

NQ Circuit Breaker Panelboards

Class 1640

Catalog

1640CT0801
R08/21



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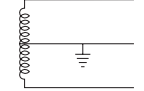
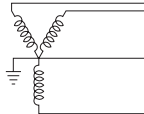
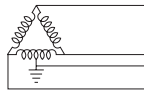
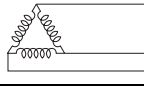
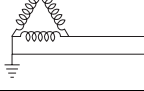
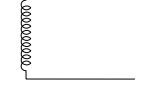
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Standards and Ratings

NQ circuit breaker panelboards meet US and Canadian standards, and are marked cULus. NQ circuit breaker panelboards accept QO™ and QOB branch circuit breakers.

Voltage	System	System Diagram
120/240 Vac	1Ø3W	
208Y/120 Vac	3Ø4W	
240/120 Vac	3Ø4W Delta	
240 Vac	3Ø3W Delta	
240 Vac	3Ø3W Grd. BØ Delta	
48 1Ø Vdc	1Ø2W	

Standards

NQ circuit breaker panelboards are designed, manufactured, and tested to comply with the following standards:

- UL 67—Standard for Panelboards
- UL 50—Enclosures for Electrical Equipment
- UL 50E—Enclosures for Electrical Equipment, Environmental Considerations
- CSA C22.2, No. 29—Panelboards and Enclosed Panelboards
- CSA C22.2, No. 94—Special Purpose Enclosures
- NEMA PB 1—Panelboards
- NFPA 70—National Electrical Code® (NEC®)
- Federal Specification W-P-115C Type I Class 1—Circuit Breaker Panelboards
- ASCE 7-05, ASCE 7-10, IBC 2015, IBC 2018, CBC 2016, CBC 2019, NBCC 2015 Seismic Qualification, and OSHPD Special Seismic Certification Pre-approval: OSP-0016-10
- ABS Type Certified
- International Electrotechnical Commission (IEC) 60529: 1989+AMD1:1999 +AMD2:2013 CSV Consolidated version.- Degrees of Protection Provided by Enclosures (IP Code)

Ratings

- Main Lugs 100–600 A
- Main Circuit Breaker 100–600 A

Interiors

Main Lug Interiors

225 A Maximum Main Lug Interior and Deadfront



- Will accept plug-on or bolt-on branch circuit breakers
- Top- or bottom-feed
- 65k AIR maximum branch circuit breakers (fully-rated)
- 200k AIR maximum when supplied by PowerPacT™ circuit breaker or remote Class J or T fuse (series rated)
- Field-installable sub-feed lug kits for 100–400 A interiors
- Factory installed main lugs on all interiors
- 225–600 A main lug interiors are convertible to main circuit breaker by adding a main circuit breaker and adapter kit
- Available with silver/tin-plated copper or tin-plated aluminum bus (aluminum is standard). Tin-plated or thick silver plated copper bus are available options. Branch connector fingers are tin-plated copper; thick silver-plated branch connector fingers are optional

Main Lugs for MLO Interiors

Main Lug Interiors



100–225 A Maximum and 600 A Maximum

Table 1 - Aluminum Main lugs for MLO Interiors

Amperes	Catalog Number	Lug Wire Range
Aluminum Mechanical (Standard)¹		
100	NQALM1	(1) #6–2/0 AWG
225	NQALM2	(1) #6–350 kcmil
400	NQALM4	(1) 1/0–750 kcmil, or (2) 1/0–350 kcmil
600	NQALM6	(2) 1/0–750 kcmil
600 ²	NQALM6A	(3) 6–250 kcmil
Aluminum Compression		
100	NQALV1	(1) #8–1/0 AWG
225	NQALV2	(1) 4–300 kcmil
400	NQALV4	(2) 2/0–500 kcmil
600	NQALV6	(2) 2/0–500 kcmil

1. NQ MLO interiors are supplied with lugs. No selection is required if aluminum mechanical lugs are acceptable.
 2. Optional lug for 600 A. Can also be used for 400 A.

NQALM2 225 A Main Lug Kit



NQALM6A 600 A Main Lug Kit



Table 2 - Copper Main lugs for MLO Interiors

**Type VCEL
VERSAtile™
Compression
Equipment
Terminals**



**NQCUM2 225 A
Copper Mechanical
Lugs**

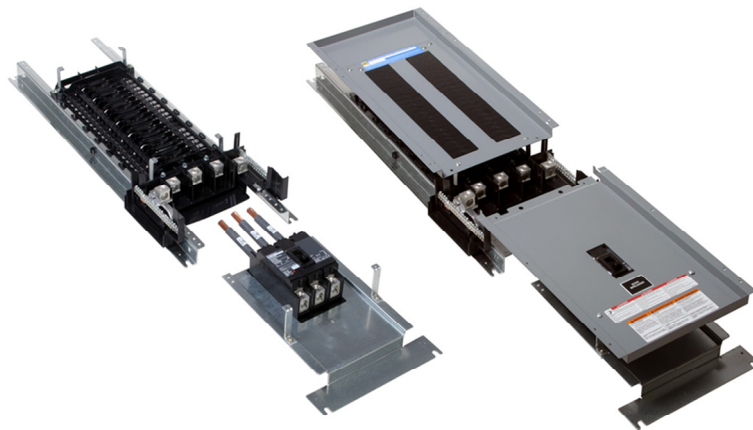


**NQCUV2 225 A
Copper
Compression Lugs**



Amperes	Catalog Number	Lug Wire Range for wire bending space
Copper Mechanical		
100	NQCUM1	(1) #6–2/0 AWG
225	NQCUM2	(1) #6–250 kcmil
400	NQCUM4	(1) 1/0–750 kcmil, or (2) 1/0–350 kcmil
600	NQCUM6	(1) 1/0–750 kcmil, or (2) 1/0–350 kcmil
Copper Compression		
100	NQCUV1	(1) #6–1/0 AWG
225	NQCUV2	(1) 2/0–300 kcmil
400	NQCUV4	(1) 400–750 kcmil
600	NQCUV6	(2) 250–500 kcmil

Main Lugs Interior with PowerPacT Q Main Circuit Breaker and Main Circuit Breaker Kit



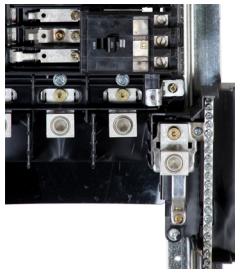
Deadfront Removed

Deadfront Installed

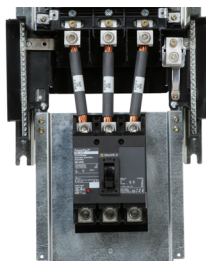
NQ442L2 Main Lugs Interior (without deadfront) and QBL32225 Main Circuit Breaker (mounted to NQMB2Q kit)

Main Circuit Breaker Interiors

QOB Branch Mounted Main Circuit Breaker on a 225 A NQ Interior



QBL Main Circuit Breaker on a 3-phase NQ Main Lug Interior



- May be assembled from merchandised main lug interiors, main circuit breaker, and main circuit breaker kits.
- Will accept plug-on or bolt-on branch circuit breakers.
- Merchandised main circuit breaker interiors are suitable for use as service entrance (US only).
- Barriers must be installed in jurisdictions that have adopted 2017 NFPA 70—National Electric Code® (NEC®).

