20	#1 - 300 kcmil
	42	42	Outdoor	BR4242L225R <sup>②</sup>	715.00	L1R	20	

Main Ampere Rating	Maximum Number 1-inch (25.4 mm)		Enclosure Type	Commercial Loadcenter Catalog Number <sup>①④⑨</sup>		List Price	Box Size <sup>⑭</sup>	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs
	Spaces	Poles		With Flush or NEMA Type 3R Cover	With Surface Cover				
400	12	24	Indoor	—	1224DSN <sup>⑧</sup>	\$ 770.00	19	44	(1) #4/0 - 750 kcmil or (2) #3/0 - 400 kcmil
	12	24	Outdoor	1224DRIN <sup>②⑧</sup>	—	930.00	42	44	
	24	42	Indoor	—	2442DSN	935.00	20	21	
	42	42	Indoor	4242DFN	4242DSN	1,060.00	22	14	
	42	42	Outdoor	4242DRIN <sup>②</sup>	—	1,335.00	46	14	
600	42	42	Indoor	—	4242ESN	1,365.00	22	14	(2) #2 - 500 kcmil

**1-Phase – Main Lug Loadcenters, Non-Metallic****1-Phase 3-Wire — 120/240V AC — Insulated/Bondable Neutral**

Main Ampere Rating	Maximum Number 1-inch (25.4 mm)		Enclosure Type	Type of Trim	Loadcenter Catalog Number	List Price	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs
	Spaces	Poles							
40 <sup>③</sup>	⑤	⑤	Indoor	Flush No Door	TT120FLGNM <sup>⑤⑥</sup>	\$ 40.00	2	65	⑤
					TT120SLGNM <sup>⑤⑥</sup>	40.00	2	65	
60	2	4	Indoor	Flush no Door	2460FNM	44.25	2	1	#14 - 2
	2	4	Indoor	Surface no Door	2460SNM	44.50	2	1	
	2	4	Indoor	Flush no Door	2460FGNM <sup>⑥</sup>	46.75	2	1	
	2	4	Indoor	Surface no Door	2460SGNM <sup>⑥</sup>	47.00	2	1	
	2	4	Outdoor	—	2460RNM	85.50	2R	1	

① Ground bar kits priced separately unless otherwise noted. See page C-16.

② Rainproof panels are furnished with hub closure plates. For rainproof hubs refer to page C-16.

③ Has notch for BREQS125 hold-down kit.

④ Has notch for BRHDK125 hold-down kit.

⑤ Door lock and key included with loadcenter.

⑥ Single, movable neutral is provided.

⑦ Combination cover style.

⑧ Suitable for use as service equipment when

not more than six main disconnecting means are provided and when not used as a lighting and appliance panelboard (see article 384-14 of the NEC.)

⑨ Ground bar GBK8 installed.

⑩ Ground bar GBK10 installed.

⑪ Ground bar GBK1220 installed.

⑫ Ground bars GBK5 and GBK520 installed.

⑬ Includes through-feed lugs for both phase and neutral conductors.

⑭ Refer to page C-25 for dimensions.

⑮ This device has no main lugs. A Type BR or BD breaker is required to be backed to supply power to branch breakers. This device is single phase 120 V AC only. With the use of three Type BR breakers there are two branch circuits available. With the use of three Type BD breakers there are five branch circuits available. See Wiring Diagram 61 on page C-35.

⑯ Includes GB4NM ground bar.

**Discount Symbol 22CD**

## 3-Phase – Main Circuit Breaker Loadcenters 10,000/22,000/100,000 Amperes Interrupting Capacity

### 3-Phase 4-Wire — 208Y/120V AC or 240V AC Insulated/Bondable Neutral

Main Breaker Type	Main Ampere Rating	Maximum Number 1-inch (25.4 mm)		Enclosure Type	Loadcenter Catalog Number <sup>①②</sup>		List Price	Box Size <sup>③</sup>	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker
		Spaces	Poles		With Combination or NEMA Type 3R Cover	With Surface Cover				
BR 10 kAIC	100	12 12	24 24	Indoor Outdoor	3BR1224B100 3BR1224B100R <sup>④</sup>	BR1224B100S	\$ 580.00 660.00	C1 CR	65 65	#4 - 1/0
CC 10 kAIC	125	30	42	Indoor	3BR3042B125	3BR3042B125S	1,080.00	L1	41	#1 - 2/0
	150	30 30	42 42	Indoor Outdoor	3BR3042B150 3BR3042B150R <sup>④</sup>	3BR3042B150S —	1,125.00 1,245.00	L1 L1R	41 41	#1 - 3/0
	200	30	42	Indoor	3BR3042B200	3BR3042B200S	1,130.00	L1	41	#1 - 250 kcmil
		30 42	42 42	Indoor Indoor	3BR3042B200R <sup>④</sup> 3BR4242B200	— 3BR4242B200S	1,250.00 1,195.00	L1R L2	41 43	
		42 42	42 42	Outdoor	3BR4242B200R <sup>④</sup>	—	1,470.00	L2R	43	
	225	42 42	42 42	Indoor Outdoor	3BR4242B225 3BR4242B225R <sup>④</sup>	3BR4242B225S —	1,255.00 1,585.00	L2 L2R	43 43	#1 - 300 kcmil

Main Breaker Type	Main Ampere Rating	Maximum Number 1-inch (25.4 mm)		Enclosure Type	Commercial Loadcenter Catalog Number <sup>①②⑤</sup>		List Price	Box Size <sup>③</sup>	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker
		Spaces	Poles		With Combination or NEMA Type 3R Cover	With Surface Cover				
DK <sup>⑥</sup> 22 kAIC	400	42 42	42 42	Indoor Outdoor	3B4242DFN 3B4242DR1N <sup>④</sup>	3B4242DSN —	\$4,170.00 4,755.00	24 47	42 42	(2) #3/0-250 kcmil
LD <sup>⑦</sup>	600	42	42	Indoor	3B4242EFN	3B4242ESN	6,785.00	24	42	(2) #3/0-500 kcmil

Main Breaker Type	Main Ampere Rating	Maximum Number 1-inch (25.4 mm)		Enclosure Type	Loadcenter Catalog Number <sup>①②</sup>		List Price	Box Size <sup>③</sup>	Wiring Diagram Figure Number	Wire Size Range for Main Cu/Al
		Spaces	Poles		With Combination Cover	With Surface Cover				
BRH 22 kAIC <sup>⑧</sup>	100	12	24	Indoor	3BR1224H100	3BR1224H100S	\$ 670.00	C1	65	#4 - 1/0
CHH 100 kAIC <sup>⑨</sup>	150	30	42	Indoor	3BR3042H150	3BR3042H150S	1,365.00	L1	41	#1 - 250 kcmil
CHH 100 kAIC <sup>⑨</sup>	200	30 42	42 42	Indoor Indoor	3BR3042H200 3BR4242H200	3BR3042H200S 3BR4242H200S	1,375.00 1,465.00	L1 L2	41 43	#1 - 250 kcmil

① All main circuit breaker loadcenters are listed for use as service entrance equipment and are shipped with a neutral bonding strap pre-attached (commercial loadcenters do not have a pre-attached bonding strap). The maximum main rating of the panel is the main circuit breaker rating when used as service entrance equipment.

② Ground bar kits priced separately.

See page C-16.

③ Refer to page C-25 for dimensions.

④ Rainproof loadcenters are furnished with hub closure plates. For rainproof hubs, refer to page C-16.

⑤ Door lock and key included with loadcenter.

⑥ Type DK main circuit breaker is rated 65,000 AIC at 240V AC and allows a 22,000 AIC series rating on the loadcenter when Types BR, BD and BJ branch circuit breakers are used.

⑦ The LD main circuit breaker is rated 65,000 AIC at 240V AC. Type LD circuit breaker is not series rated with Types BR, BD and BJ branch circuit breakers.

⑧ 22,000 AIC series combination rating is obtained when Types BD, BR, BQ, BQC and GFCB branch breakers are used with BRH main.

⑨ 100,000 AIC series combination rating is obtained when Types BD, BR, BQ, BQC and GFCB branch breakers are used with CHH main.

Discount Symbol 22CD

## 3-Phase – Main Lug Loadcenters

## 3-Phase 4-Wire — 208Y/120V AC or 240V AC Insulated/Bondable Neutral

Main Ampere Rating	Maximum Number 1-inch (25.4 mm)		Enclosure Type	Loadcenter Catalog Number <sup>①</sup>		List Price	Box Size <sup>②</sup>	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs
	Spaces	Poles		With Combination or NEMA Type 3R Cover	With Surface Cover				
100	3	3	Indoor Outdoor	—	S3100SLN	\$ 91.50	9	32	#14 - 1/0
	3	3		S3100RN <sup>③</sup>	—	136.00	9R	32	
125	12	24	Indoor Outdoor	3BR1224L125 <sup>④⑥</sup>	3BR1224L125S <sup>④⑥</sup>	197.00	C1	35	#6 - 2/0
	12	24		3BR1224L125R <sup>③④⑥</sup>	—	271.00	C1R	35	
150	18	36	Indoor	3BR1836L150 <sup>⑤⑥</sup>	3BR1836L150S <sup>⑥</sup>	277.00	C2	35	#1 - 300 kcmil
	18	36	Outdoor	3BR1836L150R <sup>③⑤⑥</sup>	—	350.00	C3R	35	
	24	42	Indoor	3BR2442L150	3BR2442L150S	333.00	D1	34	
	24	42	Outdoor	3BR2442L150R <sup>③</sup>	—	446.00	D1R	34	
200	12	24	Indoor	3BR1224L200 <sup>⑥</sup>	3BR1224L200S <sup>⑥</sup>	271.00	C2	35	#1 - 300 kcmil
	12	24	Outdoor	3BR1224L200R <sup>③⑥</sup>	—	346.00	C3R	35	
	18	36	Indoor	3BR1836L200 <sup>⑥</sup>	3BR1836L200S <sup>⑥</sup>	329.00	C4	35	
	18	36	Outdoor	3BR1836L200R <sup>③⑥</sup>	—	407.00	C3R	35	
	24	42	Indoor	3BR2442L200	3BR2442L200S	377.00	G1	34	
	30	42	Indoor	3BR3042L200	3BR3042L200S	392.00	G1	33	
	30	42	Outdoor	3BR3042L200R <sup>③</sup>	—	469.00	G1R	33	
	42	42	Indoor	3BR4242L200	3BR4242L200S	540.00	L1	37	
	42	42	Outdoor	3BR4242L200R <sup>③</sup>	—	830.00	L1R	37	
	42	42	Indoor	3BR4242L225	3BR4242L225S	595.00	L1	37	
	42	42	Outdoor	3BR4242L225R <sup>③</sup>	—	880.00	L1R	37	

Main Ampere Rating	Maximum Number 1-inch (25.4 mm)		Enclosure Type	Commercial Loadcenter Catalog Number <sup>⑤</sup>		List Price	Box Size <sup>②</sup>	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs
	Spaces	Poles		With Flush or NEMA Type 3R Cover	With Surface Cover				
400	18	36	Indoor	31836DFN <sup>⑥</sup>	31836DSN <sup>⑥</sup>	\$1,025.00	19	40	(1) #4/0 - 750 kcmil or (2) #3/0 - 400 kcmil
	18	36	Outdoor	31836DR1N <sup>③⑥</sup>	—	1,340.00	43	40	
	24	42	Indoor	—	32442DSN	1,115.00	19	38	
	42	42	Indoor	34242DFN	34242DSN	1,310.00	22	39	
	42	42	Outdoor	34242DR1N <sup>③</sup>	—	1,625.00	46	39	
600	42	42	Indoor	34242EFN	34242ESN	1,645.00	22	39	(2) #2 - 500 kcmil

① Ground bar kits priced separately.  
See page C-16.

② Refer to page C-25 for dimensions.

③ Rainproof loadcenters are furnished with hub closure plates. For rainproof hubs, refer to page C-16.

④ Has notch for BREQS125 hold-down kit.

⑤ Door lock and key included with loadcenter.

⑥ Suitable for use as service equipment when not more than six main disconnecting means are provided and when not used as a lighting and appliance panelboard (see article 384-14 of the NEC.)

## Convertible Loadcenters MCB or MLO – Base Units and Main Devices

10,000/22,000/25,000 Amperes Interrupting Capacity<sup>①</sup>

Complete Assembly Consists Of: Loadcenter and Either Main Breaker Kit or Main Lug Kit

### Base Units

1-Phase 3-Wire — 120/240V AC — Insulated/Bondable Neutral

Main Ampere Rating <sup>②</sup>	Maximum Number 1-inch (25.4 mm)		Enclosure Type	Loadcenter Catalog Number With Combination or NEMA Type 3R Cover <sup>③④</sup>	List Price	Box Size <sup>⑤</sup>	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main
	Spaces	Poles						
125	12	24	Indoor	BR1224N125 <sup>⑥⑦</sup>	\$124.00	B2	49	See main breaker and main lug kit tables below.
	12	24	Outdoor	BR1224N125R <sup>⑥⑦⑧</sup>	191.00	B2R	49	
	16	24	Indoor	BR1624N125 <sup>⑥</sup>	158.00	C1	45	
	16	24	Outdoor	BR1624N125R <sup>⑥⑦</sup>	230.00	C1R	45	
	20	24	Indoor	BR2024N125 <sup>⑥</sup>	206.00	C2	50	
	20	24	Outdoor	BR2024N125R <sup>⑥⑦</sup>	267.00	C3R	50	
200	8	16	Outdoor	BR816N200RF <sup>⑦⑧⑨⑩</sup>	239.00	C3R	52	
	12	24	Indoor	BR1224N200 <sup>⑨⑩</sup>	158.00	C4	13	
	12	24	Outdoor	BR1224N200R <sup>⑦⑨⑩</sup>	242.00	C3R	13	
	16	32	Indoor	BR1632N200 <sup>⑨</sup>	195.00	C4	13	
	20	40	Indoor	BR2040N200 <sup>⑨</sup>	231.00	D1	13	
	20	40	Outdoor	BR2040N200R <sup>⑦⑨</sup>	316.00	D1R	13	
	24	4	Indoor	BR2440N20U	262.00	G1	61	
	30	40	Indoor	BR3040N200 <sup>⑨</sup>	329.00	G1	53	
	30	40	Outdoor	BR3040N200R <sup>⑦⑨</sup>	398.00	G1R	53	
	40	40	Indoor	BR4040N200 <sup>⑨</sup>	429.00	L1	47	
	40	40	Outdoor	BR4040N200R <sup>⑦⑨</sup>	463.00	L1R	47	

### 3-Phase 4-Wire — 208Y/120V AC or 240V AC Insulated/Bondable Neutral

Main Ampere Rating <sup>②</sup>	Maximum Number 1-inch (25.4 mm)		Enclosure Type	Loadcenter Catalog Number <sup>③④</sup>		List Price	Box Size <sup>⑤</sup>	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main
	Spaces	Poles		With Combination or NEMA Type 3R Cover	With Surface Cover				
100	30	30	Indoor	3BR3030N100 <sup>⑥</sup>	3BR3030N100S <sup>⑥</sup>	\$326.00	D1	48	See main breaker and main lug kit tables below.
125	12	24	Indoor	3BR1224N125 <sup>⑥⑦⑧</sup>	3BR1224N125S <sup>⑥⑦⑧</sup>	201.00	C1	51	

### Main Devices

#### 2- and 3-Pole Main Circuit Breakers:

120/240V AC or 208Y/120V AC or 240V AC

Ampere Rating	10,000 AIC		22,000/25,000 AIC		Wire Size Range Cu/Al 60°C or 75°C for Main Breaker
	Catalog Number	List Price	Catalog Number <sup>⑩</sup>	List Price	

#### 2-Pole

100	BR2100	\$118.00	BRH2100	\$160.00	#4 - 1/0
110	BR2110	246.00	BRH2110	590.00	#4 - 1/0
125	BR2125	246.00	BRH2125	590.00	#4 - 2/0
125	BW2125	261.00	BWH2125	600.00	#2 - 300 kcmil
150	BW2150	261.00	BWH2150	600.00	#2 - 300 kcmil
175	BW2175	261.00	BWH2175	600.00	#2 - 300 kcmil
200	BW2200	261.00	BWH2200	600.00	#2 - 300 kcmil

#### 3-Pole

100	BR3100	213.00	BRH3100	307.00	#1
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#### 2- and 3-Pole Main Lug Kits

120/240V AC or 208Y/120V AC or 240V AC

Ampere Rating	Catalog Number	List Price	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs
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#### 2-Pole

125	BRSF125	\$20.60	#6 - 2/0
150	BRL200	53.00	#1 - 300 kcmil
175	BRL200	53.00	#1 - 300 kcmil
200	BRL200	53.00	#1 - 300 kcmil

#### 3-Pole

150	3BRSF150	52.00	#6 - 3/0
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#### Main Circuit Breaker with Accessory

Example: BW22005R01

(Put description with catalog number on order. See page C-24.)

- ① Interrupting rating depends on main circuit breaker selected.
- ② The maximum rating of the loadcenter is the main circuit breaker rating when used as service entrance equipment.
- ③ 100, 125 and 200 ampere Convertible base unit catalog numbers include interior, box and cover only. Main devices and accessories must be ordered separately for field installation. All Convertible base units are listed as suitable for use as service entrance equipment when used per Article 384 of the NEC.
- ④ Ground bar kits priced separately, refer to page C-16.

- ⑤ Refer to page C-25 for dimensions.
- ⑥ BREQS125 hold-down screw comes with loadcenter for back-fed Types BR and BRH main circuit breakers.
- ⑦ Rainproof loadcenters are furnished with hub closure plates. For rainproof hubs, refer to page C-16.
- ⑧ Includes through-feed lugs for both phase and neutral conductors.
- ⑨ No hold-down provisions for back-fed Types BR and BRH main circuit breakers.

