ITEM OPPORTUNITY SYNOPSIS

Scouting Number:	2024-218
Name of the item to be scouted:	Panelboards
State item to be used in:	Vermont
Describe the Item:	
Please describe the item application/the end use of the item.	Distribution equipment for power distribution throughout the building. Sizing varies per panel amperage, voltage and quantity of overcurrent protection devices.
Supplier Information:	
Type of Supplier Being Sought (select from the list below):	
Manufacturer	x
Contract Manufacturer	
Distributor	
Other (Please Specify)	
Reason for Scouting Submission (select from the list below)	
2nd Supplier	
Price	
Re-Shore	
Past supplier no longer available	
New Product Startup	
BABA	x
Other (Please Specify)	
Summary of Technical Specifications and Performance Requirements:	
Describe the manufacturing processes (elaborate to provide as much detail as possible)	The panelboard consists of an enclosure and busbar assembly. The busbar assembly includes copper busses that are tied together with metal clips, bolts and rubber insulations. The busbar assembly is then screwed in placed within a fabricated sheet metal enclosure. Circuit breakers are snapped into the buses to complete the panelboard assembly.
Provide dimensions / size / tolerances / performance specifications of the item	Refer to attached specifications section 264400 for panelboard information
List required materials needed to make the product, including materials of product components, if applicable	Fabricated sheet metals for enclosures, copper busbars, rubber insulators, and thermal magnetic circuit breakers.
Are there applicable certification requirements?	
Yes	x
No	
Please explain:	IEEE ISO 9001 UL Other ANSI, ASTM, ADA, AEIC, CSA, IEEE, EEI, EPA, FM, FCC, FIPS Pub 94, ICEA, IBC, IEC, IECC, OSHA, NEC, NESC, NEMA, NFPA
Are there any applicable regulations that apply to the production of this item?	
Yes	x
No	
Please explain:	See provided specifications 264400 (1.4) QUALITY ASSURANCE for more information.
Are there any other standards / requirements?	
Yes	
No	x
Please explain:	
NAICS CODES:	
NAICS 1	335313 Switchgear and switchboard apparatus manufacturing
NAICS 2	
Additional Comments:	
Additional technical comments:	
Volume and Pricing:	
Estimated Potential Business Volume (i.e. #units per day, month, year):	10 Panelboards will be needed for this project.

Estimated Target Price/Unit Cost Information:	Panelboards - Price ranges from $700 - $10,000
Delivery Requirements:	
When is it needed by? (Immediate, 30 days, 6 months, etc.)	Construction is scheduled to start in February of 2025
Describe packaging requirements (i.e. individually/group packaging, etc.)	Palletized or individually wrapped
Where will this item be shipped?	Norwich University, Northfield, VT
Additional Comments:	
Is there other information you would like to include?	Contact information for questions including BABA/Buy American compliance: Jones Architecture Alya Staber alya@jonesarch.com Please copy scouting@nist.gov on all correspondence.

SECTION 264400

SWITCHBOARDS AND PANELBOARDS

PART 1 – GENERAL

1.1 WORK INCLUDED

A. Provide indicated switchboards and panelboards.

B. Provide switchboard barriers between sections, and protective covers on all panelboard (incoming) terminals to isolate live connections.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary General Conditions and other Division 01 specification sections, apply to this Section and to all Contractors, Subcontractors, or other persons supplying materials and/or labor, entering into the Project site and/or premises, directly, or indirectly.

B. The Specifications and Drawings are intended to be complementary. A particular section, paragraph or heading in a Division may not describe each and every detail concerning work to be done and materials to be furnished. The Drawings are diagrammatic and may not show all of the work required or all construction details. Dimensions are shown for critical areas only; all dimensions and actual placements are to be verified in the field. It is to be understood that the best trade practices of the Division will prevail. It remains the responsibility of the Contractor or Subcontractor to provide all items, equipment, construction, and services required to the proper execution and completion of the Work.

C. Reference listings are provided as a convenience to the Contractor or Subcontractor providing the Work of this Section and may not contain all the requirements affecting this Section. It remains the responsibility of the Contractor or Subcontractor to locate and comply with all requirements of the Contract Documents.

1.3 SUBMITTALS

A. Submit product data in accordance with Section 260100.

B. Submit as a minimum data including current, voltage and interrupting ratings and layout drawing including dimensions.

C. Submit time-current curves for all overcurrent protective devices with applicable settings indicated.

D. Submit complete surge protection specifications.

E. Submit test results in accordance with Section 260800.

F. Certifications: Provide manufacturer’s certification that all applicable products were manufactured in United States and meet the requirements of the Build America, Buy America Act (BABA) (part of Infrastructure Investment and Jobs Act).

1.4 QUALITY ASSURANCE

A. All specified items or systems shall be designed, manufactured, tested, and installed in compliance with applicable provisions of all governing codes, rules, laws, and ordinances in accordance with Section 260100.

1. If there is a conflict between applicable documents, then the more stringent requirement shall apply. All documents listed are believed to be the most current releases of the documents. The Contractor has the responsibility to determine and adhere to all applicable documents and to the most recent release when developing the proposal for installation.
2. This document does not replace any code, either partially or wholly. The Contractor must be aware of local codes that may impact this project.
3. The minimum AIC rating of equipment shall be as indicated on the Drawings. It shall be the responsibility of the equipment supplier to coordinate all secondary breaker interrupting capacities and to indicate them on applicable submittals. AIC ratings of equipment shall be based on a fully rated system.

B. Build America, Buy America Act (BABA) Requirements: All applicable products shall be manufactured in United States and shall meet the requirements of the Build America, Buy America Act (BABA) (part of Infrastructure Investment and Jobs Act).

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, provide products by the following:

1. Switchboards and circuit breaker panelboards:

a. Siemens
b. General Electric
c. Square D
d. Cutler-Hammer

A. Substitutions: Items of equal quality, function and performance may be proposed for substituting by following the procedures outlined in Section 260100.

2.2 SWITCHBOARD

A. Provide dead front, NEMA 1, front accessible, rear aligned, self-supporting, group mounted distribution switchboard constructed of heavy-gauge steel. Unit shall be braced for symmetrical amperes as indicated on the drawings. Adequate lifting means shall be provided.

B. Switchboard busbars shall be high conductivity copper with bolted connections between sections and shall have the capability for future extension to an additional section. Provide full capacity neutral. A ground bus shall be provided in each switchboard section.

C. Circuit breakers shall be manufactured such that amperages shall be clearly visible on all breakers (stamped or labeled) without having to remove any components of the switchboard to obtain this information.

D. Main Section:

1. The main switchboard section shall have provisions for feeder conductor terminations and contain current and voltage meters and the service entrance circuit breaker.
2. The main section shall be bottom or top fed as needed, capable of terminating the indicated feeder cables. Cable connectors shall be mechanical compression style and suitable for the intended purpose.
3. Voltage and current meters shall have phase selector switches.
4. Main overcurrent device shall be a draw out molded case [power] circuit breaker rated as indicated on the Drawings, suitable for service entrance applications with electronic tripping means and AIC rating as indicated on the drawings. Breaker shall have adjustable long and short time trip settings.
5. The main service circuit breaker shall be equipped with a protective trip unit system to protect against overloads, short circuits and ground faults. The protective trip unit shall consist of a solid-state, microprocessor-based programmer, tripping means, current sensors, power supply and other devices required for proper operation. Trip unit shall be equipped with adjustable long-time, short-time, instantaneous and ground fault.
6. All circuit breakers rated 1200 amps or larger shall include an Arc Flash Reduction Maintenance System as required by NEC 240.87. The Arc Flash Reduction Maintenance System Technology shall be provided in a system that shall reduce the trip unit Instantaneous pickup value when activated. The Arc Flash Reduction Maintenance System shall not compromise breaker phase protection even when enabled. Once the unit is disabled, the recalibration of trip unit phase protection shall not be required. Activation and deactivation of the Arc Flash Reduction Maintenance trip setting shall be accomplished without opening the circuit breaker door and exposing operators to energized parts. The device shall provide a clearing time of 0.04 seconds, adjustable with a minimum of five settings ranging from 2.5X to 10X of the sensor value. The Arc Flash Reduction Maintenance System shall be provided with a switchgear panel mounted enable padlockable selector switch and indication via pilot light. The selector switch and pilot light shall be clearly identified to describe its use and function using laminated phenolic nameplates.
7. Service entrance switchboards shall be provided with voltage surge protection rated and suitable for the service.
8. The main section cabinet shall be provided with barriers placed such that no uninsulated, ungrounded service busbar or service terminal is exposed to inadvertent contact by persons or maintenance equipment while servicing the distribution section cabinet.

E. Surge Suppression:

1. Suppressors shall be listed in accordance with UL 1449 and UL 1283.
2. Suppressors shall provide redundant suppression modules between each phase conductor and the neutral conductor, between each phase conductor and the ground and between the neutral conductor and ground.
3. Suppressor manufacturer shall provide certified test data confirming a "fail-short" failure mode.
4. Visible indication of proper suppressor connection and operation shall be provided. The indicator lights shall indicate which phase as well as which module is fully operable.
5. The suppressor shall incorporate copper bus bars for the surge current path. Surge current diversion modules shall use bolted connections to the bus bars for reliable low impedance connections.
6. Suppressors shall meet or exceed the following criteria:

    a. Maximum single impulse current rating shall be no less than 240kA per phase.

b. Pulse life test: Capable of protecting against and surviving 5000 ANSI/IEEE C62.41 Category C transients without failure or degradation of UL 1449 clamp voltage by more than 10%.
c. UL 1449 clamping voltage must not exceed the following:

Voltage	L-N	L-G	N-G	L-L
208/120	330V	330V	330V	700V

d. The ANSI/IEEE C62.41-1991 Category C3 clamping voltage shall not exceed the following:

Voltage	L-N	L-G	N-G
208/120	520V	520V	520V

7. The SPD shall be constructed using surge current modules (MOV based). Each module shall be fused with user-replaceable 200,000 AIC rated fuses. The status of each module shall be monitored on the front of the SPD enclosure as well as on the module.
8. The SPD shall be installed internal to electrical distribution equipment by the electrical distribution equipment manufacturer.
9. The SPD shall be equipped with an audible alarm which shall actuate when any one of the surge current modules has failed. An alarm on/off switch shall be provided to silence the alarm and an alarm push-to-test switch shall be provided to test the alarm. Both switches and audible alarm shall be located on the front panel of the switchboard.
10. The suppressor shall have a response time no greater than 0.5 nanoseconds for any of the individual protection modes.
11. The suppressor will have a warranty for a period of five years, incorporating unlimited replacements of suppressor parts if they are destroyed by transients during the warranty period.
12. The suppressor shall include an internal UL listed disconnect switch.

F. Distribution Section:

1. The switchboard distribution section shall contain distribution circuit breakers as indicated on the Drawings.
2. The vertical main bus shall be full length furnished with provisions for future branch devices so that the entire available vertical space may be utilized.
3. The distribution section shall have provisions for a future additional distribution section. This includes appropriate space and bolt holes on the horizontal main bus and side panels.
4. Provide a minimum of two (2) 400A and (2) 250A full-size three-pole spaces for future equipment and additional spaces as indicated on the Drawings.

a. All feeders breakers shall be Electronic Trip Circuit Breakers:
b. Basis of Design: "PowerPact H-, J-, L-, P- and R-Frame" (200 amperes to 3000 amperes) as manufactured by Square D by Schneider Electric.
c. Current trip ratings shall be as indicated on the Drawings.
d. Circuit breaker trip system shall be a MICROLOGIC electronic trip unit with true RMS sensing.
e. Current transformers shall be used to ensure accurate measurements from low current up to high currents.
f. Electronic trip unit shall be fitted with thermal imaging.
g. The following monitoring functions shall be integral parts of electronic trip units:

1) A test connector shall be installed for checks on electronic and tripping mechanism operation using an external device.

2) LED for load indication at 105 percent.
3) LED for load indication at 90 percent of load for applications 600A and smaller.
4) LED for visual verification of protection circuit functionality for applications 600A or smaller.
5) Optional: LED for trip indication for applications above 600A.

h. MICROLOGIC trip unit functions shall consist of adjustable protection settings with the capability to be set and read locally by rotating a switch.

1) Long-time pick-up shall allow for adjustment to nine (9) long-time pick-up settings. This adjustment must be at least from 0.4 to 1 times the sensor plug (In), with finer adjustments available for more precise settings to match the application.
2) Adjustable long-time delay shall be in nine (9) bands. At six times Ir, from 0.5 to 24 seconds above 600A, and 0.5 to 16 seconds for 600A and below.
3) Short-time pick-up shall allow for nine (9) settings from 1.5 to 10 times Ir.
4) Short-time delay shall be in nine (9) bands from 0.1–0.4 I 2 t ON and 0–0.4 I 2 t OFF.
5) Instantaneous settings on the trip units with LSI protection shall be available in nine (9) bands.
6) Above 600A, from 2 to 15 times In

a) 600A, from 1.5 to 11 times In
b) 400A from 1.5 to 12 times In
c) 250A and below, from 1.5 to 15 times In

i. It shall be possible to fit the trip unit with a seal to prevent unauthorized access to the settings in accordance with NEC Section 240-6(b).
j. Trip unit shall provide local trip indication and capability to locally and remotely indicate reason for trip, i.e., overload, short circuit, or ground fault.

G. Ground Fault Protection:

1. Switchboard main shall have integral zero sequence ground fault protection with adjustable pickup current and time delay. The ground fault relay shall initiate an instantaneous trip when a fault occurs downstream of it and will block all upstream devices from tripping for a preset adjustable delay time. This will allow the downstream breaker to clear the fault and provide system coordination.

H. Phase Failure Relay:

1. Provide protection against phase failure of three-phase supply by opening main electronic trip circuit breaker. Provide three-phase sensing relay, control power transformer and control fuses.

I. Metering:

1. Provide Microprocessor-based, door-mounted monitoring and protective device designed to perform compete electrical metering and system voltage protection.
2. Direct reading metered values shall include:

a. AC ampere - Phase 1, Phase B, Phase C

b. AC Voltage - Phase A-N, Phase B-N, Phase C-N - Phase A-B, Phase B-C, Phase C-A, and N-G
c. Watts
d. Vars
e. VA
f. Power Factor
g. Frequency
h. Watt demand
i. Watthours
j. Frequency
k. % THD
l. Distortion factory
m. K-factor
n. User configurable custom screens
o. Voltage phase imbalance
p. Current phase imbalance

3. Unit shall be wired to the building automation system (BAS). Coordinate requirements with the BAS contractor. Unit shall be capable of being connected to an energy management system.
4. Unit shall operate with self-contained potential transformers and five (5) current transformers (provide neutral and ground current transformers).
5. Unit shall have harmonic analysis screens, cable to capture a high-speed wave form of two (2) cycles.
6. Web based.

J. All steel surfaces are to be chemically cleaned and treated, providing a bond between paint and metal surfaces to help prevent the entrance of moisture and the formation of rust under the paint. Finish coat shall be manufacturer's standard color.

K. If more distribution sections are needed than what is indicated on the Drawings to provide space needed for the required overcurrent protection devices, such sections shall be provided at no additional cost to the Owner and the Engineer shall be contacted for approval.

2.3 PANELBOARDS

A. Panelboards shall be of a dead front safety type, equipped with thermal magnetic bolt-on molded case circuit breakers or Type CCPB-compact circuit protector as indicated on the Drawings. All panels shall be of the same manufacture.

B. Panelboards on the drawings shall be provided with barriers, and/or protective covers, placed such that no uninsulated, ungrounded service busbar or service terminal is exposed to inadvertent contact by persons or maintenance equipment while servicing load terminations.

C. Gutter space shall be a minimum of 4" on all sides.

D. Panelboards shall have full capacity neutral bus and ground bus.

E. All buses including neutral and ground buses shall be of high conductivity copper.

F. Service entrance panelboards shall be provided with voltage surge protection rated and suitable for the service.

G. Provide isolated/insulated ground bus where indicated on the Drawings.

H. Provide surge suppression where indicated on the Drawings.

I. Provide double neutral bus where indicated on the Drawings.

J. Panelboard Enclosures:

1. Enclosures shall be fabricated from 16-gauge minimum galvanized or equivalent rust-resistant steel with rust-inhibiting primer and baked-enamel finish.
2. Panels shall be furnished with standard doors and locks. Key all locks alike and furnish two sets of keys.
3. Enclosure for panels rated 100 amperes and over shall have a hinged front cover so as to be a "door-on-door" arrangement.

K. Circuit Breakers:

1. Circuit breakers shall be molded case, bolt on heavy-duty type having quick make, quick break manually operated toggle mechanism. Handle shall be trip free with three positions that clearly indicate when the breakers are "on," "off," or "tripped." Multiple pole circuit breakers shall operate on a common trip principle. All circuit breakers shall provide overcurrent and short circuit protection.
2. Circuit breakers shall be manufactured such that amperages shall be clearly visible on all breakers (stamped or labeled) without having to remove any components of the panelboard to obtain this information.
3. Where new circuit breakers are to be added to existing panelboards, they shall be compatible with the panelboard. Where new circuit breakers are not part of an existing or new panelboard, they shall be housed in a NEMA 1 enclosure for dry locations and NEMA 3R for damp or exterior locations.
4. Where sprinklers are provided in the elevator shaft, provide shunt trip unit on circuit breaker for elevator power.
5. Special requirements shall be as indicated, including ground fault current interrupting (GFCI), shunt trip, arc fault, etc., on circuit breakers for indicated branch circuits on local distribution panels.
6. Provide 30mA GFCI circuit breakers for use on all heat trace circuits.
7. Circuit breakers shown as service entrance protection on the Drawings shall be rated for such use.
8. Circuit breaker(s) for the fire alarm system shall be mechanically protected, have a red marking (be accessible to only authorized personnel), and be identified as "FIRE ALARM CIRCUIT", as required by NFPA 72.

L. Surge Suppression:

1. Suppressors shall be listed in accordance with UL 1449 and UL 1283.
2. Suppressors shall provide redundant suppression modules between each phase conductor and the neutral conductor, between each phase conductor and the ground and between the neutral conductor and ground.
3. Suppressor manufacturer shall provide certified test data confirming a "fail-short" failure mode.
4. Visible indication of proper suppressor connection and operation shall be provided. The indicator lights shall indicate which phase as well as which module is fully operable.
5. The suppressor shall incorporate copper bus bars for the surge current path. Surge current diversion modules shall use bolted connections to the bus bars for reliable low impedance connections.
6. Suppressors shall meet or exceed the following criteria:

a. Maximum single impulse current rating shall be no less than 240kA per phase.
b. Pulse life test: Capable of protecting against and surviving 5000 ANSI/IEEE C62.41 Category C transients without failure or degradation of UL 1449 clamp voltage by more than 10%.
c. UL 1449 clamping voltage must not exceed the following:

Voltage	L-N	L-G	N-G	L-L
208/120	330V	330V	330V	700V

d. The ANSI/IEEE C62.41-1991 Category C3 clamping voltage shall not exceed the following:

Voltage	L-N	L-G	N-G
208/120	520V	520V	520V

7. The SPD shall be constructed using surge current modules (MOV based). Each module shall be fused with user-replaceable 200,000 AIC rated fuses. The status of each module shall be monitored on the front of the SPD enclosure as well as on the module.
8. The SPD shall be installed internal to electrical distribution equipment by the electrical distribution equipment manufacturer.
9. The SPD shall be equipped with an audible alarm which shall actuate when any one of the surge current modules has failed. An alarm on/off switch shall be provided to silence the alarm and an alarm push-to-test switch shall be provided to test the alarm. Both switches and audible alarm shall be located on the front panel of the switchboard.
10. The suppressor shall have a response time no greater than 0.5 nanoseconds for any of the individual protection modes.
11. The suppressor will have a warranty for a period of five years, incorporating unlimited replacements of suppressor parts if they are destroyed by transients during the warranty period.
12. The suppressor shall include an internal UL listed disconnect switch.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Switchboard and panelboard installation shall conform to NEC requirements, in particular Article 110-16.

B. Floor-mounted switchboards shall be mounted on 4-inch high concrete housekeeping pads.

C. Install switchboards and panelboards according to manufacturer's recommendations.

D. Test switchboards and panelboards in accordance with Section 260800.

E. Provide filler pieces for unused spaces in switchboards and panelboards.

F. Prepare and affix typewritten directory to inside cover of switchboard and panelboard doors indicating loads controlled by each circuit. Protect directory with plastic. Use of Engineer's panelboard schedule for panelboard directory is not allowed.

G. All panels shall be mounted in accordance with Section 260700.

H. Unless otherwise indicated on the Drawings, install all switchboards and panelboards with the top breaker handle 6'6" maximum above the finished floor, or concrete pad.

I. Verify exact wall dimensions in field to ensure that standard panelboard cabinets specified can be arranged in the space allocated.

J. All scratched or marred surfaces shall be repaired to match original condition.

K. All switchboards and panelboards shall have permanently affixed circuit numbers at each circuit space.

L. Provide two (2) spare 1" conduits from each new flush-mounted panelboard to accessible area above ceiling.

END OF SECTION

Section 9
Panelboards


NQ Panelboards


NF Panelboards


I-Line Panelboards


QMB Panelboards

NQ Panelboards

This page contains UL Tested and Certified series combination ratings for panelboards. These ratings apply to either an integral main located in the same enclosure or a remote main located in a separate enclosure.

Table 9.1: NQ Series Connected Circuit Breaker Ratings (RMS Symmetrical)

Maximum System Voltage AC *[1]*	Maximum Short Circuit Current Rating*[2]*	Square D™ Brand Integral or Remote Main Circuit Breakers and Remote Main Fuses*[3][4][5]*	Square D™ Brand Branch Circuit Breaker Catalog Designation and Allowable Ampere Ranges			
			Type*[6][7][8]*	1 Pole	2 Pole	3 Pole
120/240 1P/3W 208Y/120 3P/4W 240/120 3P/4W	18,000	LA / LH	QO (B)	15–30 A	15–30 A	—
	22,000	QO (B) VH, QOB-VH	QO (B)	15–70 A	15–125 A	—
			QO (B) GFI	15–30 A	15–60 A	—
			QO (B) EPD	15–30 A	15–60 A	—
			QO (B) PL	15–30 A	15–60 A	—
			QO (B) AFI	15–20 A	—	—
			QO (B) CAFI	15–20 A	15–20 A	—
			QO (B) DF	15–20 A	—	—
	25,000	QD	QO (B)	15–70 A	15–125 A	—
			QOB-VH	—	150 A	—
			QO (B) PL	15–30 A	15–60 A	—
			QO (B) GFI	15–30 A	15–60 A	—
			QO (B) EPD	15–30 A	15–60 A	—
			QO (B) AFI	15–20 A	—	—
			QO (B) CAFI	15–20 A	15–20 A	—
			QO (B) DF	15–20 A	—	—
		ED	QO (B)	15–70 A	15–125 A	—
			QO (B) GFI	15–30 A	15–60 A	—
			QO (B) EPD	15–30 A	15–60 A	—
			QO (B) AFI	15–20 A	—	—
			QO (B) CAFI	15–20 A	15–20 A	—
			QO (B) DF	15–20 A	—	—
		BD, HD, JD, LD	QO (B)	15–70 A	15–125 A	—
			QOB-VH	—	150 A	—
			QO (B) PL	15–30 A	15–60 A	—
			QO (B) GFI	15–30 A	15–60 A	—
			QO (B) EPD	15–30 A	15–60 A	—
			QO (B) AFI	15–20 A	—	—
			QO (B) CAFI	15–20 A	15–20 A	—
			QO (B) DF	15–20 A	—	—
	42,000	LA	QO (B)	15–30 A	15–30 A	—
	65,000	QG	QO (B)	15–70 A	15–125 A	—
			QO(B) VH	15–70 A	15–125 A	—
			QOB-VH	—	150 A	—
			QO (B) GFI	15–30 A	15–60 A	—
			QO (B) PL	15–30 A	15–60 A	—
			QO (B) AFI	15–20 A	—	—
			QO (B) CAFI	15–20 A	15–20 A	—
			QO (B) DF	15–20 A	—	—
		EG	QO (B)	15–70 A	15–125 A	—
			QO (B) GFI	15–30 A	15–60 A	—
			QO (B) EPD	15–30 A	15–60 A	—
			QO (B) EPE	—	—	—
			QO (B) AFI	15–20 A	—	—
			QO (B) CAFI	15–20 A	15–20 A	—
			QO (B) DF	15–20 A	—	—
		BG, HG, JG, LG	QO (B)	15–70 A	15–125 A	—
			QOB-VH	—	150 A	—
			QO (B) PL	15–30 A	15–60 A	—
			QO (B) GFI	15–30 A	15–60 A	—
			QO (B) EPD	15–30 A	15–60 A	—
			QO (B) AFI	15–20 A	—	—
			QO (B) CAFI	15–20 A	15–20 A	—
			QO (B) DF	15–20 A	—	—
	100,000	QJ	QO (B)	15–70 A	15–125 A	—
			QOB-VH	—	150 A	—
			QO (B) PL	15–30 A	15–60 A	—
			QO (B) GFI	15–30 A	15–60 A	—
			QO (B) EPD	15–30 A	15–60 A	—
			QO (B) AFI	15–20 A	—	—
			QO (B) CAFI	15–20 A	15–20 A	—
			QO (B) DF	15–20 A	—	—

[1] Series Ratings listed at higher system voltages apply to lower system voltages (Example: 240 3P/3W covers 208Y/120 3P/4W).
[2] Short Circuit tests are conducted at 100–105% of the maximum rated voltage of the panelboard.
[3] Please consult the NQ/NQM Panelboards Information Manual (80043-712-06) for additional information, including series ratings with obsolete circuit breakers.
[4] Where LG is shown, LJ and LL can be used.
[5] Unless otherwise noted, main breakers can be applied at the maximum available amperage rating.
[6] Suffixes HID, SWD, and SWN may also be applied to the applicable branch circuit breakers shown above.
[7] Where QO(B) circuit breakers are shown above, QO(B)H, QO(B)VH, and QH(B) circuit breakers may also be used.
[8] Two-pole CAFI circuit breakers cannot be used on 208Y/120V systems.

Table 9.1 NQ Series Connected Circuit Breaker Ratings (RMS Symmetrical) (cont'd.)

Maximum System Voltage AC *[9]*	Maximum Short Circuit Current Rating*[10]*	Square D™ Brand Integral or Remote Main Circuit Breakers and Remote Main Fuses*[11][12][13]*	Square D™ Brand Branch Circuit Breaker Catalog Designation and Allowable Ampere Ranges			
			Type*[14][15][16]*	1 Pole	2 Pole	3 Pole
		EJ	QO (B)	15–70 A	15–125 A	—
			QO (B) GFI	15–30 A	15–60 A	—
			QO (B) EPD	15–30 A	15–60 A	—
			QO (B) AFI	15–20 A	—	—
			QO (B) CAFI	15–20 A	15–20 A	—
			QO (B) DF	15–20 A	—	—
		BJ, HJ, JJ	QO (B)	15–70 A	15–125 A	—
			QOB-VH	—	150 A	—
			QO (B) PL	15–30 A	15–60 A	—
			QO (B) GFI	15–30 A	15–60 A	—
			QO (B) EPD	15–30 A	15–60 A	—
			QO (B) AFI	15–20 A	—	—
			QO (B) CAFI	15–20 A	15–20 A	—
			QO (B) DF	15–20 A	—	—
		LJ	QO (B)	15–70 A	15–125 A	—
			QOB-VH	—	150 A	—
			QO (B) GFI	—	15–60 A	—
			QO (B) EPD	—	15–60 A	—
			QO (B) AFI	15–20 A	—	—
			QO (B) CAFI	15–20 A	15–20 A	—
			QO (B) DF	15–20 A	—	—
	125,000	HL, JL	QO (B)	15–70 A	15–125 A	—
			QOB-VH	—	150 A	—
			QO (B) PL	15–30 A	15–60 A	—
			QO (B) GFI	15–30 A	15–60 A	—
			QO (B) EPD	15–30 A	15–60 A	—
			QO (B) AFI	15–20 A	—	—
			QO (B) CAFI	15–20 A	15–20 A	—
			QO (B) DF	15–20 A	—	—
	200,000	HR, JR	QO (B)	15–70 A	15–125 A	—
			QO (B) GFI	15–30 A	15–60 A	—
			QO (B) EPD	15–30 A	15–60 A	—
			QO (B) AFI	15–20 A	—	—
			QO (B) CAFI	15–20 A	15–20 A	—
			QO (B) DF	15–20 A	—	—
240 1P/2W	25,000	QD, BD, HD, JD, LD	QO (B) H	—	15–100 A	—
	42,000	LA	QDL	—	70–225 A	—
	65,000	QG, BG, HG, JG, LG	QO (B) H	—	15–100 A	—
	100,000	BJ, HJ, JJ, LJ	QO (B) H	—	15–100 A	—
	125,000	HL, JL	QO (B) H	—	15–100 A	—
208Y/120 3P/4W	18,000	LA/LH	QO (B)	—	—	15–30 A
	22,000	QO (B) VH, QOB-VH	QO (B) GFI	—	—	15–50 A
	25,000	QD, ED, BD, HD, JD	QO (B) GFI	—	—	15–50 A
		LD	QO (B) GFI	—	—	15–30 A
	65,000	QG, EG, BG, HG, JG	QO (B) GFI	—	—	15–50 A
		LG	QO (B) GFI	—	—	15–30 A
	100,000	QJ	QO (B)	—	—	15–30 A
			QO (B) VH	—	—	15–100 A
			QOB-VH	—	—	110–150 A
			QO (B) PL	—	—	15–30 A
			QO (B) GFI	—	—	15–50 A
			QO (B) EPD	—	—	15–50 A
			QO (B) EPE	—	—	15–50 A
		EJ, BJ, HJ, JJ	QO (B) GFI	—	—	15–50 A
240/120 3P/4W 240 3P/3W	22,000	QO (B) VH	QO (B)	—	—	15–100 A
			QO (B) EPD	—	—	15–50 A
			QO (B) EPE	—	—	15–50 A
	25,000	QD	QO (B)	—	—	15–30 A
			QO (B) VH	—	—	15–100 A
			QOB-VH	—	—	110–150 A
			QO (B) PL	—	—	15–30 A
			QO (B) EPD	—	—	15–50 A
			QO (B) EPE	—	—	15–50 A
		ED	QO (B)	—	—	15–100 A
			QO (B) EPD	—	—	15–50 A
			QO (B) EPE	—	—	15–50 A
		BD, HD, JD	QO (B)	—	—	15–100 A
			QO (B) VH	—	—	110–150 A
			QO (B) PL	—	—	15–30 A

[9] Series Ratings listed at higher system voltages apply to lower system voltages (Example: 240 3P/3W covers 208Y/120 3P/4W).
[10] Short Circuit tests are conducted at 100–105% of the maximum rated voltage of the panelboard.
[11] Please consult the NQ/NQM Panelboards Information Manual (80043-712-06) for additional information, including series ratings with obsolete circuit breakers.
[12] Where LG is shown, LJ and LL can be used.
[13] Unless otherwise noted, main breakers can be applied at the maximum available amperage rating.
[14] Suffixes HID, SWD, and SWN may also be applied to the applicable branch circuit breakers shown above.
[15] Where QO(B) circuit breakers are shown above, QO(B)H, QO(B)VH, and QH(B) circuit breakers may also be used.
[16] Two-pole CAFI circuit breakers cannot be used on 208Y/120V systems.

Table 9.1 NQ Series Connected Circuit Breaker Ratings (RMS Symmetrical) (cont'd.)

Maximum System Voltage AC *[9]*	Maximum Short Circuit Current Rating*[10]*	Square D™ Brand Integral or Remote Main Circuit Breakers and Remote Main Fuses*[11][12][13]*	Square D™ Brand Branch Circuit Breaker Catalog Designation and Allowable Ampere Ranges			
			Type*[14][15][16]*	1 Pole	2 Pole	3 Pole
			QO (B) EPD	—	—	15–50 A
			QO (B) EPE	—	—	15–50 A
		LD	QO (B) VH	—	—	15–100 A
			QOB-VH	—	—	110–150 A
			QO (B) EPD	—	—	15–30 A
			QO (B) EPE	—	—	15–30 A
	42,000	LA	QDL	—	—	70–225 A
			QO (B) VH	—	—	15–30 A
		MG	QOB-VH	—	—	110-150A
	65,000	QG	QO (B)	—	—	15–30 A
			QO (B) VH	—	—	15–100 A
			QOB-VH	—	—	110–150 A
			QO (B) PL	—	—	15–30 A
		EG, FG	QO (B)	—	—	15–100 A
			QOB-VH	—	—	110–125 A
			QO (B) EPD	—	—	15–50 A
			QO (B) EPE	—	—	15–50 A
		BG, HG, JG	QO (B)	—	—	15–100 A
			QOB-VH	—	—	110–150 A
			QO (B) PL	—	—	15–30 A
			QO (B) EPD	—	—	15–50 A
			QO (B) EPE	—	—	15–50 A
		LG	QO (B) VH	—	—	15–100 A
			QOB-VH	—	—	110–150 A
			QO (B) EPD	—	—	15–30 A
			QO (B) EPE	—	—	15–30 A
		EJ	QO (B)	—	—	15–100 A
			QOB-VH	—	—	110–125 A
			QO (B) EPD	—	—	15–50 A
			QO (B) EPE	—	—	15–50 A
		BJ, HJ, JJ	QO (B)	—	—	15–100 A
			QOB-VH	—	—	110–150 A
			QO (B) PL	—	—	15–30 A
			QO (B) EPD	—	—	15–50 A
			QO (B) EPE	—	—	15–50 A
		LJ	QO (B) VH	—	—	15–100 A
			QOB-VH	—	—	110-150A
	125,000	HL, JL	QO (B)	—	—	15–100 A
			QOB-VH	—	—	110-150A
			QO (B) PL	—	—	15–30 A
			QO (B) EPD	—	—	15–50 A
			QO (B) EPE	—	—	15–50 A
	200,000	HR, JR	QO (B)	—	—	15–100 A
			QOB-VH	—	—	110-150A
120/240 1P/3W 208Y/120 3P/4W 240/120 3P/4W	42,000	400 A Max. Class T3 Fuses	QO (B) VH	15–70 A	15–125 A	—
	65,000	400 A Max. Class J Fuses	QO (B) VH	15–70 A	15–125 A	—
			QO (B) AFI	15–20 A	—	—
			QO (B) CAFI	15–20 A	15–20 A	—
			QO (B) DF	15–20 A	—	—
		400 A Max. Class T6 Fuses	QO (B) VH	15–70 A	15–125 A	—
			QOB-VH	—	150 A	—
			QO (B) AFI	15–20 A	—	—
			QO (B) CAFI	15–20 A	15–20 A	—
			QO (B) DF	15–20 A	—	—
	100,000	200 A Max. Class T3 Fuses	QO (B)	15–70 A	15–125 A	—
			QO (B) GFI	15–30 A	15–60 A	—
			QO (B) EPD	15–30 A	15–60 A	—
			QO (B) AFI	15–20 A	—	—
			QO (B) CAFI	15–20 A	15–20 A	—
			QO (B) DF	15–20 A	—	—
	200,000	200 A Max. Class T6 or J Fuses	QO (B)	15–70 A	15–125 A	—
			QO (B) GFI	15–30 A	15–60 A	—
			QO (B) EPD	15–30 A	15–60 A	—
		400 A Max. Class T3 Fuses	QO (B)	15–70 A	15–125 A	—
			QO (B) GFI	15–30 A	15–60 A	—
			QO (B) EPD	15–30 A	15–60 A	—
208Y/120 3P/4W	65,000	400 A Max Class J	QO (B) GFI	—	—	15–50 A
	100,000	200 A Max Class T3	QO (B) GFI	—	—	15–50 A
	200,000	200 A Max. Class T6 or J Fuses	QO (B) GFI	—	—	15–50 A
		400 A Max. Class T3 Fuses	QO (B) GFI	—	—	15–50 A

[9] Series Ratings listed at higher system voltages apply to lower system voltages (Example: 240 3P/3W covers 208Y/120 3P/4W).
[10] Short Circuit tests are conducted at 100–105% of the maximum rated voltage of the panelboard.
[11] Please consult the NQ/NQM Panelboards Information Manual (80043-712-06) for additional information, including series ratings with obsolete circuit breakers.
[12] Where LG is shown, LJ and LL can be used.
[13] Unless otherwise noted, main breakers can be applied at the maximum available amperage rating.
[14] Suffixes HID, SWD, and SWN may also be applied to the applicable branch circuit breakers shown above.
[15] Where QO(B) circuit breakers are shown above, QO(B)H, QO(B)VH, and QH(B) circuit breakers may also be used.
[16] Two-pole CAFI circuit breakers cannot be used on 208Y/120V systems.