Table 3 - UL Service Entrance Barrier Kits

Catalog Number ³	Description	Applicable Main Breakers
HJQLLC	H/J/Q Line Lug Cover	PowerPacT H, J, Q
LALLC	LA/LH Line Lug Cover	LA/LH
PPLLC	PowerPacT L Line Lug Cover	PowerPacT L

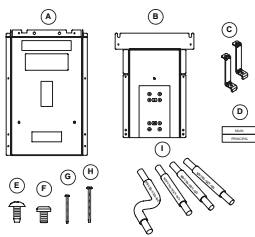
- Service entrance barriers are required and available in Canada (factory-assembled only).
- May be top-feed or bottom-feed.
- Accept 65k AIR maximum branch circuit breakers (fully-rated).
- May be series rated 200k AIR maximum when supplied by PowerPacT circuit breaker.
- Are available with silver/tin plated copper or tin-plated aluminum bus (aluminum is standard). Tin-plated or silver-plated copper bus is available as an option. Branch connector fingers are tin-plated copper; silver-plated branch connector fingers are optional.
- 100 A main circuit breaker interiors may be assembled from a standard or 14" wide 100 A main lug interior, and either
 - an appropriate QOB or QOB-VH main circuit breaker in a branch spaces, or
 - a PowerPacT H-frame vertical main breaker, and a main breaker kit (NQMB2HJ), or (NQMB2HJ14 for NQ 14" wide interiors).
- 110–150 A main circuit breaker panelboards may be assembled with backfed main breaker from:
 - A standard 225 A main lug interior.
 - Appropriate QOB-VH frame circuit breaker installed in branch spaces.
- 110–225 A main circuit breaker panelboards may be assembled with a vertical main breaker from:
 - A standard or 14" wide 225 A main lug interior.
 - Main circuit breaker adaptor kit (NQMB2Q, NQMB2HJ) (or NQMB2Q14 or NQMB2HJ14 for 14" interiors).
 - Appropriate PowerPacT H-, J-, or Q-frame circuit breaker
- 250 A main circuit breaker interiors are factory-assembled only.
- Merchandised 250 to 400 A main circuit breaker interiors consist of:
 - 400 A 3-phase or single phase main lug interior.
 - Main circuit breaker adapter kit (Catalog No. NQMB4LA or NQMB6PPL).
 - Appropriate LA or LH (with NQMB4LA) or LG, LJ, or LL (with NQMB6PPL) circuit breaker.⁴

3. Main circuit breaker panels are supplied with UL service entrance barriers if "UL Service Entrance" is selected as a requirement in SE Advantage.
 4. PowerPacT L-frame main breakers require a 8.75 in. (222 mm) deep NEMA Type 1 enclosure. They are only available factory assembled with 26" (660 mm) wide, 8.75" (222 mm) deep NEMA 3R enclosures.

- Factory assembled 400 A main circuit breakers are available with LA, LH, or PowerPacT L⁵ main circuit breakers.
- Merchandised 600 A main circuit breaker interiors consist of:
 - 600 A 3-phase or single phase main lug interior.
 - Main circuit breaker adapter kit (Catalog No. NQMB6PPL).
 - Appropriate PowerPacT L (LG, LJ, or LL) circuit breaker.⁵
- Factory assembled 600 A main circuit breakers are available with PowerPacT L (LG, LJ, or LL) main circuit breakers.

Table 5 - Main Circuit Breaker Adapter Kits

Main Circuit Breaker Adapter Kit



Hardware not shown to scale

Catalog No.	Ampere Rating	Main Circuit Breaker
NQMB2Q	100–225 A	PowerPacT Q
NQMB2HJ	100–225 A	PowerPacT H or J
NQMB4LA	125–400 A	LAL, LHL
NQMB6PPL	125–600 A	PowerPacT L

Table 4 - NQMB2Q Kit Contents

A	Main circuit breaker deadfront cover (1)
B	Main circuit breaker mounting pan (1)
C	Deadfront support brackets (2)
D	"Main" circuit breaker label (1)
E	10-32 x 7/16-inch tapping screws (2)
F	10-32 x 5/16-inch tapping screws (6)
G	8-32 x 2 1/4-inch tapping screws (2)
H	8-32 x 3 1/4-inch tapping screws (2)
I	Main lug wires (4)

NQMB4LA, 400 A LA/LH Main Breaker Kit



NQMB6PPL—PowerPacT L Main Breaker Kit



Table 6 - Main Circuit Breakers

Max. Amperes	Circuit Breaker Type
100 A	HD, HG, HJ, HL, HR, QOB ⁶ , QOB-VH ⁶
150 A	HD, HG, HJ, HL, HR, QB, QD, QG, QJ, or QOB-VH ⁷
225 A	QB, QD, QG, QJ, JD, JG, JJ, JL, or JR
250 A	PowerPacT J-frame ⁸ : JD, JG, JJ, JL, or JR
400 A	LA or LH
	PowerPacT L-frame ⁹ : LG, LJ, or LL
600 A	PowerPacT L-frame ⁹ : LG, LJ, or LL

Field-Installable Circuit Breaker Accessories

Field-installable shunt trip, alarm switch, and other accessories are available for PowerPacT H, J, L and LA/LH main circuit breakers. Refer to Catalog 0616CT1001 or 0601CT9101 for additional information.

5. PowerPacT L-frame main breakers require a 8.75 in. (222 mm) deep NEMA Type 1 enclosure. They are only available factory assembled with 26" (660 mm) wide, 8.75" (222 mm) deep NEMA 3R enclosures.
 6. Backfed main circuit breaker.
 7. QOB-VH backfed main breaker—110 A to 150 A breakers require two spaces per pole.
 8. Factory assembled only.
 9. PowerPacT L-frame main breakers require a 8.75 in. (222 mm) deep NEMA Type 1 or 3R enclosures.