- ⑩ Convertible to maximum of 100 ampere main circuit breaker and 125 ampere main lug.
- ⑪ Series combination rating with Types BD, BR, BQ, BQC and GFCB is 22,000 AIC with BRH main and 25,000 AIC with BWH main.
- ⑫ Suitable for use as service equipment when not more than six main disconnecting means are provided and when not used as a lighting and appliance panelboard (see article 384-14 of the NEC.)

Discount Symbol 22CD

**Main Circuit Breaker/Main Lug/Convertible Loadcenters – With Copper Bus  
10,000/22,000/25,000 Amperes Interrupting Capacity****Main Circuit Breaker — 1-Phase 3-Wire — 120/240V AC — Insulated/Bondable Neutral**

Main Breaker Type	Main Ampere Rating	Maximum Number 1-inch (25.4 mm)		Enclosure Type	Loadcenter Catalog Number With Combination Cover <sup>①②</sup>	List Price	Box Size <sup>③</sup>	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker
		Spaces	Poles						
BR 10 kAIC	100	30	30	Indoor	BR3030BC100	\$392.00	D1	16	#4 - 1/0
BRH <sup>®</sup> 22 kAIC		30	30	Indoor	BR3030HC100	432.00	D1	16	

**Main Lug — 1-Phase 3-Wire — 120/240V AC — Single Neutral**

Main Ampere Rating	Maximum Number 1-inch (25.4 mm)		Enclosure Type	Type of Trim	Loadcenter Catalog Number	List Price	Box Size <sup>③</sup>	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs
	Spaces	Poles							
125	8	16	Indoor	Surface w/door	BR816LC1255DP	\$140.00	7	7	#14 - 1
	8	16	Indoor	Flush w/door	BR816LC1255PDP	140.00	7	7	

**Main Circuit Breaker — 3-Phase 4-Wire — 208Y/120V AC or 240V AC — Insulated/Bondable Neutral**

Main Breaker Type	Main Ampere Rating	Maximum Number 1-inch (25.4 mm)		Enclosure Type	Loadcenter Catalog Number With Combination or NEMA Type 3R Cover <sup>①②</sup>	List Price	Box Size <sup>③</sup>	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker
		Spaces	Poles						
BW 10 kAIC	200A	30	42	Indoor	3BR3042BC200	\$1,260.00	L1	41	#1/0 - 250 kcmil
		42	42	Indoor	3BR4242BC200	1,380.00	L2	43	
		42	42	Outdoor	3BR4242BC200R <sup>④</sup>	1,405.00	L2R	43	

**Main Lug — 3-Phase 4-Wire — 208Y/120V AC or 240V AC — Insulated/Bondable Neutral**

Main Ampere Rating	Maximum Number 1-inch (25.4 mm)		Enclosure Type	Loadcenter Catalog Number With Combination or NEMA Type 3R Cover <sup>②</sup>	List Price	Box Size <sup>③</sup>	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs
	Spaces	Poles						
200	30	42	Indoor	3BR3042LC200	\$434.00	G1	33	#1/0 - 300 kcmil
	42	42	Indoor	3BR4242LC200	620.00	L1	37	
	42	42	Outdoor	3BR4242LC200R <sup>④</sup>	705.00	L1R	37	

**Convertible — 1-Phase 3-Wire — 120/240V AC — Insulated/Bondable Neutral**

Main Ampere Rating	Maximum Number 1-inch (25.4 mm)		Enclosure Type	Loadcenter Catalog Number With Combination or NEMA Type 3R Cover <sup>①②⑤</sup>	List Price	Box Size <sup>③</sup>	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main
	Spaces	Poles						
125 10/22 kAIC <sup>⑥</sup>	12	24	Indoor	BR1224NC125 <sup>⑥⑨</sup>	\$135.00	B2	49	See main breaker and main lug kit tables on page C-12.
	12	24	Outdoor	BR1224NC125R <sup>④⑥⑨</sup>	204.00	B2R	49	
	20	24	Indoor	BR2024NC125 <sup>⑥</sup>	223.00	C2	50	
	20	24	Outdoor	BR2024NC125R <sup>④⑥</sup>	287.00	C3R	50	
200 10/25 kAIC <sup>⑥</sup>	20	40	Indoor	BR2040NC200	249.00	D1	13	
	20	40	Outdoor	BR2040NC200R <sup>④</sup>	338.00	D1R	13	
	30	40	Indoor	BR3040NC200	379.00	G1	53	
	30	40	Outdoor	BR3040NC200R <sup>④</sup>	436.00	G1R	53	
	40	40	Indoor	BR4040NC200	462.00	L1	47	
	40	40	Outdoor	BR4040NC200R <sup>④</sup>	498.00	L1R	47	

**Convertible — 3-Phase 4-Wire — 208Y/120V AC or 240V AC — Insulated/Bondable Neutral**

Main Ampere Rating	Maximum Number 1-inch (25.4 mm)		Enclosure Type	Loadcenter Catalog Number With Combination or NEMA Type 3R Cover <sup>①②⑤</sup>	List Price	Box Size <sup>③</sup>	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main
	Spaces	Poles						
100 10/22 kAIC <sup>⑥</sup>	30	30	Indoor	3BR3030NC100 <sup>⑥</sup>	\$358.00	D1	48	See main breaker and main lug kit tables on page C-12.
	30	30	Outdoor	3BR3030NC100R <sup>④⑥</sup>	446.00	D1R	48	
125 10/22 kAIC <sup>⑥</sup>	12	24	Indoor	3BR1224NC125 <sup>⑥⑦⑨</sup>	225.00	C1	51	
	12	24	Outdoor	3BR1224NC125R <sup>④⑥⑦⑨</sup>	309.00	C1R	51	

① All main circuit breaker loadcenters are listed for use as service entrance equipment and are shipped with a neutral bonding strap pre-attached. The maximum main rating of the loadcenter is the main breaker rating when used as service entrance equipment.

② Ground bar kits priced separately. See page C-16.

③ Refer to page C-25 for dimensions.

④ Rainproof loadcenters are furnished with hub closure plates. For rainproof hubs, refer to page C-16.

⑤ 100, 125 and 200 ampere Convertible base unit catalog numbers include interior, box and cover only. Main devices must be ordered separately from page 12. Accessories must also be ordered separately for field installation. All Convertible base units are listed as suitable for use as service entrance equipment when used per article 384 of the NEC.

⑥ Hold-down screw BREQS125 comes with loadcenter for back-fed Types BR and BRH main circuit breakers.

⑦ Convertible to maximum of 100 ampere main breaker and 125 ampere main lug.

⑧ Interrupting rating depends on main circuit breaker selected. See page C-12 for mains.

⑨ Suitable for use as service equipment when not more than six main disconnecting means are provided and when not used as a lighting and appliance panelboard (see article 384-14 of the NEC.)

⑩ 22,000 AIC series combination rating is obtained when BD, BR, BQ, BQC and GFCB 10,000 AIC branch circuit breakers are used with a BRH main.

Discount Symbol 22CD

## New York City Loadcenters — Indoor Enclosures

### Main Circuit Breaker and Main Lug, 1-Phase and 3-Phase

#### MAIN CIRCUIT BREAKER — FACTORY INSTALLED

Main Breaker Type	Main Ampere Rating	Maximum Number		Enclosure Type	Loadcenter Catalog Number		List Price	Box Size ①	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker
		1-inch (25.4 mm) Spaces	Poles		Flush Cover	Surface Cover				

#### 1-Phase 3-Wire — 120/240V AC Insulated/Bondable Neutral

WFL 10 kAIC	200	42	42	Indoor	—	B4242BYSQ	\$ 850.00	A	56	#1 - 300 kcmil
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#### 3-Phase 4-Wire — 208Y/120V AC or 240V AC Insulated/Bondable Neutral

WFL 10 kAIC	200	42	42	Indoor	3B4242BYSQ	3B4242BYSQ	1,590.00	A	57	#1 - 300 kcmil
	225				—	3B4242CYSQ	1,695.00	A	57	#1 - 300 kcmil
DK 42 kAIC	400	42	42	Indoor	—	3B4242DYSN	4,870.00	C	42	#1 - 300 kcmil

#### MAIN LUGS — FACTORY INSTALLED

Main Lug Ampere Rating	Maximum Number		Enclosure Type	Loadcenter Catalog Number		List Price	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs
	1-inch (25.4 mm) Spaces	Poles		Flush Cover	Surface Cover				

#### 1-Phase 3-Wire — 120/240V AC Insulated/Bondable Neutral

225	42	42	Indoor	—	4242CYSN	\$ 580.00	A	55	#1 - 300 kcmil
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#### 3-Phase 4-Wire — 208Y/120V AC or 240V AC Insulated/Bondable Neutral

225	42	42	Indoor	34242CYFN	34242CYSN	955.00	B	58	#1 - 300 kcmil
400	42	42	Indoor	—	34242DYSN	1,455.00	C	39	250-750 kcmil

① Refer to page C-25 for dimensions.

# 1-Phase and 3-Phase Circuit Breaker Unit Enclosures 10,000/25,000 Amperes Interrupting Capacity

Circuit Breaker  
Unit Enclosures

BW2200

Main Ampere Rating	Unit Enclosure Catalog Number				Unit Enclosure Catalog Number			Type of Circuit Breaker	Wire Size Range Cu/Al 60°C or 75°C
	Enclosure Type	Flush Cover <sup>②</sup>	Surface Cover <sup>②</sup>	List Price	Enclosure Type	Rainproof NEMA Type 3R <sup>②</sup>	List Price		

Type ECB Circuit Breaker Unit Enclosures — Order Types BW and BWH Circuit Breakers Separately

Unit Enclosure Includes Lug Tree Kit

1-Phase 3-Wire — 240V AC Maximum

225	Indoor	ECB225F <sup>①⑤</sup>	ECB225S <sup>①⑥</sup>	\$ 135.00	Outdoor	ECB225R <sup>①⑤⑥</sup>	\$ 260.00	BW 10 kAIC BWH 25 kAIC	⑦
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Type ECC Circuit Breaker Unit Enclosures — Order Type CC Circuit Breakers Separately

1-Phase 3-Wire/3-Phase 4-Wire — 240V AC Maximum

225	Indoor	ECC225F <sup>①⑤</sup>	ECC225S <sup>①⑥</sup>	155.00	Outdoor	ECC225R <sup>①⑤⑥</sup>	280.00	CC 10 kAIC	⑦
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Types BW and BWH Circuit Breakers  
120/240V AC — 10,000, 25,000 AIC  
For Use in Type ECB Unit Enclosures

Ampere Rating	2-Pole Breakers				Wire Size Range Cu/Al 60°C or 75°C for Line Terminals
	10,000 AIC		25,000 AIC		
	Catalog Number	List Price	Catalog Number	List Price	
125	BW2125	\$251.00	BWH2125	\$575.00	#2-300 kcmil
150	BW2150	251.00	BWH2150	575.00	
175	BW2175	251.00	BWH2175	575.00	
200	BW2200	251.00	BWH2200	575.00	
225	BW2225	251.00	BWH2225	575.00	

BW/BWH Lug Tree Kit  
For Replacement Purposes Only  
For Use in Type CCM Unit Enclosures

Ampere Rating	Description	Catalog Number	List Price	Wire Size Range Cu/Al 60°C or 75°C for Line Terminals
225	For use on 125, 150, 175, 200 and 225 Ampere BW and BWH Breakers	MCBK225	\$41.00	#2-300 kcmil

Type CC Circuit Breakers  
240V AC — 10,000 AIC  
For Use in Type ECC Unit Enclosures

Ampere Rating	Type CC 10,000 AIC		Type CC Hi Mag 10,000 AIC		Wire Size Range Cu/Al 60°C or 75°C for Line Terminals
	Catalog Number	List Price	Catalog Number	List Price	

## 2-Pole

100	CC2100	\$284.00	CC2100HM	\$352.00	#4-4/0
125	CC2125	284.00	CC2125HM	352.00	
150	CC2150	284.00	CC2150HM	352.00	
175	CC2175	284.00	CC2175HM	352.00	#2/0 - 300 kcmil
200	CC2200	284.00	CC2200HM	352.00	
225	CC2225	284.00	CC2225HM	352.00	

## 3-Pole

100	CC3100	414.00	CC3100HM	483.00	#4-4/0
125	CC3125	760.00	CC3125HM	825.00	
150	CC3150	760.00	CC3150HM	825.00	
175	CC3175	760.00	CC3175HM	825.00	#2/0 - 300 kcmil
200	CC3200	760.00	CC3200HM	825.00	
225	CC3225	760.00	CC3225HM	825.00	

- ① Order circuit breaker separately.  
② Dimensions see page C-25.  
③ BW2150 factory installed circuit breaker.  
④ BW2200 factory installed circuit breaker.  
⑤ Rainproof enclosures are furnished with hub closure plates. For rainproof hubs, refer to page C-16.  
⑥ One ground lug accepting (1) #14-#2 is factory installed. Also, there are pre-drilled holes to accept a GBK5 ground bar.

- ⑦ Wire size is determined by the circuit breaker installed in enclosure. Maximum wire size and ampere rating is determined by table as follows:

Wire/Application	Maximum Wire Size	Maximum Ampere Rating
Aluminum – Standard	250 kcmil	200
Aluminum – Service Entrance	250 kcmil	225
Copper – Standard and Service Entrance	250 kcmil	225

Discount Symbol 22CD

## Loadcenter Accessories

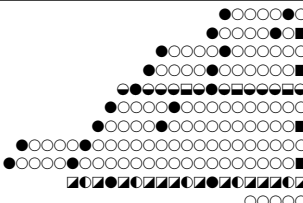
## Field Installation Kits and Parts

Number of Poles	Ampere Rating	Number of 1-inch (25.4 mm) Spaces Needed	Wire Size Range Cu/Al 60°C or 75°C	Catalog Number	List Price Each	Ordering Quantity <sup>①</sup>
<b>Main and Sub-Feed Lug Blocks</b>						
2	125	2	#6 - 2/0	BRSF125	\$ 19.40	1
	150	2	#6 - 3/0	BRSF150	36.80	1
	225	2	#2 - 300 kcmil	BRS225	59.50	1
3	150	3	#6 - 3/0	3BRSF150	48.90	1
	225	3	#2 - 300 kcmil	3BRS225	93.50	1
<b>Main Lugs</b> 2-Pole, 200 Ampere Stud Mounted (Includes Deadfront Filler Plate)			#1-300 kcmil	BRL200	49.90	1
Neutral/Ground Lug Add-On Neutral or Ground Lug			#2/0 Maximum	NL20	11.30	1
			#3/0 Maximum	NL30	13.90	1
			300 kcmil Maximum	NL300	25.50	1
<b>Filler Plates</b> 1-Inch (25.4 mm) Circuit Breaker Space CM Main Circuit Breaker Space (with Hardware)				BRFP	2.50	25
				BWFP	5.60	1
Door Lock – 12 through 42 Circuits, and 100 through 225 Amperes				TDL	48.90	1
Door Lock – 4 through 8 Circuits, 125 Amperes				CH9FL		1
ANSI-61 Light Gray Touchup Paint for Current Loadcenters				SPC61	30.50	1
Isolated Neutral Assembly (Computer Circuits)				BINA	7.40	1
Circuit Directory – Adhesive Backed				TCO	1.20	10
Cover Screws				LCCS	.70	25
Cover Replacement Latch (Gray) 14-5/16 (363.55 mm) Wide Loadcenters Only				BRRL	6.60	1
Circuit Marking Strip (Next to Breaker)				BRMS	1.50	10
Circuit Identification Label (preprinted breaker labels)				CHBL	2.10	25
Series Rated Caution Label				SRL	1.30	25

## Field Installation Rainproof Conduit Hubs

Description	Conduit Size Inches (mm)	Catalog Number	List Price Each	Ordering Quantity <sup>①</sup>
Group 1 – For use with 70, 100 and 125 Ampere MLO and MCB Loadcenters and Circuit Breaker Enclosures	3/4 (19.1)	DS075H1	\$22.30	1
	1 (25.4)	DS100H1	22.30	1
	1-1/4 (31.8)	DS125H1	22.30	1
	1-1/2 (38.1)	DS150H1	22.30	1
	2 (50.8)	DS200H1	36.40	1
Group 2 – For use with 150, 200 and 225 Ampere MLO and MCB Loadcenters and Circuit Breaker Enclosures	2 (50.8)	DS200H2	36.40	1
	2-1/2 (63.5)	DS250H2	64.50	1
	3 (76.2)	DS300H2	76.00	1
Type R1H Conduit Hubs for 400 and 600 Ampere Loadcenters and New York City Loadcenters	2 (50.8)	R1H200	34.70	1
	2-1/2 (63.5)	R1H250	56.50	1
	3 (76.2)	R1H300	75.50	1
Type H Conduit Hubs for Loadcenters PL0724R and S3100RN	3/4 (19.1)	RH75	20.90	1
	1 (25.4)	RH100	20.90	1
	1-1/4 (31.8)	RH125	20.90	1
	1-1/2 (38.1)	RH150	20.90	1
Adapter Kit – Allows Installing a Group 1 Hub on Devices Arranged for Group 2 Hubs		DS900AP	10.50	1
Group 1 Small Blank Hub Plate with Bump		CS900CP1	1.70	1
Group 2 Large Blank Hub Plate with Bump		CS900CP2	3.30	1

## Ground Bar Kits

Description (See Legend)	Length Inches (mm)	Catalog Number	List Price Each	Ordering Quantity <sup>①</sup>
	2.54 (64.5)	GBK5 <sup>②</sup>	\$ 9.60	1
	3.59 (91.9)	GBK520 <sup>②</sup>	12.10	1
	4.29 (109.0)	GBK10 <sup>②</sup>	10.90	1
	5.34 (135.6)	GBK1020 <sup>②</sup>	13.70	1
	4.61 (117.1)	GBK13 <sup>②</sup>	12.00	1
	5.69 (144.5)	GBK14 <sup>②</sup>	12.80	1
	6.74 (171.2)	GBK1420 <sup>②</sup>	15.90	1
	8.14 (206.8)	GBK21 <sup>②</sup>	17.40	1
	9.19 (233.4)	GBK2120 <sup>②</sup>	18.40	1
	5.78 (146.9)	BRGBK39512 <sup>③④</sup>	13.00	1
	1.84 (46.7)	GB4NM <sup>⑤</sup>	8.60	1

① Must be purchased in multiples of ordering quantities indicated.