Table 9.1 NQ Series Connected Circuit Breaker Ratings (RMS Symmetrical) (cont'd.)

Maximum System Voltage AC *[9]*	Maximum Short Circuit Current Rating*[10]*	Square D™ Brand Integral or Remote Main Circuit Breakers and Remote Main Fuses*[11][12][13]*	Square D™ Brand Branch Circuit Breaker Catalog Designation and Allowable Ampere Ranges			
			Type*[14][15][16]*	1 Pole	2 Pole	3 Pole
240/120 3P/4W 240 3P/3W	50,000	600 A Max. Class T3 Fuses	QO (B) VH	—	—	15–30 A
	65,000	400 A Max. Class J Fuses	QO (B) VH	—	—	15–100 A
		400 A Max. Class T6 Fuses	QO (B) VH	—	—	15–100 A
			QOB-VH	—	—	110–150 A
	100,000	200 A Max. Class T3 Fuses	QO (B)	—	—	15–100 A
			QO (B) EPD	—	—	15–50 A
			QO (B) EPE	—	—	15–50 A
	200,000	200 A Max. Class T6 or J Fuses	QO (B)	—	—	15–100 A
			QO (B) EPD	—	—	15–50 A
			QO (B) EPE	—	—	15–50 A
		400 A Max. Class T3 Fuses	QO (B)	—	—	15–100 A
			QO (B) EPD	—	—	15–50 A
			QO (B) EPE	—	—	15–50 A

NF Panelboards

This page contains UL Tested and Certified series combination ratings for panelboards. These ratings apply to either an integral main located in the same enclosure or a remote main located in a separate enclosure.

Table 9.2: NF Series Connected Circuit Breaker Ratings (RMS Symmetrical)

Maximum System Voltage, AC *[17]*	Max. Short Circuit Current Rating	Square D™ Brand Integral or Remote Main Circuit Breakers and Remote Main Fuses*[18]*	Square D™ Brand Branch Circuit Breaker Catalog Designation and Allowable Ampere Ranges			
			Circuit Breaker Abbreviation*[19]*	1 Pole	2 Pole	3 Pole
120 120/240 240	65,000	EG, BG, HG, JG, LG, LH	EDB	15–70	15–125	15–125
		EG	ECB-G3	15–30	15–30	15–30
	100,000	EJ, BJ, HJ, JJ, LJ	EDB, EGB	15–70	15–125	15–125
		EJ, BJ, HJ, JJ	ECB-G3	15–30	15–30	15–30
	125,000	HL, JL	EDB, EGB, EJB	15–70	15–125	15–125
		HL, JL	ECB-G3	15–30	15–30	15–30
	200,000	HR, JR, LR	EDB, EGB, EJB	15–70	15–125	15–125
		HR, JR	ECB-G3	15–30	15–30	15–30
		Class J or T (600 V) 200 A Max Fuses	ECB-G3	15–30	15–30	15–30
277 480Y/277	35,000	EG, BG, HG, JG, LG, LH	EDB	15–70	15–125	15–125
		EG, BG, HG, JG, LG, LH	EDB-EPD	15–50	—	—
		EG, BG, HG, JG	ECB-G3	15–30	15–30	15–20
	65,000	EJ, BJ, HJ, JJ, LJ	EDB, EPD	15–70	15–125	15–125
		EJ, BJ, HJ, JJ, LJ, LL	EDB-EPD, EGB-EPD	15–50	—	—
		EJ, BJ, HJ, JJ	ECB-G3	15–30	15–30	15–20
	100,000	HL, JL, LL	EDB, EGB, EJB	15–70	15–125	15–125
		HL, JL, LL	EDB-EPD, EGB-EPD, EJB-EPD	15–50	—	—
		Class J or T (600 V) 400 A Max Fuses	EDB, EGB, EJB	15–70	15–125	15–125
		Class J or T (600 V) 400 A Max Fuses	EDB-EPD, EGB-EPD, EJB-EPD	15–50	—	—
	200,000	HR, JR, LR	EDB, EGB, EJB	15–70	15–125	15–125
		HR, JR, LR	EDB-EPD, EGB-EPD, EJB-EPD	15–50	—	—
		HR, JR	ECB-G3	15–30	15–30	15–20
		Class J or T (600 V) 200 A Max Fuses	EDB, EGB, EJB	15–70	15–125	15–125
		Class J or T (600 V) 200 A Max Fuses	EDB-EPD, EGB-EPD, EJB-EPD	15–50	—	—
		Class J or T (600 V) 200 A Max Fuses	ECB-G3	15–30	15–30	15–20
347 600Y/347	18,000	HG, BG, JG, LG	EDB	15–70	15–100	15–100
	25,000	EJ, BJ, HJ, JJ, LJ, LH	EDB, EGB	15–70	15–100	15–100
	50,000	HL, JL, LL	EDB, EGB, EJB	15–70	15–100	15–100
	65,000	HR, JR	EDB, EGB, EJB	15–70	15–100	15–100
		LR	EJB	15–70	15–100	15–100
	200,000	Class J or T (600 V) 200 A Max Fuses	EDB, EGB, EJB	15–70	15–100	15–100

[9] Series Ratings listed at higher system voltages apply to lower system voltages (Example: 240 3P/3W covers 208Y/120 3P/4W).
[10] Short Circuit tests are conducted at 100–105% of the maximum rated voltage of the panelboard.
[11] Please consult the NQ/NQM Panelboards Information Manual (80043-712-06) for additional information, including series ratings with obsolete circuit breakers.
[12] Where LG is shown, LJ and LL can be used.
[13] Unless otherwise noted, main breakers can be applied at the maximum available amperage rating.
[14] Suffixes HID, SWD, and SWN may also be applied to the applicable branch circuit breakers shown above.
[15] Where QO(B) circuit breakers are shown above, QO(B)H, QO(B)VH, and QH(B) circuit breakers may also be used.
[16] Two-pole CAFI circuit breakers cannot be used on 208Y/120V systems.
[17] Short circuit tests are conducted at 100–105% of the maximum rated voltage of the panelboard.
[18] Please consult the NF/NFOM Panelboards Information Manual (80043-741-03) for additional information, including series ratings with obsolete circuit breakers.
[19] EDB-EPD, EGB-EPD & EJB-EPD suitable for 480Y/277Vac or 277Vac ONLY.

I-Line Panelboards

Table 9.3: I-Line Series Connected Circuit Breaker Ratings (RMS Symmetrical)

Maximum System Voltage AC *[20]*	Maximum Short Circuit Current Rating	Square D Brand Integral or Remote 2- or 3-Pole Main Circuit Breaker *[21]*	Square D Brand Branch Circuit Breaker	
			Catalog Designation	Poles
120	42,000	MG	FY	1
	65,000	QG, LH	FA, FD	
		QG, BG6, HG, JG, LG, MG, PG	BD6 (60 A Max.)	
	100,000	FJ, QJ	FD	
		QJ, LC	FA	
		LJ	FH	
		QJ, BJ, HJ, JJ, LJ, MJ, PJ	BD6, BG6 (60 A Max.)	
	125,000	HL, JL, LL	BD6, BG6, BJ (60 A Max.)	
	200,000	LR	FH, FY	
		HR, JR	BD6, BG6, BJ (60 A Max.)	
208Y/120	65,000	QG, BG6, HG, JG, LG, MG, PG	BD6	2, 3
	100,000	QJ	FA, FD	
		QJ, BJ, HJ, JJ, LJ, MJ, PJ	BD6, BG6	
		QJ, PH, PJ, RJ	QD, QG	
240	35,000	MG	FA	1
	42,000	KA	FD	1, 2, 3
		LA, MA	HD, JD, QD	2, 3
	50,000	MG	FA	
		MG	FA (25 A Max.)	1
	65,000	HG, JG	FA, HD	2, 3
		JG	JD, QD	
		QG	FA, FD, QD	
		QG, BG6, HG, JG, LG, MG, PG	BD6	
		LH, MH, PA, PG, RG	HD, JD, QD	
		FG, FH, MH, MX, PJ	FD	1, 2, 3
		FC, KC, KH, LC, LH	FD, FG	
		LH	FA	
		LH	LA	2, 3
		MG	HD, JD, KA	
		DG	FH, HD, JD, KA, LA, MA	
		LG	HD, JD, KA, LA, MA	
		LG	LD	3
	85,000	RL	FH, KH	2, 3
	100,000	FC, KC, LC, LX	FD, FG, FJ	1
		PH, PJ, RJ	QD, QG	2, 3
		QJ	FD	2
		FJ	FD	2, 3
		LJ	HD, HG, JD, JG, FH, KA, LA, MA, MG	
		LJ	LD, LG	3
		FC, KC	FA, FH, FD, FG, FJ	2, 3
		LC, LX	FH, FD, FG, FJ	
		QJ, BJ, HJ, JJ, LJ, MJ, PJ	BD6, BG6	
		KC, LC, LX	KA	
		KC, LC	KH	
		LC	LA, LH, MG	
		LC	FA	1, 2, 3
		HJ, JJ	FA, FH, HD, HG	2, 3
		JJ	JD, JG	
		LC, LX, MJ, PJ, RJ	HD, HG, JD, JG	
		MJ	LA, LH	
		DJ	FH, HD, HG, JD, JG, KA, LA, MA, MG	
		RL	RG	
		HL, JL	HD, HG, HJ, FA, FH	
	125,000	JL	JD, JG, JJ	
		HL, JL, LL	BD6, BG6, BJ	
		PC, PH, PL, RL	HD, HG, JD, JG	
		PC, PL, RL	HJ, JJ	
		FI, KI, LI, LXI	HD, HG, HJ	
		KI, LI, LXI	JD, JG, JJ	
	200,000	FI, KI, LI, LXI	FD, FG, FJ	1
		FI, KI	FA, FH, FC, FD, FG, FJ	2, 3
		LI, LXI	FH, FD, FG, FJ	
		LI	FC	
		HR, JR, LR	BD6, BG6, BJ	
		KI, LI, LXI	KA, QD, QG, QJ	
		LI	KC	
		JR	QD	
		LR	HJ, HL, JJ, JL, FH, LA, LH, QD, QG, QJ	
277	18,000	LD	FY	1
	25,000	FH, KA	FD	
	35,000	FG, KH, LH	FD	
		DG, LG	FH, FY	
		FC, KC	FH	
		BG6, HG, JG, LG, MG, PG	BD6 (60 A Max.)	

[20] For indicated circuit breakers rated less than this maximum voltage. The indicated short circuit current rating also applies, but at the voltage rating of the circuit breaker.
[21] LG, LJ, and LL are only available in 3-pole configurations.

Table 9.3 I-Line Series Connected Circuit Breaker Ratings (RMS Symmetrical) (cont'd.)

Maximum System Voltage AC *[22]*	Maximum Short Circuit Current Rating	Square D Brand Integral or Remote 2- or 3-Pole Main Circuit Breaker *[23]*	Square D Brand Branch Circuit Breaker	
			Catalog Designation	Poles
	65,000	FJ	FD	
		FC, KC	FA, FY, FD, FG	
		LC, LX (400 A Max.)	FH	
		LC, LX (600 A Max.)	FY, FD, FG	
		DJ	FH, FY	
		LL	FY	
		LJ	FH, FY	
		BJ, HJ, JJ, LJ, MJ, PJ	BD6, BG6 (60 A Max.)	
		FI, KI	FH	
	100,000	DL, LL	FH, FJ	
		HL, JL, LL	BD6, BG6, BJ (60 A Max.)	
	200,000	FI, KI	FA, FY, FD, FG, FJ	
		LI, LXI, (400 A Max.)	FH	
		LI, LXI, (600 A Max.)	FY, FD, FG, FJ	
		HR, JR	BD6, BG6, BJ (60 A Max.)	
480	22,000	MG	FA	2, 3
		MX, PA, PC, PX	FH	
	30,000	KH, LA, MA, PJ	FH	
		LA, MA, PA, PC, PX	KA	
		LA, MA, PA	HD, JD	
		MG	FA (25 A Max.), FH, KA	
		MX, PA	HD, JD	
	35,000	MH	HD, JD	
		HG, JG	FA, HD	
		JG	JD	
		LH, MG, PG, RG	HD, JD	
		BG6, HG, JG, LG, MG, PG	BD6	
		LH	HG, JG	
		DG	FH, HD, JD, KA, LA, MA	
		LG	LD	3
		LG	HD, JD, FH, KA, LA, MA	2, 3
	42,000	MJ	FH (25 A Max.)	2, 3
		RL	RG	
	50,000	MJ	KA, KH	
	65,000	FC, KC	FA, FH	
		HJ, JJ	FA, FH, HD, HG	
		BJ, HJ, JJ, LJ, MJ, PJ	BD6, BG6	
		JJ	JD, JG	
		LC, LI, LX, LXI	HD, HG, JD, JG	
		LC, LX, (400 A Max.)	FH	
		KC, LC, LX	KA	
		LC, LX	LA	
		DJ	FH, HD, HG, JD, JG, KA, LA, MA	
		LJ	LD, LG	3
		LJ	HD, HG, JD, JG, FH, KA, LA, MA	2, 3
	100,000	HL, JL	FA, FH, HD, HG, HJ	2, 3
		HL, JL, LL	BD6, BG6, BJ	
		JL	JD, JG, JJ	
		LI, LXI (600 A Max.)	KA	
		PC, PH, PL, RL	HJ, JJ	
		RL	RG	
		DL	FH, HD, HG, HJ, JD, JG, JJ, KA, LA, MA	
		LL	LD, LG, LJ	3
		LL	HD, HG, HJ, JD, JG, JJ, FH, KA, LA, MA	2, 3
		JR	FA	
	200,000	FI, KI	FA, FH, FC, HD, HG, HJ	
		HR, JR	BD6, BG6, BJ	
		KI	JD, JG, JJ, KA	
		LI	FC, KA, KC, LA, HJ, HL, JJ, JL	
		LXI	KA, HJ, HL, JJ, JL	
		HR	FA, HD, HG, HJ, HL	
		JR	HD, HG, HJ, HL, JD, JG, JJ, JL	
		LR	HJ, HL, JJ, JL, FH, LA, LH	
480Y/277	25,000	FH, KA	FD	
	35,000	FG, KH, LH	FD	
		BG6, HG, JG, LG, MG, PG	BD6	
	65,000	FJ	FD	
		BJ, HJ, JJ, LJ, MJ, PJ	BD6, BG6	
		FC, KC	FD, FG	
		LC, LX (600 A Max.)	FD, FG	
	100,000	HL, JL, LL	BD6, BG6, BJ	
	200,000	FI, KI	FD, FG, FJ	
		HR, JR	BD6, BG6, BJ	
		LI, LXI (600 A MAX.)	FD, FG, FJ	
600	18,000	HG, JG	FA, HD	2, 3
		JG	JD	
		MG, PG, RG	HD, JD	

[22] For indicated circuit breakers rated less than this maximum voltage. The indicated short circuit current rating also applies, but at the voltage rating of the circuit breaker.
[23] LG, LJ, and LL are only available in 3-pole configurations.

Table 9.3 I-Line Series Connected Circuit Breaker Ratings (RMS Symmetrical) (cont'd.)

Maximum System Voltage AC *[22]*	Maximum Short Circuit Current Rating	Square D Brand Integral or Remote 2- or 3-Pole Main Circuit Breaker *[23]*	Square D Brand Branch Circuit Breaker	
			Catalog Designation	Poles
		MG	FA	
		LG	LD	3
		LG	HD, JD	2, 3
	25,000	HJ, JJ	FA, HD, HG	
		JJ	JD	
		PJ, RJ	MG	
		LJ	LD, LG	3
		LJ	JD, JG, HD, HG, MA	2, 3
	35,000	LC	FH, HD, HG, HJ, JD, JG, JJ, LA	
	50,000	HL, JL	FA, HD, HG, HJ	
		JL	JD, JG, JJ	
		PK	HJ, JJ, MJ	
		LL	LD, LG, LJ	3
		LL	HD, HG, HJ, JD, JG, JJ, MA	2, 3
	100,000	FI, KI	HD, HG, HJ	
		KI	JD, JG, JJ	
		HR	FA, HD, HG, HJ, HL	
		JR	FA, HD, HG, HJ, HL, JD, JG, JJ, JL	
		KI, LI	FH	
		LI	LA	
347	18,000	BG6, HG, JG, LG, MG, PG	BD6 (60 A Max.)	1
	25,000	BJ, HJ, JJ, LJ, MJ, PJ	BD6, BG6 (60 A Max.)	
	100,000	HR, JR	BD6, BG6, BJ (60 A Max.)	
600Y/347	18,000	BG6, HG, JG, LG, MG, PG	BD6	3
		MG	FA (25 A Max.)	1
	25,000	BJ, HJ, JJ, LJ, MJ, PJ	BD6, BG6	3
		MJ	FA (25 A Max.)	1
	50,000	HL, JL, LL	BD6, BG6, BJ	3
		HL, JL	FJ	1
	100,000	HR, JR	BD6, BG6, BJ	3

[22] For indicated circuit breakers rated less than this maximum voltage. The indicated short circuit current rating also applies, but at the voltage rating of the circuit breaker.
[23] LG, LJ, and LL are only available in 3-pole configurations.

Table 9.4: Fuse/I-Line Circuit Breaker Series Connected Ratings

Maximum System Voltage AC *[22]*	Maximum Short Circuit Current Rating	Remote Main Fuse		Square D Brand Branch Circuit Breaker Catalog Designation (2- or 3-Pole) Unless Otherwise Stated
		Max A	Class	
120/240 1Ø 208Y/120	100,000	1200 A	L, T (300 V)	QD, QG
		800 A	T (600 V)	
		600 A	J, RK5	
240	65,000	1200 A	L, T (300 V)	QD
		800 A	T (600 V)	
		600 A	J, RK5	
	100,000	1200 A	L, T (300 V)	QD, QG (2-Pole)
		800 A	T (600 V)	
		600 A	J, RK5	
			J, T (600 V)	FA, FH, KA, KH, KC, LA, LH, MA, MH, MX, PG
			RK5	FH, KA, KH, LA, LH, MA, MH, MX, PG, HD, HG, HJ, HL, JD, JG, JJ, JL
			J	HD, HG, HJ, HL, JD, JG, JJ, JL
		800 A	T (600 V)	FH, KA, KH, LA, LH, MA, MH, MX, PG
			T (300 V)	PG
			L	FH, KA, KH, LA, LH, MA, MH, MX, PG
		1200 A	L	FH, KH, LA, LH, MA, MH, MX, PG
			T (600 V)	HD, HG, HJ, HL, JD, JG, JJ, JL
	200,000	600 A	J, T (600 V)	FA (3-pole only) FH, FC, KH, KC, LA, LH, LC, MA, MH, MX, NA, NC, NX, PG, PJ, PL
			RK5	FH, FC, HD, HG, HJ, HL, JD, JG, JJ, JL, KH, KC, LA, LH, LC, MA, MH, MX, NC, NX, PG,PJ, PL
			J	HD, HG, HJ, HL, JD, JG, JJ, JL
		800 A	T (600 V)	FH, FC, KA, KH, KC, LA, LH, LC, MA, MH, MX, NA, NC, NX, PG, PJ, PL
			T (300 V)	PG, PJ, PL
			L	FH, FC, KH, KC, LA, LH, LC, MA, MH, MX, NA, NC, NX, PG, PJ, PL
		1200 A	L	FC, KH, KC, LC, MA, MH, MX, NA, NC, NX, PG, PJ, PL
			T (600 V)	HD, HG, HJ, HL, JD, JG, JJ, JL
480	100,000	400 A	J, T(600 V)	HD, HG, HJ, HL, JD, JG, JJ, JL
		600 A	J, RK5	HJ, HL, JJ, JL
		600 A	J, T (600 V)	FC, KA, KH, KC, LA, LH, LC, MA, MH, MX, NA, PG, PJ
			RK5	FC, KA, KH, KC, LA, LH, LC, MA, MH, MX, NA, PG, PJ
		800 A	L, T(600V)	FC, KA, KH, KC, LA, LH, LC, MA, MH, MX, NA, PG, PJ
		1200 A	L	FC, KH, KC, LA, LH, LC, MA, MH, MX, NA, PG, PJ
			T (600 V)	HJ, HL, JJ, JL
	200,000	200 A	RK5	HJ, HL
		400 A	J	FA, FH, FC, HJ, HL, JJ, JL, KA, KH, KC, LA, LH, LC, MA, MH, MX, NA, NC, NX, PG, PJ, PL
			T (600 V)	FA, FH, FC, HJ, HL, JJ, JL, KA, KH, KC, LA, LH, MA, MH, MX, NA, NC, NX
		600 A	J	FC, KA, KH, KC, LA, LH, LC, MA, MH, MX, MG, MJ, NA, NC, NX, PG, PJ, PL
			T(600 V)	KA, KH, KC, LA, LH, MA, MH, MX, NA, NC, NX
			RK5	KC, LA, LH, LC, MA, MH, MX, MG, MJ, NC, NX, PG, PJ
		800 A	T(300 V)	PG, PJ, PL
			T(600 V)	KA, KH, KC, LA, LH, MA, MH, MX, MG, MJ, NA, NC, NX, PG, PJ, PL
			L	KC, LA, LH, LC, MA, MH, MX, NA, NC, NX, PG, PJ, PL
		1200 A	L	KC, LC, MA, MH, MX, MG, MJ, NA, NC, NX, PG, PJ, PL
600	100,000	30 A	CC	HG, JG (Molded Case Switches)
		200 A	J	HD, HG, HJ, HL, JD, JG, JJ, JL
		400 A	J, T (600 V)	HJ, HL, JJ, JL

- The fuse used in this UL test is an envelope (umbrella) fuse. This fuse is designed as a “worst case’’ fuse. Thus, no matter what manufacturer’s fuse is used, the Square D brand circuit breaker is protected.
- The line side fused switch may be in a separate enclosure or in the same enclosure as the loadside breaker. A line side fused switch may be a submain, integral main, or remote main. A load side breaker may be a branch, submain, or an integral main used on the load side of a remote main. This series combination short circuit current rating shall not exceed that of the line side fused switch. The charts apply to Square D brand load side breakers only. However, the line side fuse ratings are independent of the fuse manufacturer.
- Not applicable to Corner Grounded Systems.
- Limiters used in Square D brand DSL and DSL II fused power circuit breakers are not class L fuses and do not have series ratings.

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

Selection Procedure for NQ Merchandised Panelboards

1. Review maximum electrical system voltage, ampacity, and available fault current, and determine the type of panelboard that is desired (see tables Table 9.1–Table 9.4).
2. Identify type (plug-on or bolt-on) and total quantity of branch circuit breaker poles and panel spaces required (see Digest sections 7 and 9 for catalog numbers).
3. Select proper main lug interior (from Main Circuit Breaker Interiors—Will accept plug-on and bolt-on circuit breakers, page 9-12 or Table 9.7 NQ 14-inch-wide Main Lug Interiors, page 9-14) or:
   - Select main circuit breaker interior and main circuit breaker adapter kit (from Main Circuit Breaker Interiors—Will accept plug-on and bolt-on circuit breakers, page 9-12 or Table 9.8 Main Circuit Breaker Interiors—Accepts Plug-On and Bolt-On Branch Breakers, page 9-14), based upon the equivalent number of poles and ampere rating.
     NOTE: Interiors include solid neutral and are field convertible to top-feed.
   - If a main circuit breaker interior was selected, select a vertical main circuit breaker (or fuse) from the PowerPacT H-, J-, L- Q-, or LA/LH frame pages in Section 7 of the Digest, or a QOB or QOB-VH back-fed main circuit breaker in Section 9 of the Digest.
4. Select ground bars from tables Table 9.9 or any non-standard neutral assemblies (i.e., 200% neutral for non-linear loads) from Table 9.38.
   - Please note that an aluminum ground bar kit is included with NQ Panelboard Interiors.
5. Select any required sub-feed circuit breakers, sub-feed lugs (SFL), or feed-through lugs (FTL) kits:
   - Subfeed circuit breaker (SFB), Sub-feed lugs (SFL) or feed-through lugs (FTL) kits: Table 9.39 in the NQ Accessories sections.
   - For subfeed circuit breakers select a PowerPacT H-, J-, L-, or Q-frame circuit breaker from Section 7 of the Digest.
6. Determine the total enclosure height required by adding requirements from interior, main circuit breaker, neutrals and ground bars, SFL, FTL, or sub-feed circuit breaker.
7. Select enclosure from the tables Table 9.5–Table 9.9, Table 9.38–Table 9.42, , Table 9.25, and Table 9.27.
   NEMA Type 1—select box and front (cover) catalog number corresponding to interior catalog number.
   NEMA Type 3R, 5, 12—select enclosure. Cover for Type 3R, 5, 12 is included with the enclosure.
8. Select the branch circuit breakers to be installed in the panel.
   For NQ panelboards use QO (VH) or QH circuit breakers from Section 7 of the Digest, QOB(VH), or QHB circuit breakers from Section 9 of the Digest.
9. Select options and accessories from tables Table 9.7–Table 9.43.
   NOTE: Additional NF and NQ options may be found in the Supplemental and Obsolescence Digest, Section 4.

NQ Merchandised Selection Example
208Y/120 Vac, 3Ø4W, 10 kA SCCR, 225 A, MLO, NEMA Type-1, surface-mount, bolt-on, branch circuit breakers, main sub-feed lugs

Branches	Table No.	Catalog Number	Spaces
(20) 20/1	Table 9.11	(20) QOB120	20
two 40/2	Table 9.11	two QOB240	4
two 30/3	Table 9.11	two QOB330	6
			Total 30 spaces

Branches	Table No.	Catalog Number	Min. Box Height
225 A MLO Interior	Table 9.5	NQ430L2	32 inches
Enclosure (Box)	Table 9.5	MH38	—
Front (Cover)	Table 9.5	NC382S	—
Sub-feed Lugs	Table 9.39 and Table 9.40	NQSFL2	6 inches
			Total 38 inches

NQ Main Lug Interiors—240 Vac, 48 Vdc[1]

Table 9.5: Main Lug Interiors—Accepts plug-on and bolt-on circuit breakers

Circuit Breaker Pole Spaces [2]	Mains Rating (Amps)	Interior Only (Order Branch Circuit Breakers Separately) [3][4]	NEMA Type 1 Enclosure[5]					Water, Dirt, & Dust Resistant Enclosure Catalog Numbers[5][6]		
			Box 20 in. W x 5.75 in. D[7] or 8.75 in. D[8][9]	Mono-Flat™ Trim Front [10]	Hinged Trim Front[10]	Mono-Flat™ 3 Point Latch Trim Front [10][11]	Hinged 3 Point Latch Trim Front [10][11]	Type 3R/5/12 20 in. W x 5.75 in. D[12]	Vented Type 3R 26 in. W x 8.75 in. D[13]	Height (In.)
20-inch-wide Cabinet[14] —Single Phase 3-Wire.										
18	100	NQ18L1 NQ18L1C	MH26, MH26BE	NC26 ( )	NC26( )HR	–	–	MH26WP	–	26
30	100	NQ30L1 NQ30L1C	MH32, MH32BE	NC32 ( )	NC32( )HR	–	–	MH32WP	–	32
30	225	NQ30L2 NQ30L2C	MH32, MH32BE	NC32 ( )	NC32( )HR	–	–	MH32WP	–	32
42	225	NQ42L2 NQ42L2C	MH38, MH38BE	NC38 ( )	NC38( )HR	–	–	MH38WP	–	38
72	225	NQ72L2 NQ72L2C	MH44, MH44BE	NC44 ( )	NC44( )HR	–	–	MH44WP	–	44
84	225	NQ84L2 NQ84L2C	MH50, MH50BE	NC50 ( )	NC50( )HR	–	–	MH50WP	–	50
30	400	NQ30L4 NQ30L4C	MH50, MH50BE	NC50V ( )	NC50V( )HR	NC50V( )3P	–	MH50WP	MH62D9VWP	50/62
42	400	NQ42L4 NQ42L4C								
54	400	NQ54L4 NQ54L4C	MH56, MH56BE	NC56V( )	NC56V( )HR	NC56V( )3P	–	MH56WP	MH68D9VWP	56/68
84[15]	400	NQ84L4C	MH68, MH68BE	NC68V ( )	NC68V( )HR	NC68V( )3P	NC68V( )3PHR	MH68WP	MH80D9VWP	68/80
30	600	NQ30L6C	MH50, MH50BE	NC50V ( )	NC50V( )HR	NC50V( )3P	NC50V( )3PHR	MH62WP[16]	MH62D9VWP[16]	50/62
42	600	NQ42L6C								
54	600	NQ54L6C	MH56, MH56BE	NC56V( )	NC56V( )HR	NC56V( )3P	NC56V( )3PHR	MH68WP[16]	MH68D9VWP[16]	56/68
84[15]	600	NQ84L6C	MH68, MH68BE	NC68V ( )	NC68V( )HR	NC68V( )3P	NC68V( )3PHR	MH80WP[16]	MH80D9VWP[16]	68/80
20-inch-wide Cabinet[14]—Three Phase 4-Wire										
18	100	NQ418L1 NQ418L1C	MH26, MH26BE	NC26 ( )	NC26( )HR	–	–	MH26WP	–	26
30	100	NQ430L1 NQ430L1C	MH32, MH32BE	NC32 ( )	NC32( )HR	–	–	MH32WP	–	32
30	225	NQ430L2 NQ430L2C	MH32, MH32BE	NC32 ( )	NC32( )HR	–	–	MH32WP	–	32
42	225	NQ442L2 NQ442L2C	MH38, MH38BE	NC38 ( )	NC38( )HR	–	–	MH38WP	–	38
54	225	NQ454L2 NQ454L2C								
72[15]	225	NQ472L2 NQ472L2C	MH44, MH44BE	NC44 ( )	NC44( )HR	–	–	MH44WP	–	44
84[15]	225	NQ484L2 NQ484L2C	MH50, MH50BE	NC50 ( )	NC50( )HR	–	–	MH50WP	–	50
30	400	NQ430L4 NQ430L4C	MH50, MH50BE	NC50V ( )	NC50V( )HR	NC50V( )3P	–	MH50WP	MH62D9VWP[16]	50/62
42	400	NQ442L4 NQ442L4C								
54	400	NQ454L4 NQ454L4C	MH56, MH56BE	NC56V( )	NC56V( )HR	NC56V( )3P	–	MH56WP	MH68D9VWP[16]	56/68
72[15]	400	NQ472L4 NQ472L4C	MH62, MH62BE	NC62V ( )	NC62V( )HR	NC62V( )3P	NC62V( )3PHR	MH62WP	MH74D9VWP[16]	62/74
84[15]	400	NQ484L4C	MH68, MH68BE	NC68V ( )	NC68V( )HR	NC68V( )3P	NC68V( )3PHR	MH68WP	MH80D9VWP[16]	68/80
30	600	NQ430L6C	MH50, MH50BE	NC50V ( )	NC50V( )HR	NC50V( )3P	NC50V( )3PHR	MH62WP[16]	MH62D9VWP[16]	50/62
42	600	NQ442L6C								
54	600	NQ454L6C	MH56, NH56BE	NC56V( )	NC56V( )HR	NC56V( )3P	NC56V( )3PHR	MH68WP[16]	MH68D9VWP[16]	56/68
84[15]	600	NQ484L6C	MH68, MH68BE	NC68V ( )	NC68V( )HR	NC68V( )3P	NC68V( )3PHR	MH80WP[16]	MH80D9VWP[16]	68/80

Note: All NQ Merchandised Panelboard interiors include the following: a NQFP15 bag of blank filler plates; a neutral bonding strap; an NQ information manual; a NEMA instruction booklet; and a sheet of circuit numbers.

[1] DC voltage applications require installation of DC rated QO(B) circuit breakers
[2] Please note that some local building codes limit panelboards to 42 circuits, including those that reference 2005 or earlier version of NFPA 70.
[3] Accepts all QO(B) shown in Tables in Sections 7 and 9. Branch circuit breaker trip ampacity cannot exceed panelboard mains rating. 175 A and 200 A circuit breakers may only be installed in single phase 400 A and 600 A NQ Panelboards. Tandem circuit breakers may not be installed.
[4] "C" suffix indicates copper bussing.
[5] Enclosure height may increase if accessories including alternate neutral lugs, condo riser neutral assemblies, feed-thru lugs, or sub-feed lugs are installed. 26 in. wide enclosures and trim fronts are required if condo riser neutral assemblies are installed.
[6] Wall mounting brackets add 0.4 inches to back of MHxxWP enclosures.
[7] Nominal interior dimensions, see PBA600 for details.
[8] D9 suffix indicates the 8.75 in. Deep Enclosure required for panelboards wit PowerPacT L Main Breaker, Switch, or Sub-Feed Breaker. See PBA604 for dimensional details.
[9] If Blank End Walls are desired at both ends of NEMA 1 Enclosure, select catalog number with "BE" suffix.
[10] Add "F" for flush mount, "S" for surface mount.
[11] Three point latch trim fronts are required for enclosures on panelboards with QO2175, QO2200, QO2175VH, or QO2200VH branch circuit breakers. These breakers take four pole spaces in single phase NQ interior.
[12] Enclosure includes trim kit. Nominal interior dimensions, see PBA711 for details.
[13] Vented Type 3R enclosure with three point latch door. Required for outdoor applications with two sub-feed breakers, or sub-feed breaker with trip current >150A. NEMA 3R enclosures must be bottom fed, and a NQ12RDE kit should also be selected. Interior nominal dimensions, see PBA603WP for details.
[14] For the NQ14-inch-wide panelboard offer, See NQ 14-inch-wide—240 Vac, 48 Vdc.
[15] Use only if the Local Jurisdiction where this panelboard interior is being applied has adopted the 2008 NFPA 70—National Electrical Code® (NEC®), which allows single panelboard interiors greater than 42 circuits.
[16] NEMA 3R, 5, or 12 enclosures must be bottom fed, when selected, an NQ12RDE kit should also be selected. See NQ Merchandised Accessories, page 9-22.