Interior Accessories

**QOB3125SL
Sub-Feed Lug
Device**



Sub-Feed Lug Kits

Table 7 - Branch Mounted Sub-Feed Lugs

Rating Amperes	Number of Poles	Type of Connection	Catalog No.	Main Wire Size
125	2	Bolt-On	QOB2125SL	#12-2/0 Al or Cu
	3		QOB3125SL	

Field-Installable Sub-Feed Lugs

Table 8 - Field-Installable Sub-Feed Lugs

Mains Rating	Added Length ¹⁰	Catalog No.
100 A	—	NQSFL1
225 A	6 Inches	NQSFL2
400 A	—	NQSFL4

**NQSFL4, 400 A
Sub-Feed Lug Kit**



Table 9 - Field installable Feed-Through Lugs

Mains Rating	Interior Circuits	Added Length ¹⁰	Catalog No.
225 A	30	6 inches	NQFTL2L
	42	—	
	54, 72, 84	6 inches	NQFTL2H
400 A	30	—	NQFTL4L
	42	6 inches	
	54, 72	6 inches	NQFTL4H
	84	—	

**NQFTL2, 225 A
Feed-Through
Lug Kit**



Field Installable Sub-Feed Circuit Breaker Kits

Table 10 - Field Installable Sub-Feed Circuit Breaker Catalog Numbers

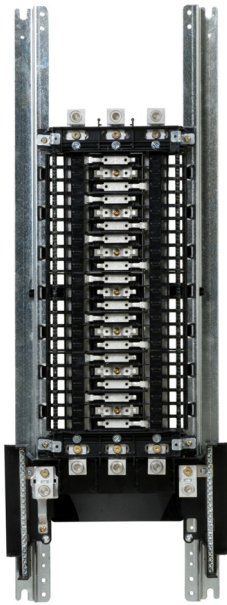
Catalog Number	Interior Amperes	Circuit Breaker Frame	Max. SFB Amps	Number of SFBs
NQSFB2Q	225 A	PowerPacT Q	225	1
NQSFB2HJ	225 A	PowerPacT H	150	1
		PowerPacT J	225	
NQSFB4Q	400 / 600 A	PowerPacT Q	225	2
NQMB6PPL	400 / 600 A	PowerPacT L	400	1
NQSFB6PPL	600 A	PowerPacT L	600	1

**225 A Main Lug
Interior with
Sub-Feed Lugs**



10. Refer to Digest 178 for the correct box size.

225 A Main Lug Interior with Feed-Through Lugs



Factory-Installed Sub-Feed and Feed-Through Options

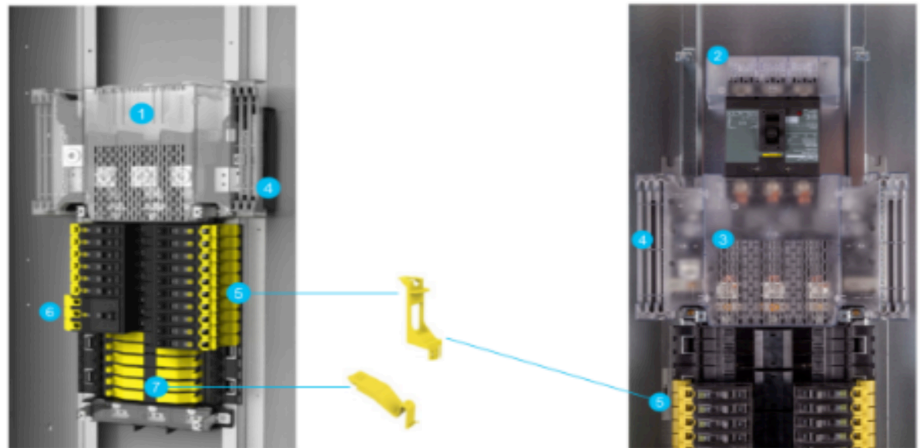
- Feed-through lugs are available on standard width 1Ø or 3Ø, 100–600 A interiors (main lug interiors only).
- Sub-feed lugs are available on 1Ø or 3Ø, 100–400 A main lug interiors only.
- Sub-feed circuit breakers
 - Available on 1Ø or 3Ø, main lugs 225–600 A interiors (main lug or main breaker)
 - One PowerPacT H-, J-, or Q-frame sub-feed circuit breaker for each 225 A panelboard
 - One 400–600 A max., or two 250 A max. sub-feed circuit breakers for each 400–600 A panelboard
 - Sub-feed circuit breakers may be LA/LH, or PowerPacT H-, J-, L-, or Q-frame.

Fingersafe IP2X per IEC 60529 Barriers for NQ Panelboards

- Factory-installed IP2X barriers for NQ Panelboards reduce the risk of accidental contact with energized components if a cover is removed.
- Plastic barriers cover Mains (lugs or circuit breaker), copper bus, and branch circuit breakers, providing IP2X per IEC 60529 protection for undergrounded parts.
- Available in 3 phase interiors with main lugs up to 400 A. Main circuit breaker choices include PowerPacT Q-, H-, J- or LA/LH frame.
- Series rated up to 200 kAIC—fully rated up to 65 kA.
- Selectively coordinated up to 30 kAIC.
- All standard NEMA 1, 2, 3R, 4/4X, 5, or 12 enclosures available up to 225 A. Higher ampacity panels are supplied with NEMA 1 enclosures.
- Branch circuit breakers available to 100 A in 1P, 2P, and 3P.
- Two factory assembled constructions:
 - Standard design that offers maximum flexibility, including interiors with 18–84 circuits, and sub-feed lugs up to 225 A.
 - Enhanced design that retains IP2X per IEC 60529 protection whether or not a branch circuit breaker is installed.
 - Enhanced IP2X three phase, 42 circuit interiors are available with copper bus rated for 225 A or 400 A.

Standard IP2X per IEC 60529

Enhanced IP2X per IEC 6052



(Bus Finger Covers Empty Spaces)

(Bus Covered Without Branch Circuit Breaker)

1	Main Lug Cover
2	Main Breaker Line Side Cover
3	Main Breaker Load Side Cover
4	Neutral Cover
5	Low Amp QO(B) Cover
6	High Amp QO(B) Cover
7	Bus Finger Cover

For more information please reference Document Number 1640BR1701.

Separated Distribution and Split Bus Panelboards

Square D™ NQ Separated Distribution and Split Bus Panelboards come Factory Assembled with copper bus, with or without an integral Main Circuit Breaker. For more detailed information about Square D NQ Separated Distribution and Split Bus Panelboards please review document 1600HO1701.

Table 11 - Split Bus and Separated Distribution Panelboards

Interior Type (Mains Rating)	Interior Phases	Interior Spaces (Pole Spaces per Section)	Split Rating (Amps)	
			Cabled Split	Backfed Mains
Split Bus (225 A)	Single Phase	18 - 30	NA	125 A
		30 - 18		
		30 - 30		
	Three Phase	18 - 30		
		30 - 18		
		30 - 30		
Cabled Split (225 A)	Three Phase	30 - 18 - 18	225 A	NA
		18 - 18 - 18		
Cabled Split (400 A)		30 - 18 - 18	400 A	
		18 - 18 - 18		

Branch Circuit Breakers (Bolt-on and Plug-on)

Please reference QO QOB Circuit Breaker Catalog 0730CT9801.

QOB Branch Circuit Breakers



QO Branch Circuit Breakers



Table 12 - Branch Circuit Breakers (Bolt-on or Plug-on)

Circuit Breaker Catalog Prefix	Max. Vac Rating	Number of Poles	Ampere Rating	Interrupting Rating—RMS Symmetrical Amperes ¹¹		
				Vac		
				120	120/240	240
QO, QOB	120/240	1	10–70	—	10k	—
	120/240	2	10–125	—	10k	—
	120/240	2	150–200 ¹²	—	10k	—
	240	3	10–100	—	—	10k
QO-H, QOB-H	240	2	15–100	—	—	10k
QO-VH	120/240	1	15–70	—	22k	—
	120/240	2	15–125	—	22k	—
	120/240	2	150–200 ¹²	—	22k	—
	240	3	15–100	—	—	22k
QOB-VH	120/240	1	15–70	—	22k	—
	120/240	2	15–150	—	22k	—
	240	3	15–150	—	—	22k
QOH	120/240	2	35–125	—	42k	—
QH, QHB	120/240	1	15–30	—	65k	—
	120/240	2	15–30	—	65k	—
	240	3	15–30	—	—	65k

11. Series ratings are also available. See Switchboard/Panelboard Short-Circuit Current Ratings (data bulletin #2700DB9901).