② Distance between mounting holes is 1-3/4 inches (44.5 mm).

③ For 1- and 3-phase 400 and 600 ampere applications.

④ Distance between mounting holes is 2-11/32 inches (59.5 mm).

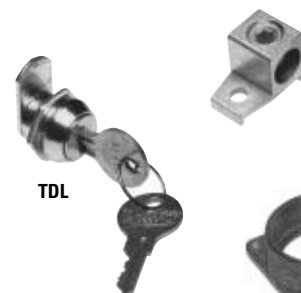
⑤ For non-metallic enclosures. Snaps into molded base.



BRSF125



3BRS225

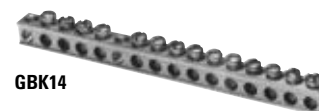


TDL

BRL200



DS100H1



GBK14



BRGBK39512

## Ground Bar Legend

○ (3) #14 - #10 Cu/Al or (1) #14 - #4 Cu/Al

■ (1) #6 - 2/0 Cu/Al

▣ (1) #14 - #6 Cu/Al or (2) #14 - #12 Cu/Al

▢ (1) 1/8 - 14 or (3) #10 - 12 Cu/Al

● (1) #14 - 1/0 Cu/Al or (3) #14 - #10 Cu/Al

● (1) #6 - 14 or (2) #10 - 14 Cu/Al

● Mounting Hole

Discount Symbol 22CD

## Surge Protectors



CHSP (Clipper Home Surge Protector)

## Clipper Home Surge Protector

**CHSP** – This surge protector is an externally mounted TVSS unit that provides industrial level surge protection in a residential design. It is available in two versions, available in both indoor and outdoor enclosures. The first provides AC power line protection only. The second provides complete surge protection for your electrical, telephone, and coaxial cable lines in one convenient unit. Both CHSP models are UL1449 (2nd edition) and 497A listed.

The CHSP is backed by a 5-year product warranty and provides a \$10,000 warranty for properly connected equipment.<sup>①</sup>

## Protection Specifications

## AC Power Protection

- 120/240V (3-wire + Ground)
- 39 kA surge current per phase
- All modes protected
- Nanosecond response time
- 24-inch (609.6 mm) leads included for installation
- Two status indicator lights

## Telephone Protection

- Two incoming lines
- 10 kA per pair surge protection
- PTC polyswitch resetting fuses
- 230V DC gas tube protection

## Coaxial Cable Protection

- Two Cable Type F connectors (input and output)
- Line-to-shield (ground) protection
- 90V DC gas tube protection

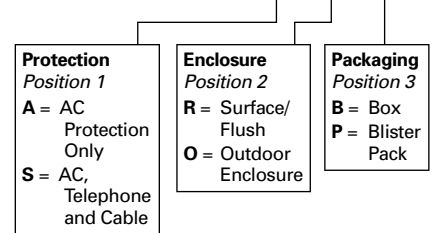
## Construction/Safety Specifications

- UL1449 listed (2nd Edition) UL497A, 400V Rating, CSA Certified
- Tested to ANSI/IEEE Category B3 and C3 levels

- Unique Surge Plane™ design
- -25°C to +50°C
- Steel enclosure
- 5-year limited warranty

Clipper Home Surge Protector Catalog  
Numbering System

# CHSPCH A R B



Catalog Number	List Price
CHSPCHARB	\$325.00
CHSPCHARP	325.00
CHSPCHAOB	395.00
CHSPCHAOB	395.00
CHSPCHSRB	400.00
CHSPCHSRP	400.00
CHSPCHSOB	470.00
CHSPCHSOP	470.00

BRSURGE  
Surge  
Protector

## Surge Protector

**BRSURGE** – For use on single-phase, 120/240V AC systems. This easily plugs into a single-phase Type BR loadcenter and occupies two 1-inch (25.4 mm) pole spaces similar to a 2-pole Type BR breaker. When plugged into the first two stabs at the top of the loadcenter just below the main breaker or main lug, it provides surge protection for the entire loadcenter. If internal components are damaged, the BRSURGE LED visual indicators will signal the need for replacement. This device is suitable for service entry locations installed in accordance with NEC Article 280. The BRSURGE is ideal for protecting sensitive appliances and electronics, such as refrigerators, microwave ovens, and home computers.

CHSA01  
Surge  
Protector

## Surge Protector

**CHSA01** – For use on single-phase, 120/240V AC systems. This surge protector can be easily installed in the enclosure of indoor or outdoor loadcenters by using the 1/2-inch (12.7 mm) threaded nipple. It is ideal for protecting outdoor lighting, garages, sump and irrigation pumps, etc.

CHSA03  
Surge  
Protector

## Surge Protector

**CHSA03** – For use on three-phase, 600V AC systems. This surge protector is installed in the enclosure of indoor and outdoor loadcenters by using the 1/2-inch (12.7 mm) threaded nipple. It provides protection for commercial electrical services especially those using electric motors.

Description	Catalog Number	List Price	Discharge Voltage, V AC				Lead Length Inches (mm)
			1.5 kA	3 kA	5 kA	10 kA	
Surge Protector Plug-On Type BR, Single-Phase, 120/240V AC	BRSURGE	\$100.00	345	370	500	545	8 (203.2)
Surge Protector, 2-Pole Single-Phase, 3-Wire, 120/240V AC	CHSA01	47.80	490	640	980	1410	15 (381.0)
Surge Protector, 3-Pole Three-Phase, 4-Wire, 600V AC	CHSA03	96.50	1700	2100	2510	3800	15 (381.0)

<sup>①</sup> Refer to Cutler-Hammer CHSP warranty for complete details.

Discount Symbol 22CD

## Plug-On Circuit Breakers, Types BR 10,000/22,000/42,000/65,000 Amperes Interrupting Capacity 120V AC, 120/240V AC and 240V AC



BR120



BR215



BR320

### Type BR Breakers, 1-Inch (25.4 mm) per Pole 120/240, 10,000, 22,000 and 42,000 AIC<sup>①②</sup>

Amperes	1-Pole 120/240V AC Requires One 1-Inch Space				2-Pole 120/240V AC Common Trip Requires Two 1-Inch Spaces				Wire Size Range Cu/Al 60°C or 75°C			
	10 per Shelf Carton				5 per Shelf Carton							
	10 kAIC		22 kAIC		10 kAIC		22 kAIC				42 kAIC	
	Catalog Number	List Price	Catalog Number	List Price	Catalog Number	List Price	Catalog Number	List Price			Catalog Number	List Price
10	BR110	\$18.10	—	—	—	—	—	—	—	—	#14-4	
15	BR115③④	18.10	BRH115	\$40.00	BR215⑥	\$ 41.00	BRH215	\$ 83.00	—	—		
20	BR120③④	18.10	BRH120	40.00	BR220⑥	41.00	BRH220	83.00	—	—		
25	BR125	18.10	BRH125	40.00	BR225⑥	41.00	BRH225	83.00	—	—		
30	BR130	18.10	BRH130	40.00	BR230⑥	41.00	BRH230	83.00	—	—		
35	—	—	—	—	BR235⑥	41.00	—	—	—	—	#14-4	
40	BR140	18.10	BRH140	40.00	BR240⑥	41.00	BRH240⑥	83.00	—	—		
45	—	—	—	—	BR245⑥	41.00	—	—	—	—		
50	BR150	18.10	BRH150	40.00	BR250⑥	41.00	BRH250⑥	83.00	—	—		
55	—	—	—	—	BR255⑥	39.40	—	—	—	—	#14-3	
60	BR160	18.10	BRH160	40.00	BR260⑥	41.00	BRH260⑥	83.00	BRHH260⑥	\$127.00	#4-1/0	
70	BR170	39.25	BRH170	50.00	BR270⑥	82.00	BRH270⑥	127.00	BRHH270⑥	194.00		
80	—	—	—	—	BR280⑥	118.00	—	—	BRHH280⑥	272.00		
90	—	—	—	—	BR290⑥	118.00	BRH290⑥	160.00	BRHH290⑥	272.00		
100	—	—	—	—	BR2100⑥	118.00	BRH2100⑥	160.00	BRHH2100⑥	272.00		
110	—	—	—	—	BR2110⑥	246.00	BRH2110⑥	590.00	BRHH2110⑥	—		
125	—	—	—	—	BR2125⑥	246.00	BRH2125⑥	590.00	BRHH2125⑥	785.00	#4-2/0	
150	—	—	—	—	BR2150⑤⑥	261.00	—	—	—	—		

### Type BR Breakers, 1-Inch (25.4 mm) per Pole 240V AC, 10,000, 22,000 and 42,000 AIC<sup>①②</sup>

Amperes	3-Pole 240V AC Common Trip Requires Three 1-Inch Spaces				Wire Size Range Cu/Al 60°C or 75°C
	5 per Shelf Carton				
	10 kAIC		22 kAIC		
	Catalog Number	List Price	Catalog Number	List Price	
10	—	—	—	—	#14-4
15 <sup>③④</sup>	BR315 <sup>⑤</sup>	\$143.00	BRH315 <sup>⑤</sup>	\$219.00	
20 <sup>③④</sup>	BR320 <sup>⑤</sup>	143.00	BRH320 <sup>⑤</sup>	219.00	
25	BR325 <sup>⑤</sup>	143.00	—	—	
30	BR330 <sup>⑤</sup>	143.00	BRH330 <sup>⑤</sup>	219.00	
35	BR335 <sup>⑤</sup>	143.00	—	—	#14-4
40	BR340 <sup>⑤</sup>	143.00	BRH340 <sup>⑤</sup>	219.00	
45	BR345 <sup>⑤</sup>	143.00	—	—	
50	BR350 <sup>⑤</sup>	143.00	BRH350 <sup>⑤</sup>	219.00	
55	BR355 <sup>⑤</sup>	137.00	—	—	
60	BR360 <sup>⑤</sup>	143.00	BRH360 <sup>⑤</sup>	219.00	#4-1/0
70	BR370 <sup>⑤</sup>	143.00	BRH370 <sup>⑤</sup>	275.00	
80	BR380 <sup>⑤</sup>	143.00	—	—	
90	BR390 <sup>⑤</sup>	143.00	BRH390 <sup>⑤</sup>	307.00	
100	BR3100 <sup>⑤</sup>	213.00	BRH3100 <sup>⑤</sup>	307.00	
110	—	—	—	—	
125	—	—	—	—	#4-2/0
150	—	—	—	—	

① All Type BR 1-, 2-, and 3-pole circuit breakers carry listing for HACR application.

② For circuit breakers with a shunt trip, add ST suffix and obtain pricing from table on page C-24.

③ One pole, 1-inch (25.4 mm) per pole circuit breakers are available with high magnetic setting for switching large tungsten lamp loads. Add suffix H to catalog number.

④ Switching duty rated.

⑤ For use as a branch circuit breaker in 400 and 600 ampere panels only.

⑥ On the new black handle breaker add suffix B to the catalog number and \$4 to the list price to obtain a tapped molded opening for proper use with hold-down kits.

**Discount Symbol 22CD**



Plug-On Arc Fault Circuit Breakers, Type BR  
10,000 Amperes Interrupting Capacity  
120V AC and 120/240V AC



Type BR 1- and 2-Pole  
AFCI Circuit Breakers

The NEC will mandate the use of AFCI Protection for 15 and 20 ampere bedroom outlet circuits in the year 2002. Information will be published in the 1999 National Electrical Code.

Type BR Arc Fault Circuit Breakers  
1-Inch (25.4 mm) per Pole 120V AC or 120/240V AC  
AFCI technology recognizes the unique characteristics of an arcing fault to trip the breaker and interrupt the circuit.

Amperes	1-Pole 120V AC			2-Pole <sup>①</sup> 120/240V AC Common Trip			Wire Size Range Cu/Al 60°C or 70°C
							
	Requires One 1-Inch Space			Requires Two 1-Inch Spaces			
	1 per Shelf Carton			1 per Shelf Carton			
	10,000 AIC			10,000 AIC			
	Configuration	Catalog Number	List Price	Configuration	Catalog Number	List Price	
15	AFCI AFCI w/GFCI	BR115AF BR115GFAF	\$146.00 ②	AFCI AFCI w/GFCI	BR215AF BR215GFAF	② ②	#14-4
20	AFCI AFCI w/GFCI	BR120AF BR120GFAF	\$146.00 ②	AFCI AFCI w/GFCI	BR220AF BR220GFAF	② ②	

① Two-pole AFCI breakers are designed for use in 3-Wire, 120/240V AC circuits, multiwire circuits utilizing a shared neutral (often referred to as a "home run" circuit), and 240V AC circuits obtained from 120/240V AC source.

② Availability to be announced.

Discount Symbol 22CD

## Plug-On Ground Fault Circuit Breakers, Type GFCB and GFEP 10,000/22,000 Amperes Interrupting Capacity 120V AC and 120/240V AC

Type GFCB  
1-PoleType GFCB  
2-Pole

### Type GFCB Ground Fault Circuit Breakers (5 Milliampere), 1-Inch (25.4 mm) per Pole 120V AC or 120/240V AC, 10,000 AIC

Amp- eres	1-Pole 120V AC		2-Pole 120/240V AC Common Trip		Wire Size Range Cu/Al 60°C or 75°C
	Requires One 1-Inch Space		Requires Two 1-Inch Space		
	1 per Shelf Carton		1 per Shelf Carton		
	10,000 AIC		10,000 AIC		
	Catalog Number①	List Price	Catalog Number	List Price	
15	GFCB115	\$136.00	GFCB215	\$241.00	#14-4
20	GFCB120	136.00	GFCB220	241.00	
25	GFCB125	136.00	GFCB225	241.00	
30	GFCB130	136.00	GFCB230	241.00	
40	GFCB140	136.00	GFCB240②	241.00	
50	—	—	GFCB250②	241.00	

### Type GFEP Ground Fault Equipment Protectors (30 Milliampere), 1-Inch (25.4 mm) per Pole 120V AC or 120/240V AC, 10,000 AIC

Amp- eres	1-Pole 120V AC		2-Pole 120/240V AC Common Trip		Wire Size Range Cu/Al 60°C or 75°C
	Requires One 1-Inch Space		Requires Two 1-Inch Space		
	1 per Shelf Carton		1 per Shelf Carton		
	10,000 AIC		10,000 AIC		
	Catalog Number	List Price	Catalog Number	List Price	
15	GFEP115	\$223.00	GFEP215	\$395.00	#14-4
20	GFEP120	223.00	GFEP220	395.00	
25	GFEP125	223.00	GFEP225	395.00	
30	GFEP130	223.00	GFEP230	395.00	
40	GFEP140	223.00	GFEP240	395.00	
50	GFEP150	223.00	GFEP250	395.00	

### Type GFCBH Ground Fault Breakers (5 Milliampere), 1-Inch (25.4 mm) per Pole 120V AC or 120/240V AC, 22,000 AIC

Amp- eres	1-Pole 120V AC		2-Pole 120/240V AC Common Trip		Wire Size Range Cu/Al 60°C or 75°C
	Requires One 1-Inch Space		Requires Two 1-Inch Space		
	1 per Shelf Carton		1 per Shelf Carton		
	22,000 AIC		22,000 AIC		
	Catalog Number	List Price	Catalog Number	List Price	
15	HAGFH15	\$347.00	GFCBH215	\$472.00	#14-4
20	HAGFH20	347.00	GFCBH220	472.00	
25	HAGFH25	347.00	GFCBH225	472.00	
30	HAGFH30	347.00	GFCBH230	472.00	

## Ground Fault Application Notes

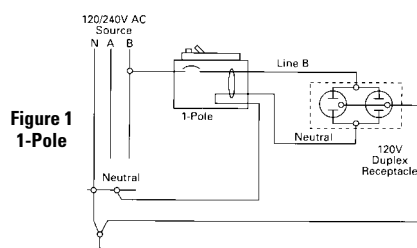
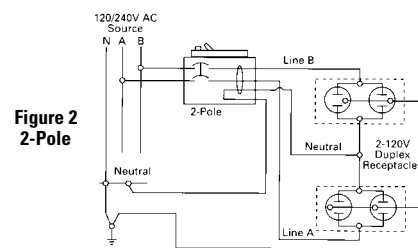
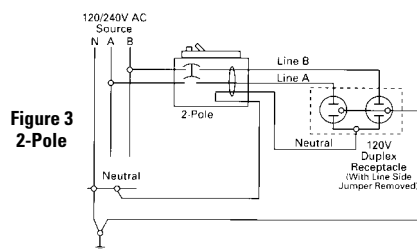
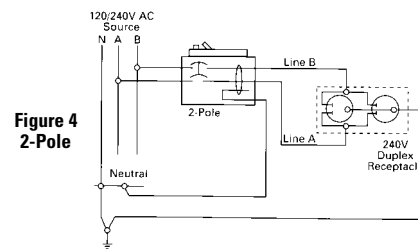
Single-pole GFCBs are designed for use in 2-wire, 120V AC circuits. Figure 1 shows a typical wiring configuration.

Two-pole GFCBs are designed for use in 3-wire, 120/240V AC circuits, 120V AC multi-wire circuits employing common, neutral and 2-wire, 240V AC circuits obtained from a 120/240V AC source.

Figures 2 and 3 illustrate typical wiring configurations for a 120/240V AC multiwire circuits.