NQ Main Circuit Breaker Interiors—240 Vac, 48 Vdc[17]

Table 9.6: Main Circuit Breaker Interiors—Will accept plug-on and bolt-on circuit breakers

Circuit Breaker Pole Spaces [18]	Mains Rating (Amps)	Interior Only Catalog Number (Order Branch Circuit Breakers Separately) [19][20]	Main Circuit Breaker Adapter Kits (Less Circuit Breaker)			NEMA Type 1 Enclosure, Catalog Numbers[21]					Water, Dirt, and Dust Resistant Enclosure Catalog Numbers[21][22]		
			Main Circuit Breaker Kit	UL Service Entrance Barrier Kit [23]	Circuit Breaker Frame Size[24]	Box 20 in. W x 5.75 in. D[25] or 8.75 in. D[26] [27]	Mono-Flat™ Trim Front [28]	Hinged Trim Front[28]	Mono-Flat™ 3 Point Latch Trim Front [28][29]	Hinged 3 Point Latch Trim Front [28][29]	Type 3R/5/12 20 in. Wide x 5.75 in. Deep [30]	Vented Type 3R 26 in. Wide x 8.75 in. Deep[31]	Ht (In.)
20-inch-wide Cabinet [32]—Single Phase 3-Wire													
16 [33]	15–100 back-fed	NQ18L1	—	—	Select 2-pole QOB or QOB-VH[34]	MH26, MH26BE	NC26( )	NC26( )HR	—	—	MH26WP	—	26
		NQ18L1C											
28 [33]		NQ30L1	—	—		MH32, MH32BE	NC32( )	NC32( )HR	—	—	MH32WP	—	32
		NQ30L1C											
26 [33]	110-150 back-fed	NQ30L2	—	—	Select 2-pole QOB-VH[34] [35]	MH32, MH32BE	NC32( )	NC32( )HR	—	—	MH32WP	—	32
		NQ30L2C											
38 [33]		NQ42L2	—	—		MH38, MH38BE	NC38( )	NC38( )HR	—	—	MH38WP	—	38
		NQ42L2C											
50 [33]		NQ54L2	—	—		MH38, MH38BE	NC38( )	NC38( )HR	—	—	MH38WP	—	38
		NQ54L2C											
68 [33]		NQ72L2	—	—		MH44, MH44BE	NC44( )	NC44( )HR	—	—	MH44WP	—	44
		NQ72L2C											
80 [33]		NQ84L2	—	—		MH50, MH50BE	NC50( )	NC50( )HR	—	—	MH50WP	—	50
		NQ84L2C											
18	15–100	NQ18L1	NQMB2HJ	NQHJQLLC	HD [36], HG [36], HJ, HL, HR [36]	MH38, MH38BE	NC38( )	NC38( )HR	—	—	MH38WP	—	38
		NQ18L1C											
30		NQ30L1				MH44, MH44BE	NC44( )	NC44( )HR	—	—	MH44WP	—	44
		NQ30L1C											
	15–225	NQ30L2	NQMB2HJ NQMB2Q	NQHJQLLC	HD [36], HG [36], HJ, HL, HR [36], JD, JG, JJ, JL, JR [36]; or QB, QD, QG, QJ				—	—		—	
		NQ30L2C											
42		NQ42L2				MH50, MH50BE	NC50( )	NC50( )HR	—	—	MH50WP	—	50
		NQ42L2C											
72		NQ72L2				MH56, MH56BE	NC56( )	NC56( )HR	—	—	MH56WP	—	56
		NQ72L2C											
84		NQ84L2				MH62, MH62BE	NC62( )	NC62( )HR	—	—	MH62WP	—	62
		NQ84L2C											
30	125–400	NQ30L4	NQMB4LA	NQLALLC	LA/LH [37]		NC62V( )	NC62V( )HR	NC62V( )3P	NC62( )3PHR		MH62D9VWP	
		NQ30L4C											
42		NQ42L4											
		NQ42L4C											
54		NQ54L4				MH68, MH68BE	NC68V( )	NC68V( )HR	NC68V( )3P	NC68V( )3PHR	MH68WP	MH68D9VWP	68
		NQ54L4C											
84		NQ84L4C				MH80, MH80BE	NC80V( )	NC80V( )HR	NC80V( )3P	NC80V( )3PHR	MH80WP	MH80D9VWP	80
30		NQ30L4	NQMB6PP-L	NQPPLLLC	LG, LJ, LL	MH62D9	NC62V( )	NC62V( )HR	NC62V( )3P	NC62V( )3PHR	—	Factory Assembled Only	62
		NQ30L4C											
42		NQ42L4				MH68D9	NC68V( )	NC68V( )HR	NC68V( )3P	NC68V( )3PHR	—		68
		NQ42L4C											
54		NQ54L4				MH74D9	NC74V( )	NC74V( )HR	NC74V( )3P	NC74V( )3PHR	—		74
		NQ54LC											
84		NQ84L4C				MH86D9	NC86V( )	NC86V( )HR	NC86V( )3P	NC86V( )3PHR	—	—	86
30	125–600	NQ30L6C	NQMB6PP-L	NQPPLLLC	LG, LJ, LL	MH62D9	NC62V( )	NC62V( )HR	NC62V( )3P	NC62V( )3PHR	—	Factory Assembled Only	62
42		NQ42L6C				MH68D9	NC68V( )	NC68V( )HR	NC68V( )3P	NC68V( )3PHR	—		68
54		NQ54L6C				MH74D9	NC74V( )	NC74V( )HR	NC74V( )3P	NC74V( )3PHR	—		74
84		NQ84L6C				MH86D9[26]	NC86V( )	NC86V( )HR	NC86V( )3P	NC86V( )3PHR	—	—	86

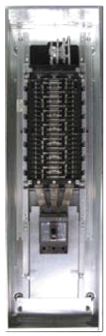
[17] DC Voltage applications require installation of DC rated QO(B) circuit breakers.
[18] Please note that some local building codes limit panelboards to 42 circuits, including those that reference 2005 or earlier version of NFPA 70.
[19] Accepts all QO(B) shown in Tables in Sections 7 and 9. Branch circuit breaker trip ampacity cannot exceed panelboard mains rating. 175 A and 200 A circuit breakers may only be installed in single phase 400 A and 600 A NQ Panelboards. Tandem circuit breakers may not be installed.
[20] "C" suffix indicates copper bussing.
[21] Enclosure height may increase if accessories including alternate neutral lugs, condo riser neutral assemblies, feed-thru lugs, or sub-feed lugs are installed. 26 in. wide enclosures and trim fronts are required if condo riser neutral assemblies are installed.
[22] Wall mounting brackets add 0.4 inches to back of MHxxWP enclosures.
[23] Please select the appropriate UL Service Entrance Kit for UL Service Entrance applications (see U.S. Service Entrance Barrier Kits, page 9-26).
[24] Circuit breaker interrupt ratings, see the table for each circuit breaker range in Section 7.
[25] Nominal interior dimensions, see PBA600 for details.
[26] D9 suffix indicates the 8.75 in. Deep Enclosure required for panelboards wit PowerPacT L Main Breaker, Switch, or Sub-Feed Breaker. See PBA604 for dimensional details.
[27] If Blank End Walls are desired at both ends of 5.75" deep NEMA 1 Enclosure, select catalog number with "BE" suffix. Both end walls are blank in 8.75" deep enclosures.
[28] Replace ( ) with "F" for flush mount, or "S" for surface mount.
[29] Three point latch trim fronts are required for enclosures on panelboards with QO2175, QO2200, QO2175VH, or QO2200VH branch circuit breakers. These breakers take four pole spaces in single phase NQ interiors.
[30] Enclosure includes trim kit. Nominal enclosure dimensions, see PBA711 for details.
[31] Vented Type 3R enclosure with three point latch door. Required for outdoor applications with PowerPacT L main breaker, two sub-feed breakers, or sub-feed breaker with trip current >150 A. NEMA 3R enclosures must be bottom fed. Interior nominal dimensions, see PBA603WP for details.
[32] For the NQ14-inch-wide panelboard offer, See NQ 14-inch-wide—240 Vac, 48 Vdc, page 9-14.
[33] Pole spaces shown are available for branch circuits, with spaces deducted for the back-fed main breaker.
[34] Do not select a back-fed main for panels to be "Suitable for use as UL service equipment." Select a H frame 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."
[35] QOB2110VH, QOB2125VH, or QOB2150VH take four pole spaces in NQ single phase interior.
[36] For single phase applications, order a 3-pole breaker. Example: HDL36100.
[37] Available for 125–400 A applications. Please order short handle circuit breaker (i.e., LAL36400MB).

Table 9.6 Main Circuit Breaker Interiors—Will accept plug-on and bolt-on circuit breakers (cont'd.)

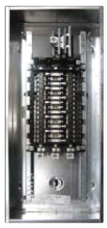
Circuit Breaker Pole Spaces *[38]*	Mains Rating (Amps)	Interior Only Catalog Number (Order Branch Circuit Breakers Separately) *[39][40]*	Main Circuit Breaker Adapter Kits (Less Circuit Breaker)			NEMA Type 1 Enclosure, Catalog Numbers *[41]*					Water, Dirt, and Dust Resistant Enclosure Catalog Numbers *[41][42]*		
			Main Circuit Breaker Kit	UL Service Entrance Barrier Kit *[43]*	Circuit Breaker Frame Size *[44]*	Box 20 in. W x 5.75 in. D *[45]* or 8.75 in. D *[46][47]*	Mono-Flat™ Trim Front *[48]*	Hinged Trim Front *[48]*	Mono-Flat™ 3 Point Latch Trim Front *[48][49]*	Hinged 3 Point Latch Trim Front *[48][49]*	Type 3R/5/12 20 in. Wide x 5.75 in. Deep *[50]*	Vented Type 3R 26 in. Wide x 8.75 in. Deep *[51]*	Ht (In.)
20-inch-wide Cabinet *[52]*—Three Phase 4-Wire													
15 *[53]*	15–100 back-fed	NQ418L1	—	—	Select 3-pole QOB or QOB-VH *[54]*	MH26, MH26BE	NC26 ( )	NC26( )HR	—	—	MH26WP	—	26
27 *[53]*		NQ418L1C NQ430L1 NQ430L1C				MH32, MH32BE	NC32 ( )	NC32( )HR	—	—	MH32WP	—	32
24 *[53]*	110-150 back-fed	NQ430L2 NQ430L2C			Select 3-pole QOB-VH *[54][55]*	MH44, MH44BE	NC44 ( )	NC44( )HR	—	—	MH44WP	—	44
36 *[53]*		NQ442L2 NQ442L2C											
48 *[53]*		NQ454L2 NQ454L2C				MH50, MH50BE	NC50 ( )	NC50( )HR	—	—	MH50WP	—	50
66 *[53]*		NQ472L2 NQ472L2C				MH56, MH56BE	NC56( )	NC56( )HR	—	—	MH56WP	—	56
78 *[53]*		NQ484L2 NQ484L2C				MH62, MH62BE	NC62( )	NC62( )HR	—	—	MH62WP	—	62
18	15–100	NQ418L1 NQ418L1C	NQMB2HJ	NQHJQLLC	HD HG, HJ, HL, or HR	MH38, MH38BE	NC38( )	NC38( )HR	—	—	MH38WP	—	38
30		NQ430L1 NQ430L1C				MH44, MH44BE	NC44 ( )	NC44( )HR	—	—	MH44WP	—	44
30	15–225	NQ430L2 NQ430L2C	NQMB2HJ NQMB2Q	NQHJQLLC	HD *[56]*, HG *[56]*, HJ, HL, HR *[56]*, JD, JG, JJ, JL, JR *[56]*; or QB, QD, QG, QJ				—	—		—	
42		NQ442L2 NQ442L2C				MH50, MH50BE	NC50 ( )	NC50( )HR	—	—	MH50WP	—	50
54		NQ454L2 NQ454L2C											
72		NQ472L2 NQ472L2C				MH56, MH56BE	NC56 ( )	NC56( )HR	—	—	—	—	56
84		NQ484L2 NQ484L2C				MH62, MH62BE	NC62 ( )	NC62( )HR	—	—	MH56WP	—	62
30	125–400	NQ430L4 NQ430L4C	NQMB4LA	NQLALLC	LA/LH *[57]*				NC62V( )3P	NC62V( )3PHR		MH62D9VWP	
42		NQ442L4 NQ442L4C											
54		NQ454L4 NQ454L4C				MH68, MH68BE	NC68V ( )	NC68V( )HR	NC68V( )3P	NC68V( )3PHR	MH68WP	MH68D9VWP	68
72		NQ472L4 NQ472L4C				MH74, MH74BE	NC74V ( )	NC74V( )HR	NC74V( )3P	NC74V( )3PHR	MH74WP	MH74D9VWP	74
84		NQ484L4C				MH80, MH80BE	NC80V ( )	NC80V( )HR	NC80V( )3P	NC80V( )3PHR	MH80WP	MH80D9VWP	80
30		NQ430L4 NQ430L4C	NQMB6PP-L	NQPPLLLC	LG, LJ, LL	MH62D9 *[46]*	NC62V( )	NC62V( )HR	NC62V( )3P	NC62V( )3PHR	—	Factory Assembled Only	62
42		NQ442L4 NQ442L4C				MH68D9 *[46]*	NC68V( )	NC68V( )HR	NC68V( )3P	NC68V( )3PHR	—		68
54		NQ454L4 NQ454L4C				MH74D9 *[46]*	NC74V( )	NC74V( )HR	NC74V( )3P	NC74V( )3PHR	—		74
72		NQ472L4 NQ472L4C				MH80D9 *[46]*	NC80V( )	NC80V( )HR	NC80V( )3P	NC80V( )3PHR	—	—	80
84		NQ484L4C				MH86D9 *[46]*	NC86V( )	NC86V( )HR	NC86V( )3P	NC86V( )3PHR	—	—	86
30	125–600	NQ430L6C				MH62D9 *[46]*	NC62V( )	NC62V( )HR	NC62V( )3P	NC62V( )3PHR	—	Factory Assembled Only	62
42		NQ442L6C				MH68D9 *[46]*	NC68V( )	NC68V( )HR	NC68V( )3P	NC68V( )3PHR	—		68
54		NQ454L6C				MH74D9 *[46]*	NC74V( )	NC74V( )HR	NC74V( )3P	NC74V( )3PHR	—		74
72		NQ472L6C				MH80D9 *[46]*	NC80V( )	NC80V( )HR	NC80V( )3P	NC80V( )3PHR	—	—	80
84		NQ484L6C				MH86D9 *[46]*	NC86V( )	NC86V( )HR	NC86V( )3P	NC86V( )3PHR	—	—	86

[38] Please note that some local building codes limit panelboards to 42 circuits, including those that reference 2005 or earlier version of NFPA 70.
[39] Accepts all QO(B) shown in Tables in Sections 7 and 9. Branch circuit breaker trip ampacity cannot exceed panelboard mains rating. 175 A and 200 A circuit breakers may only be installed in single phase 400 A and 600 A NQ Panelboards. Tandem circuit breakers may not be installed.
[40] "C" suffix indicates copper bussing.
[41] Enclosure height may increase if accessories including alternate neutral lugs, condo riser neutral assemblies, feed-thru lugs, or sub-feed lugs are installed. 26 in. wide enclosures and trim fronts are required if condo riser neutral assemblies are installed.
[42] Wall mounting brackets add 0.4 inches to back of MHxxWP enclosures.
[43] Please select the appropriate UL Service Entrance Kit for UL Service Entrance applications (see U.S. Service Entrance Barrier Kits, page 9-26).
[44] Circuit breaker interrupt ratings, see the table for each circuit breaker range in Section 7.
[45] Nominal interior dimensions, see PBA600 for details.
[46] D9 suffix indicates the 8.75 in. Deep Enclosure required for panelboards wit PowerPacT L Main Breaker, Switch, or Sub-Feed Breaker. See PBA604 for dimensional details.
[47] If Blank End Walls are desired at both ends of 5.75" deep NEMA 1 Enclosure, select catalog number with "BE" suffix. Both end walls are blank in 8.75" deep enclosures.
[48] Replace ( ) with "F" for flush mount, or "S" for surface mount.
[49] Three point latch trim fronts are required for enclosures on panelboards with QO2175, QO2200, QO2175VH, or QO2200VH branch circuit breakers. These breakers take four pole spaces in single phase NQ interiors.
[50] Enclosure includes trim kit. Nominal enclosure dimensions, see PBA711 for details.
[51] Vented Type 3R enclosure with three point latch door. Required for outdoor applications with PowerPacT L main breaker, two sub-feed breakers, or sub-feed breaker with trip current >150 A. NEMA 3R enclosures must be bottom fed. Interior nominal dimensions, see PBA603WP for details.
[52] For the NQ14-inch-wide panelboard offer, See NQ 14-inch-wide—240 Vac, 48 Vdc.
[53] Pole spaces shown are available for branch circuits, with spaces deducted for the back-fed main breaker.
[54] Do not select a back-fed main for panels to be "Suitable for use as UL service equipment." Select a H frame 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."
[55] QOB2110VH, QOB2125VH, or QOB2150VH take four pole spaces in NQ single phase interior.
[56] For single phase applications, order a 3-pole breaker. Example: HDL36100.
[57] Available for 125–400 A applications. Please order short handle circuit breaker (i.e., LAL36400MB).

14–inch wide NQ Panelboard Main Lug



Main Circuit Breaker Panelboard



Main Lug Panelboard

NQ 14-inch-wide—240 Vac, 48 Vdc[58]

Features

14-inch-wide NQ panelboards are available for those customers whose equipment space is limited. Developed with customer input, Square D™ brand NQ panelboards are built to last, featuring innovations for ease of installation and durability.

- 240 Vac, 48 Vdc maximum
- 225 A maximum main circuit breaker or main lugs
- 100 A maximum branch circuit breakers
- Visi-Trip™ indication on branch circuit breakers
- 10,000–65,000 A Short Circuit Current Rating (SCCR)
- Interiors supplied with silver flashed copper bus as standard
- Interiors accept bolt-on and plug-on branch circuit breakers
- Three-phase, four-wire, and single-phase, three-wire interiors available
- Panelboards available with Mono-Flat™ front
- May be suitable for use as service entrance equipment with neutral bonding kit and main circuit breaker barrier installed
- Branch circuit filler plates provide fast and easy installation
- Both fully and series-rated systems are available

Table 9.7: Main Lug Interiors—Accepts Plug-On and Bolt-On Branch Breakers

Max. Number of Breakers	Main Ratings	Interior Only (Order Branch Circuit Breakers Seperately)	NEMA Type 1 Enclosure		
			Box 14 in. W x 5.75 in. Db	Mono Flat Front	Hinged Front
		Cat. No.	Cat. No.	Cat. No. [59]	Cat. No.
14-inch-wide Cabinet—Single Phase 3-Wire					
18	100 A	NQ18L1C14	NQB532	NQC32 ( )	N/A
30		NQ30L1C14	NQB532	NQC32 ( )	N/A
30	225 A	NQ30L2C14	NQB532	NQC32 ( )	N/A
42		NQ42L2C14	NQB538	NQC38 ( )	N/A
14-inch-wide Cabinet—Three Phase 4-Wire					
18	100 A	NQ418L1C14	NQB532	NQC32 ( )	N/A
30		NQ430L1C14	NQB532	NQC32 ( )	N/A
30	225 A	NQ430L2C14	NQB532	NQC32 ( )	N/A
42		NQ442L2C14	NQB538	NQC38 ( )	N/A

Table 9.8: Main Circuit Breaker Interiors—Accepts Plug-On and Bolt-On Branch Breakers

Max. Number of Breakers	Main Ratings	Interior Only (Order Branch Circuit Breakers Seperately)	Main Circuit Breaker Kit [60]	UL SE Barrier Kit	Main Circuit Breaker Frame	NEMA Type 1 Enclosure		
						Box 14 in. W x 5.75 in. Db	Mono Flat Front	Hinged Front
		Cat. No.				Cat. No. [61]	Cat. No. [59]	Cat. No.
14-inch-wide Cabinet—Single Phase 3-Wire								
16 [62]	100	NQ18L1C14	—	—	Select QOB 2-pole or QOB-VH [60]	NQB532	NQC32 ( )	N/A
28 [62]		NQ30L1C14	—	—		NQB532	NQC32 ( )	N/A
30	225	NQ30L2C14	NQMB2H-J14 or NQMB2Q14	HJQL-LC	HD, HG, HJ, HL, HR JD, JG, JJ, JL, QB , QD, QG, QJ	NQB544	NQC44 ( )	N/A
42		NQ42L2C14				NQB550	NQC50 ( )	N/A
14-inch-wide Cabinet—Three Phase 4-Wire								
15 [62]	100	NQ418L1-C14	—	—	Select QOB 3-pole or QOB-VH [60]	NQB532	NQC32 ( )	N/A
27 [62]		NQ430L1-C14	—	—		NQB532	NQC32 ( )	N/A
30	225	NQ430L2-C14	NQMB2H-J14 or NQMB2Q14	HJQL-LC	HD, HG, HJ, HL, HR JD, JG, JJ, JL, QB , QD, QG, QJ	NQB544	NQC44 ( )	N/A
42		NQ442L2-C14				NQB550	NQC50 ( )	N/A

Table 9.9: NQ Accessories Available on NQ 14” Panelboards

Description	Catalog No.
Equipment Ground Bars	
Aluminum (twenty seven terminations #14 to #4 AWG)	PK27GTA
PK23GTA+ #1 to #4/0 AWG Al or Cu lug	PK23GTAL
Copper (twenty seven terminations #14 to #4 AWG)	PK27GTACU
Ground Bar Insulator Kit	PKGTAB
Handle Attachments—Branch Circuit Breakers	
Handle lock-off	HLO1
Handle tie - (QO and QOB only)	QO1HT
Handle padlock attachment—1-pole	QO1PA
2- and 3-pole	QO1PL
Handle tie and lock-off for three 1-pole (QO, QOB)	QO3HT
Other Accessories	
Filler plates (15 per package)	NQFP15

[58] DC voltage applications require installation of DC rated QO(B) circuit breakers.
[59] Add “F” for flush mount, “S” for surface mount.
[60] Select a Q or H frame circuit breaker, HJQLLC barrier (and associated main circuit breaker kit) from the list for 225 interiors, for panels to be "Suitable for use as UL service equipment."
[61] All 14 in. W boxes come with blank endwalls.
[62] Pole spaces shown are available for branch circuits, with spaces deducted for the back-fed main circuit breaker.

QOB Bolt-On Circuit Breakers with Visi-Trip™ Indicator for NQ Panelboards

NOTE: NQ panelboards also accept QO plug-on circuit breakers, see tables in Section 7, page 9-15 of the Digest. NQ panelboards with 175 or 200 A QO breakers require three point latch trim fronts.*[63]*

Table 9.10: QOB-GFI, QOB-EPD, and QOB-EPE Circuit Breakers

Ampere Rating *[64]*	One-pole	Two-pole—Common Trip	Three-pole—Common Trip	
	Catalog No.	Catalog No.	Catalog No.	Catalog No.
QOB-GFI—QOB Qwik-Gard™ Circuit Breaker With Ground Fault Circuit Interrupter—UL Class A 4–6 mA People Protection. *[65]*				
	120 Vac—10 k AIR*[66]*	120/240 Vac—10 k AIR*[66]*	208Y/120 Vac—10 k AIR	
15 A	QOB115GFI	QOB215GFI	QOB315GFI	
20 A	QOB120GFI	QOB220GFI	QOB320GFI	
25 A	QOB125GFI	QOB225GFI	—	
30 A	QOB130GFI	QOB230GFI	QOB330GFI	
40 A	—	QOB240GFI	QOB340GFI	
50 A	—	QOB250GFI	QOB350GFI	
60 A	—	QOB260GFI*[67]*	—	
QOB-VHGFI *[68]*				
	120 Vac—22 k AIR*[66]*			
15 A	QOB115VHGFI			
20 A	QOB120VHGFI			
25 A	QOB125VHGFI			
30 A	QOB130VHGFI			
QOB-EPD—QOB Equipment protection circuit breakers with UL Listed 30 mA (EPD) or 100 mA (EPE) equipment protection.				
	120 Vac—10 k AIR*[66]*	120/240 Vac—10 k AIR*[66]*	240 Vac—10 k AIR*[66]*	
15 A	QOB115EPD	QOB215EPD	QOB315EPD	QOB315EPE
20 A	QOB120EPD	QOB220EPD	QOB320EPD	QOB320EPE
25 A	QOB125EPD	QOB225EPD	—	—
30 A	QOB130EPD	QOB230EPD	QOB330EPD	QOB330EPE
40 A	—	QOB240EPD	QOB340EPD	QOB340EPE
50 A	—	QOB250EPD	QOB350EPD	QOB350EPE
60 A	—	QOB260EPD	—	—
QOB-VHEPD				
	120 Vac—22 k AIR*[66]*			
15 A	QOB115VHEPD			
20 A	QOB120VHEPD			
25 A	QOB125VHEPD			
30 A	QOB130VHEPD			
QOB-HM—High magnetic trip circuit breakers				
15 A	QOB115HM*[69]*			
20 A	QOB120HM*[69]*			
QOB-K—Key operated QOB circuit breakers *[70]*				
	120 Vac—10 k AIR*[66]*			
10 A	QOB110K			
15 A	QOB115K			
20 A	QOB120K			
25 A	QOB125K			
30 A	QOB130K			

[63] For QO plug-on circuit breakers, see the tables starting on Section 7, page 9-15 of the Digest.
[64] 10–30 A circuit breakers are suitable for use with 60 °C or 75 °C conductors. 35–60 A circuit breakers are suitable for use with 75 °C conductors.
[65] Do not connect to more than 250 feet of load conductor for the total one-way run to prevent nuisance tripping.
[66] May be applied in 208Y/120 Vac systems.
[67] Suitable only for feeding 240 Vac and 208 Vac two-wire loads. Does not contain load neutral connection.
[68] Recommended for applications where high initial inrush may occur and for individual dimmer applications.
[69] UL Listed as SWD (switching duty) rated suitable for switching 120 Vac fluorescent lighting loads.
[70] Available in single pole construction and can be mounted in any single pole space which will accept a standard QOB. These circuit breakers can be turned ON or OFF or RESET with a special key (Catalog No. QOK10) included with the circuit breaker. These circuit breakers are UL Listed and available as shown in the table.

Table 9.11: Standard Interrupting QOB 10,000 AIR Circuit Breakers

Ampere Rating *[71]*	One-pole	Two-pole—Common Trip	Two-pole—Common Trip *[72]*	Three-pole—Common Trip
	Catalog No.	Catalog No.	Catalog No.	Catalog No.
QOB Bolt-On				
	120 Vac—10 k AIR 48 Vdc—5 k AIR*[73]*	120/240 Vac—10 k AIR 48 Vdc—5 k AIR *[74] [73]*	240 Vac—10 k AIR*[73]*	240 Vac—10 k AIR 48 Vdc—5 k AIR *[74] [73]*
10 A	QOB110	QOB210	—	QOB310
15 A	QOB115*[75][76]*	QOB215*[76]*	QOB215H	QOB315*[76]*
20 A	QOB120*[75][76]*	QOB220*[76]*	QOB220H	QOB320*[76]*
25 A	QOB125*[76]*	QOB225*[76]*	QOB225H	QOB325*[76]*
30 A	QOB130*[76]*	QOB230*[76]*	QOB230H	QOB330*[76]*
35 A	QOB135*[76]*	QOB235*[76]*	—	QOB335*[76]*
40 A	QOB140*[76]*	QOB240*[76]*	QOB240H	QOB340*[76]*
45 A	QOB145*[76]*	QOB245*[76]*	—	QOB345*[76]*
50 A	QOB150*[76]*	QOB250*[76]*	QOB250H	QOB350*[76]*
60 A	QOB160*[76]*	QOB260*[76]*	QOB260H	QOB360*[76]*
70 A	QOB170*[76]*	QOB270*[76]*	QOB270H	QOB370*[76][74]*
80 A	—	QOB280*[76] [74]*	QOB280H	QOB380*[76][74]*
90 A	—	QOB290*[76] [74]*	QOB290H	QOB390*[76] [74]*
100 A	—	QOB2100*[76] [74]*	QOB2100H	QOB3100*[76] [74]*
110 A	—	QOB2110*[76] [74]*	—	—
125 A	—	QOB2125*[76] [74]*	—	—
Molded Case Switch 60 A max—240 Vac		QOB200	—	QOB300
Molded Case Switch 100 A max—240 Vac		QOB2000	—	QOB3000

Table 9.12: High Interrupting QOB and Specialty Circuit Breakers*[71]*

Ampere Rating *[71]*	One-pole	Two-pole—Common Trip	Three-pole—Common Trip
	Catalog No.	Catalog No.	Catalog No.
QOB-VH			
	120 Vac—22 k AIR*[73]*	120/240 Vac —22 k AIR*[73]*	240 Vac—22 k AIR*[73]*
15 A	QOB115VH*[75][76]*	QOB215VH*[76]*	QOB315VH*[76]*
20 A	QOB120VH *[75][76]*	QOB220VH*[76]*	QOB320VH*[76]*
25 A	QOB125VH*[76]*	QOB225VH*[76]*	QOB325VH*[76]*
30 A	QOB130VH*[76]*	QOB230VH*[76]*	QOB330VH*[76]*
40 A	QOB140VH	QOB240VH*[76]*	QOB340VH*[76]*
50 A	QOB150VH	QOB250VH*[76]*	QOB350VH*[76]*
60 A	QOB160VH	QOB260VH*[76]*	QOB360VH*[76]*
70 A	QOB170VH	QOB270VH*[76]*	QOB370VH*[76]*
80 A	—	QOB280VH*[76]*	QOB380VH*[76]*
90 A	—	QOB290VH*[76]*	QOB390VH*[76]*
100 A	—	QOB2100VH*[76]*	QOB3100VH*[76]*
110 A	—	QOB2110VH*[76]*	QOB3110VH *[77]*
125 A	—	QOB2125VH*[76]*	QOB3125VH *[77]*
150 A	—	QOB2150VH *[77]*	QOB3150VH *[77]*
QHB			
	120 Vac—65 k AIR*[73]*	120 Vac/240 Vac—65 k AIR *[73]*	240 Vac—65 k AIR*[73]*
15 A	QHB115 *[75]*	QHB215*[76]*	QHB315*[76]*
20 A	QHB120 *[75]*	QHB220*[76]*	QHB320*[76]*
25 A	QHB125*[76]*	QHB225*[76]*	QHB325*[76]*
30 A	QHB130*[76]*	QHB230*[76]*	QHB330*[76]*
QOB-HID—**HID circuit breakers** *[78]*			
	120 Vac—10 k AIR*[73]*	120/240 Vac—10 k AIR*[73]*	240 Vac—10 k AIR*[73]*
15 A	QOB115HID *[75]*	QOB215HID	QOB315HID
20 A	QOB120HID *[75]*	QOB220HID	QOB320HID
25 A	QOB125HID	QOB225HID	QOB325HID
30 A	QOB130HID	QOB230HID	QOB330HID
40 A	QOB140HID	QOB240HID	—
50 A	QOB150HID	QOB250HID	—
QOB-SWN—**Switch Neutral—Common Trip—NEC 514.11**			
		1-pole—2-Wire 2 Spaces —120 Vac*[73]*	2-pole—3-Wire 3 Spaces—120/240 Vac*[73]*
10 A	—	QOB210SWN	QOB310SWN
15 A	—	QOB215SWN	QOB315SWN
20 A	—	QOB220SWN	QOB320SWN
25 A	—	QOB225SWN	QOB325SWN
30 A	—	QOB230SWN	QOB330SWN
40 A	—	QOB240SWN	QOB340SWN
50 A	—	QOB250SWN	QOB350SWN

[71] 10–30 A circuit breakers are suitable for use with 60°C or 75°C conductors. 35–60 A circuit breakers are suitable for use with 75°C conductors.
[72] UL Listed 5,000 AIR on 3Ø corner grounded delta systems.
[73] May be applied in 208Y/120 Vac systems.
[74] DC Rating is not available on indicated products.
[75] UL Listed as SWD (switching duty) rated suitable for switching 120 Vac fluorescent lighting loads.
[76] UL Listed as HACR type for use with air conditioning, heating, and refrigeration equipment having motor group combinations and marked for use with HACR type circuit breakers.
[77] QOB2150VH uses 4 pole spaces. QOB3110VH, QOB3125VH, and QOB3150VH each use 6 pole spaces. 40A maximum circuit breaker mounted opposite. Use with 75 °C wire only.
[78] UL Listed for use on circuit feeding fluorescent and High Intensity Discharge (HID) lighting systems such as mercury vapor, metal halide, or high pressure sodium. These circuit breakers are physically interchangeable with QOB circuit breakers.

Table 9.13: QO/QOB Circuit Breaker Wire Sizes

Breaker Type	Ampere Rating	Wire Size (AWG or kcmil)	
		Al	Cu
QOB 1-pole	10–30 A	#14–8	#14–8
	10–30 A	—	two #14–10
	35–70 A	#8–2	#8–2
QOB 2-pole	10–30 A	#14–8	#14–8
	10–30 A	—	two #14–10
	35–70 A	#8–2	#8–2
	80–125 A	#4–2/0	#4–2/0
	150–200 A	#4–300	#4–300
QOB 3-pole	10–30 A	#14–8	#14–8
	35–70 A	#8–2	#8–2
	80–125 A	#4–2/0	#4–2/0
QOB-VH	110–150 A	#4–300	#4–300
QOB-GFI and QOB-EPD	15–30 A	#12–8	#14–8
	40, 50, or 60 A	#12–4	#14–6

Table 9.14: QO™ Arc-Fault and Dual Function Circuit Breakers *[79][80][81]*

Circuit Breaker Type	Ampere Rating *[81]*	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 Interupter	15 A	QOB115CAFI	QOB115VHCAFI	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		

NOTE: For accessories, see Accessories for QO/QOB Circuit Breakers, in Section 7.

Single Phase 400 or 600 A NQ Panelboards now accept 150, 175, and 200 A Two Pole QO Plug-on Branch Circuit Breakers.

Each breaker takes four pole spaces. Installation into three phase interiors is not allowed as it may create a phase to phase short circuit.

One NQ200AN neutral lug kit should be installed for each pair of 175 or 200 A QO breakers if a neutral termination is required.

- One Q1150AN lug kit should be installed for each 110 to 150 A QO(B) circuit breaker, if a neutral termination is required.

–

Table 9.15: High Ampacity Plug-on Two Pole QO Branch Circuit Breakers

Catalog Number	Ampere Rating	AIC Rating
QO2150	150	10 kA
QO2150VH	150	22 kA
QO2175	175	10 kA
QO2200	200	
QO2175VH	175	22 kA
QO2200VH	200	

NOTE: May only be installed on Single Phase 400 or 600 A NQ Panelboards with three point latch trim fronts.

A maximum of four 150, 175, or 200 A QO (VH) plug-on branch circuit breakers may be installed in NEMA 1 enclosures. These enclosures require NCxxV( )3P three point latch trim fronts, as listed in Table 9.5 Main Lug Interiors, page 9-11 or Main Circuit Breaker Interiors, page 9-12.

One 150, 175, or 200 A QO (VH) plug-on branch circuit breaker may be installed in 8.75 in. deep MHxxD9VWP NEMA 3R enclosures, as listed in Table 9.5 Main Lug Interiors, page 9-11 or Main Circuit Breaker Interiors, page 9-12.

[79] UL Listed as HACR type for use with air conditioning, heating, and refrigeration equipment having motor group combinations and marked for use with HACR type circuit breakers.
[80] QO arc-fault circuit breakers provide branch feeder protection (for example, QO115AFI) or combination protection (for example, QO115CAFI) as required by the NEC and local code adoption, and comply with UL 1699.
[81] 10–30 A circuit breakers are suitable for use with 60°C or 75°C conductors. 35–60 A circuit breakers are suitable for use with 75°C conductors.

Factory Assembled Main Circuit Breakers

400 A and 600 A panelboards, 1Ø or 3Ø

Table 9.16: NQ Panelboard Factory Assembled Interiors - 240 Vac / 48 Vdc Max

Single Phase or Three Phase						
Mains Rating (Amps)			Max. Number of One-Pole Circuit Breakers	Bus Material	Min. Box Depth	
Main Lugs Only	Main Circuit Breaker *[82]*	Main Switch *[82]*			Main Lugs Only	Main Circuit Breaker / Switch
100 Max	15–100	70–100	18, 30	Al, Cu	5.75 in.	5.75 in.
225 Max	15–250	110–250	30, 42, 54, 72, 84	Al, Cu	5.75 in.	5.75 in.
400 Max	125–400	300–400	30, 42, 54, 72*[83]*, 84*[84]*	Al, Cu	5.75 in.	5.75 in. / 8.75 in. *[85]*
600 Max	125–600	450–600	30, 42, 54, 72*[83]*, 84	Cu	5.75 in.	8.75 in.*[85]*

Table 9.17: Main Circuit Breaker (PowerPacT L-frame - see PowerPacT Interrupting Ratings, and Common Catalog Numbering System, in Section 7)

Number of Poles	Trip Unit Options	Frame Sizes	Ampacity
3	LI, LSI, Switch	LG, LJ, LL	125–600 A

LA/LH PowerPacT H, J, and Q-frame circuit breakers are also available - see Table 7.47 and Table 7.48 and Supplemental Digest Section 3.

Table 9.18: PowerPacT L Main Circuit Breaker Cabinet Height (inches)

Max. No. of Branch Spaces (Does not include sub-feed circuit breaker spaces)	NEMA 1 Enclosure (20 in. W x 8.75 in. D)*[85]*	Vented NEMA 3R Enclosure (26 in. W x 8.75 in. D)*[86]*	
	400 or 600 A	400 A	600 A
30	62	62	68
42	68	68	74
54	74	74	80
72	80	–	–
84	86	–	–

Sub-feed Circuit Breakers

Main lugs or main circuit breaker interior—1Ø or 3Ø.
Maximum 1 circuit breaker per 225 A main lug or 250 A main circuit breaker panelboard, 2 **PowerPacT** H-, J-, or Q-frame sub-feed circuit breakers may be installed on a 400–600 A panelboard.

Panelboards in MHxxWP NEMA Type 3R/5/12 enclosures are limited to one 150 A maximum sub-feed breaker.

- Panelboards in vented MHxxD9VWP NEMA 3R enclosures may have two 225 A maximum sub-feed circuit breakers. A single 600 A maximum sub-feed circuit breaker may be factory installed in these new enclosures.