12. 175–200 A 2P breakers available only as plug-on. These require four pole spaces and may only be used in single phase 400 A or 600 A panelboards with three point latch trim fronts.

QO™ Arc-Fault Circuit Breakers

QO arc-fault circuit breakers provide combination arc fault protection with or without ground fault circuit protection as required by the NEC and local code adoption, and comply with UL 1699.

Table 13 - QO Arc-Fault Circuit Breaker Catalog Numbers

Circuit Breaker Type ¹³	Ampere Rating	1P 120 Vac 10 kAIR 1 Space Required	1P 120 Vac 22 kAIR 1 Space Required	2P 240 Vac 10 kAIR 2 Space Required	2P 240 Vac 22 kAIR 2 Space Required
		Catalog Number	Catalog Number	Catalog Number	Catalog Number
Combination Arc-Fault Interrupter	15 A	QOB115CAFI	QOB115VCAFI	QOB215CAFI	QOB215VHCAFI
	20 A	QOB120CAFI	QOB120VHCAFI	QOB220CAFI	QOB220VHCAFI
Dual Function: Arc-Fault and Ground Fault	15 A	QOB115DF	QOB115VHDF	Use plug-on QO 2-pole dual function MCBs	
	20 A	QOB120DF	QOB120VHDF		

Table 14 - Branch Circuit Breaker Lug Data

Ampere Rating	Circuit Breaker Type	Wire Size (AWG or kcmil)	
		Aluminum	Copper
10–30	QO, QOB	(2) #14–#8	(2) #14–#8
35–50	QO, QOB	(1) #8–#2	(1) #8–#2
60–70	QO, QOB	(1) #8–#2	(2) #8–#2
80–125	QO, QOB	(1) #4–2/0	(1) #4–2/0
150	QOB-VH	(1) #4–300 kcmil	(1) #4–300 kcmil
175–200	QO, QO-VH	(1) #4–300	(1) #4–300

NOTE:

- Lugs suitable for 75°C wire
- Torque QOB connector mounting screws to 18–21 lb-in
- Torque labels are included on the circuit breakers with load side lug torque requirements

Table 15 - QO Circuit Breaker Wire Binding Screw Torque Summary

Type	Description and AIC Rating	Torque lb.-in (N-m)
QO/QOB	10 A–30 A, 1, 2 and 3–pole, all interruption ratings	36 (4)
QO/QOB	35 A–70 A, 1 and 2–pole and 40 A–60 A 3–pole, 10kA	45 (5)
QO/QOB-VH, QOH	40 A–125 A, 2–pole, 22kA and 42kA	50 (5.6)
QO/QOB-VH	40 A–100 A, 3–pole, 22kA	50 (5.6)
QO/QOB	70 A–100 A, 3–pole, 10kA	50 (5.6)
QO/QOB-H	40 A–100 A, 2–pole, 240 Vac	50 (5.6)
QO/QOB	80 A–125 A, 2–pole, 10kA	50 (5.6)
QOB-VH	110 A–150 A, 3–pole, 22kA	250 (28)
QO/QOB	150 A–200 A, 2–pole, 10kA	250 (28)
QO/QOB-VH	150 A–200 A, 2–pole, 22kA	250 (28)

Recommended torque values may be found on each QO(B) circuit breaker.

13. HACR type for use with air conditioning, heating and refrigeration equipment having motor group combinations and marked for use with HACR type circuit breakers.

Lighting Contactors

Lighting Contactors are available as an option in factory-assembled panelboards. 2-pole and 3-pole contactors are available for 30, 60, 75, 100, 150, 200, or 225 A applications. For more information please review ASCO 920 Lighting Contactors at <https://www.ascopower.com/us/en/product-range-presentation/66151-asco-920-lighting-contactors/>.

Neutrals

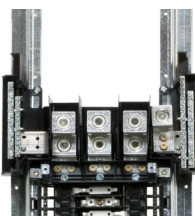
100–225 A Neutral Assembly



Typical Neutral Assemblies



400 A



600 A

NQNL2: 225 A Copper 200% Neutral Assembly



Neutral assemblies are installed onto NQ panelboard interiors, except for some OEM specific commercial references.

- All lugs suitable for copper or aluminum wire. 100–600 A Ready-to-install interiors have split neutral located on same end as mains.
- Neutral assemblies on some Factory Assembled Panelboards may be located at opposite end of interior from the mains.
- Bondable for use as service entrance in USA. Panelboards with neutral assemblies and barriers suitable for Canadian service entrance are available factory assembled.
- Branch terminals are suitable for AWG #12–#4 aluminum and #14–#4 copper. 400 A and 600 A neutrals include at least two #14-2/0 terminals.
- Provisions for #14-2/0 and larger branch terminal lugs may be added with use of auxiliary neutral lugs.
- All unused neutral terminals may be used to terminate equipment grounding conductors when panelboard is bonded and used as service entrance.
- 100% rated neutrals. One neutral terminal provided per circuit in panelboard.
- 200% rated neutrals are available as factory-assembled options or as kits.

Table 16 - Field Installable Copper 100% Neutral Kits

Amperes	Catalog Number
100	NQN1CU
225	NQN2CU
400/600 ¹⁴	NQN6CU ¹⁴

Table 17 - Field Installable 200% Neutral Kits

Amperes	Catalog Number
100	NQNL1 ¹⁵
225	NQNL2, NQNL2ACCY ¹⁵
400	NQNL4 ¹⁶

200% Neutral Restrictions

- Compression lugs on 200% neutrals not available with accessories (feed through lugs, sub feed lugs).

225 A, 200% Neutral

- Integral lighting contactors are not available.
- Not available on column width or 14" wide interiors.
- If sub-feed lugs, feed-through lugs, or sub-feed circuit breakers are required, order the following 200% neutral kit: NQNL2ACCY.

400 A, 200% Neutral

- NEMA Type 3R, 5, and 12 enclosures require copper-bussed interiors.
- Integral lighting contactors are not available.
- NQNLEP neutral plate available for 400 A panelboards equipped with 200% neutrals and sub-feed lugs, feed-through lugs, or sub-feed circuit breakers.

600 A, 200% Neutral

- NEMA Type 3R, 5, and 12 enclosures require copper-bussed interiors.

14. Not for use with 600 sub-feed lugs, feed-through lugs, or sub-feed circuit breaker.
 15. Use NQNL2ACCY when installing on a 225 A panel with SFL, SFB, or TFL.
 16. Not to be used with SFL, FTL, or SFB. These combinations are factory-assembled only.

NQ Condo Riser Neutral Assembly



- Integral lighting contactors are not available.