Figure 4 depicts a 240V AC, 2-wire circuit. Note the "panel neutral" conductor connects to the neutral bar, even though the neutral is not included in the load circuit. This connection is necessary to supply a 120V AC power source to the ground fault sensing circuit.

The figures are shown with a 120/240V AC, single-phase, 3-wire power source, but are also applicable to a 120/208V AC, 3-phase, 4-wire power supply. For all figures the electrical operation of the GFCB is not affected by the equipment ground.

Figure 1  
1-PoleFigure 2  
2-PoleFigure 3  
2-PoleFigure 4  
2-Pole

① Available with bell alarm or auxiliary switch. See circuit breaker accessories on page C-24.

② For use with copper wire only.

## CTL Plug-On Circuit Breakers, Type BD Duplex, BQ and BQC Quadplex

### 10,000 Amperes Interrupting Capacity

### 120/240V AC



BD2020




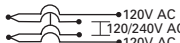
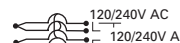
BQ2302115



BQC230230

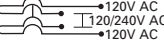
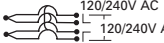
### Duplex and Independent Trip Quadplex Breakers

**Class CTL 10,000 AIC** — All circuit breakers have rejection tab feature.

Type BD Duplex (UL Type BRD)			Type BQ Quadplex Independent Trip (UL Type BRD)					Type BQ Quadplex Independent Trip (UL Type BRD)				Wire Size Range Cu/Al 65°C or 75°C
1-Pole② 			2-Pole① and 1-Pole② 					2-Pole 				
Requires One 1-Inch Space			Requires Two 1-Inch Spaces					Requires Two 1-Inch Spaces				
10 per Shelf Carton			5 per Shelf Carton					5 per Shelf Carton				
Ampere Rating	10,000 AIC		10,000 AIC					10,000 AIC				
	120V AC		120V AC	120/240V AC	120V AC	Catalog Number	List Price	120/240V AC		Catalog Number	List Price	
	Catalog Number	List Price	Ampere Rating					Ampere Rating				
			Outer Left 1-Pole	Center 2-Poles Independent Trip	Outer Right 1-Pole			Outer 2-Poles Independent Trip	Center 2-Poles Independent Trip			
15-15	BD1515	\$35.20	15	20	15	BQ2202115	\$68.50	15	15	BQ215215	\$68.50	
15-20	BD1520	35.20	20	20	20	BQ2202120	68.50	20	20	BQ220220	68.50	
20-20	BD2020	35.20	15	30	15	BQ2302115	68.50	20	30	BQ220230	68.50	
30-20	BD3020	35.20	20	30	20	BQ2302120	68.50	20	40	BQ220240	68.50	
			15	40	15	BQ2402115	68.50	20	50	BQ220250	68.50	
			20	40	20	BQ2402120	68.50	25	25	BQ225225	68.50	
			15	50	15	BQ2502115	68.50	30	30	BQ230230	68.50	
			20	50	20	BQ2502120	68.50	30	40	BQ230240	68.50	
								30	50	BQ230250	68.50	
								40	40	BQ240240	68.50	
								40	50	BQ240250	68.50	
								50	50	BQ250250	68.50	

### Common Trip Quadplex Breakers

**Class CTL 10,000 AIC** — All circuit breakers have rejection tab feature.

Type BQC Quadplex Common Trip Center Poles (UL Type BRD)					Type BQC Quadplex Common Trip Center and Outer Poles (UL Type BRD)				Wire Size Range Cu/Al 65°C or 75°C
2-Pole① and 1-Pole②  Requires Two 1-Inch Spaces					2-Pole①  Requires Two 1-Inch Spaces				
5 per Shelf Carton					5 per Shelf Carton				
10,000 AIC					10,000 AIC				
120V AC	120/240V AC	120V AC	Catalog Number	List Price	120/240V AC		Catalog Number	List Price	
Ampere Rating					Ampere Rating				
Outer Left 1-Pole	Center 2-Poles Common Trip	Outer Right 1-Pole			Outer 2-Poles Common Trip	Center 2-Poles Common Trip			
15	20	15	BQC2202115	\$72.50	15	15	BQC215215	\$79.00	#14-4
15	25	15	BQC2252115	72.50	20	20	BQC220220	79.00	
15	30	15	BQC2302115	72.50	20	30	BQC220230	79.00	
15	40	15	BQC2402115	72.50	20	40	BQC220240	79.00	
15	50	15	BQC2502115	72.50	20	50	BQC220250	79.00	
20	15	20	BQC2152120	72.50	25	25	BQC225225	79.00	#14-4
20	20	20	BQC2202120	72.50	25	30	BQC225230	79.00	
20	25	20	BQC2252120	72.50	30	30	BQC230230	79.00	
20	30	20	BQC2302120	72.50	30	40	BQC230240	79.00	
20	40	20	BQC2402120	72.50	30	50	BQC230250	79.00	
20	50	20	BQC2502120	72.50					#14-4
30	50	20	BQC2502030	74.50	40	40	BQC240240	79.00	
					40	50	BQC240250	79.00	
					50	50	BQC250250	79.00	

① All Type BD Duplex, BQ and BQC Quadplex circuit breakers carry listing for HACR applications.

② All 15 and 20 ampere single poles are switch-duty rated.

Discount Symbol 22CD




## Non-CTL Plug-On Replacement Circuit Breakers, Type BRD

### Non-CTL 10,000 AIC for Replacement Purposes Only

For replacement in enclosures manufactured prior to 1968 with unnotched stabs. Circuit breakers do not have rejection tab.

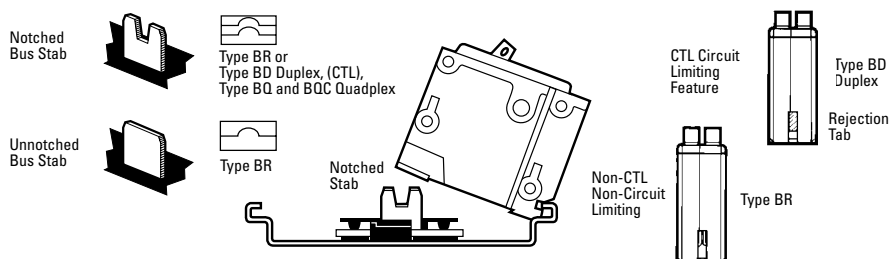


BD1515

Type BR Duplex			Type Brand BRD Quadplex Independent Trip				Type BRD Quadplex Common Trip center and Outer Poles				Wire Size Range Cu/Al 65°C or 75°C
1-Pole 			2-Pole 				2-Pole 				
Requires One 1-Inch Space			Requires Two 1-Inch Spaces				Requires Two 1-Inch Spaces				
10 per Shelf Carton			5 per Shelf Carton				5 per Shelf Carton				
Ampere Rating	10,000 AIC		10,000 AIC				10,000 AIC				
	120V AC		120/240V AC		Catalog Number	List Price	120/240V AC		Catalog Number	List Price	
	Catalog Number	List Price	Ampere Rating				Ampere Rating				
			Outer 2-Poles Independent Trip	Center 2-Poles Independent Trip			Outer 2-Poles Common Trip	Center 2-Poles Common Trip			
15-15	BR1515	\$48.90	15	15	BR415	\$87.00	15	15	BRDC215215	\$97.50	#14-4
15-20	BR1520	48.90	20	20	BR420	87.00	30	30	BRDC230230	97.50	
20-15	BR2015	48.90	30	30	BR430	87.00	30	40	BRDC230240	97.50	
20-20	BR2020	48.90	20	30	BRD220230	87.00	30	50	BRDC230250	97.50	
30-20	BR2030	48.90	30	40	BRD230240	87.00					
30-30	BR3030	48.90	30	50	BRD230250	87.00					

**Important Note:**

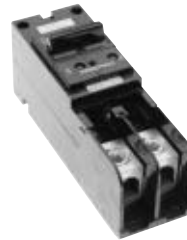
Type BD Duplex, BQ and BQC Quadplex (CTL) circuit breakers conform to Section 384-15 of the latest National Electrical Code. Install breaker only in panel positions that have notched bus stabs.



Discount Symbol 22CD



## Plug-On Circuit Breakers, Types BJ and BJH 10,000/22,000 Amperes Interrupting Capacity 120/240V AC and 240V AC

For Use in 1-Phase and 3-Phase Loadcenters  
150 Amperes and Above



Type BJ





### Types BJ and BJH Breakers, 120/240 or 240V AC, 10,000, 22,000 AIC<sup>①</sup>

Amperes	2-Pole 120/240V AC Common Trip Requires Four 1-Inch Spaces <sup>②</sup> 				3-Pole 240V AC Common Trip Requires Six 1-Inch Spaces <sup>③</sup> 				Wire Size Range Cu/Al 60°C or 75°C
	10 per Shelf Carton				5 per Shelf Carton				
	10,000 AIC		22,000 AIC		10,000 AIC		22,000 AIC		
	Catalog Number	List Price	Catalog Number	List Price	Catalog Number	List Price	Catalog Number	List Price	
125	BJ2125	\$264.00	BJH2125	\$620.00	BJ3125	\$745.00	BJH3125	\$1,045.00	#2-300 kcmil
150	BJ2150	264.00	BJH2150	620.00	BJ3150	745.00	BJH3150	1,045.00	
175	BJ2175	264.00	BJH2175	620.00	BJ3175	745.00	BJH3175	1,045.00	
200	BJ2200	264.00	BJH2200	620.00	BJ3200	745.00	BJH3200	1,045.00	
225	BJ2225	264.00	BJH2225	620.00	BJ3225	745.00	BJH3225	1,045.00	

## Plug-On Special Application Circuit Breakers 10,000 Amperes Interrupting Capacity 120V AC, 120/240V AC and 240V AC

BRWH215  
Water Heater BreakerBRSN220  
Switching Neutral Breaker

### Special Application Circuit Breakers

Water Heater Breakers			Switching Neutral Breakers			240V Breakers④			Non-Automatic Molded Case Switches			Wire Size Range Cu/Al 60°C or 75°C
2-Pole 120/240V AC Common Trip Requires Two 1-Inch Spaces 			2-Pole 120V AC Common Trip Requires Two 1-Inch Spaces 			2-Pole 240V AC Common Trip Requires Two 1-Inch Spaces 			2-Pole 240V AC 			
With Isolated Line Terminals for Separately Metered Water Heaters			With Switching Neutral Pole for Gasoline Pump Applications			Where Voltage to Ground is 240V AC			For Use as Disconnect Contains No Magnetic or Thermal Trip Properties			
5 per Shelf Carton			5 per Shelf Carton			5 per Shelf Carton			5 per Shelf Carton			
10,000 AIC			10,000 AIC			10,000 AIC			5,000 AIC			
Amperes	Catalog Number	List Price	Amperes	Catalog Number	List Price	Amperes	Catalog Number	List Price	Amperes	Catalog Number	List Price	
15	BRWH215	\$50.00	15	BRSN215	\$52.00	15	BR215H	\$41.00	—	—	—	#14-4
20	BRWH220	50.00	20	BRSN220	52.00	20	BR220H	41.00	—	—	—	
30	BRWH230	50.00	25	BRSN225	52.00	30	BR230H	41.00	—	—	—	
			30	BRSN230	52.00	40	BR240H	41.00	—	—	—	
						50	BR250H	41.00	50	BR250NA	\$39.40	
						60	BR260H	81.00	60	BR260NA	39.40	#4-1/0
						70	BR270H	115.00	—	—	—	
						80	BR280H	115.00	—	—	—	
						90	BR290H	115.00	—	—	—	
						100	BR2100H	115.00	100	BR2100NA	113.00	

① If BJ or BJH breakers are used as a main or a back feed device, a hold-down kit is required. See page C-24.

② Breaker uses two 1-Inch (25.4 mm) pole spaces on left side and two 1-Inch (25.4 mm) pole spaces on right side of loadcenter.

③ Breaker uses three 1-Inch (25.4 mm) pole spaces on left side and three 1-Inch (25.4 mm) pole spaces on right side of loadcenter.

④ On the new black handle breaker add suffix "B" to the catalog number and \$4 to the list price to obtain a tapped molded opening for proper use with hold-down kits.

Discount Symbol 22CD

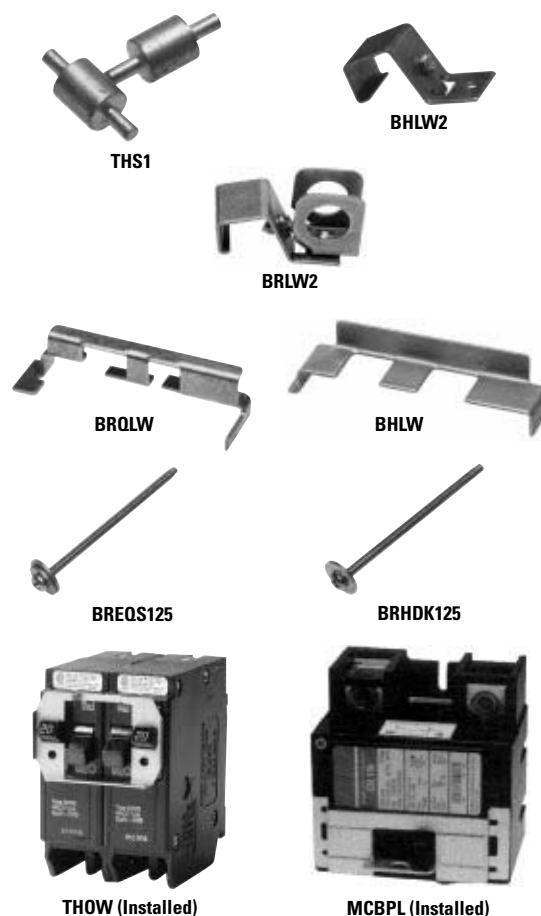
## Circuit Breaker Accessories

### Field Installation Kits and Parts

Description	Catalog Number	List Price Each	Ordering Quantity <sup>®</sup>
<b>Handle Ties<sup>①</sup></b> Handle tie bar for physically joining the handles of two adjacent 1-pole Type BR Circuit Breakers. (Metal Cylinder Pin Type) . . . . .	BHT	\$ 3.30	10
Handle tie bar for joining two independent outside poles of Types BQ and BQC Quadplex and outside poles of two Type BD Duplex Circuit Breakers. . . . .	THOW	3.10	10
Handle tie bar for joining two adjacent outside poles of Types BQ and BQC Quadplex and outside poles of two Type BD Duplex Circuit Breakers. . . . .	THS1	2.10	10
<b>Handle Lockoffs<sup>②⑤</sup></b> Padlockable device for locking the handle of 1-, 2-, or 3-pole Type BR Circuit Breakers and 1-pole of a Type BD Duplex or one independent outside pole of a Type BQ or BQC Quadplex Circuit Breakers. (Escutcheon Mounted) <sup>⑤</sup> . . . . .	BRLW	8.70	10
Padlockable device for locking the handle of a 1-pole Type BR Circuit Breaker. (Handle Mounted) <sup>⑥</sup> . . . . .	BRLW1	14.00	10
Padlockable device for locking the handle of a 2- and 3-pole Type BR Circuit Breaker. (Handle Mounted) <sup>⑥</sup> . . . . .	BRLW2	14.00	10
Padlockable device for locking the handle of a 1-pole Type BD Duplex, BQ or BQC Quadplex Breaker. (Handle Mounted) <sup>⑥</sup> . . . . .	BRDL1	13.30	10
Padlockable device for locking the handle of the two center poles of Type BQ and BQC Quadplex Circuit Breakers. (Escutcheon Mounted) <sup>⑤</sup> . . . . .	BRQLW	11.90	10
Padlockable device for locking the handle of main circuit breaker Types CC and CHH into the "On" or "Off" position. (Screw Mounted) <sup>⑦</sup> . . . . .	CCPL	20.30	1
Padlockable device for locking the handle of main breaker Types BW and BWH into the "On" or "Off" position. (Escutcheon Mounted) <sup>⑤</sup> . . . . .	MCBPL	23.80	1
<b>Handle Lockdogs<sup>③⑩</sup></b> Device used to secure handle in "On" or "Off" position for 1-, 2-, or 3-pole Type BR Circuit Breakers and 1-pole of Type BD Duplex and one independent outside pole of Type BQ or BQC Quadplex Circuit Breakers. (Escutcheon Mounted) <sup>⑤</sup> . . . . .	BHLW	8.00	10
Device used to secure handle in "On" or "Off" position for 1-pole Type BR Circuit Breakers. (Handle Mounted) <sup>⑥</sup> . . . . .	BHLW1	8.00	10
Device used to secure handle in "On" or "Off" position for 2- and 3-pole Type BR Circuit Breakers. (Handle Mounted) <sup>⑥</sup> . . . . .	BHLW2	8.00	10
Device used to secure handle in "On" or "Off" position for 1-pole Type GFCB Ground Fault Circuit Breakers. (Handle Mounted) <sup>⑥</sup> . . . . .	BHGW	7.70	10
Device used to secure handle in "On" or "Off" position for one independent outside pole of Types BQ and BQC Quadplex or 1-pole Type BD Duplex Circuit Breakers. (Handle Mounted) <sup>⑥</sup> . . . . .	HLW1	12.20	10
<b>Hold-Down Kits<sup>④</sup></b> Hold-down retainer kit for 3-pole Type BR Circuit Breakers in S3100SLN and S3100RN Loadcenters only. . . . .	BRHDB	1.40	1
Hold-down screw kit for 2- and 3-pole Type BR Circuit Breakers in MLO Loadcenters through 125 amperes. . . . .	BREQS125	3.40	1
Hold-down screw kit for 2- and 3-pole Type BR Circuit Breakers in MLO Loadcenters 150 through 225 amperes. . . . .	BRHDK125	7.90	1
Hold-down screw kit for 2-pole Types BJ and BJH Circuit Breakers in MLO Loadcenters 125 through 225 amperes. . . . .	BJHDS	10.90	1
Hold-down screw kit for 3-pole Types BJ and BJH Circuit Breakers in MLO Loadcenters 125 through 225 amperes. . . . .	BJHDS3P	13.20	1
<b>Main Breaker Lug Kits</b> Types CC and CHH Main Breaker Lug Kit (2) 300 kcmil. . . . .	CC1300	39.90	1
Types BW/BWH Main Breaker Lug Kit (2) 300 kcmil. . . . .	MCBL300	41.00	1

- ① **Handle Ties:** Typically used to join two similar independent single-pole breakers to form a 2-pole noncommon trip breaker.
- ② **Handle Lockoffs:** Devices that use a padlock to lock the circuit breaker's handle in the "On" or "Off" position.
- ③ **Handle Lockdogs:** Devices that are used to secure a circuit breaker's handle in the "On" or "Off" position. Handle Lockdogs are not padlockable devices.
- ④ **Hold-Down Kits:** Devices used to secure the circuit breaker to the loadcenter for back-feed main application. See NEC Article 384-16(f).