Table 9.19: Sub-feed Circuit Breakers for NQ Panelboards*[87]*

Interior Rating	Sub Feed Circuit Breakers*[87]*			Space Factor
	Ampacity	Poles	MCCB Frame	
225 A	70–225	2 or 3	QB, QD, QG, QJ	18 in.
	110–150	2 or 3	HD, HG, HJ, HL, HR*[88]*	
	150–225	2 or 3	JD, JG, JJ, JL, JR*[89]*	
400 A / 600 A	70–225	2 or 3	QB, QD, QG, QJ*[90]*	24 in.
	110–150	2 or 3	HD, HG, HJ, HL, HR*[88]*, *[90]*	
	150–225	2 or 3	JD, JG, JJ, JL, JR*[89]*, *[90]*	
	125–400	2 or 3	LA / LH	18 in.*[91]*
	125–600	3	LG, LJ, LL	18 in.*[92]*

PowerPacT H, J, & L frame circuit breakers are also available - see Tables PowerPacT Interrupting Ratings, and Common Catalog Numbering System, Section 7.

[82] Factory Assembled Interiors are rated for trip current of Main Breaker / Switch.
[83] Three Phase only.
[84] Copper only.
[85] D9 8.75 in. deep enclosures are required for PowerPacT L Main Circuit Breaker, Switch, or Sub-Feed Circuit Breaker. Reference PBA713x drawing for more dimensional information, where x may be A, HR, HRT, or T depending upon the choice of options and enclosure.
[86] Feed-thru lugs and compression lugs available factory assembled only. These add 6 - 12 inches to enclosure length. Please reference PBA755 or PBA755T for more complete dimensional information, where x may be A, HR, HRT, or T depending upon the choice of options and enclosure.
[87] See Digest Section 7 for Interrupting Ratings and Catalog Numbers of PowerPacT H-, J-, L-, Q- and LA/LH frame MCCBs.
[88] Three pole HD, HG, HR MCCBs are installed for single phase sub-feed circuit breaker applications.
[89] Three pole JR MCCBs are installed for single phase sub-feed circuit breaker applications.
[90] One or two sub-feed circuit breakers may be selected.
[91] NQ Panelboards with LA or LH sub-feed circuit breaker and LG, LJ, or LL main circuit breaker are supplied with 26 in. wide, 8.75 in. deep enclosures and have Condo Riser neutral assemblies.
[92] Space Factor for LG, LJ, or LL is 24 in. when it is installed onto a main circuit breaker panelboard or a main lugs panelboard with a Condo Riser neutral assembly. These panelboards are supplied with 26 in. wide, 8.75 in. deep enclosures and have Condo Riser neutral assemblies.

Table 9.20: PowerPacT H, J, or Q-frame Sub-feed Circuit Breaker Cabinet Height (inches)*[93]*

Max. No. of Branch Circuit Spaces (not including sub-feed circuit breaker)	Mains Type and Maximum Current Rating				
	225 A Main Lugs*[94]*	250 A Main Circuit Breaker*[95]*	400 / 600 A Main Lugs *[96]*	400 A LA/LH Main Circuit Breaker*[97]*	400 / 600 A LG/LJ/LL Main Circuit Breaker*[98]*
30	50	62	74	86	86
42	56	68	74	86	86
54	62	74	80	92	–
72	68	80	86	–	–
84	74	86	92	–	–

Table 9.21: PowerPacT LG, LJ, or LL Sub-feed Circuit Breaker Cabinet Height (inches)*[99]*

Max. No. of Branch Spaces (Does not include sub-feed circuit breaker spaces)	NEMA 1 D9 Enclosure (8.75-in. D)*[100]*			Vented NEMA 3R Enclosure Height (26-in. W x 8.75-in. D)			
	20-in. Wide		26-in. Wide	Main Lugs	Main Circuit Breaker*[100]*		
	Main Lugs	LA / LH Main Circuit Breaker	LG / LJ / LL*[100]* Main Breaker		LA / LH	400A PP-L	600A PP-L
30	68	80	80	74	74	86	92
42	68	80	86	74	80	86	92
54	74	86	92	80	86	92	—
72	80	92	—	—	—	—	—
84	86	—	—	—	—	—	—

Table 9.22: Weather and Dust Resistant Enclosures—Type 3R, 4, 4X, 5, 12

Weatherproof or Dusttight Cabinets

NOTE: NQ panelboards with PowerPacT L circuit breakers are not available with a NEMA Type 4, 4X, 5, or 12 enclosure. (Use I-Line).

NQ panelboards with PowerPacT L circuit breakers are available with vented 26 in. wide NEMA 3R enclosures. These vented NEMA 3R enclosures also enable selection of subfeed circuit breakers up to 600 A.

400 A NQ panelboards in NEMA 4, 4X, 5, or 12 enclosures are available with one subfeed breaker up to 150 A.

NQ MLO Panelboard in Vented NEMA 3R enclosure with 600 A Sub-Feed Circuit Breaker

Table 9.23: Optional Factory Assembled Lugs for Main Lugs Only and Main Circuit Breaker Interiors

Incoming Lug Type:
Aluminum Compression Lugs
Copper Mechanical Lugs
Copper Compression Lugs

NOTE: Optional lugs are not available for Q frame main or QOB circuit breakers.

Sub-feed Lugs

NOTE: Available on main lug interiors only, 1Ø or 3Ø.

Table 9.24: Sub-feed Lug Wire Range Per Phase (AWG or kcmil)

Mains Rating	Incoming	Outgoing
100	one #6-2/0 Al or Cu	one #6-2/0 Al or Cu
225	one 1/0-350 kcmil Al or Cu	one 1/0-350 kcmil Al or Cu
400	one 1/0-750 kcmil Cu only	one 1/0-750 kcmil Cu only

Table 9.25: Sub-feed Lug Cabinet Data

Max. No. of Branch Spaces	Box Height (20 in. W x 5.75 in. D)		
	100 A	225 A	400 A
18	MH26	—	—
30	MH32	MH38	MH50
42	—	MH44	MH50
54	—	MH44	MH50
72	—	MH50	MH62
84	—	MH56	MH68

[93] Bottom feed only in NEMA Type 3R enclosures. NEMA 3R applications with sub-feed circuit breakers greater than 150A require 8.75 in. deep, 26 in. wide enclosure - reference PBA603WP.

[94] Reference PBA701x drawing for more dimensional information. PBA701x - x may be A, E, HR, HRT, or T, depending upon choice of options and trim front.

[95] Reference PBA707x drawing for more dimensional information. PBA707x - x may be A, E, HR, HRT, or T, depending upon choice of options and trim front.

[96] Reference PBA709x drawing for more dimensional information. Bottom feed only in NEMA Type 3R enclosures. NEMA 3R applications with sub-feed circuit breakers greater than 150A require 8.75 in. deep, 26 in. wide enclosure - reference PBA603WP. PBA709x - x may be A, E, HR, HRT, or T, depending upon choice of options and trim front.

[97] Reference PBA710x drawing for more dimensional information. Bottom feed only in NEMA Type 3R enclosures. NEMA 3R applications with sub-feed circuit breakers greater than 150 A require 8.75 in. deep, 26 in. wide enclosure - reference PBA603WP. PBA710x - x may be A, E, HR, HRT, or T depending upon choices of options and trim front.

[98] LG, LJ, or LL Main Circuit Breaker requires D9 8.75 in. enclosure. Reference PBA713x or PBA755x drawing for more dimensional information. PBA###x - x may be A, E, HR, HRT, or T, depending upon choice of options and enclosure.

[99] Feed-thru lugs and compression lugs available factory assembled only. These add 6 - 12 inches to enclosure length.

[100] NQ Panelboards with PowerPacT L Main Circuit Breaker and PowerPacT L Sub-Feed Circuit Breaker are supplied with Condo Riser Neutral Assemblies, and require 26 in. wide, 8.75 in. deep enclosures.

Feed-through Lugs

Table 9.26: Feed-through Lugs

Mains Rating	Feed-Through Wire Range Per Phase (AWG or kcmil)
100 A	one #6-2/0 Al or Cu
225 A	one #6–350 Al or Cu
400 A	one 1/0–750 or two 1/0–350 Al or Cu
600 A	two 1/0–750 Al or Cu

Table 9.27: Feed-through Lugs Cabinet Data

Max. No. of Branch Spaces	Box Height (20 in. W x 5.75 in. D)					
	225 A	250 A	400 A		600 A	
	Main Lugs	Main Circuit Breaker	Main Lugs	Main Circuit Breaker	Main Lugs	Main Circuit Breaker *[101]*
30	38	50	50	62	62	68
42	38	50	56	68	62	80
72	50	62	68	80	74	—
84	56	68	68	80	80	—

Table 9.28: Name Plates

Name Plates
Standard white face/black letter laminated bakelite, 1 in. x 3.5 in., adhesive backed or screw mountable with screws in a bag assembly

Table 9.29: Copper Bus Bars

Copper Bus Bars
100 A, 225 A, 250 A
400 A
600 A

Table 9.30: NQ Panelboard Neutral Assembly Options

Interior Rating	Without Sub-Feed or Thru-Feed Lugs				With Sub-Feed or Thru-Feed Lugs			
	100% Neutrals		200% Neutrals		100% Neutrals		200% Neutrals	
	Aluminum	Copper	Aluminum	Copper	Aluminum	Copper	Aluminum	Copper
100 A	Standard	NQN1CU	NQNL1	Factory Assembled Only	Standard	NQN1CU	NQNL1	Factory Assembled Only
225 A		NQN2CU	NQNL2			NQN2CU	NQNL2ACCY	
400 A		NQN6CU	NQNL4			NQN6CU	FA Only*[102]*	
600 A*[103]*			Not Available	Not Available			Not Available	Not Available

Table 9.31: NQ Main 100% and 200% Rated Neutral Conductors—(Quantity) and Wire Size (Mechanical Lugs & Compression Lugs)*[104]*

Interior Rating	Lug Material	Mechanical Neutral Line Lugs						Compression Neutral Line Lugs	
		100% Rated			200% Rated*[105]*			100% Rated	200% Rated*[105]*
		Standard Neutral Assemblies	Oversized Neutral Assemblies		Standard Neutral Assemblies	Oversized Neutral Assemblies			
		Lug Wire Range	Lug Wire Range	Space Factor	Lug Wire Range	Lug Wire Range	Space Factor	Lug Wire Range	Lug Wire Range
100 A	Al	(1) #6-2/0	select 225 A neutral assembly	N/A	(2) #6-2/0	select 225 A neutral assembly	N/A	(1) #6-2/0	(1) #6-2/0
	Cu								
225 A	Al	(1) #6-300 kcmil *[106]*	select 400 A neutral assembly	N/A	(2) #6-350 kcmil	select 400 A neutral assembly	N/A	(1) #4-300 kcmil	(2) #1/0-300
	Cu	(1) #6-250 kcmil			(2) #6-250 kcmil			(1) #2/0-300 kcmil	(2) #2/0-300 kcmil
400 A	Al	(2) 1/0-300 kcmil or (1) 1/0-700 kcmil *[107]*	(2) 1/0-750 kcmil or (4) 1/0-300 kcmil	6	(4) 1/0-300 kcmil or (2) 1/0-700 kcmil *[107]*	(4) 1/0-750 kcmil or (8) 1/0-300 kcmil	6	(2) 2/0-500 kcmil	(4) 2/0-500 kcmil
	Cu							(2) 400-750 kcmil	(2) 400-750 kcmil
600 A	Al	(4) 1/0-300 kcmil or (2) 1/0-700 kcmil *[107]*	(4) 1/0-700 kcmil *[107]* or (8) 1/0-300 kcmil	6	N/A	N/A	N/A	(2) 2/0-500 kcmil	N/A
	Cu								
600 A (with NQALMN6 or NQCUMN6)	Al	N/A	(6) 1/0-750 kcmil or (4) 1/0-300 kcmil and (4) 1/0-750 kcmil	12	N/A	N/A	N/A	N/A	N/A
	Cu								

NOTE: Implicit AWG (American Wire Gauge) abbreviation on conductors wire range (kcmil is shown).
Gutter extensions may be required to provide NEC wire bending space for cable(s) of maximum lug size.

600 A NQ Main Breaker Panelboard with Condo Riser Neutral Assembly

Table 9.32: NQ Panelboard Condo Riser Neutral Panelboards (Requires 26 in. Wide Enclosure)*[108]*

Interior Rating	Maximum Branch Circuits	Neutral Rating	Neutral Assembly	Mains Options			Load End Options		Minimum Enclosure Depth	Space Factor (inches) *[109]*
				Main Lugs	Main Circuit Breaker	Sub-Feed Lugs	Feed-Thru Lugs	Sub-Feed Breaker		
400 / 600 A	42	100%	NQN6CRUS	Y	LA / LH	N/A	Y	H, J, Q, LA/LH	5.75-in.	12
		200%	NQNL6CRUS							
	72*[110]*	100%	NFN6CR	Y	LA, LG, LH, LJ, LL	Y	Y	Y	8.75-in.	0–12
		200%	NFNL6CR							

[101] 8.75 in. deep box, ship fully assembled only.
[102] FA - Factory Assembled Panelboards
[103] 600 A main circuit breaker panelboards with PowerPacT L sub-feed circuit breakers are supplied with Condo Riser Neutral Assemblies and require 26 in. wide, 8.75 in. deep enclosures.
[104] Lug Wire Ranges shown meet NEC wire bending space. Lugs may accept larger cables if enclosure size is increased.
[105] 200% Neutrals not available on Column Width interiors.
[106] Installation of 350 kcmil netural conductors possible is enclosure is extended to increase wire bending space.
[107] Installation of 750 kcmil neutral conductors possible if enclosure is extended to increase wire bending space.
[108] Select 26 in. Wide Condo Riser Panel under Structure Options in the SE Advantage Panelboard Product Selector.
[109] Space factor is the additional enclosure length required for selected option. Additional required length may be reduced or eliminated if load end options like feed-thru lugs or sub-feed circuit breakers require a space factor of at least 12 inches.
[110] May be used with a 84 circuit interior when a SurgeLoc SPD is installed. No more than 72 branch circuit breaker poles may be installed.

Table 9.33: Metal Directory Frames

Metal Directory Frame
Replaces standard plastic stick-on directory pouch, add "WMD" suffix to NC Trim catalog number.

Table 9.34: NQ Equipment Ground Bar Kits[111]

Interior Rating	Aluminum	Copper	Ground Bar Insulator Kit
100 A / 225 A	PK12GTA, PK18GTA, PK23GTA, or PK27GTA	PK27GTACU	PKGTAB
400 A / 600 A	PK12GTA, PK27GTA	PK27GTACU	PKGTAB

Table 9.35: Hinged Door-in-Door Trim Fronts

Hinged Door-in-Door Trim Front
Hinged Door-in-Door Trim Front has piano hinge down one side. Inner door has a lock, outer door is retained with screws
Hinged Door-in-Door Trim Fronts with Outer Door Lock in place of screws are available as a factory assembled option.

NQ with Surge Protective Devices

Table 9.36: Surgelogic™ SurgeLoc Plug-On SPD[112]

Surge Current Rating kA
80 kA
100 kA
120 kA
160 kA
200 kA
240 kA

Table 9.37: Surgelogic SPD Features

Description
Surge Counter
Dry Contacts
Remote Monitor

NOTE: Additional factory modifications, see Modifications For Factory Assembled Panelboards, page 9-67.

[111] One PK kit supplied when ground bar is specified. Two PK kits supplied when "extra" ground bar is ordered.
[112] Please reference publication 998-21173700_GMA-USfor additional information.

NQ Merchandised Accessories

Table 9.38: NQ Merchandised Neutral Assemblies

Mains Rating (Amps)	200% Neutral Kit		Copper 100% Neutral Kit	
	Catalog No.	Space Factor	Catalog No.	Space Factor
100	NQNL1	0	NQN1CU	0
225	NQNL2	0	NQN2CU	0
225	NQNL2ACCY*[113]*	6		
400	NQNL4*[114]*	0	NQN6CU	0
600	–	0		

Table 9.39: NQ Merchandised Sub-feed Lugs, Feed-through Lugs, and Sub-feed Breaker Kits

Mains Rating	Sub-feed Lugs Catalog Number	Feed-through Lugs Catalog Number	Sub-feed Circuit Breaker Kits (breaker not incl.)	
			Single SFB	Two SFBs
100 A	NQSFL1	100 A not available; use 225 A interior	—	—
225 A	NQSFL2	NQFTL2L*[115]*	NQSFB2Q or NQSFB2HJ*[116]*	—
		NQFTL2H*[117]*		
400 A	NQSFL4	NQFTL4L*[115]*	NQSFB4Q or NQSFB4HJ or NQMB6PPL*[118][116]*	NQSFB4Q or NQSFB4HJ
		NQFTL4H*[117]*		
600 A	Not Available	Factory Assembled Only	NQSFB6PPL*[118]* or NQMB6PPL	Factory Assembled Only

NOTE: See Table 9.40 and Table 9.41.

Table 9.40: Box Selection Table: Merchandised NQ Main Lug Panelboards with Accessories

Feature Circuits	Sub-feed Lugs				Feed-through Lugs				Sub-feed Circuit Breakers				
	100 A	225 A	400 A	600 A	100 A	225 A	400 A	600 A	100 A	225 A (one)	400 A (two)	400 A / 600 A (one)	600 A (two)
18	MH26	—	—	Factory Assembled Only	—	—	—	Factory Asssembled Only	—	—	—	—	Factory Asssembled Only
30	MH32	MH38	MH50		Use 225 A Interior	MH38	MH50		—	MH50	MH74	MH62D9	
42	—	MH44	MH50			MH38	MH56		—	MH56	MH74	MH62D9	
54	—	MH44	MH56			MH44	MH62		—	MH56	MH80	MH68D9	
72	—	MH50	MH62			MH50	MH68		—	MH62	MH86	—	
84	—	MH56	MH68			MH56	MH68		—	MH68	MH92	—	

Table 9.41: Box Selection Table: Merchandised NQ Vertically Mounted Main Breaker Panelboards w/ Accessories (by Mains Rating)

Feature Circuits	Feed-through Lugs					PowerPacT H, J, or Q Sub-feed Circuit Breakers (Max Amp and Qty)				
	100 A	225 A	400 A		600 A	100 A	225 A (one)	400 A (two SFB)		600 A (two SFB)
			LA / LH MB	PowerPacT L MB				LA / LH MB	PowerPacT L MB	
18	—	—	—	—	—	—	—	—	—	—
30	—	MH50	MH62	MH68D9	Factory Asssembled Only	—	MH62	MH86	MH86D9	Factory Asssembled Only
42	—		MH68			—	MH68			
54	—	MH56	MH74	MH74D9		—		MH92	—	
72	—	MH62	MH80	MH80D9		—	MH74	*[119]*	—	
84	—	MH68	MH80	MH86D9		—	MH80	*[119]*	—	

Table 9.42: NQ Optional Lugs

Ampacity	Al Compression Lug Kit		Cu Mechanical Lug Kit		Cu Compression Kit	
	Catalog No.	Lug Wire Range (AWG-kcmil)	Catalog No.	Lug Wire Range (AWG-kcmil)	Catalog No.	Lug Wire Range (AWG-kcmil)
100	NQALV1	one #8–1/0	NQCUM1	one #6–2/0	NQCUV1	one #6–1/0
225	NQALV2	one #4–300	NQCUM2	one #6–250	NQCUV2	one 2/0–300
400	NQALV4	two 2/0–500	NQCUM4	one 1/0–750 or two 1/0–350	NQCUV4	one 400–700
600	NQALV6	two 2/0–500	NQCUM6		NQCUV6	two 250–500

Panelboard Interior Ampacity	Branch Circuit Pole Spaces	Neutral Terminations in NQ Panelboards*[120]*			Add-on Neutral Lug Capacity in Merchandised NQ Panelboards*[121]*			
		Branch Circuit Terminals Provided in Neutral Assembly (AWG or kcmil)			NQ100AN*[122]*	Q1150AN*[123]*	NQ200AN*[124]*	Catalog Number
					#14 - 2/0	#1 - 4/0	#4 - 300 kcmil	Lug Wire Range (AWG or kcmil)
					2	3	2	#14 Neutral Terminations Required*[125]*
		#14 - #4	#14 - #6	#14 - 2/0	70 - 110 A	110 - 150 A	150 - 200 A	Max. Circuit Breaker Amps
100 A or 225 A	18	20	–	–	4	3	–	
	30	34	–	–	5	5	–	
	42	42	–	–	5	5	–	
	54	60	–	–	5	3	–	
	72	90	–	–	5	3	–	
	84	90	–	–	5	3	–	
400 A or 600 A	30	16	22	4	4	2	2	
	42	23	22	4	7	3	2	
	54	45	11	2	5	3	2	
	72	60	22	4	8	3	2	
	84	60	22	4	0	3	2	

[113] For 225 A panel with SFL, FTL, or SFB.
[114] Not to be used with SFL, FTL, or SFB. These combinations are factory assembled only.
[115] The final character L indicates the kit is used for Low circuit count interiors 30 and 42.
[116] 3-pole HD, HG or HR sub-feed circuit breaker should be selected for single phase 110–150 A applications.
[117] The final character H indicates the kit is used for High circuit count interiors 54, 72, and 84.
[118] PowerPacT L Circuit Breakers require 8.75 in. deep enclosures.
[119] Requires box longer than available box offer.
[120] Quantity of terminations is the same for copper and aluminum neutral assemblies.
[121] Allowances shown are for installation of only one type of add-on neutral lug type. When mixing add-on neutral lug types in a panelboard: 1) the total quantity may not exceed the maximum shown in that row of the table. 2) the capacity for NQ100AN is reduced by twice the quantity of NQ200AN and Q1150AN installed.
[122] Each 1 pole 70 A QO(B)170(VH) installed reduces maximum add-on lug quantity by two. A QO70AN may be used in place of an NQ100AN to create a neutral termination for a 70 A QO(B)-(VH) circuit breaker.
[123] Not allowed in 100 A NQ panelboards.
[124] One NQ200AN is required provide neutral termination for every two 175 - 200 A QO (VH) circuit breakers.
[125] Number of Terminations Required to Install Add-on Lug to NQ Neutral assembly. Lugs may block 1-4 additonal terminations depending upon where each is installed.

Table 9.43: NQ Accessories

Description	Catalog No.
Sub-feed Lug (Bolt-on)	
2-pole QOB Branch Mounted Sub-feed Lug Kit	QOB2125SL
3-pole QOB Branch Mounted Sub-feed Lug Kit	QOB3125SL
Equipment Ground Bars (Lug and terminal sizes shown are AWG)	
Aluminum (#6 to 2/0 Cu or Al lug , #14–#4 Cu or #12–#4 Al terminals)	PK27GTA
PK23GTA+ #1 to #4/0 Al or Cu lug	PK23GTAL
Copper (#14 to #1 Cu lug, #14-#4 Cu terminals)	PK27GTACU
Ground Bar Insulator Kit	PKGTAB
Aluminum (twenty seven terminations #14 to #4 AWG)	PK27GTA
PK23GTA+ #1 to #4/0 AWG Al or Cu lug	PK23GTAL
Copper (twenty seven terminations #14 to #4 AWG)	PK27GTACU
Ground Bar Insulator Kit	PKGTAB
Circuit I.D. Number Strips	
1–102 odd/even (left side numbered 1,3,5 ...101)	NQ102OE
103–204 odd/even (left side numbered 103,105,107 ... 203)	NQ204OE
1–102 sequential (left side numbered 1,2,3 ... 102)	NQ102S
103–204 sequential (left side numbered 103,104,105 ... 204)	NQ204S
Rail and Deadfront Extensions	
6 in. Extension	NQ6RDE
12 in. Extension	NQ12RDE
18 in. Extension	NQ18RDE
24 in. Extension	NQ24RDE
Handle Attachments—Branch Circuit Breakers	
Handle lock-off	HLO1
Handle tie - (QO and QOB only)	QO1HT
Handle padlock attachment—1-pole	QO1PA
2- and 3-pole	QO1PL
Handle tie and lock-off for three 1-pole (QO, QOB)	QO3HT
Handle tie for two 10–30 A single pole QO(B) circuit breaker	QOHT2
Handle tie for three 10–30 A single pole QO(B) circuit breaker	QOHT3
Handle Padlock Attachment for Padlocking in OFF position	
For padlocking 1P QO circuit breaker in OFF position only, fixed attachment	QO1PAF
For padlocking 2P and 3P QO circuit breaker in OFF position only, fixed attachment	QO2PAF
For padlocking 1P QO-GFI, QO-AFI, QO-CAFI, and QO-EPD circuit breakers in OFF position only, fixed attachment	QOGFI1PAF
For padlocking 2P QO-GFI and QO-EPD circuit breakers in OFF position only, fixed attachment	QOGFI2PAF
Neutral or Ground Lugs (Lug sizes shown are AWG)	
#10 to #2 Al or #14 to #4 Cu	QO70AN
#14 to 2/0 Al or Cu	NQ100AN
#1 to #4/0 Al or Cu	Q1150AN
(2) #4 AWG to 300 kcmil Al or Cu	NQ200AN
Endwalls for MH Enclosures	
Blank (one per package)	MHBE20
With Knockouts (one per package)	MHKE20
NF NQ Rectangular Cutout Endwall Kit for 20 in. wide NEMA 1 Encl.	MHCO20
Blank 26 in. wide (one per package)	MHBE26
Replacement Part Kits	
NQ & NF Tackle Box Spare Parts Kit	TBPANEL
Other Accessories	
Filler plates (15 per package)	NQFP15

NQ MB Panelboard with SurgeLoc SPD installed

Table 9.44: NQ SurgeLogic SurgeLoc Plug-on SPD *[126][127]*

Voltage	Surge Current Rating	Part Number
120 / 240 V	80 kA	SSP01SBA08D
	100 kA	SSP01SBA10D
	120 kA	SSP01SBA12D
	160 kA	SSP01SBA16D
	200 kA	SSP01SBA20D
	240 kA	SSP01SBA24D
208 Y / 120 V	80 kA	SSP02SBA08D
	100 kA	SSP02SBA10D
	120 kA	SSP02SBA12D
	160 kA	SSP02SBA16D
	200 kA	SSP02SBA20D
	240 kA	SSP02SBA24D
240 / 120 Vac High Leg Delta	240 kA	SSP03SBA24D

[126] Please reference publication 998-21173700_GMA-US for additional information.
[127] 96 space interiors are available factory assembled when SurgeLoc SPDs are to be installed in 84 circuit NQ panelboards.

Factory-installed IP2X barriers for NQ Panelboards reduce the risk of accidental contact with energized components if a cover is removed.

Features

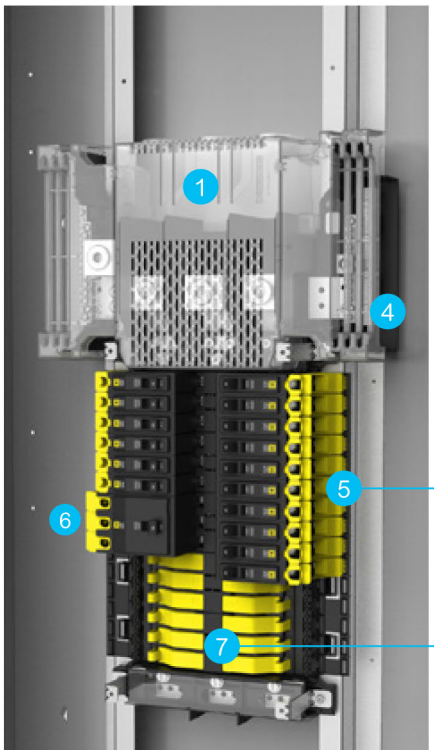
- Plastic barriers cover Mains (lugs or circuit breaker), copper bus, and branch circuit breakers
  - IP2X per IEC 60529 on all ungrounded parts
- 240 Vac maximum
- Three phase (Wye and Delta)
  NEMA 1, 2, 3R, 4/4X, 5, or 12 (up to 225 A)
  - NEMA 1 panelboards up to 400 A
- Branch circuits up to 100 A: 1-, 2-, and 3-pole
- Selectively coordinated up to 30k AIC
- Available with main lugs, or PowerPacT Q-, H-, J-frame, and LA/LH main circuit breakers
- Series rated up to 200 kAIC with integral main circuit breaker—fully rated up to 65 kAIC
- Sub feed lugs up to 225 A
- cULus Listed to UL 67 and CSA C22.2, No. 29

New Enhanced IP2X design meets IEC 60529*[128]* with or without a branch circuit breaker installed.

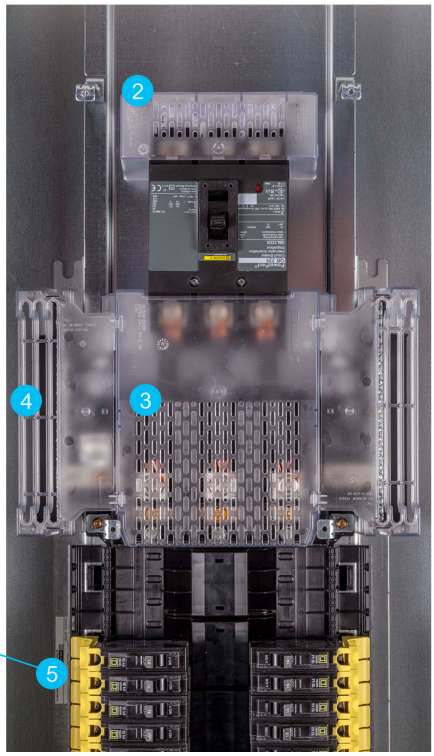
- Unique jaw kit allows QOB branch circuit breakers to plug onto NQ interior with IP2X barriers

Two factory-assembled constructions (refer to Data Bulletin 1640BR1701 for additional information):

Standard IP2X per IEC 60529
(Bus Finger Covers Empty Spaces)



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



Enhanced IP2X per IEC 6052
(Bus Covered Without Branch Circuit Breaker)

[128] International Electrotechnical Commission (IEC)
a. IEC 60529: 1989+AMD1:1999+AMD2:2013 CSV Consolidated version.- Degrees of Protection Provided by Enclosures (IP Code)

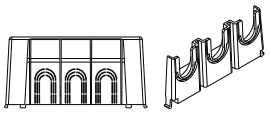
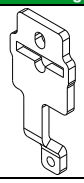
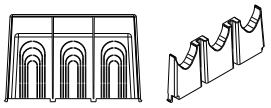
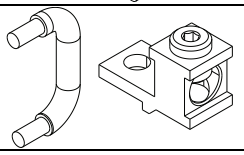
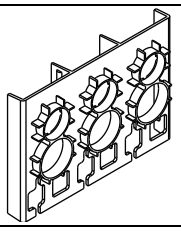
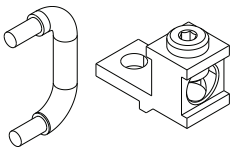
Specifications

NQ Fingersafe Bus Ratings, Enclosures, and Circuit Counts								
IP2X Design	Mains rating	Enclo-sures: NEMA types	Circuit Count					
			18	30	42	54	72	84
Standard	100	1, 2, 3R, 4/4X, 5, 12	X	X	—	—	—	—
	225		—	X	X	X	X	X
	400	1	—	X	X	—	X	X
Enhanced	225	1, 2, 3R, 4/4X, 5, 12	—	—	X	—	—	—
	400	1	—	—	X	—	—	—

QO(B) Branch Circuit Breaker Ratings*[129]*				
Branch Circuit Breaker	Amperes	1–Pole	2–Pole	3–Pole
QO / QOB	10–60	L	L	L
	70	L	L	H
	80–100	—	H	H
QO-H / QOB-H	15–30	—	L	—
	40–100	—	H	—
QO-HID / QOB-HID	15–30	L	L	L
	40–50	L	L	—
QO-HM / QOB-HM	15–20	L	—	—
QO- VH / QOB-VH	15–30	—	L	L
	15–70	L	—	—
	40–100	—	H	H
QOH*[130]*	40–100	—	H	—
QHB*[130]*	15–30	L	L	—
IP2X QO(B) Lug Covers:	**L** (Low Amp) - **QOFSLALB** **H** (High Amp) - **QOFSHALB**			

Panelboards intended for use as service equipment, require a barrier over live field connected load terminals. Please select the appropriate barrier from the table below, based upon the main circuit breaker.

Table 9.45: Line Side Barrier and Neutral Bonding Strap Kits

Catalog Number	Contents		Description
	Line Lug Cover	Neutral Bonding Strap	
NQHJQLLC			PowerPacT™ H/J/Q Line Lug Cover and Neutral Bonding Strap
NQLALLC			LA/LH Line Lug Cover and Neutral Bonding Strap and Lug
NQPPLLLC			PowerPacT L Line Lug Cover and Neutral Bonding Strap and Lug

[129] QOB circuit breakers and jaw kits required for Enhanced IP2X design.
[130] Available only in standard IP2X design

Selection Procedure for NF Merchandised Panelboards

1. Review maximum electrical system voltage, ampacity, and available fault current, and determine the type of panelboard is desired (see NF and I-Line™ Panelboards, page 9-5).
2. Identify total quantity of branch circuit breaker poles and panel spaces required (see Digest sections 7 and 9 for catalog numbers).
3. Select proper main lug interior from NF Main Lug Interiors, page 9-28 or:
   - Select main circuit breaker interior and main circuit breaker adapter kit from NF Main Circuit Breaker Interiors - 600Y/347 Vac Max., page 9-29 based upon the equivalent number of poles and ampere rating.
     NOTE: Interiors include solid neutral and are field convertible to top-feed.
   - If a main circuit breaker interior was selected, select a vertical main circuit breaker (or fuse) from PowerPacT H-, J-, L-, or LA/LH frame circuit breakers pages in Section 7 or a back-fed E-frame circuit breaker from Section 9 of the Digest.
4. Select ground bars from tables Table 9.80 and any non-standard neutral assembly (i.e., 200% neutral for non-linear loads) from Table 9.74.
   - Please note that an aluminum ground bar kit is included with NF Panelboard Interiors.
5. Select any required sub-feed circuit breakers, sub-feed lugs (SFL), or feed-through lugs (FTL) kits:
   - Subfeed circuit breaker (SFB), sub-feed lugs (SFL) or feed-through lugs (FTL) kits: Table 9.75 in the NF Accessories sections.
   - For subfeed circuit breakers, select PowerPacT H-, J-, L- frame circuit breaker from Section 7 of the Digest.
6. Determine the total enclosure height required by adding requirements from interior, main circuit breaker, neutrals, SFL, FTL, or sub-feed circuit breaker.
7. Select enclosure from the tables , Table 9.76, and Table 9.77.
   NEMA Type 1—select box and front (cover) catalog number corresponding to interior catalog number.
   NEMA Type 3R, 5, 12—select enclosure. Cover for Type 3R, 5, 12 is included with the enclosure.
8. Select the branch circuit breakers to be installed in the panel.
   For NF panelboards, use E-frame circuit breakers from E-frame Thermal-magnetic (480Y/277 Vac Max) Maximum allowable branch breaker pair combination = 170 A.100 A Maximum at 600Y/347 Vac, page 9-30.
9. Select options and accessories from tables Table 9.74–Table 9.80.
   NOTE: Additional NF and NQ options may be found in the Supplemental Digest, Section 4.