Condo Riser Neutral Assembly

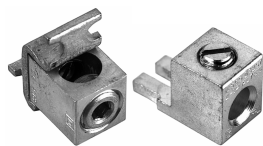
- available factory installed on 400 A or 600 A interiors.
- provides 36 AWG #14–2/0 and 36 AWG #14–#4 Cu-Al terminal.
- accepts (4) 1/0-750 kcmil line cables and (8) 3/0-750 kcmil load cables
- available for 100% or 200% neutral assemblies.
- requires 26" wide enclosures.
- adds 12 in. (305 mm) to length of main lug only panelboards.

Table 18 - Condo Riser Neutral Assemblies

Commercial Reference	Circuit Count	Number of Terminations		
		#6 AWG-350 kcmil	#14–2/0 AWG	#4–#14 AWG
NQN6CRUS	30 or 42	2	36	36
NFN6CR17	54 or 72	–	36	36

Auxiliary Neutral Lugs

Auxiliary Neutral Lugs



Catalog No. QO70AN Catalog No. Q1150AN

Lugs are suitable for copper or aluminum wire and are field-installable on neutral assembly.

Table 19 - Optional Ground Bar / Neutral Bar Lugs

Catalog Number	Lug Wire Range (AWG - kcmil)	Wire Amperage	Max. Qty. of Add-on Lugs per Neutral ¹⁸	
			100 A / 225 A	400 A / 600 A
QO70AN ¹⁹	#12 to #2 Al or #14 to #4 Cu	70 A	8–20	4–12
NQ100AN ¹⁹	#14 to #2/0 Al or Cu	80–100 A	6–14	4–10
Q1150AN ²⁰	#1 to #4/0 Al or Cu	110–150 A	6–10	4–6
NQ200AN ¹⁹	(2) #4 to 300 kcmil Al or Cu	175–200 A	–	2



Catalog No. QO100AN



Catalog No. NQ200AN

17. Requires 8.75" deep enclosure.
 18. Maximum quantity of add-on lugs depends upon interior circuit count.
 19. Requires two standard termination spaces on Neutral or Ground bar.
 20. Requires three standard termination spaces on Neutral or Ground bar.

NQ Neutral Assembly with Oversized Lugs



Catalog No. NQALMN6

Oversized Neutral Lugs

The next larger ampacity neutral assembly may be installed on 100 A, 225 A and 400 A interiors to provide oversized neutral lugs.

- 400 A and 600 A NQ Panelboards may be ordered with factory assembled oversized neutral lug assemblies containing up to four lugs that each accept one 1/0-750 MCM or (2) 1/0-300 MCM Mechanical Lugs, in either Aluminum or Copper.
- 100% and 200% Neutral Assemblies are available in 400 A NQ Panelboards.
- Oversized Neutral Lugs add up to 12" to the enclosure length, and are available for interiors with sub-feed lugs, feed-thru lugs, and sub-feed breakers.

Neutral Bonding Provisions

Bonding strap may be field-installed for UL service equipment requirements on 100–600 A interiors (in Canada, available as factory-assembled only).

100–225 A Provision

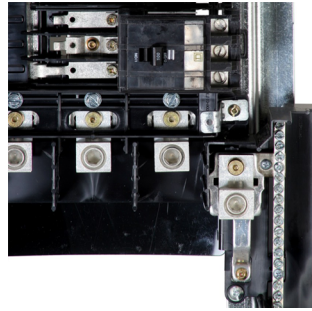
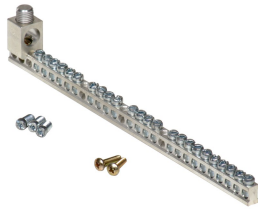


Table 20 - Neutral Bonding Kits

Mains Rating	Neutral Bonding Kit
100 A / 225 A	NQBOND12
400 A / 600 A	NQBOND46
400 / 600 A Condo Riser	NFNQCRBOND46

Ground Bar Kits

Equipment Ground Bar



- Field-installable in all panelboards.
- Suitable for copper or aluminum wire.
- Provisions for mounting up to four ground bar kits per panel.

Table 21 - Available Ground Bar Kits

Catalog Number	Terminals			Approximate Overall Length Inches (mm)
	Number of Terminals	Quantity Available for Each Size		
		Material	I/II	
PK12GTA	12	Al	12/0	4.700 (119)
PK18GTA	18	Al	18/0	6.560 (167)
PK23GTA	23	Al	24/0 (#14-1 Cu only)	8.11 (206)
PK27GTA	27	Al	24/1	9.35 (237.5)
PK27GTACU	27	Cu	24/1	9.10 (231.14)

Figure 1 - Distance Between Mounting Holes (for Ground Bar Kits)—In (mm)

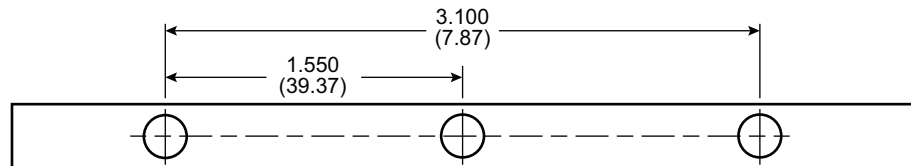


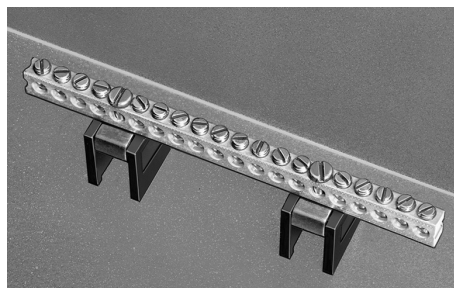
Table 22 - Ground Bar Kit Wire Ranges (AWG)

Size	Cu	Al
I	(1) #14 to #4 or (2) #14 or #12	(1) #12 to #4 or (2) #12 or #10
II	(1) #14 to 1	(1) #6 to 2/0

Ground Bar Insulator Kit (Catalog No. PKGTAB)

The insulator kit is field installable and may be used with equipment ground bar kits. NQ panelboard enclosures have equipment ground bar mounting provisions in all four corners.

Ground Bar with Insulator Kit

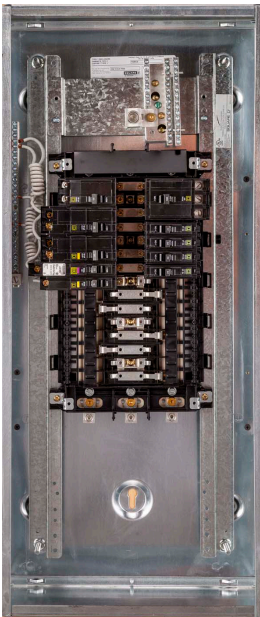


Technical Information

All PK equipment grounding kits are supplied with mounting screws, necessary installation instructions, and an “Equipment Grounding Terminal” self-adhesive label.