- ⑤ **Escutcheon Mounted:** Device mounted semi-permanently to the face of the circuit breaker and secured by the loadcenter deadfront.
- ⑥ **Handle Mounted:** Device mounted directly to the handle by the use of a set screw.
- ⑦ **Screw Mounted:** Device permanently mounted to the face of the circuit breaker by the use of a non-removable screw.
- ⑧ **Must be purchased in multiples of ordering quantities indicated.**
- ⑨ **Add suffix indicated to end of breaker catalog number.**
- ⑩ **Add amount shown to circuit breaker list price.**



### Shunt Trips, Auxiliary and Alarm Contacts

Description	Catalog Number <sup>®</sup>	List Price <sup>®</sup> Adder Each
<b>Shunt Trip for</b> Types BW/BWH - 12 Volt. . . . .	SR12	\$392.00
- 24 Volt. . . . .	SR24	392.00
- 120 Volt. . . . .	SR01	392.00
Type BR - 120 Volt. . . . .	ST	121.60
<b>Auxiliary Contact for</b> Types BW/BWH - (1) N.O. and (1) N.C. . . . .	AL1	170.00
- (2) N.O. and (2) N.C. . . . .	AL2	334.00
<b>Alarm Contact for</b> Types BW/BWH Alarm Contact for GFCB (1-Pole) . . . . .	CR1	170.00
Type GFCB (1-Pole) - (1) N.O. and (1) N.C. . . . .	W1	117.00
	W2	117.00

### ⑩ Handle Position Changeability Chart.

Handle Lockoff and Lockdog Types	To Change Handle Position from "On" to "Off," or "Off" to "On" You Must...		
	Remove Padlock	Remove Device	Remove Loadcenter Deadfront
Lockoff Escutcheon Mounted	Remove	—	—
Lockoff Handle Mounted	Remove	Remove	—
Lockoff Screw Mounted	Remove	—	—
Lockdog Escutcheon Mounted	N/A	Remove	Remove
Lockdog Handle Mounted	N/A	Remove	—

Discount Symbol 22CD

**Residential/Commercial/New York City Loadcenters, Unit Enclosures – Box Sizes<sup>①</sup>****Dimensions in Inches (mm)****Residential Loadcenters**  
NEMA Type 1 Indoor

Box Size	Dimensions in Inches			Dimensions in mm		
	Height	Width	Depth	Height	Width	Depth
A1	15	11-1/4	3-3/4	381.0	285.8	95.3
B1	16-3/4	14-5/16	3-7/8	425.3	363.4	98.4
B2	18-3/4	14-5/16	3-7/8	476.1	363.4	98.4
C1	21	14-5/16	3-7/8	533.2	363.4	98.4
C2	23	14-5/16	3-7/8	584.0	363.4	98.4
C4	27	14-5/16	3-7/8	685.5	363.4	98.4
D1	29-1/8	14-5/16	3-7/8	739.5	363.4	98.4
G1	34-1/8	14-5/16	3-7/8	866.4	363.4	98.4
L1	39	14-5/16	3-7/8	990.2	363.4	98.4
L2	45	14-5/16	3-7/8	1142.6	363.4	98.4
2	8-5/8	5	3-1/2	219.1	127.0	88.9
3	9-7/16	4-1/2	3	239.6	114.3	76.2
4	13	11	3-9/16	330.1	279.3	90.5
5	9-7/16	4-1/2	3	239.6	114.3	76.2
6	12	6-7/8	4-1/2	304.8	174.6	114.3
7	13	11	3-9/16	330.1	279.3	90.5
9	14-1/2	6-1/2	3-1/2	368.3	165.1	88.9

**Residential Loadcenters**  
NEMA Type 3R Outdoor

Box Size	Dimensions in Inches			Dimensions in mm		
	Height	Width	Depth	Height	Width	Depth
B1R	16-3/4	14-5/16	5-3/16	425.3	363.4	131.8
B2R	18-3/4	14-5/16	5-3/16	476.1	363.4	131.8
C3R	25	14-5/16	5-3/16	634.8	363.4	131.8
D1R	29-1/8	14-5/16	5-3/16	739.5	363.4	131.8
G1R	34-1/8	14-5/16	5-3/16	866.4	363.4	131.8
L1R	39	14-5/16	5-3/16	990.2	363.4	131.8
L2R	45	14-5/16	5-3/16	1142.6	363.4	131.8
2R	8-5/8	5	3-1/2	219.0	127.0	88.9
3R	9-7/16	4-1/2	3	239.6	114.3	76.2
4R	13	11	3-9/16	330.1	279.3	90.5
5R	9-7/16	4-1/2	3	239.6	114.3	76.2
6R	12	6-7/8	4-1/2	304.8	174.6	114.3
7R	13	11	3-9/16	330.1	279.3	90.5
8R	27	10-1/2	4-3/4	685.5	266.6	120.6
9R	14-1/4	6-1/2	4	362.0	165.1	101.6

**Commercial Loadcenters**  
NEMA Type 1 Indoor

Box Size	Dimensions in Inches			Dimensions in mm		
	Height	Width	Depth	Height	Width	Depth
19	44	16-5/32	6-1/4	1117.2	410.2	158.7
20	44	16-5/32	6-1/4	1117.2	410.2	158.7
22	54	16-7/32	6-5/16	1371.1	411.8	160.3
24	66-1/2	16-7/32	6-5/16	1688.4	411.8	160.3

**Commercial Loadcenters**  
NEMA Type 3R Outdoor

Box Size	Dimensions in Inches			Dimensions in mm		
	Height	Width	Depth	Height	Width	Depth
42	38	16-5/16	6-3/8	964.8	414.2	161.9
43	44	16-5/16	6-3/8	1117.2	414.2	161.9
46	54	16-5/16	6-3/8	1371.1	414.2	161.9
47	66-9/16	16-5/16	6-3/8	1690.0	414.2	161.9

**New York City Loadcenters**  
NEMA Type 1 Indoor

Box Size	Dimensions in Inches			Dimensions in mm		
	Height	Width	Depth	Height	Width	Depth
A	38	18-1/8	5	(965.2)	(460.4)	(127.0)
B	44	18-1/8	5	(1117.6)	(460.4)	(127.0)
C	66-1/2	18-1/8	6-1/4	(1689.1)	(460.4)	(158.8)

**Types CCM and CCB Unit Enclosures**  
NEMA Type 1 Indoor

Dimensions in Inches			Dimensions in mm		
Height	Width	Depth	Height	Width	Depth
23-1/4	8-7/8	4-1/2	590.3	225.3	114.3

**Types CCM and CCB Unit Enclosures**  
NEMA Type 3R Outdoor

Dimensions in Inches			Dimensions in mm		
Height	Width	Depth	Height	Width	Depth
23-11/16	9-5/16	5-7/16	601.4	236.5	138.1

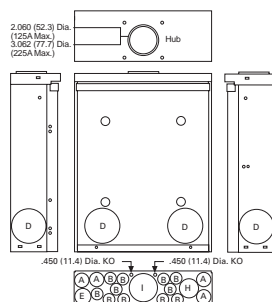
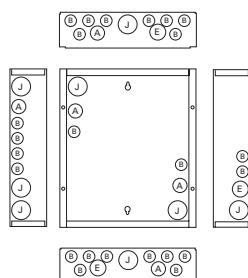
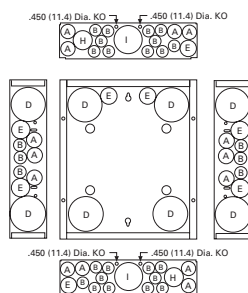
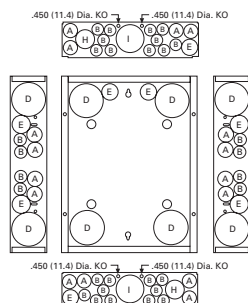
<sup>①</sup> Box sizes do not include covers/fronts.

## Residential Loadcenter Knockouts Dimensions in Inches (mm)

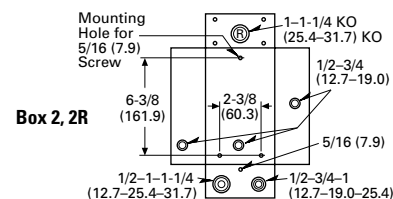
## Residential NEMA Type 1 Indoor and NEMA Type 3R Outdoor Enclosures

Knockouts for Box Sizes A1, B1, B2, C1, C2, C4,  
D1, G1, L1, L2, B1R, B2R, C3R, D1R, G1R, L1R,  
L2R

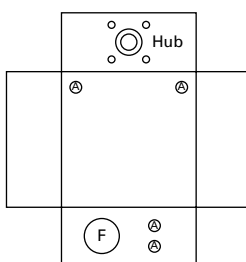
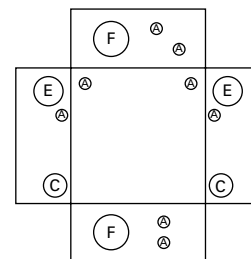
Code	Diameter in Inches					Diameter in mm				
A	1/2	3/4	—	—	—	12.7	19	—	—	—
B	1/2	—	—	—	—	12.7	—	—	—	—
C	1/2	1-1/4	1-1/2	2	2-1/2	12.7	31.7	38.1	50.8	63.5
D	1-1/4	1-1/2	2	2-1/2	—	31.7	38.1	50.8	63.5	—
E	1/2	3/4	1	—	—	12.7	19.0	25.4	—	—
F	1/2	3/4	1	1-1/2	2	12.7	19.0	25.4	38.1	50.8
G	1-1/4	1-1/2	2	—	—	31.7	38.1	50.8	—	—
H	1/2	3/4	1	1-1/4	1-1/2	12.7	19.0	25.4	31.7	38.1
I	1	1-1/4	1-1/2	2	2-1/2	25.4	31.7	38.1	50.8	63.5
J	1	1-1/4	1-1/2	—	—	25.4	31.7	38.1	—	—

Outdoor Boxes  
B1R, B2R,  
C3R, D1R, G1R,  
L1R, L2RIndoor Boxes  
A1Indoor Boxes  
B1, B2Indoor Boxes  
C1, C2, C3, D1,  
G1, L1, L2Knockouts for Box Sizes 3, 4, 5, 6,  
7, 9, 2R, 3R, 4R, 5R, 6R, 7R, 8R, 9R

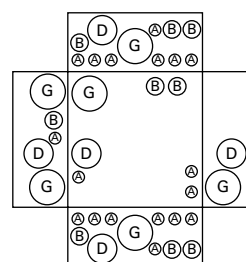
Code	Diameter in Inches					Diameter in mm				
A	1/2	—	—	—	—	12.7	—	—	—	—
B	1/2	3/4	—	—	—	12.7	19.0	—	—	—
C	1/2	3/4	1	—	—	12.7	19.0	25.4	—	—
D	1/2	3/4	1	1-1/4	—	12.7	19.0	25.4	31.7	—
E	3/4	1	1-1/4	—	—	19.0	25.4	31.7	—	—
F	3/4	1	1-1/4	1-1/2	—	19.0	25.4	31.7	38.1	—
G	1	1-1/4	1-1/2	—	—	25.4	31.7	38.1	—	—
H	1	1-1/4	1-1/2	2	—	25.4	31.7	38.1	50.8	—
I	1-1/4	1-1/2	2	—	—	31.7	38.1	50.8	—	—



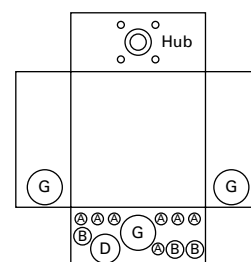
Box 3



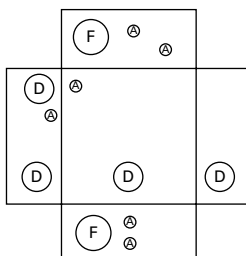
Box 3R



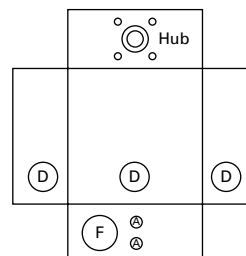
Box 4



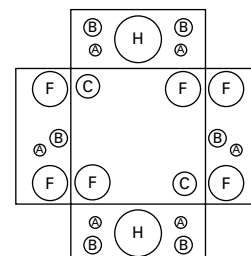
Box 4R



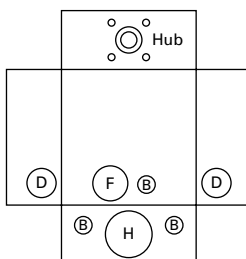
Box 5



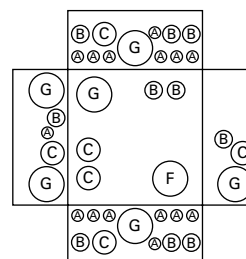
Box 5R



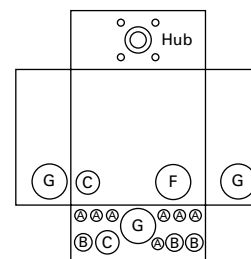
Box 6



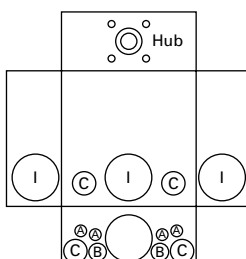
Box 6R



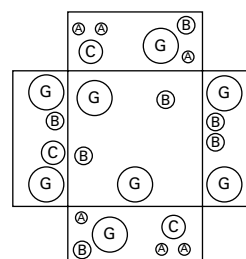
Box 7



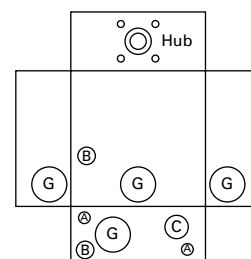
Box 7R



Box 8R



Box 9



Box 9R

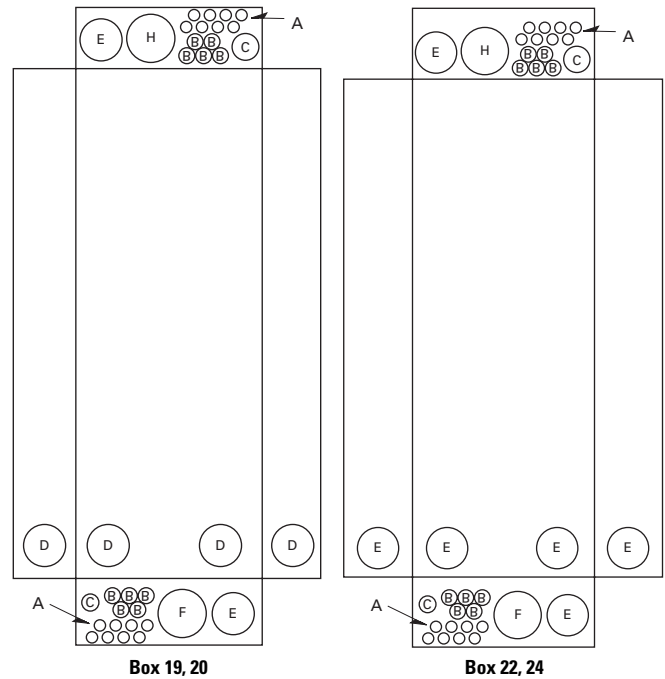
## Commercial Loadcenter Knockouts

Dimensions in Inches (mm)

### NEMA Type 1 Indoor Commercial Enclosures

#### Knockouts for Box Sizes 19, 20, 22, 24

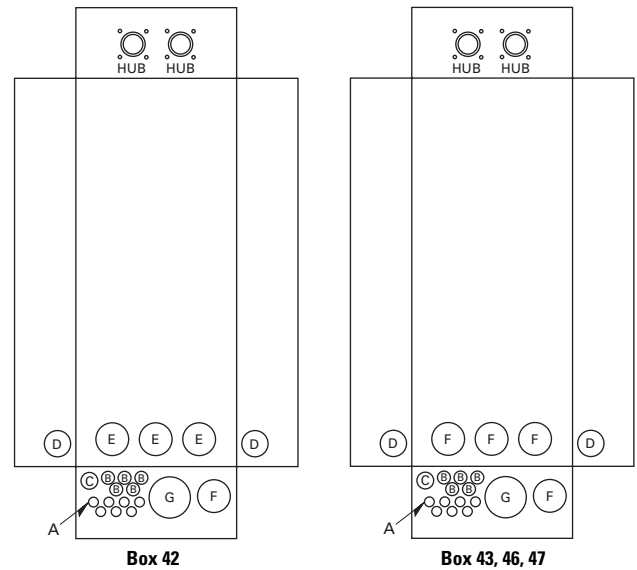
Code	Diameter in Inches				Diameter in mm			
A	1/2	—	—	—	12.7	—	—	—
B	1/2	3/4	—	—	12.7	19.0	—	—
C	3/4	1	1-1/2	—	19.0	25.4	38.1	—
D	1-1/2	2	2-1/2	3	38.1	50.8	63.5	76.2
E	2	2-1/2	3	—	50.8	63.5	76.2	—
F	2-1/2	3	3-1/2	—	63.5	76.2	88.9	—