NF Merchandised Selection Example
480Y/277 Vac, 3Ø4W, 25 kA SCCR, fully rated, copper bus, 100 A, main circuit breaker, Type 1, flush-mount, bolt-on, branch circuit breakers

Branches	Table No.	Catalog Number	Spaces
(13) 20/1		EGB14020	13
one 40/2		EGB24040	2
one 50/3		EGB34050	3
			Total 18 spaces

			Min. Box Height
125 A MLO Cu Bus Interior	page 9-28	NF418L1C	—
With Main Circuit Breaker Adapter Kit	page 9-29	N150MH	38 inches
Main Circuit Breaker	Section 7	HGL36100	—

Enclosure (Box)	page 9-29	MH38	—
Front (Cover)	page 9-29	NC38F	—
			Total 38 inches

NF Main Lug Interiors - 600Y/347 Vac Max

Table 9.46: NF Main Lug Interiors - Use I-Line Panelboard for 3Ø3W Delta applications above 240 Vac

Circuit Breaker Pole Spaces *[1][2]*	Mains Rating (Amps)	Interior Only Catalog Number (Order Branch Circuit Breakers Separately)*[1][3]*	NEMA 1 Enclosure			Water, Dirt, and Dust Resistant Enclosure Catalog Numbers*[4]*		
			Box 20 in. W x 5.75 in. D *[5][6]*	Mono-Flat Trim™ Front *[7]*	Hinged Front*[5]*	Type 3R/5/12 20 in. W x 5.75 in. D *[8]*	Vented Type 3R 26 in. W x 8.75 in. D *[9]*	Height (In.)
(Single Phase 3-Wire: Factory Assembled Only) Three Phase 4-Wire *[10]*								
18	125	NF418L1 NF418L1C	MH26, MH26BE	NC26( )	NC26( )HR	MH26WP	–	26
30	125	NF430L1 NF430L1C	MH32, MH32BE	NC32( )	NC32( )HR	MH32WP	–	32
42	125	NF442L1C	MH38, MH38BE	NC38( )	NC38( )HR	MH38WP	–	38
54	125	NF454L1C	MH44, MH44BE	NC44( )	NC44( )HR	MH44WP		44
30	250	NF430L2 NF430L2C	MH38, MH38BE	NC38( )	NC38( )HR	MH38WP	–	38
42	250	NF442L2 NF442L2C	MH44, MH44BE	NC44( )	NC44( )HR	MH44WP	–	44
54	250	NF454L2 NF454L2C	MH50, MH50BE	NC50( )	NC50( )HR	MH50WP	–	50
66	250	NF466L2 NF466L2C	MH62, MH62BE	NC62( )	NC62( )HR	MH62WP	–	62
30	400	NF430L4 NF430L4C	MH50, MH50BE	NC50V( )	NC50V( )HR	MH50WP	MH62D9VWP*[11]*	50/62
42	400	NF442L4 NF442L4C	MH56, MH56BE	NC56V( )	NC56V( )HR	MH56WP	MH68D9VWP*[11]*	56/68
54	400	NF454L4 NF454L4C	MH62, MH62BE	NC62V( )	NC62V( )HR	MH62WP	MH74D9VWP*[11]*	62/74
66	400	NF466L4 NF466L4C	MH74, MH74BE	NC74V( )	NC74V( )HR	MH74WP	MH86D9VWP*[11]*	74/86
84	400	NF484L4 NF484L4C	MH86, MH86BE	NC86V( )	NC86V( )HR	MH86WP	–	86
30	600	NF430L6C	MH50, MH50BE	NC50V( )	NC50V( )HR	MH62WP*[11]*	MH62D9VWP*[11]*	50/62
42	600	NF442L6C	MH56, MH56BE	NC56V( )	NC56V( )HR	MH68WP*[11]*	MH68D9VWP*[11]*	56/68
54	600	NF454L6C	MH62, MH62BE	NC62V( )	NC62V( )HR	MH74WP*[11]*	MH74D9VWP*[11]*	62/74
66	600	NF466L6C	MH74, MH74BE	NC74V( )	NC74V( )HR	MH86WP*[11]*	MH86D9VWP*[11]*	74/86
84	600	NF484L6C	MH86, MH86BE	NC86V( )	NC86V( )HR	–	–	86
	800	Factory Assembled Only*[12]*						

Note: All NF Merchandised Panelboard interiors include the following: a NFFP15 bag of blank filler plates; a neutral bonding strap; an NF information manual; a NEMA instruction booklet; and a sheet of circuit numbers.

[1] Order EDB, EGB, or EJB branch circuit breakers separately. Maximum allowable branch circuit breaker pair combination is 170 A.
[2] Please note that some local building codes limit panelboards to 42 circuits, including those that reference 2005 or earlier version of the US NEC.
[3] "C" suffix indicates copper bussing.
[4] Wall mounting brackets add 0.4 inches to back of MHxxWP enclosures.
[5] Nominal interior dimensions, see PBA600 for details.
[6] If Blank End Walls are desired at both ends of NEMA 1 Enclosure, add "BE" suffix to MHXX catalog number.
[7] Add "F" for flush mount, "S" for surface mount.
[8] Enclosure includes trim kit. NEMA 3R, 5, 12 enclosures must be bottom fed. Nominal enclosure dimensions, see PBA555 for details.
[9] Vented Type 3R enclosure with three point latch door required for outdoor applications with two sub-feed breakers, or sub-feed breaker with trip current >150A. NEMA 3R enclosures must be bottom fed, when selected a NF12RDE kit should also be selected. Enclosure nominal dimensions, see PBA603WP for details.
[10] NF panelboards without neutral connections may be applied to 3 phase, 4 wire grounded Wye systems, except at the Service Entrance.
[11] NEMA 3R, 5, 12 enclosures must be bottom fed, when selected a NF12RDE kit should also be selected.
[12] 800 A interiors with main circuit breaker require 8.75 inch deep, 26 inch wide enclosures.

NF Main Circuit Breaker Interiors - 600Y/347 Vac Max.

Table 9.47: NF Main Circuit Breaker Interiors - Use I-Line Panelboard for 3Ø3W Delta applications above 240 Vac

Circuit Breaker Pole Spaces *[13]*	Mains Rating (Amps)	Main Circuit Breaker Adapter Kits Less Circuit Breaker)			Interior Only Catalog Number (Order Branch Circuit Breakers Separate-ly)*[13][14]*	NEMA 1 Enclosure			Water, Dirt, and Dust Resistant Enclosure Catalog Numbers*[15]*		
		Main Breaker Kit	UL Service Entrance Barrier Kit *[16]*	Main Circuit Breaker Frame Size*[17]*		Box 20 in. W x 5.75 in. D*[18]* or 8.75 in. D *[19][20]*	Mono-Flat™ Front *[21]*	Hinged Front*[21]*	Type 3R/5/12 20 in. W x 5.75 in. D*[22]*	Vented Type 3R 26 in. W x 8.75 in. D*[23]*	Height (In.)
(Single Phase 3-Wire: Factory Assembled Only) Three Phase 4-Wire *[24]*											
15*[25]*	15–125	Back-fed Main Breaker *[26]*	NFEDBS	EDB, EGB or EJB	NF418L1 / NF418L1C	MH26, MH26BE	NC26( )	NC26( )HR	MH26WP	—	26
27*[25]*					NF430L1 / NF430L1C	MH32, MH32BE	NC32( )	NC32( )HR	MH32WP	—	32
18	15–125	N150MH *[17]*	NFHJLLC	HD/HG/HJ/ HL/HR	NF418L1 / NF418L1C	MH38, MH38BE	NC38( )	NC38( )HR	MH38WP	—	38
30					NF430L1 / NF430L1C	MH44, MH44BE	NC44( )	NC44( )HR	MH44WP	—	44
42					NF442L1C	MH50, MH50BE	NC50( )	NC50( )HR	MH50WP	—	50
54*[27]*					NF454L1C	MH56, MH56BE	NC56( )	NC56( )HR	MH56WP	—	56
30	125–250	N250MJ *[17]*		JD/JG/JJ/ JL/JR	NF430L2 / NF430L2C	MH50, MH50BE	NC50( )	NC50( )HR	MH50WP	—	50
42					NF442L2 / NF442L2C	MH56, MH56BE	NC56( )	NC56( )HR	MH56WP	—	56
54					NF454L2 / NF454L2C	MH62, MH62BE	NC62( )	NC62( )HR	MH62WP	—	56
66					NF466L2 / NF466L2C	MH74, MH74BE	NC74( )	NC74( )HR	MH74WP	—	74
30	125–400	N400M*[17]*	NFLALLC	LA/LH*[28]*	NF430L4 / NF430L4C	MH62, MH62BE	NC62V( )	NC62V( )HR	MH62WP	MH62D9VWP	62
42					NF442L4 / NF442L4C	MH68, MH68BE	NC68V( )	NC68V( )HR	MH68WP	MH68D9VWP	68
54					NF454L4 / NF454L4C	MH74, MH74BE	NC74V( )	NC74V( )HR	MH74WP	MH74D9VWP	74
66					NF466L4 / NF466L4C	MH86, MH86BE	NC86V( )	NC86V( )HR	MH86WP	MH86D9VWP	86
30	125–600	N600MPPL *[17]*	NFPPLLLC	LG/LJ/LL/ LR	NF430L6C	MH68D9	NC68V( )3PNF *[29]*	NC68V( )3PNFHR*[29]*	—	Factory Assembled Only	68
42					NF442L6C	MH74D9	NC74V( )3PNF *[29]*	NC74V( )3PNFHR*[29]*	—		74
54					NF454L6C	MH80D9	NC80V( )3PNF *[29]*	NC80V( )3PNFHR*[29]*	—		80
	600–800	Factory Assembled Only*[30]*									

[13] Order EDB, EGB, or EJB branch circuit breakers separately. Maximum allowable branch circuit breaker pair combination is 170 A.
[14] "C" suffix indicates copper bussing.
[15] Wall mounting brackets add 0.4 inches to back of MHxxWP enclosures.
[16] Please select the appropriate Main Circuit Breaker Barrier for UL Service Entrance applications (see U.S. Service Entrance Barrier Kits, page 9-26).
[17] Select the appropriate PowerPacT main circuit breaker from Section 7.
[18] Nominal interior dimensions, see PBA600 for details.
[19] D9 suffix indicates the 8.75 in. Deep Enclosure required for panelboards with PowerPacT L main circuit breaker or sub-feed circuit breaker. See PBA604 for dimensional details.
[20] If Blank End Walls are desired at both ends of 5.75" deep NEMA 1 Enclosure, select catalog number with "BE" suffix. Both end walls are blank in 8.75" deep enclosures.
[21] Add "F" for flush mount, "S" for surface mount.
[22] Enclosure includes trim kit. NEMA 3R, 5, 12 enclosures must be bottom fed. Nominal interior dimensions, see PBA555 for details.
[23] Vented Type 3R enclosure with three point door. Must be bottom fed. Required for outdoor applications with PowerPacT L main circuit breaker, two sub-feed circuit breakers, or sub-feed circuit breaker with trip current >150A. Interior nominal dimensions, see PBA603WP for details.
[24] NF panelboards without neutral connections may be applied to 3 phase, 4 wire grounded Wye systems, except at the Service Entrance.
[25] Pole spaces shown are available for branch circuits, with spaces deducted for the back fed main circuit breaker.
[26] Back-fed EDB 125 A 3 pole main circuit breaker must be ordered separately and field installed. Maximum breaker rating opposite is 20 A.
[27] Please note that some local building codes limit panelboards to 42 circuits, including those that reference 2005 or earlier version of NFPA 70.
[28] Available for 125 A–400 A applications. Please order short handle circuit breaker (i.e., LAL36400MB).
[29] Three point latch trim front; required for enclosures on panelboards with PowerPacT L Main Circuit Breaker, Switch, or Sub-Feed Circuit Breaker
[30] 800 A interiors with main circuit breaker require 8.75 inch deep, 26 inch wide enclosures.

EDB, EGB, EJB
1–pole
15–70 A

EDB, EGB, EJB
2–pole
15–125 A

EDB, EGB, EJB
3–pole
15–125 A

EDB, EPD
1-pole with alarm switch

E-frame Circuit Breakers for NF Merchandised Panelboards

Table 9.48: E-frame Thermal-magnetic (480Y/277 Vac Max) *[31][32]*

Ampere Rating	ED, EG, EJ (480Y/277 Vac)		"D" Interrupting Level 18 kA @ 480Y/277 Vac	"G" Interrupting Level 35 kA @ 480Y/277 Vac	"J" Interrupting Level 65 kA @ 480Y/277 Vac	Terminal Wire Range (AWG)
	Hold	Trip	Catalog Number	Catalog Number	Catalog Number	
1-pole, 277 Vac						
15 A	270	875	EDB14015*[33][34]*	EGB14015*[33][34]*	EJB14015*[33][34]*	AL30FD #14–#6 Al or Cu
20 A			EDB14020*[33][34]*	EGB14020*[33][34]*	EJB14020*[33][34]*	
25 A			EDB14025*[34]*	EGB14025*[34]*	EJB14025*[34]*	
30 A			EDB14030*[34]*	EGB14030*[34]*	EJB14030*[34]*	
35 A	630	1800	EDB14035*[34]*	EGB14035*[34]*	EJB14035*[34]*	AL100FD #14–2/0 Al or Cu
40 A			EDB14040*[34]*	EGB14040*[34]*	EJB14040*[34]*	
45 A			EDB14045*[34]*	EGB14045*[34]*	EJB14045*[34]*	
50 A			EDB14050*[34]*	EGB14050*[34]*	EJB14050*[34]*	
60 A			EDB14060	EGB14060	EJB14060	
70 A			EDB14070	EGB14070	EJB14070	
2-pole, 480Y/277 Vac *[35]*						
15 A	270	875	EDB24015*[34]*	EGB24015*[34]*	EJB24015*[34]*	AL30FD #14–#6 Al or Cu
20 A			EDB24020*[34]*	EGB24020*[34]*	EJB24020*[34]*	
25 A			EDB24025*[34]*	EGB24025*[34]*	EJB24025*[34]*	
30 A			EDB24030*[34]*	EGB24030*[34]*	EJB24030*[34]*	
35 A	630	1800	EDB24035*[34]*	EGB24035*[34]*	EJB24035*[34]*	AL100FD #14–2/0 Al or Cu
40 A			EDB24040*[34]*	EGB24040*[34]*	EJB24040*[34]*	
45 A			EDB24045*[34]*	EGB24045*[34]*	EJB24045*[34]*	
50 A			EDB24050*[34]*	EGB24050*[34]*	EJB24050*[34]*	
60 A			EDB24060	EGB24060	EJB24060	
70 A			EDB24070	EGB24070	EJB24070	
80 A	1000	2300	EDB24080	EGB24080	EJB24080	AL100FD #14–2/0 Al or Cu
90 A			EDB24090	EGB24090	EJB24090	
100 A			EDB24100	EGB24100	EJB24100	
110 A			EDB24110	EGB24110	EJB24110	
125 A			EDB24125	EGB24125	EJB24125	
3-pole, 480Y/277 Vac						
15 A	270	875	EDB34015*[34]*	EGB34015*[34]*	EJB34015*[34]*	AL30FD #14–#6 Al or Cu
20 A			EDB34020*[34]*	EGB34020*[34]*	EJB34020*[34]*	
25 A			EDB34025*[34]*	EGB34025*[34]*	EJB34025*[34]*	
30 A			EDB34030*[34]*	EGB34030*[34]*	EJB34030*[34]*	
35 A	630	1800	EDB34035*[34]*	EGB34035*[34]*	EJB34035*[34]*	AL100FD #14–2/0 Al or Cu
40 A			EDB34040*[34]*	EGB34040*[34]*	EJB34040*[34]*	
45 A			EDB34045*[34]*	EGB34045*[34]*	EJB34045*[34]*	
50 A			EDB34050*[34]*	EGB34050*[34]*	EJB34050*[34]*	
60 A			EDB34060	EGB34060	EJB34060	
70 A			EDB34070	EGB34070	EJB34070	
80 A	1000	2300	EDB34080	EGB34080	EJB34080	AL100FD #14–2/0 Al or Cu
90 A			EDB34090	EGB34090	EJB34090	
100 A			EDB34100	EGB34100	EJB34100	
110 A			EDB34110	EGB34110	EJB34110	
125 A			EDB34125	EGB34125	EJB34125	
EPDs (Equipment Protection Devices), 1-pole, 277 Vac, Thermal-magnetic with 30 mA ground-fault protection *[36]*						
15 A	270	875	EDB14015EPD*[33][34]*	EGB14015EPD*[33][34]*	EJB14015EPD*[33][34]*	#14–#6 Cu or #12–#4 Al
20 A			EDB14020EPD*[33][34]*	EGB14020EPD*[33][34]*	EJB14020EPD*[33][34]*	
30 A			EDB14030EPD*[34]*	EGB14030EPD*[34]*	EJB14030EPD*[34]*	
40 A	630	1800	EDB14040EPD*[34]*	EGB14040EPD*[34]*	EJB14040EPD*[34]*	
50 A			EDB14050EPD*[34]*	EGB14050EPD*[34]*	EJB14050EPD*[34]*	

NOTE: All EDB, EGB, and EJB circuit breakers are UL Listed as HACR Type. For 50°C calibration, use a CA suffix. NF branch circuit breakers are fungus proof as standard.

[31] Maximum allowable branch breaker pair combination = 170 A.
[32] 100 A Maximum at 600Y/347 Vac
[33] UL Listed as SWD (Switching duty rated).
[34] UL Listed as HID (High Intensity Discharge rated).
[35] UL Listed for use on 240 V Corner-grounded Delta Systems (Grounded B Phase). See data bulletin 2700DB0202.
[36] All EPDs occupy two spaces, with or without Alarm Switch option. For alarm switch, add the suffix BA. EPD circuit breakers may not be used in systems with phase to ground voltages other than 277 Vac.

Table 9.49: Factory installed Electrical Accessories

Auxiliary Switch (1A/1B)	Alarm Switch (NO)	Coil Burden Max. (VA)	Minimum Recommended Supply Transformer (VA)
		288	50
Monitors circuit breaker contact status and provides a remote signal indicating the circuit breaker contacts are OPEN or CLOSED. **Application** Max Load = 10 A @ 120 Vac 50/60 Hz Terminals for #14 AWG Cu wire	Used with control circuits and is actuated only when the circuit breaker has tripped. **Application** Max Load = 7 A @ 120 Vac 50/60 Hz Terminals for #14 AWG Cu wire.	Shunt Trip—Trips the circuit breaker from a remote location by means of a coil energized from a separate circuit. A 120 V shunt trip will operate at 55% or more of rated voltage. **Application** For use with momentary or maintained push button. 120 Vac 50/60 Hz Terminals for #14 AWG Cu wire.	

Table 9.50: Factory Installed Electrical Accessory Packages for ED, EG, EJ Circuit Breakers

Accessory Package	Suffix
Auxiliary Switch and Alarm Switch*[37][38]*	AABA
Shunt Trip Package*[37][38]*	SA
Auxiliary Switch/Alarm Switch/Shunt Trip Package*[37][38]*	AABASA
Alarm Switch (N.O.) Package for EPDs only	BA

Table 9.51: Terminal Nut Insert Kit

Circuit Breaker Type	Qty. per Kit	Catalog No.
ED, EG, EJ	3	TIKFD

Table 9.52: Handle Accessories

Circuit Breaker Type	No. of Poles	Catalog No.
E-frame Fixed Padlock Attachment, Lock ON/OFF		
ED, EG, EJ	1, 2, or 3	EDPA
E-frame Fixed padlock attachment, Lock OFF only		
ED, EG, EJ	1, 2, or 3	EDPAF
E-frame Removable padlock attachment, Lock OFF only		
ED, EG, EJ	1, 2, or 3	HPAFD
E-frame Handle Ties		
ED, EG, EJ	Ties 2 – 1P	ECB2HT
	Ties 3 – 1P	ECB3HT

Table 9.53: Interrupt Ratings (kA)

	EDB	EGB	EJB
120 V	25	65	100
240 V	18 (1P), 25	35 (1P), 65	65 (1P), 100
480Y/277 V	18	35	65
600Y/347 V*[39]*	14	18	25

Table 9.54: Mechanical Lug Kit Information (Al lugs for use with Al or Cu wire)*[38]*

Circuit Breaker Application				Number of Wires Per Lug and Wire Range	Catalog Number	Lugs Per Kit
Standard	Ampere Rating	Optional	Ampere Rating			
EDB, EGB, EJB	15–30 A	—	—	one #12—#6 AWG Al or one #14—#6 AWG Cu	AL30FD	3
	35–125 A	EDB, EGB, EJB	15–30 A *[40]*	one #12—2/0 AWG Al or one #14—2/0 AWG Cu	AL100FD	3
—	—	EDB, EGB, EJB	15–125 A	one #14—1/0 AWG Cu	CU100FD	3

[37] Accessory package takes an additional pole space.
[38] Not available for EPD.
[39] Requires use of ExBx6xxx circuit breakers, i.e. EDB16015 for a 1P, 15A circuit.
[40] Factory installed only. Use suffix “LH”.

Factory Assembled Main Circuit Breakers—600Y/347 Vac maximum

Table 9.55: NF Panelboard Factory Assembled Interiors—600Y/347 Vac Max

Single Phase 3-Wire (1P/3W), or Three Phase 4-Wire (3P/4W)[41]							
Mains Rating (Amps)				Max. Number of One-Pole Circuit Breakers	Bus Material	Min. Box Depth (inches)	
Main Lugs Only	Circuit Breaker Frame	Main Breaker[42]	Main Switch[42]			Main Lugs Only	Main Breaker / Switch
125 Max	ED, EG, EJ[43]	15–125	–	18, 30	Al, Cu	5.75 in.	5.75 in.
125 Max	HD/HG/HJ/HL/HR	15–125	110–125	18, 30, 42, 54[44]	Al, Cu	5.75 in.	5.75 in.
250 Max	JD/JG/JJ/JL/JR	150–250	150–250	30, 42, 54, 66	Al, Cu	5.75 in.	5.75 in.
400 Max	LA/LH	125–400	300–400	30, 42, 54, 66, 84	Al, Cu	5.75 in.	5.75 in.
600 Max	LG/LJ/LL/LR[45]	125–600	450–600	30, 42, 54, 66[46], 84	Cu	5.75 in.	8.75 in.[47]
800 Max	MG	600–800	—	30, 42, 54	Cu	8.75 in.[48]	8.75 in.[49]
	PG, PJ, PL	600–800	600–800				

NOTE: Factory Assembled Main Circuit Breakers (600Y/347 Vac maximum). 600Y/347 Vac applications require use of ExBx6xxx branch circuit breakers, i.e. EDB16015 for a 1P, 15A circuit.[50]

400 A and 600 A panelboards, 1Ø or 3Ø

PowerPacT L-frame - see Tables in Section 7.

Table 9.56: Main Circuit Breaker

No. of Poles	Trip Unit Options	Frame Sizes	Ampacity
3	LI, LSI, Switch	LG, LJ, LL, LR	125–600 A

LA/LH, PowerPacT H and J-frame circuit breakers are also available—see Tables in Section 7 and Supplemental Digest Section 3.

Table 9.57: PowerPacT L Main Circuit Breaker Cabinet Height (inches)

Max. No. of Branch Spaces (Does not include sub-feed circuit breaker spaces)	NEMA 1 Enclosure (20 in. W x 8.75 in. D)[51]	Vented NEMA 3R Enclosure (26 in. W x 8.75 in. D)[52]	
	400 / 600 A Interior	400 A	600 A
30	68	68	74
42	74	74	80
54	80	80	86

Table 9.58: Sub-feed Circuit Breakers for NF Panelboards[53]

Interior Mains Rating	Mains Type	Sub-Feed Circuit Breaker(s)			Space Factor [54]
		Ampacity	Poles	MCCB Frame	
250 - 800 A	Main Lugs	110 - 150	2, 3	HD, HG, HJ, HL, HR[55]. [56]	18 inches
		150 - 250	2, 3	JD, JG, JJ, JL, JR[56]. [57]	
250 - 400 A	PowerPacT J or LA/ LH Main Circuit Breaker	110 - 150	2, 3	HD, HG, HJ, HL, HR[55]. [56]	
		150 - 250	2, 3	JD, JG, JJ, JL, JR[56]. [57]	
		125 - 600	2, 3	LA or LH[58]	
			3	LG, LJ, LL, LR[59]	
400 - 600 A [60]. [61]	PowerPacT L Main Circuit Breaker[62]	110 - 150	2, 3	HD, HG, HJ, HL, HR[55]. [56]	18 inches
		150 - 250	2, 3	JD, JG, JJ, JL, JR[56]. [57]	
		125 - 400	2, 3	LA / LH[58]	12 inches
		125 - 600	3	LG, LJ, LL, LR[60]	18 inches
800 A[63]	Main Circuit Breaker	110 - 150	2, 3	HD, HG, HJ, HL, HR[55]. [56]	12 inches
		150 - 250	2, 3	JD, JG, JJ, JL, JR[56]. [57]	18 inches
		125 - 400	2, 3	LA / LH	12 inches

[41] NF panelboards without neutral connections may be applied in 3-phase, 4-wire grounded Wye systems, except at the Service Entrance.
[42] Factory Assembled Interiors are rated for trip current of Main Breaker / Switch.
[43] Back-Fed Main Breaker applications only.
[44] Three Phase Copper only.
[45] PowerPacT L crcuit breakers may only be installed on 600 A NF panelboard interiors. 400 A max. PowerPacT L circuit breakers should be selected for applications requiring trip ampacities between 125–400 A.
[46] NF Panelboards with PowerPacT L Main Circuit Breaker or Switch are limited to a maximum of 54 branch circuits.
[47] NF Panelboards with PowerPacT L Main Circuit Breaker or Switch require 8.75 in. deep enclosures and three point latch trim fronts.
[48] Enclosures limited to NEMA Type 1 only.
[49] 8.75 in. Enclosures limited to 26 in. Wide NEMA Type 1.
[50] Requires use of ExBx6xxx branch circuit breakers, i.e. EDB16015 for a 1P, 15A circuit.
[51] D9 8.75 in. deep enclosure and three point latch door is required for PowerPacT L Main Circuit Breaker, Switch, or Sub-Feed Circuit Breaker. See Table 9.47 NF Main Circuit Breaker Interiors - Use I-Line Panelboard for 3Ø3W Delta applications above 240 Vac, page 9-29.
[52] PowerPacT L not available in non-vented (NEMA Type 3R/5/12, or 4/4X) enclosures.
[53] See Digest Section 7 for Interrupting Ratings and Catalog Numbers of PowerPacT H-, J-, L-, and LA/LH frame MCCBs. NEMA 3R applications with sub-feed breakers greater than 150 A require 8.75 in. deep, 26 in. wide enclosure - reference PBA603WP for dimensions.
[54] Space Factor is the length required for sub-feed circuit breaker. Please reference Product Selector output for panelboard enclosure dimensions.
[55] Three pole HD, HG, HR MCCBs are installed for single phase sub-feed circuit breaker applications.
[56] One or two sub-feed circuit breakers may be selected.
[57] Three pole JR MCCBs are installed for single phase sub-feed circuit breaker applications.
[58] NF Panelboards with LA / LH sub-feed circuit breakers are shipped fully assembled.
[59] NF Panelboards with PowerPacT L main and sub-feed circuit breakers require 26 in. wide, 8.75 in. deep enclosure with 3-point latch trim front. Reference PBA758 or PBA754 drawings for dimensions in NEMA Type 1 or 3R enclosures, respectively.
[60] NF Panelboards with PowerPacT L circuit breakers require 8.75 in. a deep enclosure with 3-point latch trim front. Reference PBA559x drawings for dimensions, where x may be blank, HR, HRT, or T.
[61] Add 6 in. to space factor for NF Panelboards with 600 A PowerPacT L circuit breakers in NEMA 3R enclosures. Reference PBA754 drawing for dimensions. Maximum sub-feed breaker is 400 A when installed with a 600 A rated main circuit breaker in a NEMA 3R enclosure.
[62] NF Panelboards with PowerPacT L main circuit breaker and any sub-feed circuit breaker(s) are shipped completely assembled in 26 in. wide, 8.75 in. deep enclosures, with gutter mounted neutral assemblies.
[63] NF Panelboards with 800 A rated main circuit breaker are shipped completely assembled in 26 in. wide, 8.75 in. NEMA 1 enclosures. Reference PBA756 or PBA756HR drawing for dimensions.

Table 9.58 Sub-feed Circuit Breakers for NF Panelboards *[9.58]* **(cont'd.)**

Interior Mains Rating	Mains Type	Sub-Feed Circuit Breaker(s)			Space Factor *[64]*
		Ampacity	Poles	MCCB Frame	
		125 - 600	3	LG, LJ, LL, LR	18 inches
400 - 800 A *[64]*	Main Circuit Breaker *[65]*	110 - 400	2, 3	One LA / LH with one H-, or J- frame	36 inches

Common Features

Table 9.59: Sub-feed (Double) Lugs (Standard Copper Mechanical Lugs)

Mains Rating	Sub-feed Lug Wire Range
125 A	(2) #6–2/0 AWG Al or Cu
250 A	two 1/0 AWG–350 kcmil or one 1/0 AWG-750 kcmil Al or Cu
400 A	(2) 1/0 AWG–750 kcmil Cu
600 A	(4) 4/0 AWG–500 kcmil Al or Cu
800 A	(6) 3/0 AWG–500 kcmil Al or Cu
Sub-feed (Double) Lugs (Standard Aluminum Mechanical Lugs): An additional mains and termination point that can be used to feed out to another panelboard or device from the incoming service lines. Available on main lug interiors only.	

Table 9.60: Sub-feed Lug Cabinet Data (Standard Aluminum Mechanical Lugs)

Max. No. of Branch Spaces	Main Lugs Enclosure Height in Inches				
	125 A	250 A	400 A	600 A	800 A *[66]*
18	26	—	—	—	—
30	32	38	50	74	80
42	—	44	56	80	86
54	—	50	62	86	92

Table 9.61: Feed-through Lugs (Standard Aluminum Mechanical Lugs)

Mains Rating	Feed-through Wire Range Wire
125 A	one #6 AWG–2/0 kcmil Al or Cu
250 A	one #6 AWG–350 kcmil Al or Cu
400 A	one 1/0 AWG–750 kcmil or two 1/0 AWG–350 kcmil Al or Cu
600 A	two 1/0 AWG–750 kcmil Al or Cu

Feed-through Lugs (Standard Aluminum Mechanical Lugs): A second set of lugs assembled at the opposite end from the mains of the panelboard. Often used to connect another panelboard or device to the incoming lines. Available on main lugs and main circuit breaker panelboards.

Table 9.62: Feed-through Lugs Cabinet Data (Standard Aluminum Mechanical Lugs)

Max. No. of Branch Spaces	Enclosure Height in Inches									
	125 A	100/125 A		250 A		400 A LA/LH		600 A		800 A
	Main Breaker (back-fed only)	Main Lugs	Main Breaker	Main Lugs	Main Breaker	Main Lugs	Main Breaker	Main Lugs	Main Breaker *[67]*	Main Lugs *[66]*
18	38	32	44	—	—	—	—	—	—	—
30	44	38	50	50	62	56	68	56	74	56
42	—	—	—	56	68	62	74	62	80	62
54	—	—	—	62	74	68	80	68	86	68

Table 9.63: NF Equipment Ground Bar Kits *[68]*

Interior Rating	Circuit Count	Aluminum	Copper	Ground Bar Insulator Kit
125 A / 250 A	18	PK12GTA	PK27GTACU	PKGTAB
	30	PK18GTA		
	42, 54	PK23GTA		
250 A	66 and Split Bus	PK27GTA		
400 A / 600 A	All	PK27GTA		

Table 9.64: Name Plates

Name Plates
Standard white face/black letter laminated bakelite, 1 in. x 3.5 in., adhesive-backed or screw mountable with screws in a bag assembly

Table 9.65: NF Panelboard Neutral Assembly Options (Standard Width Enclosures)

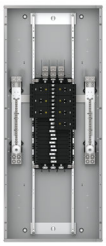
Interior Mains Rating	Mains Type			Load End Options		100% Neutrals		200% Neutrals	
	MLO	MB	SFL	FTL	SFB	Aluminum	Copper	Aluminum	Copper
125 A	Y	Y	Y	Y	N/A	Standard	NFN1CU	NFNL1	Factory Assembled Only
250 A	Y	Y	-	-	-		NFN2CU	NFNL2	
			Y	Y	Y				
400 A	Y	Y	-	-	-		NFN6CU	NFNL4	
			Y	Y	Y			Factory Assembled Only	
600 A	Y	-	-	-	-				
		Y	Y	Y	Y	Factory Assembled Only	Factory Assembled Only		
800 A	Y	Y	-	-	-				
			Y	Y	Y				

[64] Space Factor is the length required for sub-feed circuit breaker. Please reference Product Selector output for panelboard enclosure dimensions.
[64] NF Panelboards with LA / LH sub-feed circuit breakers are shipped fully assembled.
[65] NF Panelboards with PowerPacT L main circuit breaker and any sub-feed circuit breaker(s) are shipped completely assembled in 26 in. wide, 8.75 in. deep enclosures, with gutter mounted neutral assemblies.
[66] 800 A main lug panelboards require an 8.75 in. deep and 26 in. wide box.
[67] 600 A main circuit breaker panelboards require an 8.75 in. deep, 26 in. wide box.
[68] One (1) PK kit supplied when ground bar is specified. Two (2) PK kits supplied when "extra" ground bar is ordered.

Table 9.66: NF Main Neutral Conductors—(Quantity) and Wire Size*[69]*

Interior Rating	Mechanical Neutral Line Lugs		Compression Neutral Line Lugs
	Standard	Oversized	Standard
	Lug Wire Range	Lug Wire Range	Lug Wire Range
125 A	(1) #6–2/0 AWG Cu or Al	Select 250 A neutral assembly	(1) #6-2/0 AWG Cu or (1) #4-300 kcmil Al
250 A	(1) #6 AWG-250 kcmil Cu or (1) #6 AWG - 350 kcmil	Select 400 A neutral assembly	(1) 2/0 AWG-250 kcmil Cu or (1) 250-350 kcmil Al
400 A	(2) 1/0 AWG–300 kcmil or (1) 1/0 AWG-700*[70]* kcmil Cu or Al	(2) 1/0 AWG-700*[70]* kcmil or (4) 1/0 AWG-300 kcmil	(1) 400-600*[70]* kcmil Cu or (1) 2/0 AWG-500 kcmil Al
600 A		(4) 1/0 AWG-600*[70]* kcmil Cu or Al*[71]*	(1) 2/0 AWG-500 kcmil Cu or Al
800 A		(6) 4/0 AWG-500 kcmil Cu or Al*[72]*	
		—	

NOTE: 200% applications require gutter mounted neutral in special (W x 26 in.) enclosure factory assembled only. One exception, without subfeed lugs, feed-thru lugs and subfeed breakers 400 A (30-84 circuit interiors) and 600 A (30-54 circuit interiors) does not require an special enclosure.
Gutter extensions may be required to provide NEC wire bending space for cable(s) of maximum lug size.



600 A NF Main Lug Only Panelboard with Condo Riser Neutral Assembly

Table 9.67: NF Panelboard Condo Riser Neutral Panelboards (Requires 26 in. Wide, 8.75 in. Deep Enclosure)*[73]*

Mains Rating	Available Branch Circuits	Neutral Rating	Neutral Assembly	Mains Options			Load End Options		Line Lug Wire Range	Load Lug Wire Range
				Main Lugs	Main Breaker	Sub-Feed Lugs	Feed-Thru Lugs	Sub-Feed Breaker		
400 / 600 A	30, 42, 54	100%	NFN6CR	Y*[74]*	LA, LG, LH, LJ, LL, LR*[75]*	Y	Y	Y	(4) AWG 1/0 - 750 kcmil	(8) AWG 3/0 - 750 kcmil
		200%	NFNL6CR							
800 A		100%	Factory Assembled Only	N / A	MG, PG, PJ,PL*[76]*	Y	Y	Y	(8) AWG 3/0 - 750 kcmil	(8) AWG 3/0 - 750 kcmil
		200%								

Table 9.68: Metal Directory Frame

Metal Directory Frame
Metal Directory Frames are available as a premium factory assembled alternative to standard plastic directory card holders on the back of panelboard trim fronts.

Table 9.69: Hinged Door-in-Door Trim

Hinged Door-in-Door Trim
Hinged Door-in-Door Trim has piano hinge down one side. Inner door has a lock, outer door is retained with screws
Hinged Door-in-Door with Outer Door Lock in place of screws

Table 9.70: Weatherproof or Dusttight Cabinets NEMA Type 3R, 4, 4X, 5, 12)

Weather resistant and Dust resistant Cabinets —Type 3R, 4, 4X, 5, 12

NOTE: NF panelboards with PowerPacT L circuit breakers are not available with a NEMA Type 4, 4X, 5, or 12 enclosure. (Use I-Line).

NF panelboards with PowerPacT L circuit breakers are available with vented 26 in. wide NEMA 3R enclosures. These vented NEMA 3R enclosures also enable selection of subfeed circuit breakers up to 600 A.

400 A NF panelboards in NEMA 4, 4X, 5, or 12 enclosures are available with one subfeed breaker up to 150 A.

NF MB Panelboard in Vented NEMA 3R enclosure

Table 9.71: Optional Factory Assembled Lugs for Main Lug Only and Main Circuit Breaker Interiors

Incoming Lugs Type
Aluminum Compression Lugs
Copper Mechanical Lugs
Copper Compression Lugs

Table 9.72: Surgelogic™ Hard Bus SPD—Model*[77]*

Surge Current Rating kA
100
120
160
200
240

[69] Lug Wire Ranges shown meet NEC wire bending space. Lugs may accept larger cables if enclosure size is increased.
[70] Installation of 750 kcmil neutral lugs possible if enclosure size is increased to provide wire bending space.
[71] Factory Assembled only; increases enclosure length 6-12 in.
[72] Factory Assembled only; enclosure length increases 6-12 in.; requires 8.75 in. deep D9 enclosure.
[73] Select 26 in. Wide Condo Riser Panel under Structure Options in the SE Advantage Panelboard Product Selector.
[74] Reference PBA757 drawing for additional dimensional information.
[75] Reference PBA758 drawing for additional dimensional information.
[76] Reference PBA756 or PBA756HR drawing for additional dimensional information.
[77] Panelboard box height with SPD unit—Contact your local Schneider Electric representative or distributor.