NQ 14-inch wide—up to 240 Vac or 48 Vdc

NQ 14 in. interior (without deadfront) with QOB branch circuit breakers (in NQB532 enclosure)



Features

- 240 Vac, 48 Vdc maximum.
- 100 or 225 A rated interior with main circuit breaker or main lugs only.
- Accepts same QO(B) branch circuit breakers as standard NQ interiors, up to 100 A maximum.
- Interiors supplied with tin plated copper bus as standard.
- Three-phase, four-wire, and single-phase, three-wire interiors available.
- Panelboards available with Mono-Flat™ trim front.
- May be suitable for use as service entrance equipment with UL service entrance barrier kit, or when ordered as NQSExxxxx Canadian load center.
- Branch circuit filler plates provide fast and easy installation.

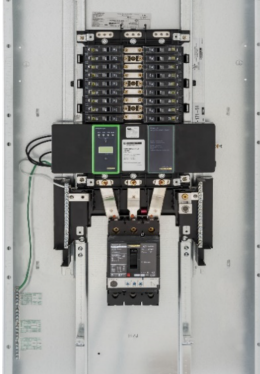
Table 23 - 14-inch wide Main Circuit Breakers

Main Circuit Breaker Catalog Number	Mains Rating	Voltage System	Main Circuit Breaker
—	100 A	1 phase, 3 wire	2-pole QOB or QOB-VH ²¹
—		3 phase, 4 wire	3-pole QOB or QOB-VH ²¹
NQMB2HJ14 or NQMB2Q14	225 A	Any	PowerPacT H-, J-, or Q-frame

21. Select a PowerPacT circuit breaker (and associated main circuit breaker kit from the list for 225 interiors), for panels to be “Suitable for use as UL service equipment.”

Surge Protection

NQ Main Circuit Breaker Interior with SurgeLoc™ SPD



Square D™ brand SurgeLoc™ Surge Protective Device (SPD) delivers specification grade performance for service entrance or critical branch panel applications. The SurgeLoc™ SPD product utilizes a high-energy suppression circuit that provides 6–10 modes of suppression from 80,000 to 240,000 peak Amps of surge current rating per phase.²² These devices feature circuitry that provides not only transient surge suppression, but also noise filtration.

Table 24 - Surge Protection Ratings

NQ SurgeLoc™ Voltage Specifications	Voltage Protection Rating (VPR)				
	L–N	L–G	N–G	L–L	MCOV ²³
120/240 Vac, 1-phase	700	700	600	1000	150
208Y/120 Vac, 3-phase, 4-wire	700	700	600	1000	150
240/120 Vac, 3-phase, high-leg delta	800	800	700	1200	150

Select a 30 A circuit breaker if a SPD Disconnect is desired (2–pole) breaker for single phase interiors, or 3–pole breaker for three phase interiors.

Design Features

- Individually fused suppression modules.
- Thermal cutout.
- Inline, copper bus bar connection.
- Solid state bi-directional.
- Push-to-Test on-line diagnostic display.
- Audible alarm with enable/disable switch.
- LED indicators indicate loss of protection, or fully-operational circuit.
- High-energy parallel design for IEEE C62.41 category A, B, and C3 applications.
- Available in main circuit breaker and main lug only panelboards with sub-feed circuit breakers, feed-through lugs, or sub-feed lugs.
- AC tracking filter with EMI/RFI filtering up to -30 dB from 100 kHz to 100 MHz.
- Dry Contacts provide remote indication of the SPD device's operating status to a computer interface board or emergency management system.

Table 25 - Surge Protection Options

Option	Description
Surge Counter	Displays the combined total number of transient voltage surges detected from L–G, L–L, L–N, and N–G since the counter was last reset.
Remote Monitor	Displays the alarm status of the surge protective device up to 1,000 ft (305 m) away from the unit. This option uses the dry contacts.

22. Available surge current rating: 80, 100, 120, 160, 200, and 240 kA.

23. MCOV: maximum continuous operating voltage.

Enclosures

Indoor Enclosures

Interior Mounts to Box Studs



MH Box



Front (Type 1) Enclosure for 400–600 A Interiors



Mono-Flat Front (Type 1 Enclosure) for 100–250 A Interiors



Concealed Hinge Used on 100–600 A Trim Fronts



NEMA 1 Enclosure with Vented Hinged Trim Front with 3 Point Latch (required if 175 A or 200 A QO(VH) circuit breakers are installed)

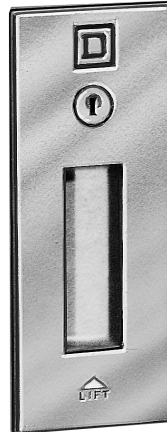


Indoor Enclosure Accessories

**Flush Lock
(standard)
Catalog No.
PK4FL**



**Sliding Vault Lock
(optional)
Catalog No.
PK5FL**



**Key NSR-251
Catalog No.
LP9618**

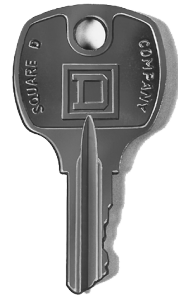


Table 26 - Enclosure Types

Type	Environment	Protects Against
Type 1	Indoor	Contact with the enclosed equipment, falling dirt
Type 2	Indoor	Type 1, plus <ul style="list-style-type: none"> Dripping and light splashing of non-corrosive liquids
Type 3R	Indoor / Outdoor	Type 2, plus <ul style="list-style-type: none"> Rain, snow, and sleet
Type 4	Indoor / Outdoor	Type 3R, plus <ul style="list-style-type: none"> Will be undamaged by the external formation of ice on the enclosure Circulating dust, lint, fiber Settling airborne dust, lint, fibers Windblown dust Hosedown and splashing water
Type 4X	Indoor/outdoor	Type 4, plus <ul style="list-style-type: none"> Corrosive agents
Type 5	Indoor	Type 2, plus <ul style="list-style-type: none"> Settling airborne dust, lint, fibers, and flyings
Type 12	Indoor	Type 2, plus <ul style="list-style-type: none"> Circulating dust, lint, fibers, and flyings Settling airborne dust, lint, fibers, and flyings Oil and coolant seepage

Indoor Enclosures (NEMA Types 1 and 2)

Boxes (MH):

- Galvanized steel with removable endwalls, one is provided with knockouts and the other is blank.
- Standard enclosure sizes:
 - 20 in. (508 mm) wide x 5.75 in. (146 mm) deep, 600 A main lug interior max. or 400 A main circuit breaker max.
 - 20 in. (508 mm) wide x 8.75 in. (223 mm) deep, for PowerPacT L main circuit breaker interior.
- Enclosure and interior mounting instructions are found in the information manual shipped with the interior.
- Interiors mount directly to studs in the MH enclosure. Interior mounting brackets are not required.
- Type 2 enclosure includes a driphood.
 - Surface-mounted trim only.

NOTE: Also available with knockouts / blank endwalls both ends.

NOTE: A wide variety of enclosure widths and height extensions are available for factory assembled panelboards.