### NEMA Type 3R Outdoor Commercial Enclosures

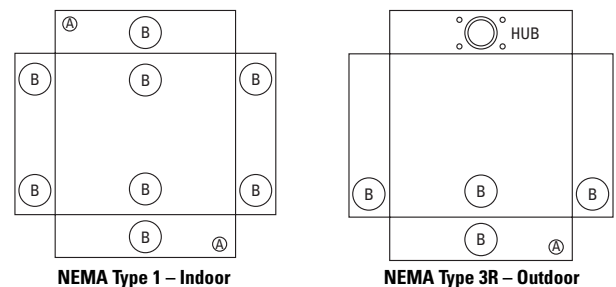
#### Knockouts for Box Sizes 42, 43, 46, 47

Code	Diameter in Inches				Diameter in mm			
A	1/2	—	—	—	12.7	—	—	—
B	1/2	3/4	—	—	12.7	19.0	—	—
C	3/4	1	1-1/4	—	19.0	25.4	31.8	—
D	1-1/2	2	2-1/2	—	38.1	50.8	63.5	—
E	2	2-1/2	3	—	50.8	63.5	76.2	—
F	2-1/2	3	3-1/2	—	63.5	76.2	88.9	—
G	1-1/4	1-1/2	2	2-1/2	31.8	38.1	50.8	63.5
H	3-1/4 Sq.	—	—	—	82.5 Sq.	—	—	—



## Unit Enclosure Knockouts, Types CCM and CCB Knockouts

Code	Diameter in Inches					Diameter in mm				
NEMA Type 1 Indoor (Flush and Surface Trims)										
A	1/2	—	—	—	—	12.7	—	—	—	—
B	1-1/4	1-1/2	1-3/4	2	2-1/2	31.7	38.1	44.5	50.8	63.5
NEMA Type 3R Outdoor										
A	1/2	—	—	—	—	12.7	—	—	—	—
B	1-1/4	1-1/2	1-3/4	2	2-1/2	31.7	38.1	44.5	50.8	63.5



## Wiring Diagrams

Figure 1

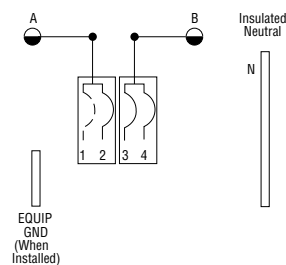


Figure 2

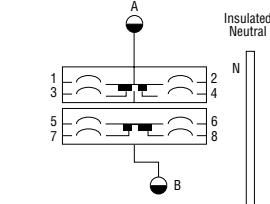


Figure 3

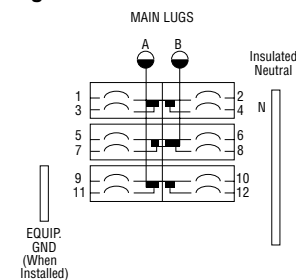


Figure 4

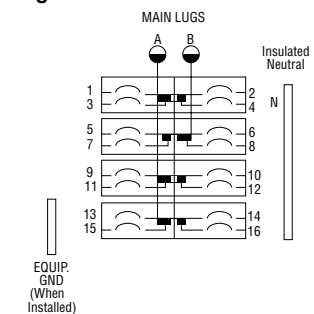


Figure 5

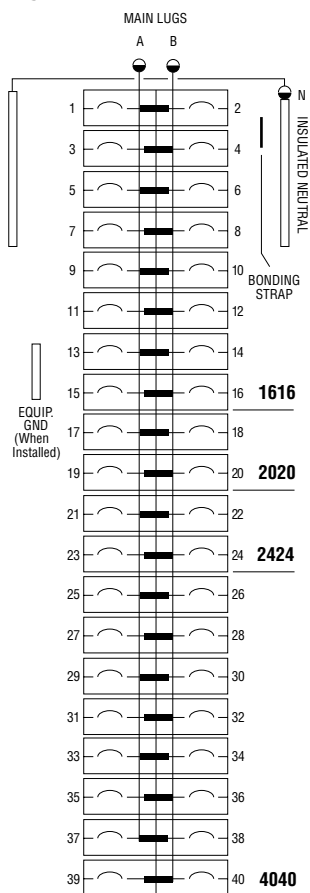


Figure 6

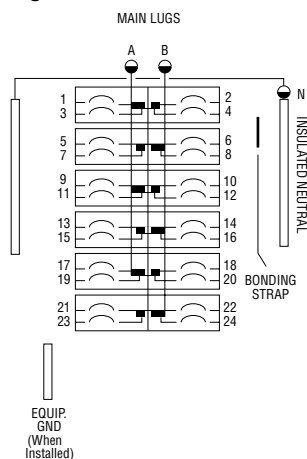


Figure 7

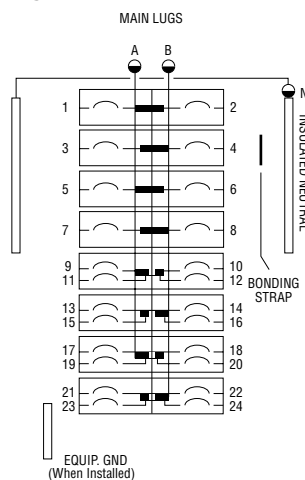


Figure 8

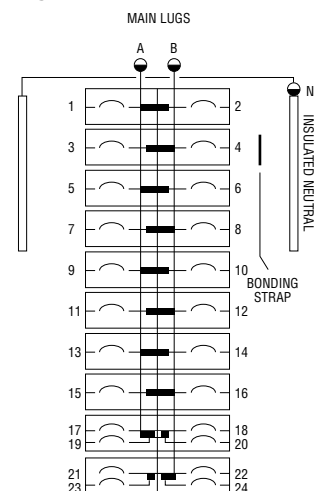


Figure 9

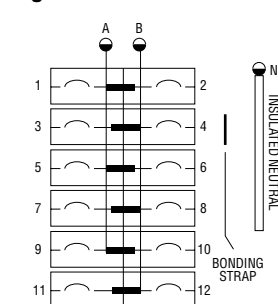


Figure 10

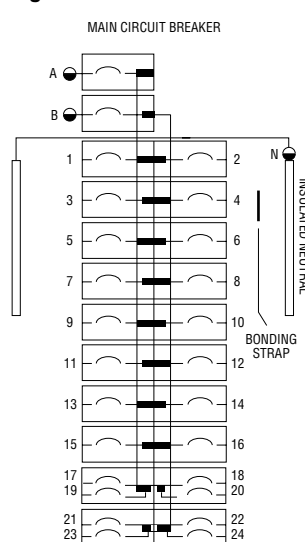
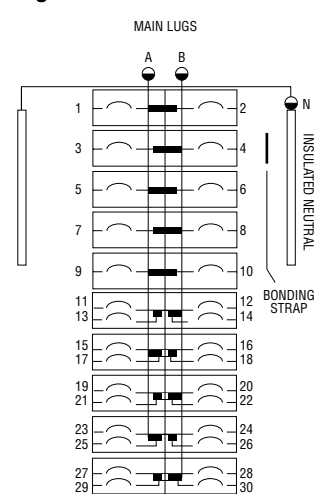
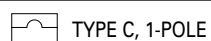


Figure 11



## Symbol Key



TYPE C, 1-POLE

TYPE C, 1-POLE OR  
TYPE A, 2-POLES

NOTCHED BUS STAB



SOLID BUS STAB

### Wiring Diagrams

Figure 12

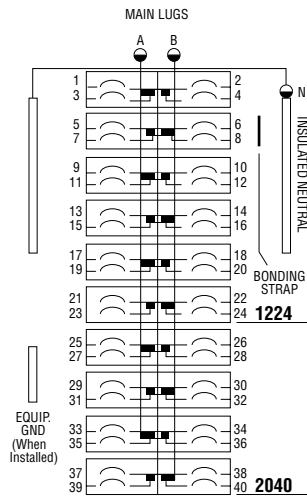


Figure 13

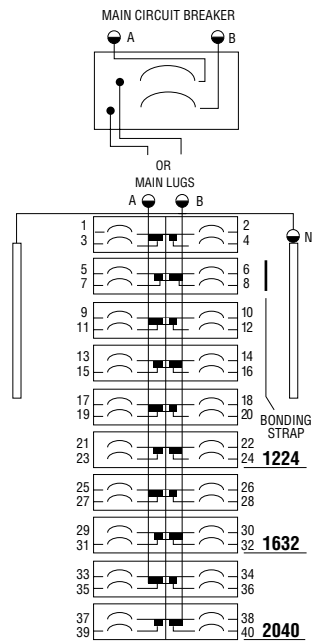


Figure 14

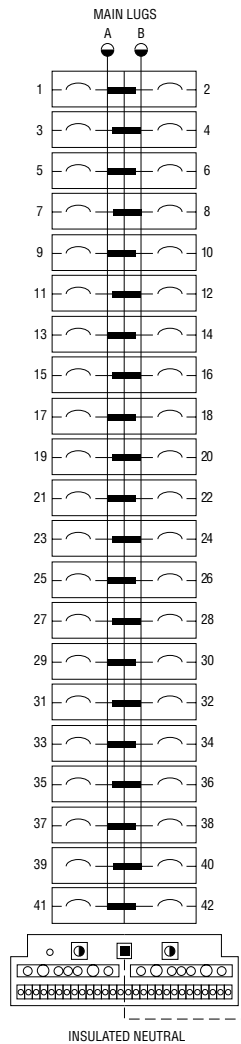


Figure 15

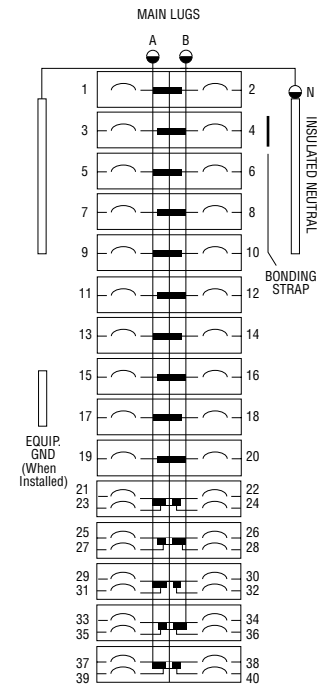


Figure 16

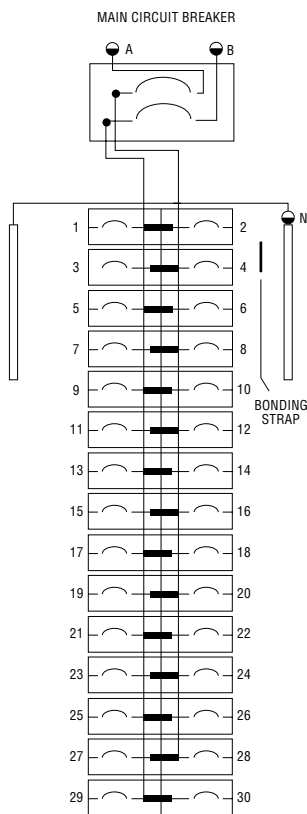


Figure 17

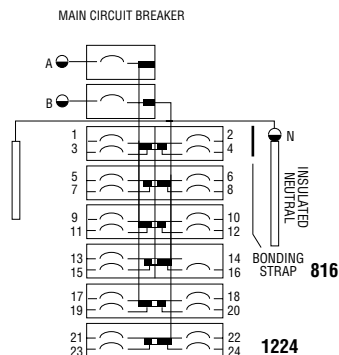


Figure 18

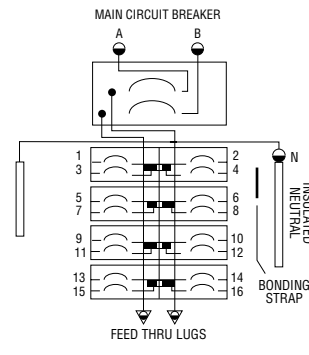
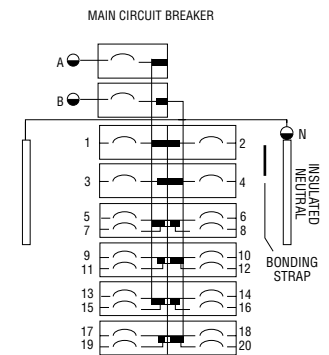


Figure 19



### Symbol Key



TYPE C, 1-POLE



TYPE C, 1-POLE OR  
TYPE A, 2-POLES



NOTCHED BUS STAB



SOLID BUS STAB

## Wiring Diagrams

Figure 20

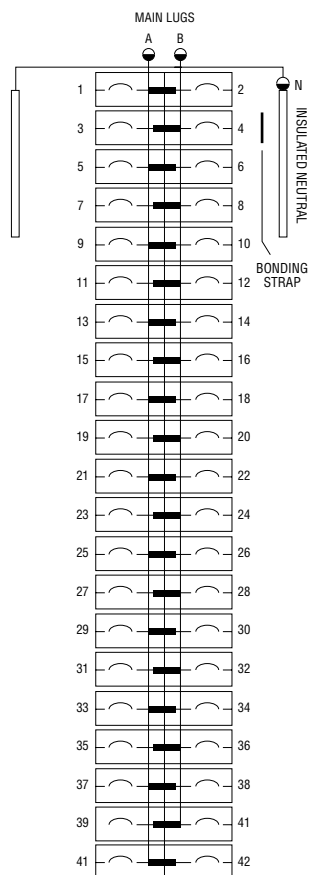


Figure 21

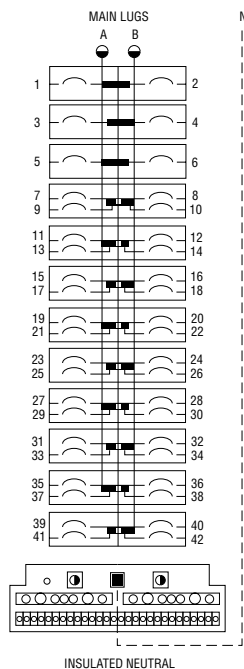


Figure 22

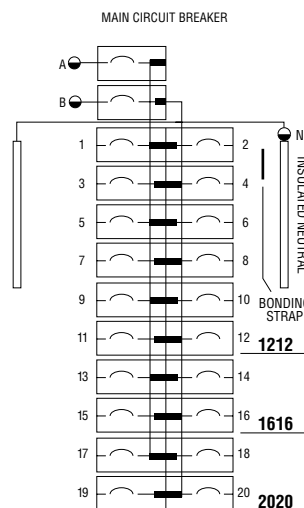


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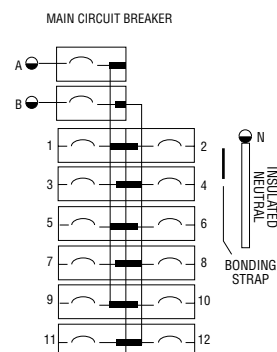


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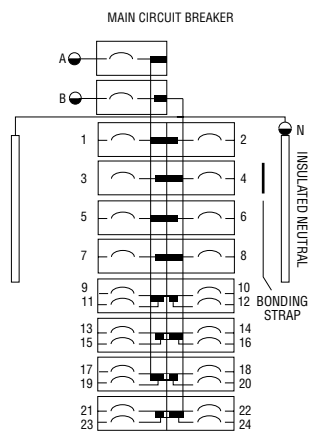


Figure 25

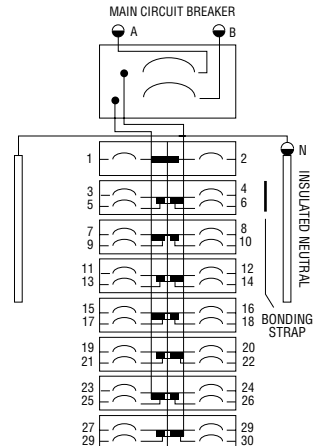


Figure 26

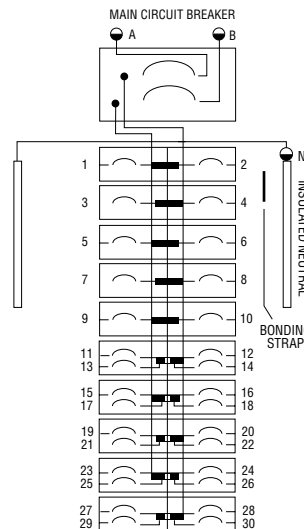
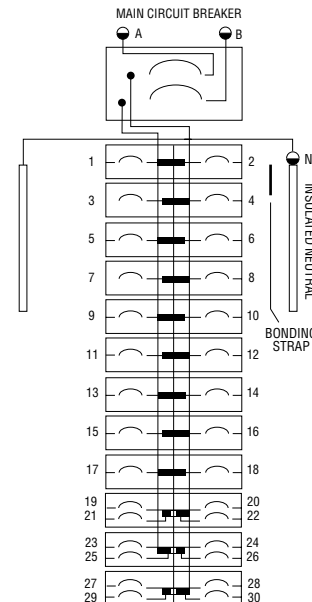