Table 9.73: Surgelogic SPD Options

Surgelogic SPD Options
Surge Counter
Dry Contacts
Remote Monitor

NOTE: For additional factory modifications, see Modifications For Factory Assembled Panelboards, page 9-67.

Accessories

Table 9.74: NF Merchandised Neutrals

Mains Ampacity	200% Neutral Kit	Copper 100% Neutral Kit
	Catalog No.	Catalog No.
125	NFNL1	NFN1CU
250	NFNL2	NFN2CU
400	NFNL4*[78]*	NFN6CU
600	Factory Assembled Only	NFN6CU*[78]*

Table 9.75: NF Merchandised Interior Modification Kits

Mains Ampacity	Sub-feed Lugs *[79]*	Feed-through Lugs *[79]*
	Catalog No.	Catalog No.
125	NF125SFL	NF125FTL
250	NF250SFL	NF250FTL
400	NF400SFL *[81]*	NF400FTL
600	Factory Assembled Only	
800		

Mains Ampacity	Sub-feed Circuit Breaker Kits *[79]* (circuit breaker not Included)	
	Single Sub-feed Circuit Breaker	Twin Sub-feed Circuit Breakers
	Catalog No.	Catalog No.
250	NF250SFBH/NF250SFBJ	—
400	N600MPPL (400 A Max.)	NF600SFBH NF600SFBJ*[80]*
600	NF600SFBPPL (600A)*[80]*	Factory Assembled Only
800	Factory Assembled Only	

NOTE: NF250SFBH and NF600SFBH are for use with HDL, HGL, HJL, HLL, and HRL circuit breakers. NF250SFBJ and NF600SFBJ are for use with JDL, JGL, JJL, JLL, and JRL circuit breakers.

Table 9.76: NF Special Features Standard NEMA Type 1 Enclosure Selection Table—Enclosure Catalog Number for Standard Main Mechanical Lugs Only

Feature	Main Lugs Only														
	Sub-feed Lugs					Feed-through Lugs					Sub-feed Circuit Breaker				
Interior Rating	125 A	250 A	400 A	600 A	800 A	125 A	250 A	400 A	600 A	800 A	250 A	400 A	600 A	600 A*[82]*	800 A
No. of Circuits	NEMA 1 Enclosure Catalog Number					NEMA 1 Enclosure Catalog Number					NEMA 1 Enclosure Catalog Number				
18	MH26	—	—	—	—	MH32	—	—	—	—	—	—	—	—	Factory Assembled Only
30	MH32	MH38	MH50	Factory Assembled Only		MH38	MH50	MH56	Factory Assembled Only		MH56	MH68	MH68	MH62D9	
42	—	MH44	MH56			—	MH56	MH62			MH62	MH74	MH74	MH68D9	
54	—	MH50	MH62			—	MH62	MH68			MH68	MH80	MH86	MH74D9	
66	—	MH62	MH74			—	MH74	MH80			MH80	MH92	MH92	—	
84	—	—	MH86			—	—	—			—	—	—	—	

Table 9.77: Special Features Enclosures Selection Table—Merchandised NF Vertically Mounted Main Breaker Panelboards with Accessories (by Mains Rating)

No. of Circuits	Vertical Main Circuit Breaker (MB) *[83]*									Back-fed MB
	Sub-feed Circuit Breaker (PowerPacT H or J)					Feed-through Lugs (FTL)				FTL
	125 A	250 A	400 A	600 A	800 A	125 A	250 A	400 A*[83]*	600 A	125 A
	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.
18	—	—	—	—	—	MH44	—	—	—	MH32
30	—	MH68	MH80	Factory Assembled Only	Factory Assembled Only	MH50	MH62	MH68	Factory Assembled Only	MH38
42	—	MH74	MH86			—	MH68	MH74		—
54	—	MH80	MH92			—	MH74	MH86		—
66	—	MH92	—			—	MH86	MH92		—

Table 9.78: Optional Main Lug Kits for Main Lug Panelboards

Ampacity	Al Compression Lug Kit		Cu Mechanical Lug Kit		Cu Compression Lug Kit *[81]*	
	Catalog No.	Lug Wire Range	Catalog No.	Lug Wire Range	Catalog No.	Lug Wire Range
125	NFALV1 *[84]*	one #4 AWG–300 kcmil	NFCUM1	#6–2/0 AWG	NFCUV1 *[85]*	one #6–1/0 AWG
250	NFALV2	one 250–350 kcmil	NFCUM2	#6 AWG–250 kcmil	NFCUV2 *[85]*	one 2/0 AWG–300 kcmil
400	NFALV4	two 2/0 AWG–500 kcmil	NFCUM4	one 1/0 AWG–750 kcmil, or two 1/0 AWG–350 kcmil	NFCUV4	one 400–750 kcmil
600	NFALV6	two 2/0 AWG–500 kcmil	NFCUM6	two 1/0 AWG–750 kcmil	NFCUV6	two 250–500 kcmil
800	Contact your local Schneider Electric representative or distributor.					

[78] Not to be used with SFL, FTL, or SFB. These combinations are factory assembled only.
[79] Available factory assembled only on non-linear panelboards.
[80] Sub-feed circuit breakers may not be field installed onto NF Panelboards with PowerPacT L main circuit breakers.
[81] Use copper wire only.
[82] PowerPacT LG, LJ, LL, or LR Sub-Feed Circuit Breaker.
[83] 400 A dimension for LA/LH main circuit breakers only.
[84] Use of this kit requires an additional 6 in. added to box height.
[85] Use of this kit to terminate larger than standard wire size requires an additional 6 in. added to box height.

Table 9.79: US Service Entrance Barrier Kits (required by NFPA 70—National Electrical Code® (NEC®) 2017 and later)

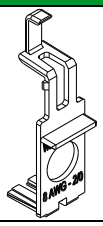
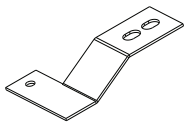
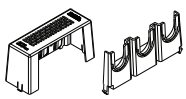
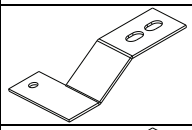
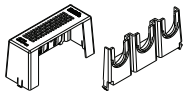
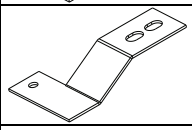
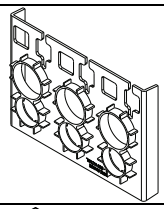
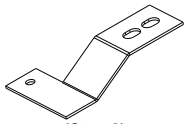
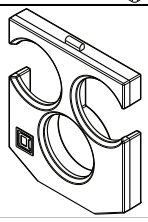
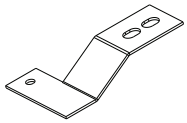
Catalog Number	Main Circuit Breaker Frame(s)	Panel-board Range	Main Breaker Barrier(s)	Neutral Bonding Strap	Description
NFEDBS	E-frame	NF			NF E-frame Main Circuit Breaker Line Lug Cover and Neutral Bonding Strap
NFHJLLC	PowerPacT H, J	NF			NF H/J-frame Main Circuit Breaker Line Lug Cover and Neutral Bonding Strap
NFLALLC	Legacy LA/LH	NF			NF Legacy LA/LH-frame Main Circuit Breaker Line Lug Cover and Neutral Bonding Strap
NFPPLLL-C	PowerPacT L	NF		 (Qty = 2)	NF PowerPacT L Line Lug Cover and Neutral Bonding Strap
NFPPPL-LC	PowerPacT P	NF		 (Qty = 2)	NF PowerPacT P Line Lug Cover and Neutral Bonding Strap

Table 9.80: NF Accessories

Description	Catalog No.
Aluminum Equipment Ground Bar	PK27GTA
Copper Equipment Ground Bar	PK27GTACU
AWG #1-4/0 Aluminum Lug on Aluminum Equipment Ground Bar	PK23GTAL
Equipment Ground Bar Insulator Kit	PKGTAB
Circuit I.D. number strips	
102 odd/even (left side numbered 1, 3, 5...101)	NF102OE
103–204 odd/even (left side numbered 103, 105, 107...203)	NF204OE
1–102 sequential (left side numbered 1, 2, 3 ...102)	NF102S
103–204 sequential (left side numbered 103, 104, 105... 204)	NF204S
Rail and Deadfront Extensions	
6 in. Extension	NF6RDE
12 in. Extension	NF12RDE
18 in. Extension	NF18RDE

Description	Catalog No.
Replacement Part Kits	
Filler plate (15 per package)	NFFP15
E-frame Fixed padlock attachment, Lock ON/OFF for ED, EG, and EJ Circuit Breakers 1, 2, or 3 poles	EDPA
E-frame Fixed padlock attachment, Lock OFF only for ED, EG, and EJ Circuit Breakers 1, 2, or 3 poles	EDPAF
Drip Hood for 20 in. wide enclosures	MHT2DH20

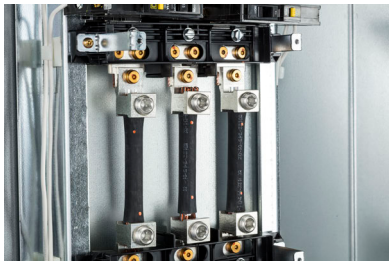
Table 9.81: Add-On Lugs for Neutral Bars or Ground Bars *[86]*

Catalog Number	Lug Wire Range (AWG)	Wire Ampere
QO70AN	#12 to #2 Al or #14 to #4 Cu	70 A
Q1100AN	#14 to #1/0 Al or Cu	80 - 100 A

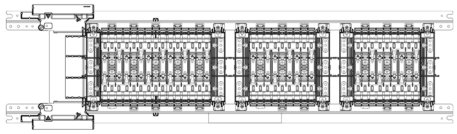
[86] Requires two standard termination spaces on Neutral or Ground bar.

Separated Distribution and Split Bus NF and NQ Panelboards

Square D Separated Distribution and Split Bus Panelboards provide compact, affordable options to protect lighting, HVAC, renewable energy, and appliance circuits in buildings.
Separated Distribution Panelboards facilitate Separation of Electrical Circuits for Electrical Energy Monitoring to simplify compliance with Section 130.5-B of California's 2016 Building Energy Efficiency Standards.
NOTE: Refer to Data Bulletin 1600HO1701 for more information.



Special lug pad adaptors allow field removal of cables, for easy field installation of solid core or split CTs for electrical energy measurement, by load type.



Split Bus panelboards enable configurations of two or three back fed main circuit breakers, with independent branch distribution sections, in a single enclosure.

Table 9.82: Separated Distribution Interiors (Cabled Between Sections)

Separated Distribution Interiors (cabled between sections)			Max. No. of Available Pole Spaces			Box Height (in.)	
Product Family	Main Ampacity MLO	Voltage Phases	Main	Split	Split 2	Main Lug Only	Main Circuit Breaker
NQ	225 A	3 Ph	30	18	18	62	74
			18	18	18	62	74
	400 A		30	18	18	80	92
			18	18	18	80	92
NF	250 A	3 Ph	30	18	18	80	92
			18	18	18	74	86

Table 9.83: Bus Bar Interiors (125 A Max. Split Amps)

Split Bus Bar Interiors (125 A Max. Split Amps)			Max. No. of Available Pole Spaces			Box Height (in.)	
Product Family	Main Ampacity MLO	Voltage Phases	Main	Split	Split 2	Main Lug Only	Main Circuit Breaker
NQ	225 A	1, 3 Ph	18	30	—	44	56
		1, 3 Ph	30	18	—	44	56
		1, 3 Ph	30	30	—	44	56
		3 Ph	30	18	18	50	62
NF	250 A	3 Ph	18	30	—	56	68
		1, 3 Ph	30	18	—	56	68
		1, 3 Ph	30	30	—	62	74
		3 Ph	30	18	18	74	86

Square D NF and NQ Separated Distribution and Split Bus Panelboards come Factory Assembled with copper bus, with or without an integral Main Circuit Breaker. A wide variety of configurations may be submitted for quotation via Square D QuoteFAST, and may be quoted or ordered by Authorized Distributors using SE Advantage or E-Way Quote Management.

Features:

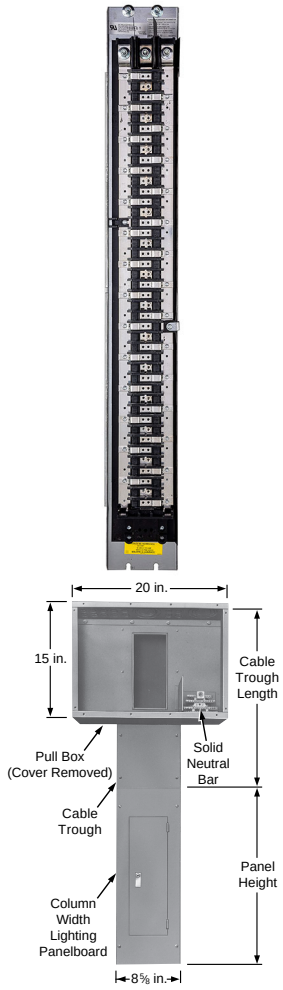
- Multiple branch section configurations (pole spaces per section):
  - Split Bus: 18-30; 30-18; 30-30; 30-18-18
  - Separated Distribution: 30-18-18; 18-18-18
- Up to 400 A Mains rating for NQ; up to 250 A Mains in NF panelboards

Notes:

Enclosure width / depth: 20 in. / 5.75 in. minimum.

Subfeed breaker or lugs, feed through lugs not available at top or bottom ends of panel.

- Split Bus - feeder breaker (125 A max.) in downstream split section back-fed from feeder breaker in upstream main or split section.
- Segregated Distribution - cables may be removed in the field. Downstream Split section may have same rating as Main.



(60 A Max. Branch Circuit Breaker) NQ Application Data

Application: For use on ac only. Meet Federal Specification W-P-115c, Type 1, Class 1. UL Listed.
Service: 1Ø3W, 3Ø3W, 3Ø4W,
3 Grd. "B" Ø—240 Vac max.
AIR: See the QOB(VH) circuit breaker tables in Section 9.
Mains: Type NQ—Bolt-on main lugs: 100 A, 225 A

- Main circuit breaker: 100 A—QOU, 225 A—QB
- See the tables in Section 7 for main circuit breaker interrupt ratings. See catalog for terminal lug data.
- Main circuit breakers with higher interrupt ratings are available as factory assembled panelboards.

Branches: Bolt-on QOB, 60 A maximum. QOB 10-60 A 1-, 2- and 3-pole. See QOB Circuit Breakers for NQ Panelboards, page 9-15 and NQ Factory Assembled Panelboards, page 9-18 for branch circuit breaker terminal data. QOB-VH and QHB branch circuit breakers are also available as factory assembled.

Cabinet: Front—Screw cover. Box—galvanized steel with removable endwalls.

Gutters:

- 100 A—4 in. min. mains end, 3 in. min. opposite mains
- 225 A—10 in. min. mains end, 5 in. min. opposite mains

Table 9.84: NQ Single-Row (Column-width)—240 Vac Bolt-on *[1]*

Max. No. of Poles	Mains Rating	Box and Interior with Solid Neutral (8.625 in. W. x 5 in. D.) (Order branch circuit breakers separately)		Front (Surface Mount)
		Catalog Number	Box Height (In.)	Catalog Number
1 Phase 3-Wire Main Lugs Only				
30	225	NQ830L2C	45	LX45TS
Main Circuit Breaker—2-pole				
20	100	NQ820B1C	40	LX40TS
3 Phase 4-Wire Main Lugs Only				
30	100	NQ8430L1C	40	LX40TS
42	225	NQ8442L2C	58	LX58TS
Main Circuit Breaker—3-pole				
30	100	NQ8430B1C	45	LX45TS
42	225	NQ8442B2C	62	LX62TS

Table 9.85: Cable Troughs and Pull Boxes

Cable Troughs (L=Length) *[2]*		Pull Boxes with Solid Neutral	
L (In.)	8.625 in. x 5 in. Catalog Number	S/N Terminals	Catalog Number
36	MTX836	42	MPX81542
48	MTX848		
56	MTX856		
66	MTX866		

[1] 60 A Maximum Branch—Copper Bus Standard.
[2] Cable troughs are standard with a trough barrier.

(60 A Max. Branch Circuit Breaker) NF Application Data

Application: For use on ac only. Meet Federal Specification W-P-115c, Type 1, Class 1. UL Listed.

Service: 480Y/277 Vac, 3Ø4W

AIR: See the E-frame circuit breaker tables in Section 9.

Mains: Type NF–Bolt-on main lugs: 125 A, 225 A

- Main circuit breaker: 100 A—HD, 225 A—JD. See the tables in Section 7 for main circuit breaker interrupt rating. See the catalog section for terminal lug data.
- Main circuit breakers with higher interrupt ratings are available as factory assembled panelboards.

Branches: EDB, EGB, or EJB, 60 A maximum. See E-frame Thermal-magnetic (480Y/277 Vac Max), page 9-30 for branch circuit breaker catalog numbers and terminal data.

Cabinet: Front—Screw cover. Box—galvanized steel with removable endwalls.

Gutters:

- 100 A—4 in. min. mains end, 3 in. min.opposite mains
- 225 A—10 in. min. mains end, 5 in. min. opposite mains

Table 9.86: NF Single-Row (Column-width)—480Y/277 Vac Bolt-on

Max. No. of Poles	Mains Rating	Box and Interior with S/N (9.69 in. W. x 5.625 in. D.)		Front (Surface Mount)
		Catalog Number	Box Height (In.)	Catalog Number
Main Lugs Only—3 Phase 4-Wire				
30	125	NF8430L1C	59	NC59TS
42	225	NF8442L2C	71	NC71TS
Main Circuit Breaker—3-pole				
30	100	NF8430M1C NF8430M1HDC	65	NC65TS
42	225	NF8442M2JDC	85	NC85TS

Table 9.87: Cable Troughs and Pull Boxes

Cable Troughs (L=Length) *[3]*		Pull Boxes with Solid Neutral	
L (In.)	9.69 in. x 5.625 in. Catalog Number *[4]*	S/N Terminals	Catalog Number
36	NTX836	42	MPX81542
48	NTX848		
56	NTX856		
66	NTX866		

[3] Cable troughs are standard with a trough barrier.
[4] Box width = 8.625 in.; width at front, including flange, is 9.69 in.

Powerlink available in column width design

Powerlink™ Intelligent Lighting Control Systems

Powerlink intelligent lighting control systems are ideally suited for controlling lighting and other loads in commercial, institutional, and industrial facilities. Such systems are typically used to lower utility cost by switching branch circuits OFF during non-occupied periods when lighting is unnecessary or during peak demand periods when a partial reduction in load can save significant money.

These systems utilize remotely operated circuit breakers to switch branch circuits ON and OFF via a time schedule or by an externally generated signal (typically a low voltage wall switch, photocell, access system, fire alarm or building management system). All Powerlink components mount inside a standard lighting panelboard to provide a compact, space saving installation.

Powerlink intelligent lighting control systems feature a powerful microprocessor based controller that provides system intelligence for 168 remotely operated branch circuits. Master panelboards contain the control electronics, power supply, and control bus strips for up to 42 branch circuit breakers. Sub-panels extend the capability of the system by allowing remotely operated branch circuit breakers to be operated from the master controller via a simple, 4-wire, sub-net connection.

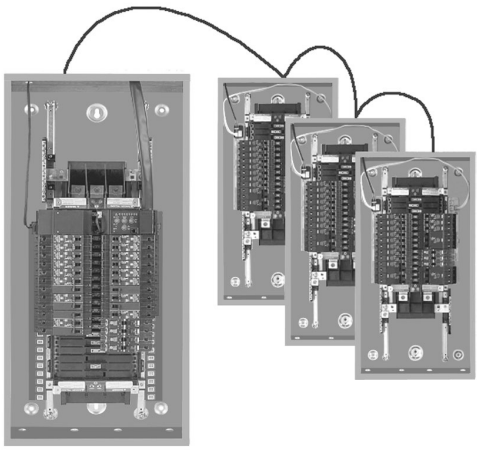
Powerlink panels systems have the capability of being networked together and operated from a central workstation or via a remote modem connection. Powerlink software allows users to remotely configure the system, change time schedules, monitor circuit breaker or input status, and override zones and breakers.

BACnet Capability

The Building Automation and Control network (BACnet) communication protocol is incorporated into the Powerlink™ controller design. The addition of the BACnet protocol allows Powerlink panels to be easily integrated into a Building Automation System (BAS) employing this open communication standard without the need for communication bridges or gateways.

Controller

Powerlink NF3500G4 controllers support 'native' BACnet and Ethernet communications.



Up to eight panels can be controlled from a single controller.

Factory Assembled System

SE advantage may be used to select 120 Vac, 240 Vac or 480Y/277 Vac Powerlink intelligent lighting control systems:

- Select system type and interior size from Table 9.88 , page 9-42. All Powerlink panels are furnished with either 1 or 2 control bus strips.
- All Powerlink panels use NF type panelboard interiors, boxes, and trims and are suitable for 120 Vac, 240 Vac or 480Y/277 Vac systems.
- Select branch circuit breaker requirements. Powerlink panels can accommodate both ECB-G3 remotely operated circuit breakers and EDB, EGB and EJB standard branch circuit breakers.
- Refer to panelboard section for additional panelboard accessories.
- For complete price, order by description.
- Apply appropriate discount schedule.

240 Vac Factory Assembled System Example:

3500 level system with 225 A MLO panelboard rated for 208Y/120 Vac, 3Ø4W, 10kAIR, Type 1, surface mount with ground bar and (12) 20 A 1-pole bolt-on remote operated circuit breakers.

Table 9.88:

Item	Page No.
System Type: 3500 controller with 12 ckt bus	page 9-43
Panel type: 250 A MLO	page 9-28
Branch circuit breakers: (12) 20 A 1-pole	page 9-42
Ground bar	page 9-33

Table 9.89:

NF3500G4 Controller Feature	Quantity Available*[1]*
Inputs	
2 - wire	16
2 - wire with status feedback*[2]*	8
3 - wire	8
Analog Inputs available	4
Time Scheduler	
Independent schedules	64
ON-OFF periods/schedule	999
Special events/holiday periods	64
Automatic daylight savings	X
Sunrise/sunset tracking	X
Network Variables	
Communications inputs accessible	256
Remote sources (per controller)	128
Maximum subscriptions	256
Zones	
Maximum number	256
Maximum number of sources per zone	4
Maximum number of remotely operated circuit breakers (per subnet)	168
Networking	
RS-232 port/RS-485 port	X
Ethernet (100BaseT port)	X
Protocols	
Modbus™ ASCII/RTU	X
Modbus TCP	X
BACnet/IP, BACnet MS/TP	X
DMX512	X

Powerlink™ ECB-G3 Circuit Breakers

ECB-G3 Circuit Breakers

Table 9.90: ECB-G3 Circuit Breakers Bolt-On Remotely Operated

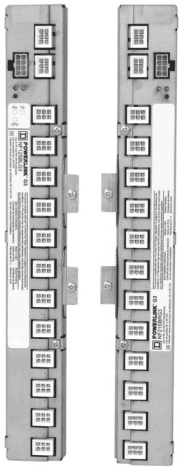
Ampere Rating	One-Pole 27 7 Vac – 14,000 AIR 120 Vac – 65,000 AIR	Two-Pole 480Y/277 Vac – 14,000 AIR 120/240 Vac – 65,000 AIR 240 Vac – 14,000 AIR Ground B Phase	Three-Pole 480Y/277 Vac – 14,000 AIR 240 Vac – 42,000 AIR
15	ECB14015G3*[3]*	ECB24015G3*[3]*	ECB34015G3*[3]*
20	ECB14020G3*[3]*	ECB24020G3*[3]*	ECB34020G3*[3]*
30	ECB14030G3	ECB24030G3	ECB32030G3*[4]*

Table 9.91: ECB-G3 Circuit Breakers for Emergency Lighting (requires 2-pole spaces)

Ampere Rating	One-Pole 480 Y/277 – 14,000 AIR 240 V – 65,000 AIR
20	ECB142020G3EL

NOTE: All are listed as HACR type for use with air conditioning, heating and refrigeration equipment having motor group combinations and marked for use with HACR type circuit breakers. UL listed as HID rated for use with high intensity discharge lighting systems. (1) #12–8 Al or (1) #10–8 Cu. Suitable for use with 75°C conductors.

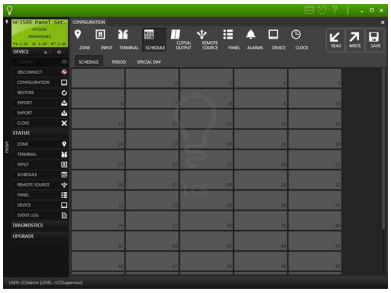
[1] X = Supported feature.
[2] 7.5 mA maximum load per input terminal.
[3] UL listed as SWD (switching duty) rated.
[4] Rated for 240 Vac only – 42,000 AIR



Control Bus

Power Supply

NF3500G4 Controller



Powerlink Software

Powerlink™ Accessories

Table 9.92: Control Bus

Max. No. of Control Circuits	Required Interior Size	Panel Orientation	Catalog No.
12	30	Left	NF12SBLG3
12	30	Right	NF12SBRG3
18	42	Left	NF18SBLG3
18	42	Right	NF18SBRG3
21	54	Left	NF21SBLG3
21	54	Right	NF21SBRG3

Table 9.93: Power Supply

Voltage	Primary Source	Catalog No.
120 V	Panel Bus	NF120PSG3
240 V	Panel Bus	NF240PSG3
277 V	Panel Bus	NF277PSG3
120 V	External	NF120PSG3L
240 V	External	NF240PSG3L
277 V	External	NF277PSG3L

Table 9.94: Cables & Accessories

Description	Catalog No.
Control bus cables	
Harness standard panel	NF2HG3
Sub-net accessories & cables	
Sub-panel address selector*[5]*	NFSELG3
6' sub-net cable	NFSN06

Table 9.95: Miscellaneous Hardware

Description	Catalog No.
Circuit Breaker Handle Padlock (Lock On or Off)	HPAFD
Fixed Barrier	NFASBKG3

Table 9.96: Software

Description	Catalog No.
LCSV2 Software*[6]*	LCSV2

[5] One address selector required for each sub-panel.
[6] Required for G4 controllers (NF3500G4). Will also support G3 controllers.

Remote Mount Controller

Remote Mount Controller

Table 9.97: Remote Mount Controller (for externally mounted electronics) Includes NEMA 1 enclosure, NF3500G4 controller, and power supply

Voltage	Catalog No.	Controller Type
120 V	RMC3500G4120	NF3500G4
240 V	RMC3500G4240	
277 V	RMC3500G4277	

NF Panelboards 240 V and 480Y/277 V Factory Assembled Systems—Max. Voltage 480Y/277 Vac

Table 9.98: Branch Circuit Breaker

Powerlink G3—ECB Bolt-On 65 kA AIR@240 Vac, 14 kA AIR@480 Y/277		Standard Breakers—EDB Bolt-On 18 kA AIR 1-pole, 25 kA AIR 2 & 3-pole @ 240 V, 18 kA AIR@480 Y/277		Standard Breakers HIC—EGB Bolt-On 65 kA AIR@240 Vac, 35 kA AIR@480 Y/277		Standard Breakers Extra HIC—EJB Bolt-On 100 kA AIR@240 Vac, 65 kA AIR@480 Y/277	
Voltage	**Ampere Rating**	**Voltage**	**Ampere Rating**	**Voltage**	**Ampere Rating**	**Voltage**	**Ampere Rating**
240 Vac	15–20 A	480Y/277 Vac	15–60 A	480Y/277 Vac	15–60 A	480Y/277 Vac	15–60 A
	30 A		70 A		70 A		70 A
480Y/277 Vac	15–20 A		80–100 A		80–100 A		80–100 A
	30 A		110–125 A		110–125 A		110–125 A
Space Only			Space Only		Space Only		Space Only

NOTE: All EC, ED, EG and EJ branch circuit breakers are UL Listed as HACR type.

Table 9.99: Sub-Feed Breaker Cabinet Data

Max. No. of Branch Spaces (Does not include sub-feed breaker spaces)	Box Height (20 in. W x 5.75 in. D)						
	250 A		400 A LA/LH		600 A		800 A
	Main Lugs	Main Circuit Breaker	Main Lugs	Main Circuit Breaker	Main Lugs*[7]*	Main Circuit Breaker *[8][9]*	Main Lugs*[10]*
30	56	68	68	80	68	80	68
42	62	74	74	86	74	86	74
54	68	80	80	92	80	92	80

- Available on 1Ø or 3Ø, 125–800 A main lugs or 125–600 A main circuit breaker interiors
- One sub-feed JD, JG, JJ or JL circuit breaker per 250 A panelboard
- Two sub-feed JD, JG, JJ or JL circuit breakers per 400 A panelboard

- PowerLogic™ metering
- Customer equipment space
- Increased box depth
- Box extensions top, bottom and side
- Drip hoods
- Non-standard paint
- NEMA 1 gasketed
- NEMA 4 Stainless steel enclosure
- NEMA 4X Fiberglass enclosure (NQ and NF)
- Stainless steel trim front (NQ, NF and I-LINE)
- Padlockable hasp
- Special locks (Corbin, Yale, Best)
- Equal height boxes
- Common trip to cover two equal height boxes
- Panelboard skirthides conduits feeding a panelboard
- Panelboard wireway for terminating conduit in wireway endwall
- Panelboard interiors and special fronts to fit existing boxes

[7] 600 A main lug panelboards require an 8.75 in. deep box.
[8] Dimensions also for 400 A PowerPacT L main circuit breaker panels.
[9] 600 A main lug panelboards require an 8 in. deep, 26 in. wide box.
[10] 800 A main lug panelboards require an 8.75 in. deep, 26 in. wide box.

Lighting Control System, Relay Panels, and Switches

Energy Management (EM) Lighting Control System

The Powerlink Energy Management (EM) Lighting Control System incorporates the same features found in the Powerlink 3500 level system, in addition to integral branch circuit and optional main metering for energy monitoring and verification of the lighting system. Integral metering is accomplished using the PowerLogic™ Branch Circuit Power Meter (BCPM), which is a highly accurate, full-featured multi-branch circuit power meter that provides unrivalled low-current monitoring.

The Powerlink system reduces electrical energy consumption associated with lighting and other loads by automatically switching loads off during non-occupied periods. The Powerlink system is often ideal for reducing the peak demand by switching unnecessary lights off in response to an automated response signal or when high time-of-day energy tariffs occur.

Powerlink Energy Management (EM) Lighting Control System

- Integral individual and optional mains metering to provide utmost flexibility in assurng a sustainable metering and verification program
- Monitors current, voltage, energy consumption, demand, and power factor for complete energy profiling
- Accumulated metering information transmitted via Modbus communications interface
- Data updates occurring within seconds to provide timely preventative maintenance information
- Optional EGX150 web interface for storing and reporting data via standard web browser (suggested for applications without Energy Management System [EMS] software)
- Alarm indication when parameters approach user-configured thresholds
- 16 hard-wired inputs available for connection to devices with physical dry-contacts
- 64 communication inputs available for network connection
- 16 independent time schedules, each can be configured into 24 distinct periods
- 7-day repeating clock with changeable automatic daylight savings time
- Automatic sunrise/sunset tracking with offsets
- 32 special event periods
- 32 remote sources for sharing input status, time schedules, or zone status between controllers
- Full custom logic capabilities, including full Boolean functions and synchronization services
- RS232 and RS485
- Serial communications using Modbus ASCII/RTU, BACnet MS/TP and DMX512 protocols (metering Modbus only)
- Ethernet 100BaseT communications using Modbus TCP and BACnet/IP protocols

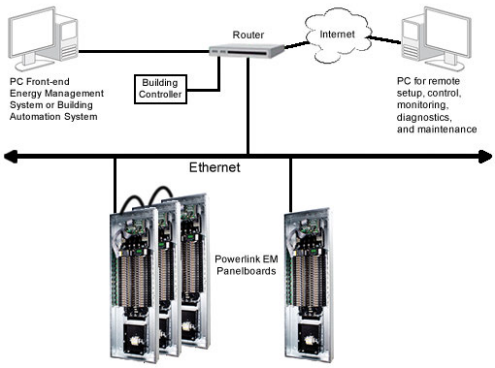


Table 9.100: Characteristics, Standards Compliance, and BCPM Specifications

Characteristics	
Operating Temperature	-5° to 40°C (23° to 104°F) (95%RH, non-condensing)
Storage Temperature	-20° to 85°C (-4° to 185°F) (<95%RH, non-condensing)

Regulatory/Standards Compliance

- UL Listed 916, Energy Management Equip
- FCC Part 15, Class A
- NEC Class 1 and Class 2 Control Circuits
- ESD Immunity: IEC 1000, level 4
- RF Susceptibility: IEC 1000, level 3
- Electrical Fast Transient Susceptibility: IEC 1000, level 3
- Electrical Surge Susceptibility: IEC 1000, level 4 (power line)
- Electrical Fast Transient Susceptibility: IEC 1000, level 3 (interconnection lines)

BCPM Specifications	
General	
Control Power	90–277 Vac
Frequency	50/60 Hz
Sampling Frequency	2560 Hz
Update Rate	1.6 seconds per panelboard
Overload Capability	10 kAIC
Ribbon Cable Support	Up to 20 ft.
Operating Temperature	0° to 60°C (32°C to 122°F) (<95%RH, non-condensing)
Storage Temperature	-40° to 70°C (-40° to 158°F)
Accurancy	
Current Monitoring	0.25 A to 100A: 3% of reading from 0.25 A to 2 A; 2% of reading from 2 A to 100 A
Auxiliary Inputs	2% of reading from 1% to 10% of rated current; 1% of reading from 10% to 100% of rated current (0 to 0.333 Vac)
Voltage Input	90–277 Vac; 1% of reading from 90–277 L-N (models BCPMA and BCPMB only)
Power	4% of reading from 0.25 A to 2 A; 3% of reading 2 A to 100 A*[11]* (models BCPMA and BCPM only)
Network Communications	
Serial	Modbus™ RTU
Ethernet	TCP/IP

[11] Recommended for application where EMS software monitoring is not provided.