Table 27 - NEMA 1 NQ Enclosure Commercial Reference Structure

Standard Width (20") and Depth (5.75") NEMA 1 Enclosures	
MH 50 BE	
<p>50 – Nominal Length (inches); 26" minimum 92" maximum</p> <p>MH – Enclosure Family (NEMA 1, 2 Covers)</p>	<p>BE – Both End Walls blank; KE – Knockouts in Both End Walls; Blank – Knockouts in one End Wall, the other is blank (standard)</p>
Deep (8.75") NEMA 1 Enclosures	
MH 62 D9	
<p>50 – Nominal Length (inches); 26" minimum 92" maximum</p> <p>MH – Enclosure Family (NEMA 1, 2 Covers)</p>	<p>D9 – 8.75" deep; both end walls are blank blank – 5.75" deep</p>
Wide Gutter (26" width) NEMA 1 Enclosures (both end walls are blank)	
MH 68 D9 L3R3	
<p>68 – Nominal Length (inches); 44" minimum 92" maximum</p> <p>MH – Enclosure Family (NEMA 1, 2 Covers)</p>	<p>L3R3 – 3" extension to left & right gutter L6 – 6" left gutter extension (factory assembled only) R6 – 6" right gutter extension (factory assembled only)</p> <p>D9 – 8.75" deep; both end walls are blank blank – 5.75" deep</p>

Trims Fronts (NC):

- Finished with gray baked enamel over cleaned phosphatized steel (ANSI 49).
- Flush or surface mounted (Type 2 surface only).
- Door has flush lock. Uses NSR-251 key.
- Directory card located on the inside of the door.
- Trim fronts for 400–600 A interiors are vented and mount to the enclosure with trim screws. Door hinges are concealed.
- Optional hinged trim fronts are available. These meet most door-in-door specifications.

- NEMA 1 trim fronts may be factory ordered with special features such as outer door locks, padlock hasp, or welded metal directory card holders.

Hinged Trim on Surface Mounted Enclosure

NOTE: Special trim fronts are also available, including: welded metal directory card holders; three point latches; custom paint colors, stainless steel, custom door locks, taller and/or wider trim fronts.

Table 28 - NEMA 1 NQ Trim Front Commercial Reference Structure

Standard Width (20") and Depth (5.75") NEMA 1 Enclosures	
NC 50 V F 3P HR	
	<p>HR – Hinged Right; Blank – Mono-Flat (standard)</p> <p>3P – three-point latch trim front; Blank – flush mounted lock (standard)</p> <p>F – Flush mount; S – Surface mount</p> <p>V – Vented; (standard for 400 and 600 A interiors) Blank – not vented (standard for 100 and 225 A interiors)</p> <p>50 – Nominal Length (inches); 26" minimum (62" minimum for hinged 3-point latch) 92" maximum</p> <p>NC – Trim Front Family (NEMA 1, 2 Covers)</p>
Wide Gutter (26" width) Trim Fronts	
NC 68 V S 3P HR L3R3	
	<p>L3R3 – 3" extension to left & right gutter L6 – 6" left gutter extension (factory assembled only) R6 – 6" right gutter extension (factory assembled only)</p> <p>HR – Hinged Right; Blank – Mono-Flat (standard)</p> <p>3P – three-point latch trim front; Blank – flush mounted lock (standard)</p> <p>F – Flush mount; S – Surface mount</p> <p>V – Vented; (standard for 400 and 600 A interiors) Blank – not vented (standard for 100 and 225 A interiors)</p> <p>68 – Nominal Length (inches); 44" minimum (68" minimum for 3-point latch) 92" maximum</p> <p>NC – Trim Front Family (NEMA 1, 2 Covers)</p>
NQ 14" Wide Panelboard Trim Fronts	
NQC5 32 S	
	<p>F – Flush mount; S – Surface mount</p> <p>32 – Nominal Length (inches); 26" minimum 56" maximum</p> <p>NQC – Trim Front Family (NEMA 1 Covers)</p>

Rainproof (Type 3R) and Dust Resistant (Type 5 and 12) Enclosures

Rain and Dust Resistant Enclosures

**New Vented NEMA
Type 3R Enclosure**



Type 3R, 5, and 12 Enclosure



**Vault Handle with
Lock Catalog No.
PK4NVL**



- Finished with gray baked enamel over cleaned phosphatized galvanized steel (ANSI 49).
- Provisions for two ground bars.
- Directory card holder on inside of door.
- No knockouts.
- Uses NSR-251 key.
- NEMA 3R / 5 / 12 enclosure features:
 - removable drain screw for Type 3R applications.
 - gasketed door has vault handle with lock.
 - 21" wide.
 - 6.5" deep.
- Vented NEMA Type 3R Enclosure features:
 - inner and outer doors have handle with lock.
 - outer door secured with quarter-turn fasteners and screws.
 - 26" wide.
 - 8.75" deep.

Corrosion-Resistant Fiberglass-Reinforced Polyester Enclosures (Type 4X)

Corrosion-Resistant Fiberglass- Reinforced Polyester Enclosure



- Watertight and dust resistant.
- Gasketed door with optional locking handle.
- Directory card holder on inside of door.

Stainless Steel Enclosures (Type 4 and 4X)

Stainless Steel Enclosure



- Watertight and dust resistant.
- Gasketed door with optional locking handle.
- Directory card holder on inside of door.
- Type 304 is standard. Type 316 available.

Single Row (Column-Width) Panelboards

NQ Column Width Panelboard with Cable Trough and Pull Box



Ratings

- Main lugs: 100–225 A
- Main circuit breaker: 100–225 A

Enclosures

- 8.625 in. (219 mm) wide by 5.00 in. (126.95) deep for 10" WF Beams
- Galvanized Steel
- Removable endwalls
- Finish: gray baked enamel over cleaned, phosphatized steel

Miscellaneous

- All lugs are suitable for 75°C copper or aluminum wire
- 60 A maximum branch circuit breaker
- Bolt-on QOB/QOB-VH/QHB circuit breakers
- Solid neutral opposite mains, second neutral in pull box

Table 29 - Branch Circuit Breakers (Bolt-on) 240 Vac

10 k AIR QOB	22 k AIR QOB-VH	65 k AIR QHB
1 pole, 10–60 A	1 pole, 10–60 A	1 pole, 10–30 A
2 pole, 10–60 A	2 pole, 10–60 A	2 pole, 10–30 A
3 pole, 10–60 A	3 pole, 10–60 A	3 pole, 10–30 A

Cable Trough

- Stackable
- 8.625 in. (219 mm) wide by 5.00 in. (127 mm) deep for 10" WF Beams
- Galvanized steel trough uses enclosure end wall
- Two-piece front trim
 - 15 in. (381 mm) long top piece of front trim removable for pull box mounting
- Finish: gray baked enamel over cleaned, phosphatized steel
- Cable troughs are standard with a trough barrier

Table 30 - Cable Troughs

Length of Cable Trough	Catalog Number
36 inch (914 mm)	MTX836
48 inch (1219 mm)	MTX848
56 inch (1422 mm)	MTX856
66 inch (1676 mm)	MTX866

Pull Box

- Mounts on cable trough
- 20 in. (508 mm) wide by 5.75 in. (146 mm) deep by 15 in. (381 mm) high
- Finish: gray-baked enamel over cleaned, phosphatized steel
- Removable end walls with knockouts
- Solid neutral included with 42 circuits
- Pull Box catalog number MPX81542

Power and Energy Management Options

**NQ 100 A Branch
Mounted Main
Circuit Breaker
Interior with EM3555
Circuit Monitor and
SurgeLoc™ SPD
Module**



Several Power Meters and Circuit Monitors are available factory-assembled in NQ panelboards. Basic Energy Metering at the Mains is possible with PowerLogic EM3500 series circuit monitors. Power Quality Monitoring is available with the selection of PM5563 or PM8244 power meters. These are typically installed with an LCD display in a 7 inch (178 mm) wide side gutter. Communications from these meters is available via Ethernet Modbus TCP/IP.