Figure 27



## Symbol Key

TYPE C, 1-POLE

 TYPE C, 1-POLE OR  
TYPE A, 2-POLES

NOTCHED BUS STAB

SOLID BUS STAB

## Wiring Diagrams

Figure 28

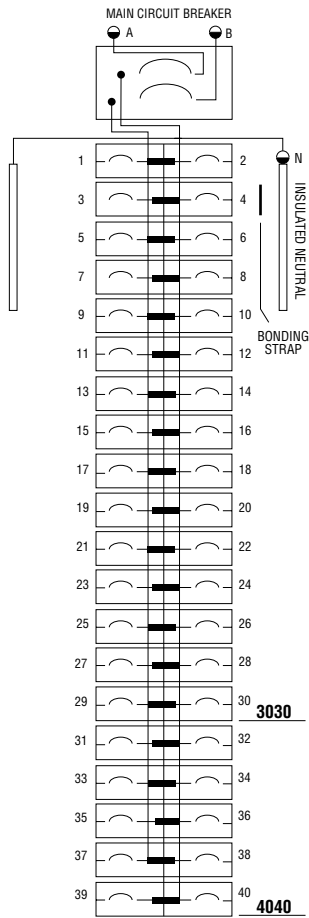


Figure 29

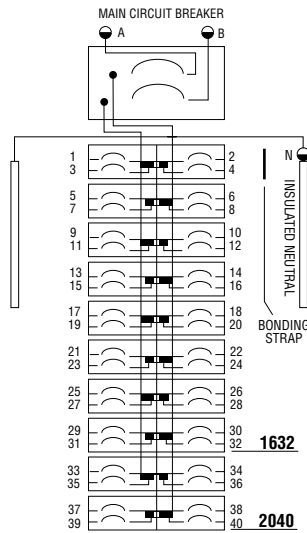


Figure 30

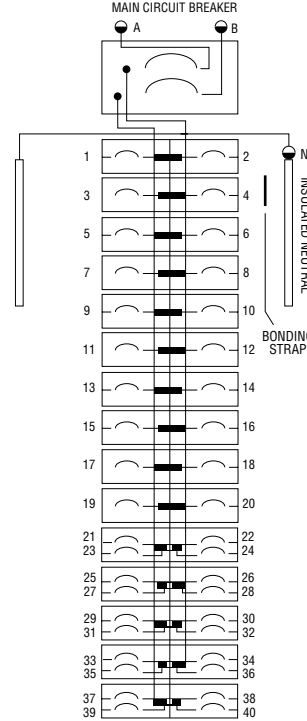


Figure 31

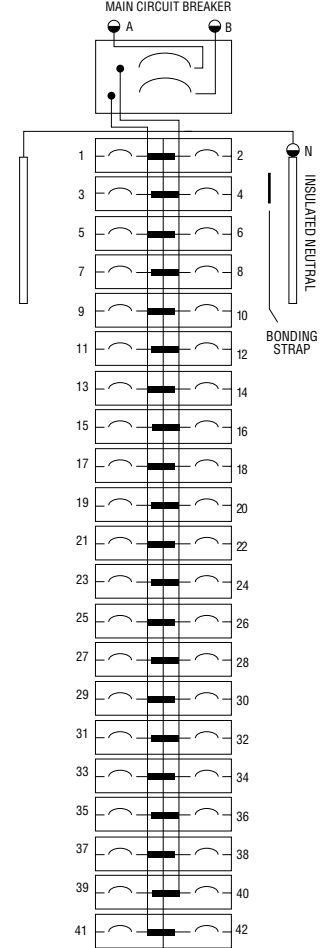


Figure 33

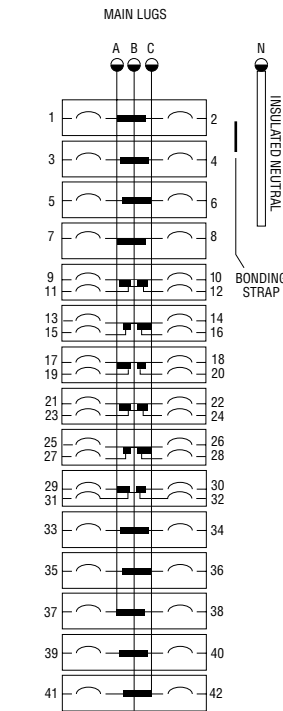


Figure 34

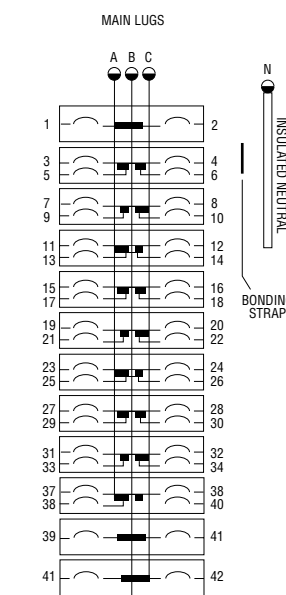


Figure 35

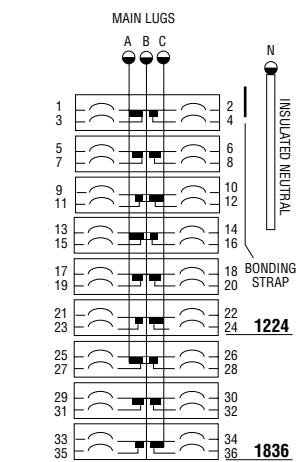
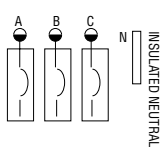



Figure 32




### Symbol Key

 TYPE C, 1-POLE

 TYPE C, 1-POLE OR  
TYPE A, 2-POLES

 NOTCHED BUS STAB

 SOLID BUS STAB

## Wiring Diagrams

Figure 36

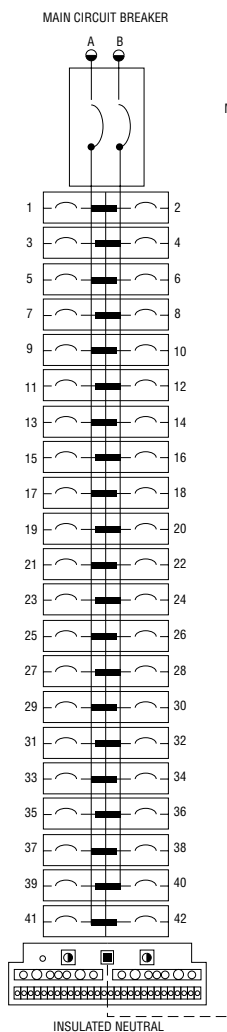


Figure 37

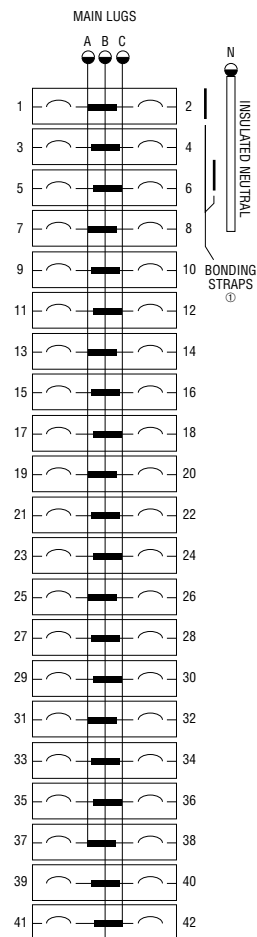


Figure 38

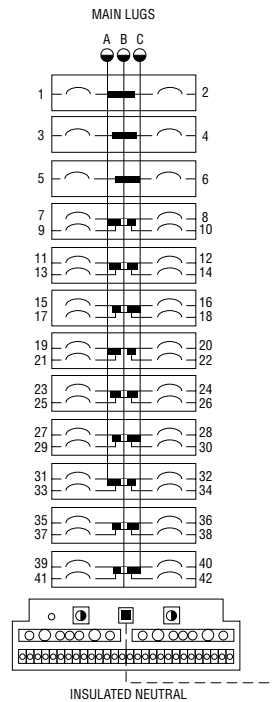


Figure 39

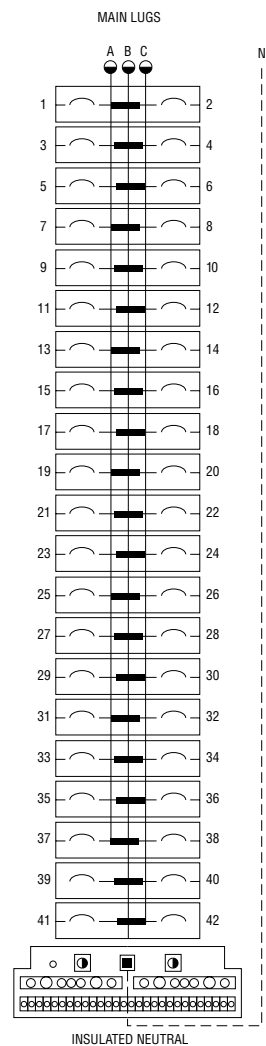
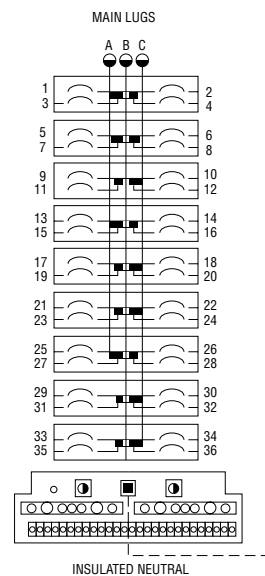


Figure 40



① Two bonding straps provided on 225 ampere loadcenters only.

## Symbol Key

TYPE C, 1-POLE

 TYPE C, 1-POLE OR  
TYPE A, 2-POLES

NOTCHED BUS STAB

SOLID BUS STAB

## Wiring Diagrams

Figure 41

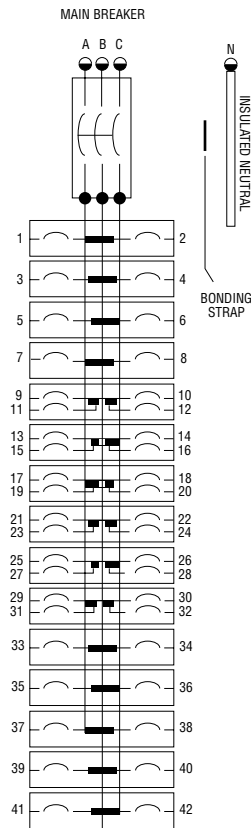


Figure 42

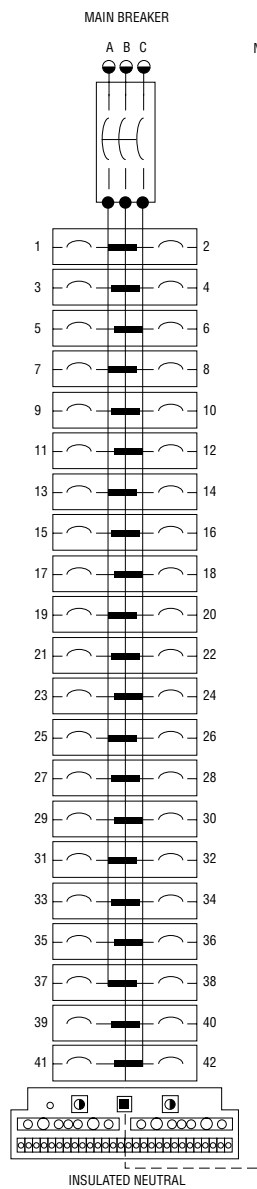


Figure 43

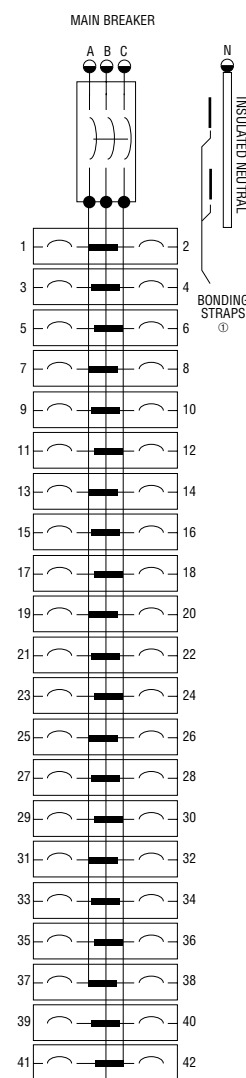


Figure 44

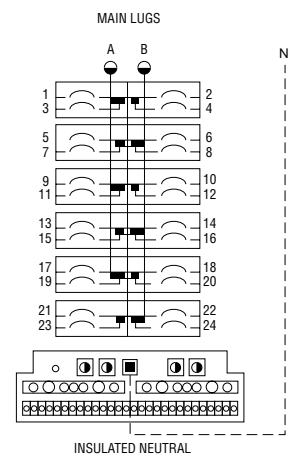


Figure 45

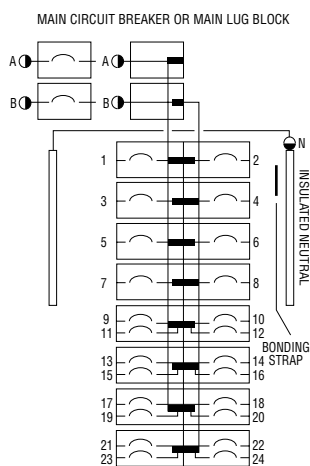
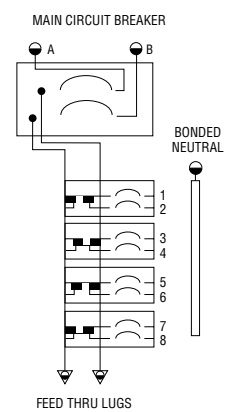



Figure 46



① Two bonding straps provided on 225 ampere loadcenters only.

### Symbol Key

 TYPE C, 1-POLE

 TYPE C, 1-POLE OR  
TYPE A, 2-POLES

 NOTCHED BUS STAB

 SOLID BUS STAB

## Wiring Diagrams

Figure 47

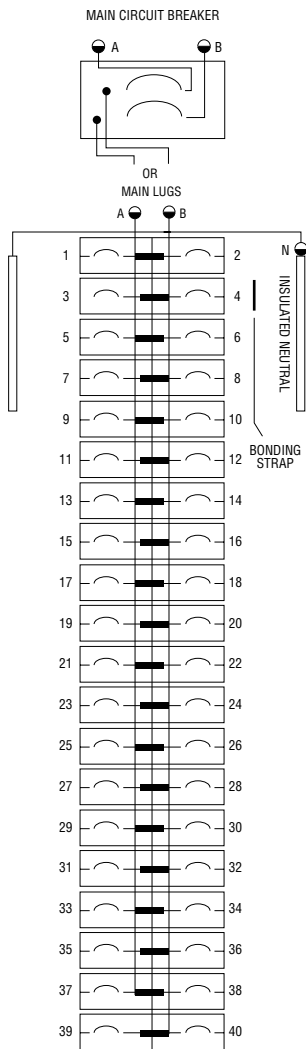


Figure 51

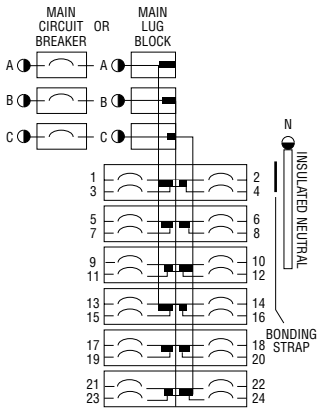


Figure 48

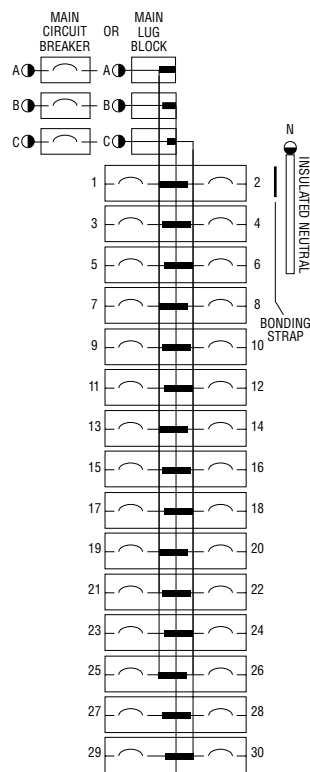


Figure 52

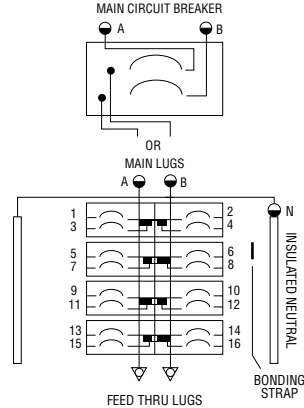


Figure 49

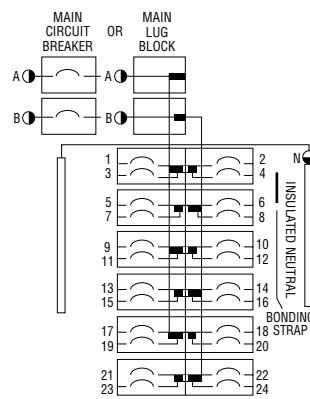


Figure 53

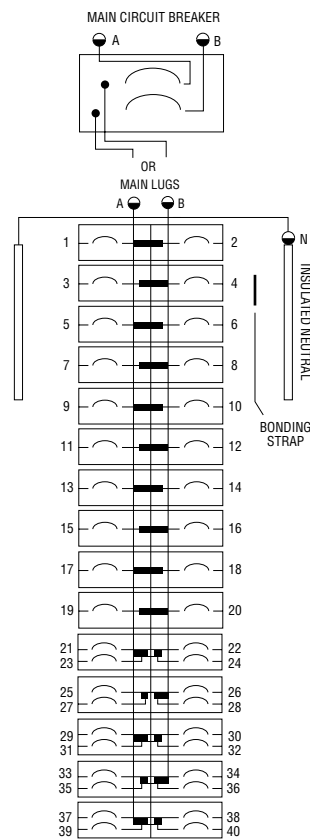


Figure 50

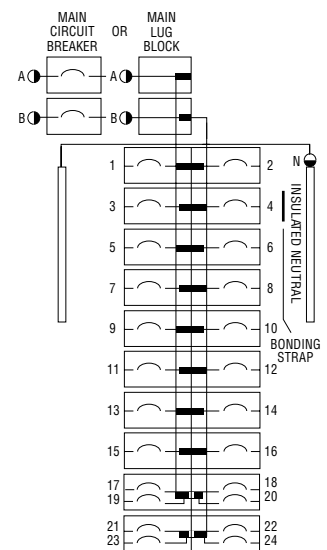
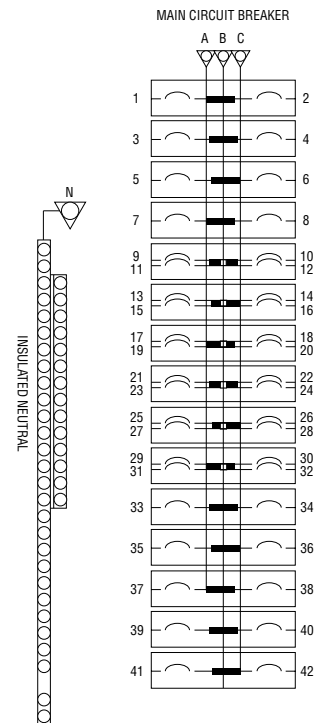