I-Line Combo Panelboard

Table 9.101: Interior Boxes and Fronts — Includes Solid Neutral

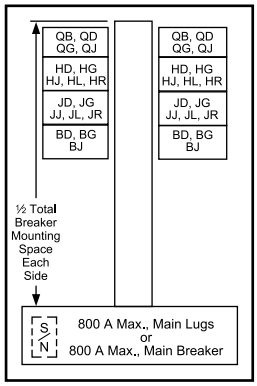
I-Line Mounting Space	Part Number	Panelboard Ampacity	Single/ Duplex	Lighting Section Type	Lighting Section Amperage	Lighting Section Circuits	Busing	Phase	Ground Bar	Box	4 Piece Trim Without Door	Trim with Door	NEMA 3R/5/12 (Includes Front)
18	CP18864N3Q2C	400	S	NQ	225	30	Cu	3	PK32DGTACU	HC2686DB	HC2686T( ) 4P	HC2686T( ) HR	HC2686WP
18	CP18864N3Q2	400	S	NQ	225	30	Al	3	PK32DGTA	HC2686DB	HC2686T( ) 4P	HC2686T( ) HR	HC2686WP
18	CP18864N4Q2C	400	S	NQ	225	42	Cu	3	PK32DGTACU	HC2686DB	HC2686T( ) 4P	HC2686T( ) HR	HC2686WP
18	CP18864N4Q2	400	S	NQ	225	42	Al	3	PK32DGTA	HC2686DB	HC2686T( ) 4P	HC2686T( ) HR	HC2686WP
18	CP18864N3F2C	400	S	NF	250	30	Cu	3	PK32DGTACU	HC2686DB	HC2686T( ) 4P	HC2686T( ) HR	HC2686WP
18	CP18864N3F2	400	S	NF	250	30	Al	3	PK32DGTA	HC2686DB	HC2686T( ) 4P	HC2686T( ) HR	HC2686WP
18	CP18864N4F2C	400	S	NF	250	42	Cu	3	PK32DGTACU	HC2686DB	HC2686T( ) 4P	HC2686T( ) HR	HC2686WP
18	CP18864N4F2	400	S	NF	250	42	Al	3	PK32DGTA	HC2686DB	HC2686T( ) 4P	HC2686T( ) HR	HC2686WP
18	CP118864N4Q4C	400	S	NQ	400	42	Cu	1	PK32DGTACU	HC2686DB	HC2686T( ) 4P	HC2686T( ) HR	HC2686WP
18	CP18866N3Q4C	600	S	NQ	400	30	Cu	3	PK32DGTACU	HC2686DB	HC2686T( ) 4P	HC2686T( ) HR	HC2686WP
18	CP18866N4Q4C	600	S	NQ	400	42	Cu	3	PK32DGTACU	HC2686DB	HC2686T( ) 4P	HC2686T( ) HR	HC2686WP
18	CP118866N4Q6C	600	S	NQ	600	42	Cu	1	PK32DGTACU	HC2686DB	HC2686T( ) 4P	HC2686T( ) HR	HC2686WP
18	CP18866N3F4C	600	S	NF	400	30	Cu	3	PK32DGTACU	HC2686DB	HC2686T( ) 4P	HC2686T( ) HR	HC2686WP
18	CP18866N4F4C	600	S	NF	400	42	Cu	3	PK32DGTACU	HC2686DB	HC2686T( ) 4P	HC2686T( ) HR	HC2686WP
22.5	CP23734N3Q2C	400	S	NQ	225	30	Cu	3	PK32DGTACU	HC3273DB9	HCM73T( )V	HCM73T( )VD	N/A
22.5	CP23734N3Q2	400	S	NQ	225	30	AL	3	PK32DGTA	HC3273DB9	HCM73T( )V	HCM73T( )VD	N/A
22.5	CP123734N3Q4C	400	S	NQ	400	30	Cu	1	PK32DGTACU	HC3273DB9	HCM73T( )V	HCM73T( )VD	N/A
22.5	CP23734N3F2C	400	S	NF	250	30	Cu	3	PK32DGTACU	HC3273DB9	HCM73T( )V	HCM73T( )VD	N/A
22.5	CP23734N3F2	400	S	NF	250	30	AL	3	PK32DGTA	HC3273DB9	HCM73T( )V	HCM73T( )VD	N/A
22.5	CP23736N3Q4C	600	S	NQ	400	30	Cu	3	PK32DGTACU	HC3273DB9	HCM73T( )V	HCM73T( )VD	N/A
22.5	CP23736N3F4C	600	S	NF	400	30	Cu	3	PK32DGTA	HC3273DB9	HCM73T( )V	HCM73T( )VD	N/A
22.5	CP23914N4Q2C	400	S	NQ	225	42	Cu	3	PK32DGTACU	HC3291DB9	HCM91T( )V	HCM91T( )VD	N/A
22.5	CP23914N4Q2	400	S	NQ	225	42	Al	3	PK32DGTA	HC3291DB9	HCM91T( )V	HCM91T( )VD	N/A
22.5	CP23914N5Q2C	400	S	NQ	225	54	Cu	3	PK32DGTACU	HC3291DB9	HCM91T( )V	HCM91T( )VD	N/A
22.5	CP23914N5Q2	400	S	NQ	225	54	Al	3	PK32DGTA	HC3291DB9	HCM91T( )V	HCM91T( )VD	N/A
22.5	CP23914N4F2C	400	S	NF	250	42	Cu	3	PK32DGTACU	HC3291DB9	HCM91T( )V	HCM91T( )VD	N/A
22.5	CP23914N4F2	400	S	NF	250	42	Al	3	PK32DGTA	HC3291DB9	HCM91T( )V	HCM91T( )VD	N/A
22.5	CP23914N5F2C	400	S	NF	250	54	Cu	3	PK32DGTACU	HC3291DB9	HCM91T( )V	HCM91T( )VD	N/A
22.5	CP23914N5F2	400	S	NF	250	54	Al	3	PK32DGTA	HC3291DB9	HCM91T( )V	HCM91T( )VD	N/A
22.5	CP23916N4Q4C	600	S	NQ	400	42	Cu	3	PK32DGTACU	HC3291DB9	HCM91T( )V	HCM91T( )VD	N/A
22.5	CP23916N5Q4C	600	S	NQ	400	54	Cu	3	PK32DGTACU	HC3291DB9	HCM91T( )V	HCM91T( )VD	N/A
22.5	CP123916N5Q4C	600	S	NQ	400	54	Cu	1	PK32DGTACU	HC3291DB9	HCM91T( )V	HCM91T( )VD	N/A
22.5	CP23916N4F4C	600	S	NF	400	42	Cu	3	PK32DGTACU	HC3291DB9	HCM91T( )V	HCM91T( )VD	N/A
22.5	CP23916N5F4C	600	S	NF	400	54	Cu	3	PK32DGTACU	HC3291DB9	HCM91T( )V	HCM91T( )VD	N/A
22.5	CP123916N5Q6C	600	S	NQ	600	54	CU	1	PK32DGTACU	HC3291DB9	HCM91T( )V	HCM91T( )VD	N/A
22.5	CP23916N44Q4C	600	D	NQ	400	42/42	Cu	3	PK32DGTACU	HC3291DB9	HCM91T( )V	HCM91T( )VD	N/A
22.5	CP123916N44Q4C	600	D	NQ	400	42/42	Cu	1	PK32DGTACU	HC3291DB9	HCM91T( )V	HCM91T( )VD	N/A
22.5	CP23916N53Q4C	600	D	NQ	400	54/30	Cu	3	PK32DGTACU	HC3291DB9	HCM91T( )V	HCM91T( )VD	N/A
31.5	CP32866N44Q4C	600	D	NQ	400	42/42	Cu	3	PK32DGTACU	HC4486DB	HCR86T( )	HCR86T( )D	HC4486WP
31.5	CP32866N53Q4C	600	D	NQ	400	54/30	Cu	3	PK32DGTACU	HC4486DB	HCR86T( )	HCR86T( )D	HC4486WP
31.5	CP32866N4BQ4C	600	D	NQ	400	42/B*	Cu	3	PK32DGTACU	HC4486DB	HCR86T( )	HCR86T( )D	HC4486WP
31.5	CP132866N44Q6C	600	D	NQ	600	42/42	Cu	1	PK32DGTACU	HC4486DB	HCR86T( )	HCR86T( )D	HC4486WP
31.5	CP32866N44F4C	600	D	NF	400	42/42	Cu	3	PK32DGTACU	HC4486DB	HCR86T( )	HCR86T( )D	HC4486WP
31.5	CP32866N53F4C	600	D	NF	400	54/30	Cu	3	PK32DGTACU	HC4486DB	HCR86T( )	HCR86T( )D	HC4486WP
31.5	CP32866N4BF4C	600	D	NF	400	42/B*	Cu	3	PK32DGTACU	HC4486DB	HCR86T( )	HCR86T( )D	HC4486WP
31.5	CP32868N44Q6C	800	D	NQ	600	42/42	Cu	3	PK32DGTACU	HC4486DB	HCR86T( )	HCR86T( )D	HC4486WP
31.5	CP132868N44Q6C	800	D	NQ	600	42/42	Cu	1	PK32DGTACU	HC4486DB	HCR86T( )	HCR86T( )D	HC4486WP
31.5	CP32868N53Q6C	800	D	NQ	600	54/30	Cu	3	PK32DGTACU	HC4486DB	HCR86T( )	HCR86T( )D	HC4486WP
31.5	CP32868N3BQ6C	800	D	NQ	600	30/B[1]	Cu	3	PK32DGTACU	HC4486DB	HCR86T( )	HCR86T( )D	HC4486WP
31.5	CP32868N4BQ6C	800	D	NQ	600	42/B[1]	Cu	3	PK32DGTACU	HC4486DB	HCR86T( )	HCR86T( )D	HC4486WP
31.5	CP132868N4BQ6C	800	D	NQ	600	42/B[1]	Cu	1	PK32DGTACU	HC4486DB	HCR86T( )	HCR86T( )D	HC4486WP
31.5	CP32868N5BQ6C	800	D	NQ	600	54/B[1]	Cu	3	PK32DGTACU	HC4486DB	HCR86T( )	HCR86T( )D	HC4486WP
31.5	CP32868N44F6C	800	D	NF	600	42/42	Cu	3	PK32DGTACU	HC4486DB	HCR86T( )	HCR86T( )D	HC4486WP
31.5	CP32868N53F6C	800	D	NF	600	54/30	Cu	3	PK32DGTACU	HC4486DB	HCR86T( )	HCR86T( )D	HC4486WP
31.5	CP32868N3BF6C	800	D	NF	600	30/B[1]	Cu	3	PK32DGTACU	HC4486DB	HCR86T( )	HCR86T( )D	HC4486WP
31.5	CP32868N4BF6C	800	D	NF	600	42/B[1]	Cu	3	PK32DGTACU	HC4486DB	HCR86T( )	HCR86T( )D	HC4486WP
31.5	CP32868N5BF6C	800	D	NF	600	54/B[1]	Cu	3	PK32DGTACU	HC4486DB	HCR86T( )	HCR86T( )D	HC4486WP

[1] B denotes a blank space on the right hand side of a duplex panel for future expansion

Table 9.102: RTI Cabled Lighting Section Kit for I-Line Combo Panelboard

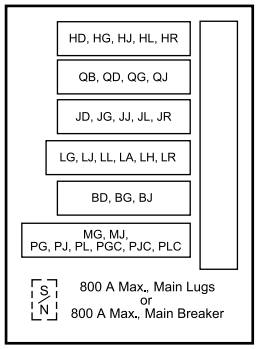
Part Number	Description	MLO Panelboard Ampacity	Lighting Section Type	Lighting Section Circuits
NFICRT418L1C	NF Lighting Section Kit	125	NF	18 dual
NFICRT442L2C	NF Lighting Section Kit	250	NF	42
NFICRT442L4C	NF Lighting Section Kit	400	NF	42
NFICRT442L6C	NF Lighting Section Kit	600	NF	42
NQICRT418L1C	NQ Lighting Section Kit	100	NQ	18 dual
NQICRT442L2C	NQ Lighting Section Kit	225	NQ	42
NQICRT442L4C	NQ Lighting Section Kit	400	NQ	42
NQICRT442L6C	NQ Lighting Section Kit	600	NQ	42
NQICRT418C1C	Contactor with 18 Circuit NQ Lighting Section Kit	100	NQ	18
NFICRT418C1C	Contactor with 18 Circuit NF Lighting Section Kit	125	NF	18

TYPE HCJ
250 A max. branch circuit breaker
BD, BG, BJ, QB, QD, QG, QJ, HD, HG, HJ, HL, HR, JD, JG, JJ, JL, JR



Box Size:
32 in. Wide, 9.5 in. Deep, NEMA Type 1

TYPE HCP-SU
800 A max. main circuit breaker
600 A max. branch circuit breaker
BD, BG, BJ, LA, LG, LJ, LL, LH, LR, MG, MJ, PG, PJ, PL, PGC, PJC, PLC*[2]*, QB, QD, QG, QJ, HD, HG, HJ, HL, JD, JG, JJ, JL



Box Size:
26 in. Wide, 9.5 in. Deep, NEMA Type 1

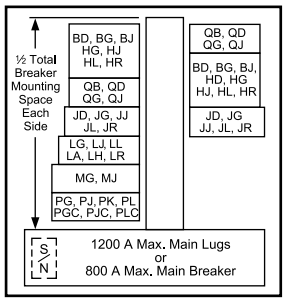
I-Line Panelboard

Table 9.103: Interiors, Boxes and Fronts

Total Circuit Breaker Mounting Space (In.)	Mains Ampere Rating	Interior Assembly (Less Branch Circuit Breakers) Catalog Number	Front *[3]* 4 Piece Trim Without Door Catalog Number	Front *[3]* Trim With Door*[4]* Catalog Number	Box *[4]* Type 1 Catalog Number	Box *[4]* NEMA 3R/5/12 *[5]* (Includes Front) Catalog Number	Box Height (In.)
HCJ Main Lugs Only 3-pole—Suitable for use as service equipment when provided with a main circuit breaker and service barrier kit. *[6]*							
27	400 A	HCJ14484	HCM48T( )	HCM48T( )D	HC3248DB9	HCJ3248WP	48
		HCJ14484CU					
	600 A	HCJ14486					
		HCJ14486CU					
	800 A	HCJ14488					
45	400 A	HCJ23734	HCM73T( )	HCM73T( )D	HC3273DB9	HCJ3273WP	73
	600 A	HCJ23736					
	800 A	HCJ23738					
63	400 A	HCJ32734					
		HCJ32734CU					
	600 A	HCJ32736					
		HCJ32736CU					
	800 A	HCJ32738					
99	400 A	HCJ50914	HCM91T( )	HCM91T( )D	HC3291DB9	HCJ3291WP	91
	600 A	HCJ50916					
	800 A	HCJ50918					
HCJ Main Circuit Breaker *[7] [8]* **Includes 3-pole, vertically mounted main circuit breaker—Suitable for use as service equipment with service barrier kit.** *[6]*							
27	400 A	HCJ14734M	HCM73T( )	HCM73T( )D	HC3273DB9	HCJ3273WP	73
36	600 A	HCJ18736MP					
	800 A	HCJ18738MP					
45	400 A	HCJ23734M					
72	600 A	HCJ36916MP	HCM91T( )	HCM91T( )D	HC3291DB9	HCJ3291WP	91
81	400 A	HCJ41914MCU					
		HCJ41914M					
	800 A	HCJ36918MP					
HCP-SU *[9]* **Universal Single Row Main Lugs or Main Circuit Breaker** *[8]* **3-pole—Suitable for use as service equipment when provided with a main circuit breaker and service barrier kit.** *[6]* **For main circuit breaker panel, order plug-on I-Line type PG, PJ, PL, MG, or MJ circuit breakers from page 9-60 through page 9-62 and backfeed as the main breaker (order solid neutral from page 9-50).**							
54	800	HCP54868SU	**HC2686T( )4P**	**HC2686T( ) HR***[10]*	HC2686DB	HC2886WP	86

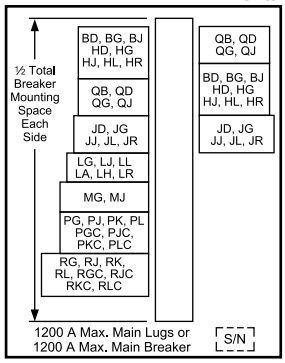
[2] PG, PJ, PL circuit breakers are available with both thermal-magnetic equivalent and MicroLogic trip. The MicroLogic circuit breakers are available 80% and 100% rated. “C” suffix denotes a 100% rating.
[3] Add “F” for flush mount, “S” for surface mount.
[4] For Type 1 applications, order interior, front, and box. For Type 3R/5/12 applications, order interior and box only. The front is included with the box.
[5] Remove drain screws for Type 3R rating.
[6] Suitable for use as service equipment if equipped with an integral main circuit breaker or when not more than six main disconnecting means are provided and the panelboard is not used as a lighting and appliance branch circuit panelboard. (Not applicable in Canada)
[7] Bottom feed standard.
[8] Circuit breaker interrupt ratings, see Interrupting Ratings Codes (kA), page 9-57.
[9] For main lugs panel, order sub-feed lug kit and back-feed as main lugs.
[10] Hinged trim with door.

TYPE HCP
800 A max. branch circuit breaker
BD, BG, BJ, QB, QD, QG, QJ, HD, HG, HJ, HL, HR, JD*[11]*, JG, JJ, JL, JR, LA, LH, LG, LJ, LL, LR, MG, MJ, PG, PJ, PL, PGC, PJC, PLC *[12]*



Box Size:
42 in. Wide, 9.5 in. Deep, NEMA Type 1

TYPE HCR-U Universal Mains
1200 A max. branch circuit breaker
BD, BG, BJ, QB, QD, QG, QJ, HD, HG, HJ, HL, HR, JD*[13]*, JG, JJ, JL, JR, LA, LH, LG, LJ, LL, LR, MG, MJ, PG, PJ, PK, PL, RG, RJ, RK, RL, PGC, PJC, PKC, PLC, RGC, RJC, RKC, RLC*[14][12]*



Box Size:
44 in. Wide, 9.5 in. Deep, NEMA Type 1

Table 9.104: (1200 A Interiors Include solid neutral, all others without solid neutral) *[15]*

Total Circuit Breaker Mtg. Space (In.)	Mains Amp. Rating	Max. No. of MJ, PL, RL Circuit Breakers	Interior Assembly (Less Branch Circuit Breakers)	Front *[16]*		Box *[17]*	Box Height (In.)
				4 Piece Trim Without Door *[18]*	Trim With Door		
			Catalog Number	Catalog Number	Catalog Number	Catalog Number	
HCP **Main Lugs Only—3-pole** Suitable for use as service equipment when provided with a main circuit breaker and service barrier kit. *[19]*							
27	400	1PL	HCP14504	HCW50T( )	HCW50T( )D	HC4250-DB	50
	600		HCP14506				
	800		HCP14508				
	1200		HCP145012N				
45	400	2PL	HCP23594	HCW59T( )	HCW59T( )D	HC4259-DB	59
	600		HCP23596				
	800		HCP23598				
	1200		HCP235912N				
63	400	3PL	HCP32684	HCW68T( )	HCW68T( )D	HC4268-DB	68
	600		HCP32686				
	800		HCP32688				
	1200		HCP326812N				
99	400	5PL	HCP50864	HCW86T( )	HCW86T( )D	HC4286-DB	86
	600		HCP50866				
	800		HCP50868				
	1200		HCP508612N				
HCP **Main Circuit Breaker** *[20]*—Includes 3-pole Vertically mounted main circuit breaker—Suitable for use as service equipment with service barrier kit. *[19]*							
36	600	2LC	HCP18686M	HCW68T( )	HCW68T( )D	HC4268-DB	68
	800		HCP18688M				
72	600	4LC	HCP36866M	HCW86T( )	HCW86T( )D	HC4286-DB	86
	800		HCP36868M				
HCR-U **Universal Main Lugs or Main Circuit Breaker** *[21]* **—3-pole** Suitable for use as service equipment when provided with a main circuit breaker and service barrier kit. *[19]* For Main Lugs panel, order sub-feed lug kit catalog number S33930 and back feed as main lugs. For Main Circuit Breaker panel, order plug-on I-Line type PG, PJ, PL, RGC, RJC, or RLC *[21]* circuit breakers from page 9-62 and page 9-63, and back feed as the main circuit breaker. (Order solid neutral separately)							
108 *[22]*	1200	6PL or 3RLC	HCR548612U	HCR86T( ) *[23]*	HCR86T( )D	HC4486-DB	86

Table 9.105: Main Circuit Breaker Interiors —Standard Frame Types *[20]*

Main Circuit Breaker Ampacity	Panelboard Type	Factory Supplied Main Circuit Breaker
400	HCJ	LAP36400MB
600 or 800	HCJ, HCP	MGP36600 or MGP36800

Table 9.106: Standard Copper Bus Interiors

Type	Main Ampacity
HCJ, HCP-SU	800
HCP, HCR-U	800 and Above

NOTE: Merchandised copper interiors are not available in all ampacities.

Table 9.107: Circuit Breaker / Sub-feed Lug Kit Mounting Space Requirement

Type of Circuit Breaker	Maximum Ampacity	No. of Poles	Inch Mounting Requirements
BD, BG, BJ	125	1	1.5
BD, BG, BJ		2	3
BD, BG, BJ		3	4.5
HD, HG	150	2	3
HD, HG		3	4.5
HJ, HL, HR		2, 3	4.5
QB, QD, QG, QJ	225	2	3
QB, QD, QG, QJ	225	3	4.5

Type of Circuit Breaker	Maximum Ampacity	No. of Poles	Inch Mounting Requirements
JD, JG, JJ, JL, JR, SL250	250	2, 3	4.5
LA, LH, SL400	400		6
LG, LJ, LL, LR	600		6
Smart Cell	NA		6
MG, MJ, SL800, PGC, PJC, PLC	800		9
PG, PJ, PL, S33931	1200		9
RG, RJ, RL, RGC, RJC, RLC, S33930			15

[11] JDA circuit breakers with field installable ground fault kits may be mounted in type HCP, HCP-SU, and HCR-U panelboards as shown, and require L-frame mounting space.
[12] PG, PJ, and PL circuit breakers are available with both thermal-magnetic equivalent and MicroLogic trip. The MicroLogic circuit breakers are available 80% and 100% rated. “C” suffix denotes a 100% rating.
[13] JD circuit breakers with field installable ground fault kits may be mounted in type HCP, HCP-SU, and HCR-U panelboards as shown, and require L-frame mounting space.
[14] When RL main circuit breakers with equipment ground fault are applied on a 3Ø4W system, order solid neutral catalog number HCR12SNCT. The HCR12SNCT includes a neutral current transformer.
[15] Order solid neutral from page 9-50.
[16] Add “F” for flush mount, “S” for surface mount.
[17] For 42 in. wide weatherproof enclosures, see Table 9.114 Type 3R/5/12 Enclosures, page 9-51
[18] Add-on door kit available. Example: For HCW50TS trim kit, order HCW50D door kit.
[19] Suitable for use as service equipment if equipped with an integral main circuit breaker or when not more than six main disconnecting means are provided and the panelboard is not used as a lighting and appliance branch circuit panelboard. (Not applicable in Canada)
[20] Circuit breaker interrupt ratings, see Interrupting Ratings Codes (kA), page 9-57.
[21] When RL main circuit breakers with equipment ground fault are applied on a 3Ø4W system, order solid neutral catalog number HCR12SNCT. The HCR12SNCT includes a neutral current transformer.
[22] 15 in. of mounting space is taken up by the back fed main lug kit or RG, RJ, RL main circuit breaker, leaving 93 in. of branch circuit breaker mounting space.
[23] Add-on door kit available. Example: For HCR86TS trim kit, order HCW86D door kit.

Accessories

Blank Fillers

Equipment Ground Bar

Solid Neutral

Table 9.108: I-Line Merchandised Panelboard Accessories

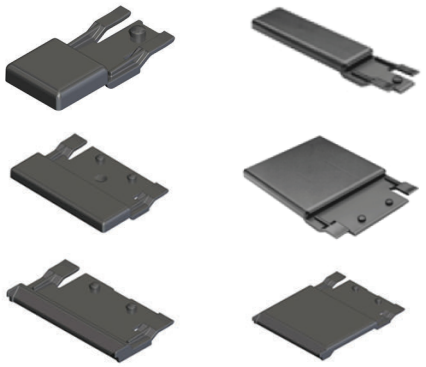
	Description	Catalog No.
Blank Filler Kit—1.5 in.*[24]* (One kit contains quantity of 3 blank fillers.)		HNM1BL
Blank Filler Kit—4.5 in.*[24]* (One kit contains quantity of 5 blank fillers.)		HNM4BL
Solid Neutral Assemblies		
	225 A	HC2SN
	400 A	HC4SN *[25]*, HCW4SN *[26]*
	600 A	HC6SN *[25]*, HCW6SN *[26]*
	800 A	HC8SN *[25]*, HCW8SN *[26]*
		HCPSU8SN*[27]*
		HCPSU8SNCW*[27]*
	1200 A	HCW12SN*[26]*
	1200 A, for use with HCR-U universal panel only	HCWM12SN*[28]*
	1200 A, including neutral Current Transformer (CT) for 3Ø4W systems	HCR12SNCTW*[28]*
Equipment Ground Bar Kits—HCJ, HCP, HCP-SU (single row), HCR-U		PK32DGTA
Blank Extensions (For replacement purposes)		
 Blank Extensions	1.5 in. for mounting on wide side of I-Line panelboard used with HNM1BL and HNM4BL as a filler plate on the wide side of the panel (HCP, HCP-SU and HCRU). Do not use with MicroLogic trip unit as this filler will cover the trip unit. *[24]*	HLW1BL (Kit contains quantity of 3.)
	4.5 in. for mounting on wide side of I-Line panelboard used with HNM1BL and HNM4BL as a filler plate on the wide side of the panel (HCP, HCP-SU and HCRU). Do not use with MicroLogic trip unit as this filler will cover the trip unit. *[24]*	HLW4BL (Kit contains quantity of 5.)
	1.5 in. for mounting on narrow side of I-Line panelboard used with HNM1BL and HNM4BL as a filler plate on the narrow side of the panel. Do not use with MicroLogic trip unit as this filler will cover the trip unit. *[24]*	HLN1BL (Kit contains quantity of 3.)
	4.5 in. for mounting on narrow side of I-Line panelboard used with HNM1BL and HNM4BL as a filler plate on the narrow side of the panel. Do not use with MicroLogic trip unit as this filler will cover the trip unit. *[24]*	HLN4BL (Kit contains quantity of 5.)
	4.5 in. for mounting on wide side of I-Line panelboard. For use with PowerPacT H and J circuit breakers mounted on the wide side of the panel so that electronic trip unit can be accessed. *[24]*	HLW4EBL (Kit contains quantity of 5.)
	4.5 in. for mounting on narrow side of I-Line panelboard. For use with PowerPacT H and J circuit breakers mounted on the narrow side of the panel so that electronic trip unit can be accessed. *[24]*	HLN4EBL (Kit contains quantity of 5.)

Table 9.109: Blank Extensions

Application	Circuit Breaker Mounting Ht.	Branch Circuit Side	Catalog Number
All applications, except PowerPacT H/J with MicroLogic trip unit 3, 5 and 6	1.5 in.	Wide Side	HLW1BL
	4.5 in.		HLW4BL
All applications, except PowerPacT H/J with MicroLogic trip unit 3, 5 and 6	1.5 in.	Narrow Side	HLN1BL
	4.5 in.		HLN4BL
Only PowerPacT H/J circuit breakers with MicroLogic trip unit 3, 5 and 6	4.5 in.	Narrow Side	HLN4EBL
Only PowerPacT H/J circuit breakers with MicroLogic trip unit 3, 5 and 6	4.5 in.	Wide Side	HLW4EBL

[24] Blank extension and blank filler pricing is per kit. See note on kit number for number included in each kit.
[25] Used on Type HCJ.
[26] Used on 400 A, 600 A, 800 A, and 1200 A HCP (main lugs), and 600 A and 800 A (main circuit breaker).
[27] Used on Type HCP-SU (single row).
[28] Used on Type HCR-U.

Table 9.110: UL Service Entrance Barriers for I-Line Panelboards with Backfeed Main Circuit Breaker *[29]*

I-Line Panelboard Type	Backfeed Main Circuit Breaker	Catalog Number *[30]*
HCJ	H, J	ILBFMHCJHULC
HCP	H, J	ILBFMHCPHJULC
	LA, LH, PowerPacT L	ILBFMHCPLULC
	M, P	ILBFMHCPMPULC
HCR	LA, LH, PowerPacT L	ILBFMHCRLULC
	M	ILBFMHCRMULC
	P	ILBFMHCRPULC
	R	ILBFMHCRRULC

(NOTE: Barriers are required by 2017 version of NFPA70—National Electric Code. Both the 2017 UL67 and 2017 NFPA70 allow an exception for service entrance panelboards with more than one disconnect.)

Table 9.111: UL Service Entrance Barrier Kits for I-Line Vertical Mounted Mains *[29]*

Main Circuit Breaker	Determining Factors	Catalog Number *[30]*
MG, MJ	4 wires per phase (for breakers with AL1200P24K or CU1200P24K lug kit)	ILMLC4W
	3 wires per phase (for breakers with AL80023K or CU80023K lug kit)	ILMLC3W
	2 wires per phase (for breakers with AL800P6K or AL800P7K lug kit)	ILMLC2W
PowerPacT L	All instances	PPLLC
LA/LH	All instances	LALLC

(NOTE: Barriers are required by 2017 version of NFPA70—National Electric Code)

Table 9.112: Solid Neutral Lug Quantities and Sizes

Solid Neutral Assembly	Terminal Wire Range
HC2SN	(1) 6 - 300, (9) #1/0 - 14, (45) #4 - 14
HC4SN	(7) 6 - 350, (45) #4 - 14
HC6SN	(7) 6 - 350, (9) #1/0 - 14, (28) #4 - 14
HC8SN	(7) 6 - 350, (9) #1/0 - 14, (34) #4 - 14
HCPSU8SN	(4) 3/0 - 600, (7) 6 - 350, (9) #1/0 - 14, (34) #4 - 14,
HCW4SN	(2) 4 - 600, (7) 6 - 350, (45) #4 - 14
HCW6SN	(4) 3/0 - 750, (7) 6 - 350, (9) #1/0 - 14, (34) #4 - 14
HCW8SN	(4) 3/0 - 750, (7) 6 - 350, (9) #1/0 - 14, (34) #4 - 14
HCW12SN	(4) 3/0 - 750, (7) 6 - 350, (9) #1/0 - 14, (34) #4 - 14
HCWM12SN	(4) 3/0 - 750, (7) 6 - 350, (9) #1/0 - 14, (34) #4 - 14
HC6SNALCU	(7) 6 - 350, (9) #1/0 - 14, (28) #4 - 14
HC8SNALCU	(7) 6 - 350, (9) #1/0 - 14, (34) #4 - 14
HCPSU8SNALCU	(4) 3/0 - 600, (7) 6 - 350, (9) #1/0 - 14, (34) #4 - 14
HCP4SNALCU	(2) 4 - 600, (7) 6 - 350, (45) #4 - 14
HCP6SNALCU	(4) 3/0 - 750, (7) 6 - 350, (9) #1/0 - 14, (34) #4 - 14
HCP8SNALCU	(4) 3/0 - 750, (7) 6 - 350, (9) #1/0 - 14, (34) #4 - 14
HCP12SNALCU	(4) 3/0 - 750, (7) 6 - 350, (9) #1/0 - 14, (34) #4 - 14
HCR12SNALCU	(4) 3/0 - 750, (7) 6 - 350, (9) #1/0 - 14, (34) #4 - 14
HC6SNCU	(7) 6 - 350, (9) #1/0 - 14, (28) #4 - 14
HC8SNCU	(7) 6 - 350, (9) #1/0 - 14, (28) #4 - 14
HCPSU8SNCU	(4) 3/0 - 600, (7) 6 - 350, (9) #1/0 - 14, (28) #4 - 14,
HCW4SNCU	(2) 2 - 600, (7) 6 - 350, (9) #1/0 - 14, (28) #4 - 14
HCW6SNCU	(2) 2 - 600, (7) 6 - 350, (9) #1/0 - 14, (28) #4 - 14
HCW8SNCU	(4) 3/0 - 750, (7) 6 - 350, (9) #1/0 - 14, (28) #4 - 14
HCP12SNCU	(4) 3/0 - 750, (7) 6 - 350, (9) #1/0 - 14, (28) #4 - 14
HCW12SNCU	(7) 6 - 350, (9) #1/0 - 14, (28) #4 - 14
HCR12SNCU	(4) 3/0 - 750, (7) 6 - 350, (9) #1/0 - 14, (28) #4 - 14
HCR2SNCTW	(7) 6 - 350, (9) #1/0 - 14, (34) #4 - 14
HCR2SNCTWALCU	(7) 6 - 350, (9) #1/0 - 14, (34) #4 - 14
HCR2SNCTWCU	(7) 6 - 350, (9) #1/0 - 14, (28) #4 - 14
HCR12SNCTW	(7) 6 - 350, (9) #1/0 - 14, (34) #4 - 14
HCR12SNCTWALCU	(7) 6 - 350, (9) #1/0 - 14, (34) #4 - 14
HCR12SNCTWCU	(7) 6 - 350, (9) #1/0 - 14, (28) #4 - 14
HCPSU2SNCTW	(7) 6 - 350, (9) #1/0 - 14, (34) #4 - 14
HCPSU2SNCTWALCU	(7) 6 - 350, (9) #1/0 - 14, (34) #4 - 14
HCPSU2SNCTWCU	(7) 6 - 350, (9) #1/0 - 14, (28) #4 - 14
HCPSU8SNCW	(7) 6 - 350, (9) #1/0 - 14, (28) #4 - 14
HCPSU12SNCTWALCU	(7) 6 - 350, (9) #1/0 - 14, (28) #4 - 14
HCPSU12SNCTWCU	(7) 6 - 350, (9) #1/0 - 14, (28) #4 - 14
HCP16NALCU	(35) 350, (9) #1/0 - 14, (17) #4 - 14
HCR24NALCU	(8) 750, (21) 350, (9) #1/0 - 14, (17) #4 - 14
HCPSU16NALCU	(8) 750, (21) 350, (9) #1/0 - 14, (17) #4 - 14

Table 9.113: Panelboard Adapter Kits

Crimp Lug Adapter Kits *[31]*	I-Line Panelboard Type	
	HCJ	HCP, HCR-U *[32]*
400 A	HCM400VCA	HCW400VCA
600 A	HCM600VCA	HCW600VCA
800 A	HCM800VCA	HCW800VCA
1200 A	—	HCW1200VCA

Table 9.114: Type 3R/5/12 Enclosures

Catalog Number	Interior Type	Dimensions (In.)		
		H	W	D
HC4250WP	HCP	50	42	12.95
HC4259WP	HCP	59	42	12.95
HC4268WP	HCP	68	42	12.95
HC4286WP	HCP	86	42	12.95
HC4486WP	HCR-U	86	44	14.50

[29] For US only.
[30] For panelboards manufactured after 1 January 2017.
[31] For use with MLO panel, order VCEL lugs seperately.
[32] Not for use with P- or R-frame circuit breakers or sub-feed kits S33930 or S33931.

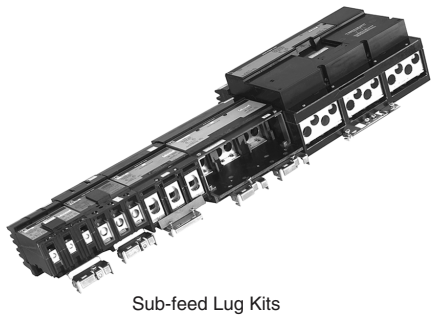
Table 9.115: Box Extensions

	Catalog Number	Interior Type	Extension
	HC2609DEX (F or S)	HCP-SU	9 in.
	HC3209EX (F or S)	HCJ	9 in.
	HC4212DEX (F or S)	HCP	12 in.
	HC4406DEX (F or S)	HCR-U	6 in.
	HC4412DEX (F or S)	HCR-U	12 in.

Table 9.116: I-Line/QMB PanelBoard Drip Hood Kits
The Drip Hoods listed below are intended for use on surface mounted HC and QMB boxes only. Select the appropriate Drip Hood based on Interior Type, Width, and Depth from the following table. The Drip Hoods are designed to fit on the outside of the boxes. The Drip Hood will increase the enclosure rating of the box from Type 1 to Type 2. Reference Instruction Bulletin 80043-401-03.

Catalog Number	Interior Type	Dimensions (In.)	
		Width	Depth
HCT2DH32D9	HCJ	32	9.5
HCT2DH42	HCP	42	9.5
HCT2DH26D9	HCP-SU	26	9.5
HCT2DH47	HCP (L5)	47	9.5
HCT2DH56	HCP (PL)	56	9.5
HCT2DH42D12	HCP (DB)	42	12.5
HCT2DH44	HCR-U	44	9.5
HCT2DH49	HCR-U (L5)	49	9.5
HCT2DH58	HCR-U (PL)	58	9.5
HCT2DH44D12	HCR-U (DB)	44	12.5
QMT2DH38	QMB	38	11.5

1. Box Types noted with (PL) are standard width boxes with an additional 14 in. PowerLogic extension.
2. Box Types noted with (L5) are standard width boxes with an additional 5 in. side extension.
3. Box Types noted with (DB) have additional box depth.