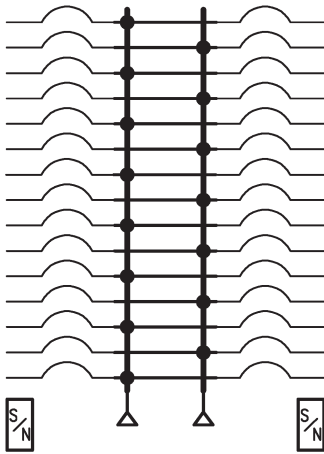
Measurement and Verification Panels may be created through the selection of PowerLogic BCPM branch circuit power metering in factory assembly NQ panelboards. CT strips work with communication modules to enable power monitoring of every branch circuit in an NQ panelboard.

Measurement and Verification Panels (MVP Panelboards) may be created through the selection of PowerLogic BCPM branch circuit power metering in factory assembled NQ panelboards. CT strips work with communication modules to enable power monitoring of every branch circuit in an NQ panelboard. More information about NQ MVP Panelboards may be found in Document Number 1200BR1201.

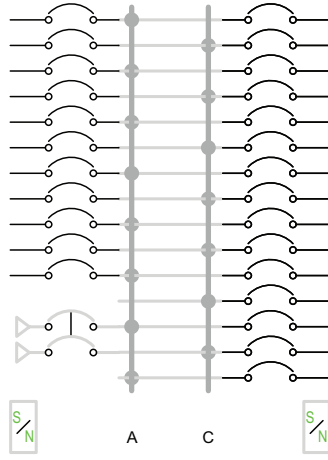
Typical Wiring Diagrams

1-Phase, 3-Wire

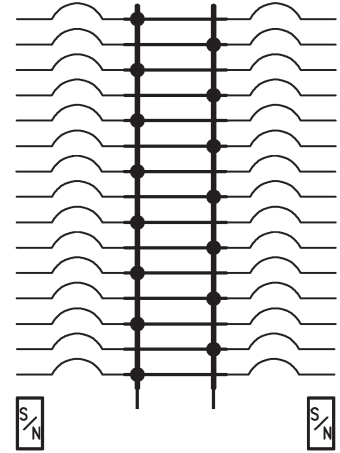
100–225 A Main Lugs



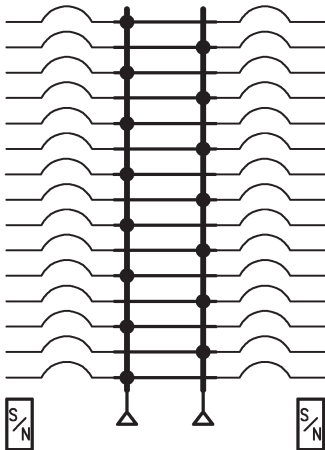
150 A Max. Branch Mounted Main Circuit Breaker



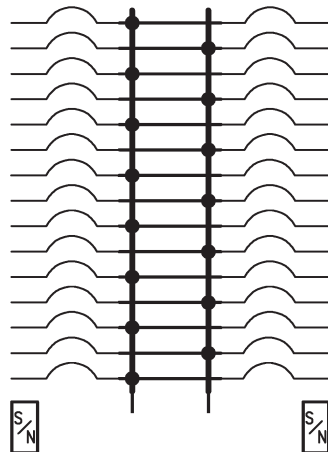
15–225 A Main Circuit Breaker Types H-, J-, or Q-Frame



400–600 A Main Lugs

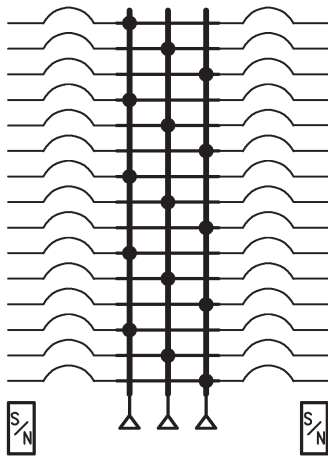


400 A Max. Main Circuit Breaker Type LA/ LH Frame

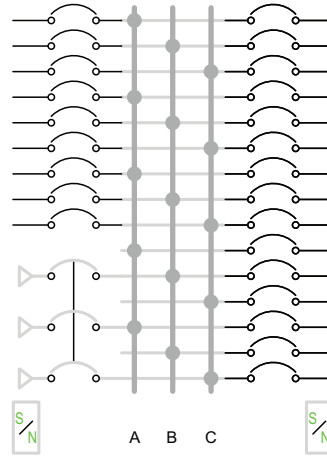


3-Phase, 4-Wire

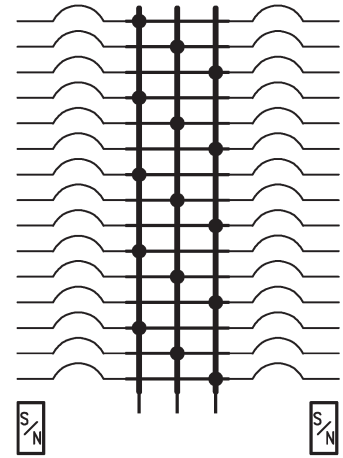
100–225 A Main Lugs



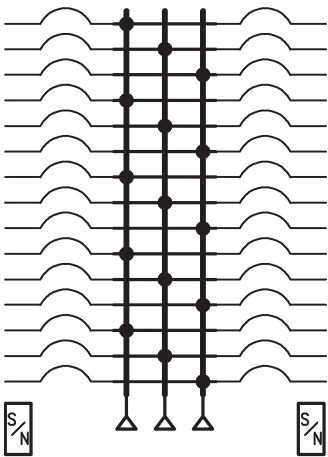
150 A Max. Branch Mounted Main Circuit Breaker



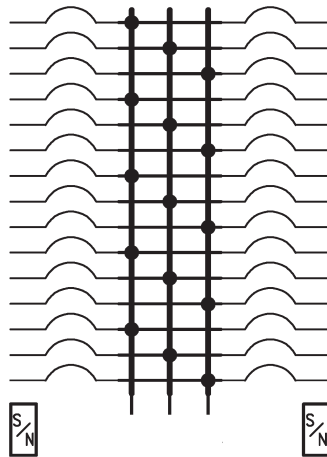
15–225 A Main Circuit Breaker Types H-, J-, or Q-Frame



400–600 A Main Lugs



400 A Max. Main Circuit Breaker Type LA/LH Frame



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