Figure 54



## Symbol Key

TYPE C, 1-POLE

 TYPE C, 1-POLE OR  
TYPE A, 2-POLES

NOTCHED BUS STUB

SOLID BUS STUB

### Wiring Diagrams

Figure 55

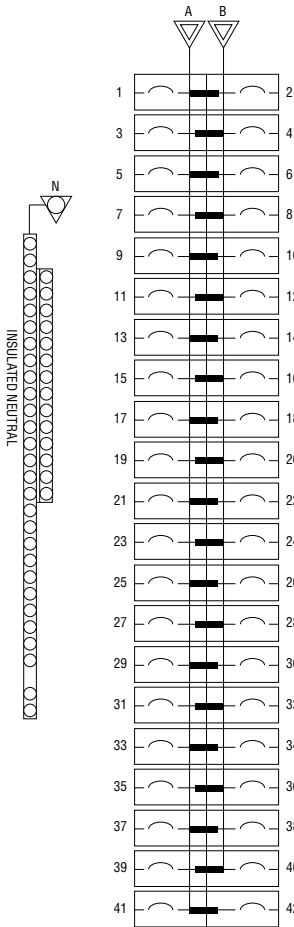


Figure 56

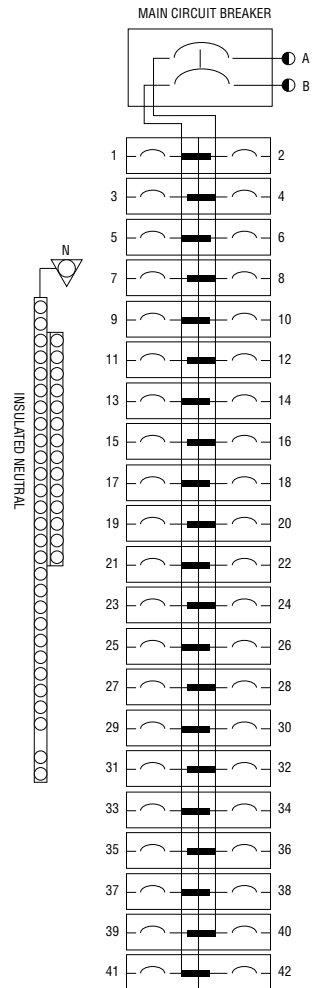


Figure 57

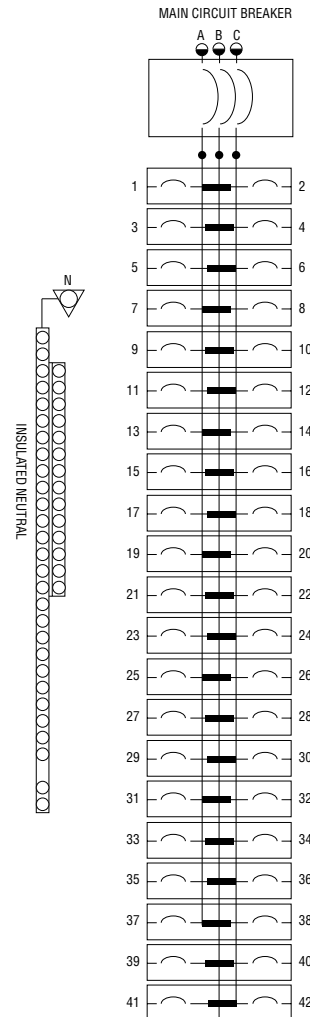


Figure 58

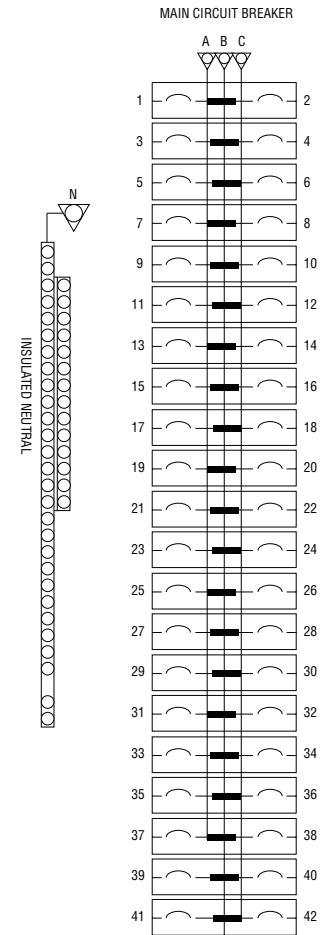


Figure 59

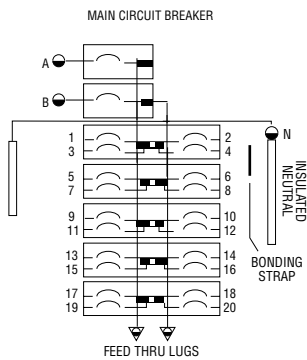
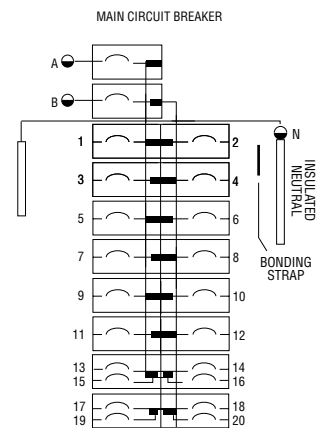


Figure 60



#### Symbol Key

TYPE C, 1-POLE

TYPE C, 1-POLE OR  
TYPE A, 2-POLES

NOTCHED BUS STAB

SOLID BUS STAB

## Wiring Diagrams

Figure 61

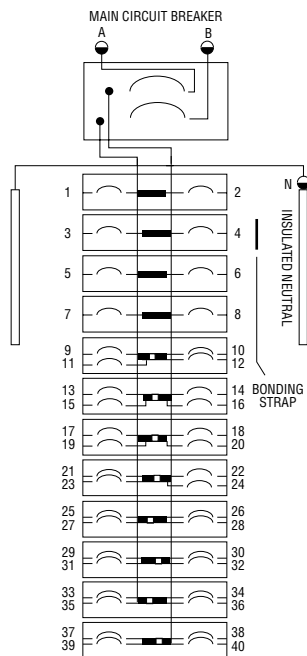


Figure 62

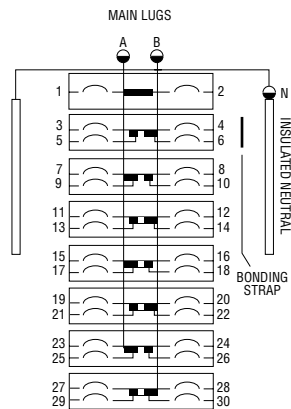


Figure 63

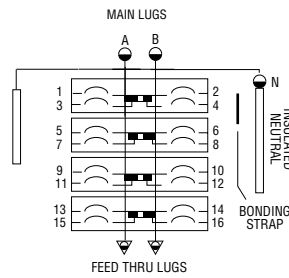


Figure 64

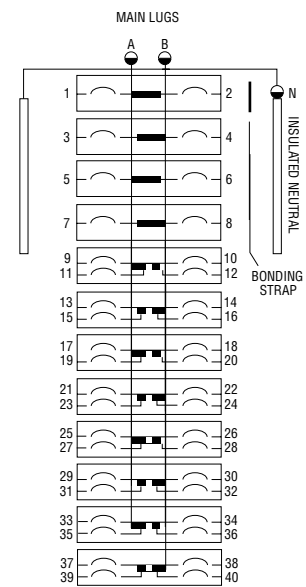


Figure 65

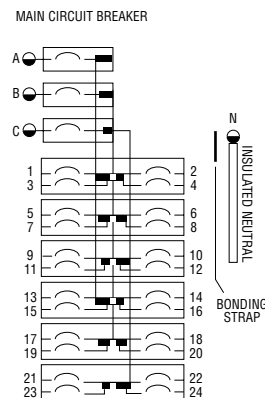


Figure 66

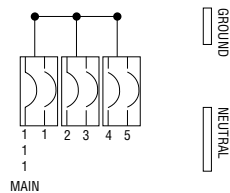
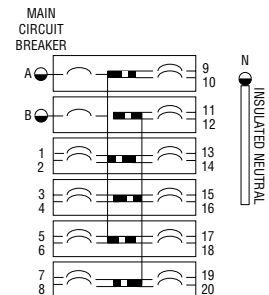


Figure 67



## Symbol Key

TYPE C, 1-POLE

 TYPE C, 1-POLE OR  
TYPE A, 2-POLES

NOTCHED BUS STAB

SOLID BUS STAB

## Typical Specifications

### General

- A. The Contractor shall furnish and install deadfront loadcenters incorporating circuit breakers of the number, rating and type as specified herein and as shown on the contract drawings.
- B. The loadcenter and all components shall be designed, manufactured and tested in accordance with the latest applicable standards of UL, NEMA and NEC including:
  - 1. UL 67 — Standards for Panelboards.
  - 2. UL 50 — Standards for Cabinets and Boxes.
  - 3. UL 489 — Standards for Molded Case Circuit Breakers.
  - 4. UL 869 — Standards for Service Equipment.
  - 5. Federal Specification W-C 375B — Circuit Breakers.
  - 6. Federal Specification W-C P115b — Panel Power Distribution Type 1, Class 2.

### Qualifications

- A. The manufacturer of the loadcenter shall be the manufacturer of the circuit breaker within the loadcenter.
- B. For the equipment specified herein, the manufacturer shall be ISO 9000 certified.
- C. The manufacturer of this equipment shall have produced similar electrical equipment for a minimum period of seven (7) years.

### Manufacturers

- A. Cutler-Hammer.

### Ratings

- A. Loadcenters shall be rated for 120/240V AC and shall have short circuit ratings as shown on the drawings or as herein scheduled, but not less than 10,000 amperes RMS symmetrical.
- B. Circuit breakers shall be a minimum of 125 ampere frame. Circuit breakers 15 through 125 amperes trip size shall take up the same pole spacing.
- C. Loadcenters shall be labeled with a UL short circuit rating. When series combination ratings are applied with integral or remote upstream devices, a label shall be provided. Series combination ratings shall cover all trip ratings of installed frames. It shall

state the conditions of the UL series ratings including:

- 1. Size and type of upstream device.
- 2. Branch devices that can be used.
- 3. UL series short circuit rating.

### Construction

- A. All interiors, with the exception of the branch circuit breakers, shall be completely factory assembled with main breakers, main lugs, or no main device.
- B. Interiors shall be designed so that circuit breakers can be replaced without disturbing adjacent units and without removing the main bus connectors and shall be designed so that circuits may be changed without machining, drilling, or tapping.
- C. Physical means shall be provided to prevent the installation of more over-current devices than that number for which the enclosure was designed, rated, and approved. Half-size breakers shall have a UL listed rejection tab over the line terminals. Loadcenter interiors must have notched stubs to accept these rejection tab class CTL breakers, if required and approved.

### Bus

- A. Bus bars for the main and cross connectors shall be<sup>①</sup> [tin-plated aluminum] [copper] in accordance with Underwriters Laboratories standards. Bussing shall be braced throughout to conform to industry standard practice governing short circuit stresses in loadcenters.
- B. Neutral bussing shall have a suitable lug for each outgoing feeder requiring a neutral connection of same ampacity as branch.

### Wiring/Termination

- A. All wire connectors and terminals shall be of the anti-turn solderless type and shall be suitable for copper or aluminum wire of the sizes indicated. All connectors must meet the "Requirements for Wire Connectors and Soldering Lugs" as stated in UL 486B.
- B. All loadcenters where marked shall be suitable for use with 60°C or 75°C rated wire.

### Circuit Breakers

- A. Circuit breakers shall be molded case type. Circuit breakers shall have four-rivet construction (GFI Type – 5 rivets). Multipole circuit breakers shall be of a stack pole design to provide electrical phase isolation.

- B. Each pole of the circuit breaker will provide inverse time delay overload and instantaneous short circuit protection by means of both thermal and magnetic sensors.
- C. The circuit breaker calibration shall not be affected by environmental changes in relative humidity. The thermal bimetal element shall be welded to the steel frame and calibration shall be set independent of the molded case by computer controlled equipment.
- D. All circuit breakers shall be operated by a toggle-type handle and multipole circuit breakers shall have an internal common trip mechanism. The circuit breakers shall incorporate trip mechanisms that are mechanically trip-free from the handle. The handle position shall provide visual trip indication.
- E. Contacts shall be of non-welding silver alloy.
- F. All circuit breakers shall have the trip rating inscribed on the handle on each circuit breaker pole. Also, unique color-coded cases that indicate the UL listed 10 kA or 22 kA interrupting ratings. Breakers shall be able to be used as main or branch disconnect devices.
- G. Branch circuit breakers may also be used in the 1/2-inch (12.7 mm) per pole ratings that include 2-pole 1-inch (25.4 mm) wide modules and 4-pole 2-inch (50.8 mm) wide modules. 2-pole circuit breakers must incorporate a common trip mechanism. The exclusive CTL rejection tab feature shall be provided to limit the number of branch devices for a loadcenter to 42, in compliance with NEC Article 384-15.
- H. Circuit breakers shall be completely enclosed in a molded case of thermoset material. No internal aluminum parts shall be used. All internal ferrous parts shall be plated to prevent corrosion.
- I. All terminals shall be listed for use with copper or aluminum conductors. Terminals shall be of the box lug or clamp type design. The terminals shall meet UL 486B requirements and shall be suitable for use with either 60°C or 75°C wire.
- J. The calibrated bimetal assembly shall be mechanically isolated from the load terminal using a flexible braided copper shunt wire, such that movement of the terminals due to twisting and overtightening does not affect breaker calibration.
- K. Breakers shall be SWD rated and/or HACR rated as required.

① Note to spec writer – select one (copper available in limited ratings)

**Typical Specifications, Continued**

- L. Arc Fault Interrupting circuit breakers, (AFI), shall be provided on all 15 and 20 ampere single-phase 120/240V AC circuits except those indicated as remote controlled breakers. AFI breakers shall be "Classified for mitigating the effects of arcing faults," or conforming to UL Standard 1699 and as defined by Article 210-12 Section A of the 1999 NEC Code.

**Surge Protection Devices**

All 120/240V AC single-phase loadcenters shall have surge protection provided by a [Clipper Home Surge Protector device] [plug-in surge protection device].

- A. The Clipper Home Surge Protector shall be supplied in its own rugged steel enclosure and must be suitable for flush or surface mounting external of the loadcenter. The device shall provide surge protection for the loadcenter as well as protection for: two incoming telephone lines and one incoming coaxial cable. The surge protector shall be installed in accordance to NEC Article 280 and be listed under UL1449, (2nd Edition), and UL497A. The units shall be CSA certified and be tested to meet ANSI/IEEE Category B3 and C3 levels. The surge protector shall incorporate a surge plane design to facilitate a

common point of grounding for all connected power, telephone, and coaxial incoming conductors. The device shall provide, as a minimum, the following protection:

1. Up to 39 kA surge current protection per phase for transients on the incoming AC line
  2. Up to 10 kA surge protection per pair for telephone lines
  3. Up to 5 kA line to shield (ground) protection for coaxial conductors  
– OR –
- A. The surge protection device shall be capable of plugging onto a maximum of two adjacent spaces in a single-phase loadcenter. The device shall provide, as a minimum, up to 10 kA surge current protection per phase for transients on the incoming AC line.
- B. Surge protection devices must be equipped with LEDs to indicate proper functioning of the internal electronics.

**Enclosures**

- A. Loadcenter shall have NEMA Type 1 general purpose or NEMA Type 3R rainproof enclosures as indicated on the drawings and shall be surface or combination flush/surface mounted except where noted.
- B. Boxes shall be made from galvanized sheet steel having multiple knockouts. Rainproof boxes shall use galvanized steel or an approved coating system which meets or exceeds standards for

outdoor NEMA Type 3R enclosures. Boxes shall be of sufficient size to provide at least a minimum code gutter space on all sides.

- C. The deadfront shall have an easy adjustment feature for flush applications.
- D. Boxes shall be factory assembled into a single rigid structure.
- E. Unless otherwise noted on drawings, hinged doors covering all circuit breaker handles shall be included in all trims. Trim doors shall not uncover any live parts in making the circuit breaker handles accessible. If key locks are required, all locks shall be keyed alike.
- F. Combination trims for flush and surface panels shall be flat and shall overlap the box by at least 5/8-inch (15.9 mm) all around. Trims shall be mounted by a screwdriver without the need for special tools.

**Finish**

- A. Trims shall be bonderized and finished with a light gray ANSI-61 enamel. The paint finish shall be of a type to which field applied paint will adhere.

**Factory Testing**

- A. The standard factory tests shall be performed on the equipment provided under this section. All tests shall be in accordance with the latest version of UL and NEMA.