Sub-feed Lug Kits

Table 9.117: Sub-feed Lug Kits *[33][34][35]*

Ampere Rating	Height		Catalog Number	Max. Short Circuit System Ratings RMS Symmetrical Amperes			Protected by Circuit Breaker	For Use in I-Line Panelboard Types
	In.	(mm)		240 Vac	480 Vac	600 Vac		
250 A	4.5	114	SL250	200,000	200,000	100,000	FA, FD, FG, FH, FJ, HD, HG, HJ, HL, HR, JD, JG, JJ, JL, JR, KI	HCJ, HCP, HCP-SU, HCR-U
400 A	6	152	SL400 *[35]*	200,000	200,000	100,000	HD, HG, HJ, HL, HR, JD, JG, JJ, JL, JR, LA, LH,, DG, DJ, DL, LG, LJ, LL, LR ("L" & "D" FRAME 400 A MAX.)	HCP, HCP-SU, HCR-U (wide side only)
800 A	9	229	SL800M5	125,000	100,000	25,000	FA, FD, FG, FH, FJ, KA, KH, KC, KI, HD, HG, HJ, HL, HR, JD, JG, JJ, JL, JR, MA, MH, MX, MG, PG, MJ, PJ, PK, PL, DG, DJ, DL, LG, LJ, LL, LR	HCJ, HCP, HCP-SU, HCR-U
1200 A	15	381	S33930	125,000	100,000	50,000	FA, FD, FG, FH, FJ, KA, KH, KC, KI, HD, HG, HJ, HL, HR, JD, JG, JJ, JL, JR, LA, LH, LC, LI, MA, MH, MX, NA, NC, NX, MG, PG, MJ, PJ, PK, PL, RG, RJ, RL, RK, DG, DJ, DL, LG, LJ, LL, LR	HCR-U
1200 A	9	229	SL1200P5, SL1200P6, SL1200P7	125,000	100,000	50,000	FA, FD, FG, FH, FJ, KA, KH, KC, KI, HD, HG, HJ, HL, HR, JD, JG, JJ, JL, JR, MG, PG, MJ, PJ, PK, PL, RG, RJ, RL, RK, DG, DJ, DL, LG, LJ, LL, LR	HCP, HCP-SU, HCR-U

NOTE: S33930, S33931, SL1200P5, SL1200P6, SL1200P7, SL Kits are rated 1200 A and may be applied to 1200 ampere loads when installed into HCRU panelboards. However, when installed into HCP and HCPSU panelboards they are only rated 800 amperes maximum due to restricted wire bending space.

Table 9.118: Sub-feed Lug kit terminal data

Catalog No. (Prefix)	No. Poles	Ampere Rating	Standard Lug Wire Size *[36]*
SL100	3	100	#14–1/0 AWG Cu or #12–1/0 AWG Al
SL250	3	250	(1) #4 AWG–300 kcmil
SL400	3	400	(1) #1 AWG–600 kcmil or 2– #1 AWG–250 kcmil
SL800M5	3	800	(3) #3/0 AWG–500 kcmil
S33930	3	1200	(4) #3/0 AWG–600 kcmil
SL1200P5	3	1200	(4) #3/0 AWG–500 kcmil
SL1200P6	3	1200	(3) 350–600 kcmil
SL1200P7	3	1200	(3) #3/0 AWG–750 kcmil

[33] Plug-on in same manner as a branch circuit breaker
[34] For other ratings, see the latest edition of I-Line Information Manual, #80043-309-xx.
[35] SL400 cannot be used in HCJ panelboards due to inadequate wire bending space.
[36] Unless otherwise specified, wire sizes apply to both aluminum and copper conductors.

2-pole, 3 in. (6 mm) Mounting Height

3-pole, 4.5 in. (114 mm) Mounting Height

PowerPacT™ B-frame, Thermal Magnetic

Accessories are located in Section 7 PowerPacT Accessories, page 7-51.

Table 9.119: B-frame Interrupting Ratings

	Interrupting Rating			
	D	G	J	K
240 Vac	25 kA	65 kA	100 kA	100 kA
480/277 Vac	18 kA	35 kA	65 kA	65 kA
480 Vac	18 kA	35 kA	65 kA	65 kA
600Y/347 Vac	14 kA	18 kA	25 kA	65 kA
1P 125 Vdc	10 kA	20 kA	50 kA	—
2–3P 250 Vdc	10 kA	20 kA	50 kA	—

Table 9.120: PowerPacT B-frame, 125 A max, Thermal Magnetic UL Circuit Breaker (PowerPacT B-frame 1–pole branch circuit breakers utilize 1.5 in. of I-Line mounting space, 2–pole branch circuit breakers utilize 3 in. of I-Line mounting space and 3–pole B-frame circuit breakers utilize 4.5 in. of I-Line mounting space.) Refer to Table 9.122 Phase Options Suffix Numbers for B/Q-frame Circuit Breakers, page 9-55 Example for phase options and suffix information.

D - SCCR					
	1-pole	2-pole	3-pole	Fixed AC Magnetic Trip	
Amps	277 Vac	480/277 Vac	480/277 Vac	Hold	Trip
15	BDA14015	BDA24015Y	BDA34015Y	400 A	600 A
20	BDA14020	BDA24020Y	BDA34020Y	400 A	600 A
25	BDA14025	BDA24025Y	BDA34025Y	400 A	600 A
30	BDA14030	BDA24030Y	BDA34030Y	400 A	600 A
35	BDA14035	BDA24035Y	BDA34035Y	400 A	600 A
40	BDA14040	BDA24040Y	BDA34040Y	400 A	600 A
45	BDA14045	BDA24045Y	BDA34045Y	400 A	600 A
50	BDA14050	BDA24050Y	BDA34050Y	480 A	720 A
60	BDA14060	BDA24060Y	BDA34060Y	640 A	960 A
70	BDA14070	BDA24070Y	BDA34070Y	640 A	960 A
80	BDA14080	BDA24080Y	BDA34080Y	800 A	1200 A
90	BDA14090	BDA24090Y	BDA34090Y	1000 A	1500 A
100	BDA14100	BDA24100Y	BDA34100Y	1000 A	1500 A
110	BDA14110	BDA24110Y	BDA34110Y	1000 A	1500 A
125	BDA14125	BDA24125Y	BDA34125Y	1000 A	1500 A
G - SCCR					
	1-pole	2-pole	3-pole	Fixed AC Magnetic Trip	
Amps	277 Vac	480/277 Vac	480/277 Vac	Hold	Trip
15	BGA14015	BGA24015Y	BGA34015Y	400 A	600 A
20	BGA14020	BGA24020Y	BGA34020Y	400 A	600 A
25	BGA14025	BGA24025Y	BGA34025Y	400 A	600 A
30	BGA14030	BGA24030Y	BGA34030Y	400 A	600 A
35	BGA14035	BGA24035Y	BGA34035Y	400 A	600 A
40	BGA14040	BGA24040Y	BGA34040Y	400 A	600 A
45	BGA14045	BGA24045Y	BGA34045Y	400 A	600 A
50	BGA14050	BGA24050Y	BGA34050Y	480 A	720 A
60	BGA14060	BGA24060Y	BGA34060Y	640 A	960 A
70	BGA14070	BGA24070Y	BGA34070Y	640 A	960 A
80	BGA14080	BGA24080Y	BGA34080Y	800 A	1200 A
90	BGA14090	BGA24090Y	BGA34090Y	1000 A	1500 A
100	BGA14100	BGA24100Y	BGA34100Y	1000 A	1500 A
110	BGA14110	BGA24110Y	BGA34110Y	1000 A	1500 A
125	BGA14125	BGA24125Y	BGA34125Y	1000 A	1500 A
J - SCCR					
	1-pole	2-pole	3-pole	Fixed AC Magnetic Trip	
Amps	347 Vac	600Y/347 Vac	600Y/347 Vac	Hold	Trip
15	BJA16015	BJA26015	BJA36015	400 A	600 A
20	BJA16020	BJA26020	BJA36020	400 A	600 A
25	BJA16025	BJA26025	BJA36025	400 A	600 A
30	BJA16030	BJA26030	BJA36030	400 A	600 A
35	BJA16035	BJA26035	BJA36035	400 A	600 A
40	BJA16040	BJA26040	BJA36040	400 A	600 A
45	BJA16045	BJA26045	BJA36045	400 A	600 A
50	BJA16050	BJA26050	BJA36050	480 A	720 A
60	BJA16060	BJA26060	BJA36060	640 A	960 A
70	BJA16070	BJA26070	BJA36070	640 A	960 A
80	BJA16080	BJA26080	BJA36080	800 A	1200 A
90	BJA16090	BJA26090	BJA36090	1000 A	1500 A
100	BJA16100	BJA26100	BJA36100	1000 A	1500 A
110	BJA16110	BJA26110	BJA36110	1000 A	1500 A
125	BJA16125	BJA26125	BJA36125	1000 A	1500 A

I-Line HQO Accessory

For phase option information see Table 9.122.

Table 9.121: QO™ Distribution Panel—240 Vac Max. Only Mounts in Type HCJ, HCP, HCP-SU, or HCR-U I-Line panelboards, 30 A max. branch circuit breaker.

Maximum No. 1-pole QO Circuit Breakers	Phase Connection	Mounting Height		2-pole Catalog Number	3-pole Catalog Number
		In.	mm		
6	AB	4.5	114	HQO206AB	—
6	BC	4.5	114	HQO206BC	—
6	AC	4.5	114	HQO206AC	—
6	ABC	4.5	114	—	HQO306
6	CBA	4.5	114	—	HQO306CBA

Table 9.122: Phase Options Suffix Numbers for B/Q-frame Circuit Breakers

Phase Option Number	Phase Connection	1-pole	2-pole	3-pole
1	A	BDA140151	—	—
3	B	BDA140153	—	—
5	C	BDA140155	—	—
1	AB	—	QBA220701	—
2	AC	—	QBA220702	—
3	BA	—	QBA220703	—
4	BC	—	QBA220704	—
5	CA	—	QBA220705	—
6	CB	—	QBA220706	—
Standard *[37]*	ABC	—	—	QBA32070
6	CBA	—	—	QBA320706

[37] The absence of a phase option number after a 3-pole catalog number will result in an ABC phase connection.

QB/QD/QG/QJ
Mounting Height
2–pole 3 in. [76 mm]
3–pole 4.5 in [114 mm]

PowerPacT Q-frame for I-Line™ Panelboards and Switchboards

Table 9.123: PowerPacT™ Q-frame— 225 A, Thermal-magnetic (240 Vac) (PowerPacT Q-frame 2–pole branch circuit breakers utilize 3 in. of I-Line mounting space and 3–pole Q-frame circuit breakers utilize 4.5 in. of I-Line mounting space.)

Ampere Rating	AC Magnetic Trip Settings		"B" Interrupting	"D" Interrupting	"G" Interrupting	"J" Interrupting *[38]*
	Hold	Trip	Catalog Number	Catalog Number	Catalog Number	Catalog Number
2-pole, 240 Vac *[39]*.						
70 A	1000	1800	QBA22070( )	QDA22070( )	QGA22070( )	QJA22070( )
80 A			QBA22080( )	QDA22080( )	QGA22080( )	QJA22080( )
90 A			QBA22090( )	QDA22090( )	QGA22090( )	QJA22090( )
100 A	1200	2400	QBA22100( )	QDA22100( )	QGA22100( )	QJA22100( )
110 A			QBA22110( )	QDA22110( )	QGA22110( )	QJA22110( )
125 A			QBA22125( )	QDA22125( )	QGA22125( )	QJA22125( )
150 A			QBA22150( )	QDA22150( )	QGA22150( )	QJA22150( )
175 A			QBA22175( )	QDA22175( )	QGA22175( )	QJA22175( )
200 A			QBA22200( )	QDA22200( )	QGA22200( )	QJA22200( )
225 A			QBA22225( )	QDA22225( )	QGA22225( )	QJA22225( )
3-pole, 240 Vac *[40]*						
70 A	1000	1800	QBA32070( )	QDA32070( )	QGA32070( )	QJA32070( )
80 A			QBA32080( )	QDA32080( )	QGA32080( )	QJA32080( )
90 A			QBA32090( )	QDA32090( )	QGA32090( )	QJA32090( )
100 A	1200	2400	QBA32100( )	QDA32100( )	QGA32100( )	QJA32100( )
110 A			QBA32110( )	QDA32110( )	QGA32110( )	QJA32110( )
125 A			QBA32125( )	QDA32125( )	QGA32125( )	QJA32125( )
150 A			QBA32150( )	QDA32150( )	QGA32150( )	QJA32150( )
175 A			QBA32175( )	QDA32175( )	QGA32175( )	QJA32175( )
200 A			QBA32200( )	QDA32200( )	QGA32200( )	QJA32200( )
225 A			QBA32225( )	QDA32225( )	QGA32225( )	QJA32225( )

See *[41]* below.

Table 9.124: Interrupt Ratings (kA)

	QB	QD	QG	QJ *[42]*
240 V	10	25	65	100
480 V	—	—	—	—
600 V	—	—	—	—

Padlock attachments for Q-frame are available.

[38] 3P circuit breakers are rated 65 kA at 240/120 Vac, 3Ø, 4-wire delta or 100 kA at 208Y/120 Vac, 3Ø, 4-wire.

[39] 2-pole QB, QD, QG, and QJ circuit breakers are completed by adding the required phasing numbers as indicated in the parentheses, see Table 9.122 on page 9-55

[40] 3-pole QB, QD, QG, and QJ circuit breakers for ABC phasing are complete without additional phasing number. For CBA phasing, complete the catalog number by inserting the number 6 in the parentheses.

[41] Replacement lugs are not available on QB, QD, QG, or QJ circuit breakers. Lugs for QB, QD, QG, or QJ circuit breakers accept one #4 AWG–300 kcmil. No accessories are available for PowerPacT Q Frame breakers.

[42] 3P circuit breakers are rated 65 kA at 240/120 Vac, 3Ø, 4-wire delta or 100 kA at 208Y/120 Vac, 3Ø, 4-wire

HD/HG/HJ/HL/HR
2- and 3-pole Circuit Breaker

JD/JG/JJ/JL/JR
2- and 3-pole
Thermal-Magnetic Trip Unit

Table 9.126: Interrupting Ratings Codes (kA)

Voltage	D	G	J	L	R
240 V	25	65	100	125	200
480Y/277	18	35	65	100	200
480 V	18	35	65	100	200
600Y/347	14	18	25	50	100
600 V	14	18	25	50	100

H- and J-frame for I-Line™ Panelboards and Switchboards

Table 9.125: H-frame 150 A Thermal-Magnetic UL Current-Limiting[43] Circuit Breakers (600 Vac, 250 Vdc) With Factory Sealed Trip Unit[44] Suitable for Reverse Connection[44]

(PowerPacT HD and HG 2–pole circuit breakers utilize 3 in. of I-Line mounting space, HJ and HL 2–pole circuit breakers utilize 4.5 in. of I-Line mounting space, all 3–pole H and J-frame circuit breakers utilize 4.5 in. of I-Line mounting space.)

Current Rating @ 40° C	Fixed AC Magnetic Trip		Cat. No. [45]	Terminal Wire Range
	Hold	Trip		
H-frame, 150A 2P, 600 Vac 50/60 Hz, 250 Vdc[46]				
15 A	350 A	750 A	H( )A26015( )	AL150HD 14–3/0 AWG Al or Cu
20 A	350 A	750 A	H( )A26020( )	
25 A	350 A	750 A	H( )A26025( )	
30 A	350 A	750 A	H( )A26030( )	
35 A	400 A	850 A	H( )A26035( )	
40 A	400 A	850 A	H( )A26040( )	
45 A	400 A	850 A	H( )A26045( )	
50 A	400 A	850 A	H( )A26050( )	
60 A	800 A	1450 A	H( )A26060( )	
70 A	800 A	1450 A	H( )A26070( )	
80 A	800 A	1450 A	H( )A26080( )	
90 A	800 A	1450 A	H( )A26090( )	
100 A	800 A	1700 A	H( )A26100( )	
110 A	900 A	1700 A	H( )A26110( )	
125 A	900 A	1700 A	H( )A26125( )	
150 A	900 A	1700 A	H( )A26150( )	
H-frame 150A 3P, 600 Vac 50/60 Hz, 250 Vdc				
15 A	350 A	750 A	H( )A36015	AL150HD 14–3/0 AWG Al or Cu
20 A	350 A	750 A	H( )A36020	
25 A	350 A	750 A	H( )A36025	
30 A	350 A	750 A	H( )A36030	
35 A	400 A	850 A	H( )A36035	
40 A	400 A	850 A	H( )A36040	
45 A	400 A	850 A	H( )A36045	
50 A	400 A	850 A	H( )A36050	
60 A	800 A	1450 A	H( )A36060	
70 A	800 A	1450 A	H( )A36070	
80 A	800 A	1450 A	H( )A36080	
90 A	800 A	1450 A	H( )A36090	
100 A	800 A	1700 A	H( )A36100	
110 A	900 A	1700 A	H( )A36110	
125 A	900 A	1700 A	H( )A36125	
150 A	900 A	1700 A	H( )A36150	

Table 9.127: J-frame 250 A Thermal-Magnetic UL Current-Limiting[47]Circuit Breakers (600 Vac, 250 Vdc) With Factory Sealed Trip Unit[44] Suitable for Reverse Connection[44]

(All PowerPacT J-frame circuit breakers, both 2– and 3–pole, utilize 4.5 in. of I-Line mounting space.)

Current Rating @ 40°C	Adjustable AC Magnetic Trip		Cat. No.[45]	Terminal Wire Range
	Low	High		
J-frame 250A 2P, 600 Vac 50/60 Hz, 250 Vdc[48].				
150 A	750 A	1500 A	J( )A26150( )	AL175JD 4–4/0 AWG Al or Cu
175 A	875 A	1750 A	J( )A26175( )	
200 A	1000 A	2000 A	J( )A26200( )	AL250JD 3/0 AWG–350 kcmil Al or Cu
225 A	1125 A	2250 A	J( )A26225( )	
250 A	1250 A	2500 A	J( )A26250( )	
J-frame 250A 3P, 600 Vac 50/60 Hz, 250 Vdc				
150 A	750 A	1500 A	J( )A36150	AL175JD 4–4/0 AWG Al or Cu
175 A	875 A	1750 A	J( )A36175	
200 A	1000 A	2000 A	J( )A36200	AL250JD 3/0 AWG–350 kcmil Al or Cu
225 A	1125 A	2250 A	J( )A36225	
250 A	1250 A	2500 A	J( )A36250	

[43] Circuit breakers with J and L interrupting ratings are UL certified as current limiting.
[44] See Supplemental Digest Section 3 for circuit breakers with field-interchangeable trip units.
[45] To complete catalog number, replace the blank with the appropriate interrupting rating (D, G, J, L).
[46] 2 pole circuit breaker catalog numbers are completed by adding the required phase connection number as a suffix see Table 9.134 H/J/L-Frame Circuit Breaker/Switch Phase Options—Example HDA26150( ), page 9-59.
[47] Circuit breakers with J, L, and R interrupting ratings are UL certified as current limiting.
[48] 2 pole circuit breaker catalog numbers are completed by adding the required phase connection number as a suffix see Table 9.134 H/J/L-Frame Circuit Breaker/Switch Phase Options—Example HDA26150( ), page 9-59

HDA36250U33X
2- and 3-pole
MicroLogic Electronic Trip Unit

JDA36250U44X
2- and 3-pole
MicroLogic Electronic Trip Unit

Table 9.128: H-frame 150 A and J-frame 250 A MicroLogic Electronic Trip UL Current-Limiting[49]Circuit Breakers (600 Vac) With Factory Sealed Trip Unit[50] Suitable for Reverse Connection [51] (PowerPacT Electronic Trip H- and J-frame circuit breakers utilize 4.5 in. of I-Line mounting space.)

Electronic Trip Unit			Sensor Rating	Cat. No.[52]	Terminal
Type	Function	Trip Unit			
600 Vac, 50/60 Hz, 3P					
MicroLogic Standard	LI	3.2[53]	60 A	H( )A36060U31X	AL150HD[54]
			100 A	H( )A36100U31X	
			150 A	H( )A36150U31X	
			250 A	J( )A36250U31X	AL250JD[55]
	LSI	3.2S[53]	60 A	H( )A36060U33X	AL150HD[54]
			100 A	H( )A36100U33X	
			150 A	H( )A36150U33X	
			250 A	J( )A36250U33X	AL250JD[55]
MicroLogic Ammeter	LSI	5.2A	60 A	H( )A36060U43X	AL150HD[54]
			100 A	H( )A36100U43X	
			150 A	H( )A36150U43X	
			250 A	J( )A36250U43X	AL250JD[55]
MicroLogic Energy	LSI	5.2E	60 A	H( )A36060U53X	AL150HD[54]
			100 A	H( )A36100U53X	
			150 A	H( )A36150U53X	
			250 A	J( )A36250U53X	AL250JD[55]
MicroLogic Ammeter	LSIG	6.2A	60 A	H( )A36060U44X	AL150HD[54]
			100 A	H( )A36100U44X	
			150 A	H( )A36150U44X	
			250 A	J( )A36250U44X	AL250JD[55]
MicroLogic Energy	LSIG	6.2E	60 A	H( )A36060U54X	AL150HD[54]
			100 A	H( )A36100U54X	
			150 A	H( )A36150U54X	
			250 A	J( )A36250U54X	AL250JD[55]

Table 9.129: Interrupting Ratings Codes (kA)

Voltage	D	G	J	L	R
240 V	25	65	100	125	200
480 V	18	35	65	100	200
600 V	14	18	25	50	100

[49] Circuit breakers with J, L, and R interrupting ratings are UL certified as current limiting.
[50] See Supplemental Digest Section 3 for circuit breakers with field-interchangeable trip units.
[51] For applications requiring communications, see page 9-67.
[52] To complete catalog number, replace the blank with the appropriate interrupting rating (D, G, J, L).
[53] 3P circuit breakers with this trip unit can be used for 2P applications.
[54] AL150HD wire range is 14–3/0 AWG Al or Cu.
[55] AL250JD wire range is 3/0 AWG–350 kcmil Al or Cu. For smaller wire range (4–4/0 AWG Al or Cu), replace the lug's wire binding screws with the larger binding screws provided.

J-frame Mission Critical Circuit Breaker

Table 9.130: J-frame 250 A MicroLogic Electronic Trip Mission Critical Circuit Breakers (480/277 Vac) With Factory Sealted Trip Units Suitable for Reverse Connection *[56]*

Electronic Trip Unit Type	Trip Function	Trip Unit	Continuous Current	D Interrupting	G Interrupting	J Interrupting	L Interrupting	Terminal
				Cat. No.	Cat. No.	Cat. No.	Cat. No.	
Standard	LI	3.2 W	250	JDA34250WU31X	JGA34250WU31X	JJA34250WU31X	JLA34250WU31X	AL250JD *[57]*
Standard	LSI	3.2S-W	250	JDA34250WU33X	JGA34250WU33X	JJA34250WU33X	JLA34250WU33X	AL250JD *[57]*
High Perf. Ammerter	LSI	5.2A-W	250	JDA34250WU43X	JGA34250WU43X	JJA34250WU43X	JLA34250WU43X	AL250JD *[57]*
High Perf. Energy	LSI	5.2E-W	250	JDA34250WU53X	JGA34250WU53X	JJA34250WU53X	JLA34250WU53X	AL250JD *[57]*
High perf. Ammerter	LSIG	6.2A-W	250	JDA34250WU44X	JGA34250WU44X	JJA34250WU44X	JLA34250WU44X	AL250JD *[57]*
High Perf. Energy	LSIG	6.2E-W	250	JDA34250WU54X	JGA34250WU54X	JJA34250WU54X	JLA34250WU54X	AL250JD *[57]*

L-frame Mission Critical Circuit Breaker

Table 9.131: L-frame 600 A MicroLogic Electronic Trip Mission Critical Circuit Breakers (480/277 Vac) With Factory Sealed Trip Units Suitable for Reverse Connection *[56]*

Electronic Trip Unit Type	Trip Function	Trip Unit	Continuous Current	G Interrupting	J Interrupting	L Interrupting	Terminal
				Cat. No.	Cat. No.	Cat. No.	
Standard	LI	3.3 W	250	LGA34250WU31X	LJA34250WU31X	LLA34250WU31X	AL400L61K3 *[58]*
			400	LGA34400WU31X	LJA34400WU31X	LLA34400WU31X	AL600LF52K3 *[59]*
			600	LGA34600WU31X	LJA34600WU31X	LLA34600WU31X	
Standard	LSI	3.3S-W	250	LGA34250WU33X	LJA34250WU33X	LLA34250WU33X	AL400L61K3 *[58]*
			400	LGA34400WU33X	LJA34400WU33X	LLA34400WU33X	AL600LF52K3 *[59]*
			600	LGA34600WU33X	LJA34600WU33X	LLA34600WU33X	
High Perf. Ammeter	LSI	5.3A-W	400	LGA34400WU43X	LJA34400WU43X	LLA34400WU43X	AL600LF52K3 *[59]*
			600	LGA34600WU43X	LJA34600WU43X	LLA34600WU43X	
High Perf. Energy	LSI	5.3E-W	400	LGA34400WU53X	LJA34400WU53X	LLA34400WU53X	AL600LF52K3 *[59]*
			600	LGA34600WU53X	LJA34600WU53X	LLA34600WU53X	
High Perf. Ammeter	LSIG	6.3A-W	400	LGA34400WU44X	LJA34400WU44X	LLA34400WU44X	AL600LF52K3 *[59]*
			600	LGA34600WU44X	LJA34600WU44X	LLA34600WU44X	
High Perf. Energy	LSIG	6.3E-W	400	LGA34400WU54X	LJA34400WU54X	LLA34400WU54X	AL600LF52K3 *[59]*
			600	LGA34600WU54X	LJA34600WU54X	LLA34600WU54X	

Table 9.132: PowerPacT™ H-, J-, and L-frame Automatic Molded Case Switches, 600 Vac

Circuit Breaker	Poles	Ampere Rating	G Withstand		L Withstand		R Withstand		Terminal	Wire Range
			Cat. No.	Trip Point	Cat. No.	Trip Point	Cat. No.	Trip Point		
H-frame J-frame	2 *[60]*	150 A	HGA26000S15( )	2250 A	HLA26000S15	2250 A	—	—	—	—
		175 A	JGA26000S17( )	3125 A	JLA26000S17	3125 A	—	—	—	—
		250 A	JGA26000S25( )	3125 A	JLA26000S25	3125 A	—	—	—	—
	3	150 A	HGA36000S15	2250 A	HLA36000S15	2250 A	HRA36000S15	2250 A	AL150HD	14 AWG–3/0 AWG Al/Cu
		175 A	JGA36000S17	3125 A	JLA36000S17	3125 A	JRA36000S17	3125 A	AL175JD	4–4/0 AWG Al/Cu
		250 A	JGA36000S25	3125 A	JLA36000S25	3125 A	JRA36000S25	3125 A	AL250JD	3/0 AWG–350 kcmil Al/Cu
L-frame	3	400 A	LGA36000S40X	4800 A	LLA36000S40X	4800 A	LRA36000S40X	4800 A	AL150HD	AL600LS52K3 (2) 2/0 AWG–500 kcmil Al/Cu
		600 A	LGA36000S60X	6600 A	LLA36000S60X	6600 A	LRA36000S60X	6600 A	AL250JD	

H-, J-, and L-frame accessories starting on PowerPacT Accessories, page 7-51.
H-, J-, and L-frame dimensions starting on Molded Case Circuit Breaker Dimensions, page 7-83.
H-, J-, and L-frame optional lugs Mechanical Lugs, page 7-56.

Table 9.133: Interrupting Ratings Codes (kA)

Voltage	D	G	J	L	R
240 V	25	65	100	125	200
480Y/277	18	35	65	100	200
480 V	18	35	65	100	200
600Y/347	14	18	25	50	100
600 V	14	18	25	50	100

Table 9.134: H/J/L-Frame Circuit Breaker/Switch Phase Options —Example HDA26150( )

Phase Option Number	Phase Connection	2-pole	3-pole
1	AB	HDA261501	—
2	AC	HDA261502	—
3	BA	HDA261503	—
4	BC	HDA261504	—
5	CA	HDA261505	—
6	CB	HDA261506	—
Standard	ABC	—	JDA34250WU31X
6	CBA	—	JDA34250WU31X6

[56] Standard rated (80%). Not available in 100% rated.
[57] AL250JD terminal wire range is (1) 3/0 AWG–350 kcmil Al or Cu.
[58] AL400L61K3 terminal wire range is (1) #2 AWG–500 kcmil Al or #2 AWG–600 kcmil Cu..
[59] AL600LF52K3 terminal wire range is (2) #3/0 AWG–500 kcmil Al or Cu.
[60] 2-pole circuit breaker catalog numbers are completed by adding the required phase connection number as a suffix, see Table 9.134 H/J/L-Frame Circuit Breaker/Switch Phase Options—**Example HDA26150( )**, page 9-59.

LA36400 2- and 3-pole Circuit Breaker

LA/LH-frame Thermal Magnetic Circuit Breakers

L-frame circuit breaker utilizes 6 in. of available I-Line bus

Table 9.135: L-frame—400 A, Thermal-magnetic (600 Vac)

Ampere Rating	AC Magnetic Trip Settings		Standard Interrupting	High Interrupting	Terminal Wire Range
	Low	High	Catalog Number	Catalog Number	
2-pole, 600 Vac, 250 Vdc *[61]*					
125 A	625	1250	LA26125( )	LH26125( )	AL400LA (1) #1 AWG–600 kcmil or (2) #1 AWG–250 kcmil AL or Cu
150 A	750	1500	LA26150( )	LH26150( )	
175 A	875	1750	LA26175( )	LH26175( )	
200 A	1000	2000	LA26200( )	LH26200( )	
225 A	1125	2250	LA26225( )	LH26225( )	
250 A	1250	2500	LA26250( )	LH26250( )	
300 A	1500	3000	LA26300( )	LH26300( )	
350 A	1750	3500	LA26350( )	LH26350( )	
400 A	2000	4000	LA26400( )	LH26400( )	
3-pole, 600 Vac, 250 Vdc					
125 A	625	1250	LA36125	LH36125	AL400LA (1) #1 AWG–600 kcmil or (2) #1 AWG–250 kcmil AL or Cu
150 A	750	1500	LA36150	LH36150	
175 A	875	1750	LA36175	LH36175	
200 A	1000	2000	LA36200	LH36200	
225 A	1125	2250	LA36225	LH36225	
250 A	1250	2500	LA36250	LH36250	
300 A	1500	3000	LA36300	LH36300	
350 A	1750	3500	LA36350	LH36350	
400 A	2000	4000	LA36400	LH36400	

LA circuit breaker accessories can be found in Supplemental Digest Section 3.

LA circuit breaker dimensions can be found in Digest Section 7.

Mechanical lug kits for LA, LH, and Q4 circuit breakers can be found in Supplemental Digest Section 3.

Table 9.136: Interrupt Ratings (kA)

	LA	LH
240 V	42	65
480 V	30	35
600 V	22	25

PowerPacT L- and M-frame for I-Line™ Panelboards and Switchboards

PowerPacT L-Frame
LG/LJ/LL/LR
2- and 3-pole
4.5 in. (114 mm)

Table 9.137: L-frame 600 A Circuit Breakers with Lugs and Factory-Sealed Electronic Trip Units Suitable for Reverse Connection *[62]*
(L-frame circuit breaker utilizes 6 in. of available I-Line bus)

Electronic Trip Unit			Sensor Rating	Catalog Number *[63]*	Terminal
Type	Function	Trip Unit			
600 Vac, 53/60 Hz, 3P					
MicroLogic Standard	LI	3.3 *[64]*	250 A	L( )A36250U31X	AL400L61K3 *[65]*
			400 A 600 A	L( )A36400U31X L( )A36600U31X	AL600LF52K3 *[66]* (2) 3/0–500 kcmil Al or Cu.
MicroLogic Standard	LSI	3.3S *[64]*	250 A	L( )A36250U33X	AL400L61K3 *[65]*
			400 A 600 A	L( )A36400U33X L( )A36600U33X	AL600LF52K3 (2) 3/0–500 kcmil Al or Cu.
MicroLogic Ammeter	LSI	5.3A	400 A 600 A	L( )A36400U43X L( )A36600U43X	
MicroLogic Energy	LSI	5.3E	400 A 600 A	L( )A36400U53X L( )A36600U53X	
MicroLogic Ammeter	LSIG	6.3A	400 A 600 A	L( )A36400U44X L( )A36600U44X	
MicroLogic Energy	LSIG	6.3E	400 A 600 A	L( )A36400U54X L( )A36600U54X	

Table 9.138: Interrupt Ratings Codes (kA) for PowerPacT L and M Frames

	G	J	L *[67]*	R
240 V	65	100	125	200
480 V	35	65	100	200
600 V	18	25	50	100

[61] 2-pole circuit breaker catalog numbers are completed by adding required phase connection letters as suffix to catalog number. See Table 9.134 H/J/L-Frame Circuit Breaker/Switch Phase Options—Example HDA26150( ), page 9-59.

[62] See Supplemental Digest page 3-4 for circuit breakers with field-interchangeable trip units.

[63] For 100% rated circuit breakers (250 A and 400 A only), add a “C” in the 9th character place (for example, LRA36400CU31X). To complete catalog number, replace the blank with the appropriate interrupting rating (G, J, L or R).

[64] 3P circuit breakers with this trip unit can be used for 2P applications.

[65] AL400L61K3 terminal wire ranges are (1) 2 AWG–600 kcmil Cu or (1) 2 AWG–500 kcmil Al.

[66] AL600LFS52K3 terminal wire range is (2) 3/0 –500 kcmil.

[67] L interrupting rating is not available in M-frame.

Table 9.139: M-Frame 800 A, Basic Electronic Trip System Type ET 1.0*[68]* Factory-Sealed Trip Unit (PowerPacT M-frame circuit breakers utilize 9 in. of the available I-Line bussing.)

Electronic Trip Unit		Ampere Rating	Adjustable Instantaneous Trip Range		Interrupting Rating		Terminal Wire Range
Type	Function		Low	High	G	J	
2P, 600 Vac 50/60 Hz*[69]*							
Basic	Fixed Long-time, Adjustable Instantaneous Trip	400 A	800	4000	MGA26400()	MJA26400()	(3) 3/0 through 500 kcmil Al or Cu
		600 A	1200	6000	MGA26600()	MJA26600()	(3) 3/0 through 500 kcmil Al or Cu
3P, 600 Vac 50/60 Hz							
Basic	Fixed Long-time, Adjustable Instantaneous Trip	400 A	800	4000	MGA36400	MJA36400	(3) 3/0 through 500 kcmil Al or Cu
		600 A	1200	6000	MGA36600	MJA36600	(3) 3/0 through 500 kcmil Al or Cu

Table 9.140: M-Frame 800 A, Adjustable Amperage Electronic Trip Unit

Electronic Trip Unit		Adjustable Long-Time Settings	Adjustable Instantaneous		Interrupting Rating		Terminal Wire Range
Type	Function		Low	High	G	J	
2P, 600 Vac 50/60 Hz*[69]*							
Basic	Adjustable Long-time, Adjustable Instantaneous Trip	300–800	2x	10x	MGA26800()E10	MJA26800()E10	(3) 3/0 through 500 kcmil Al or Cu
3P, 600 Vac 50/60 Hz							
Basic	Adjustable Long-time, Adjustable Instantaneous Trip	300–800	2x	10x	MGA36800E10	MJA36800E10	(3) 3/0 through 500 kcmil Al or Cu

L-frame accessories, page 7-51.
L-frame dimensions, page 7-83.
L-frame optional lugs, page 7-56.

M-frame accessories, page 7-51.
M-frame dimensions, page 7-83.
M-frame optional lugs, page 7-56.

Table 9.141: Automatic Molded Case Switches—600 Vac, 50/60 Hz

Ampere Rating	2-pole	3-pole	Withstand Rating *[70]*			Trip Point Amperes	Terminal Wire Range
	Catalog Number *[69]*	Catalog Number	240 Vac	480 Vac	600 Vac	AC	
600 A	PJA26000S60( )	PJA36000S60	100	65	25	10000	(3) 3/0 through 500 kcmil Al or Cu
800 A	PJA26000S80( )	PJA36000S80	100	65	25	10000	
1000 A	PJA26000S10( )	PJA36000S10	100	65	25	10000	(4) 3/0 through 500 kcmil Al or Cu
1200 A	PJA26000S12( )	PJA36000S12	100	65	25	10000	

[68] The ET 1.0 trip unit cannot be field replaced. The Basic Electronic ET1.0 trip unit (offered in 400 A and 600 A only) does not allow adjustment of the long time trip point setting. It is considered an electronic equivalent of a thermal-magnet circuit breaker.
[69] Fill in parentheses with the following phase connection options: (2) for AC or (5) for CA.
[70] The withstand rating is the fault current, at rated voltage, that the molded case switch will withstand without damage when protected by a circuit breaker with an equal ampere rating.

PG/PJ/PK/PL
2– and 3–pole

RG/RJ/RK/RL
2– and 3–pole

Table 9.142: PowerPacT P- and R-frame Interrupt Ratings Codes

Voltage	P-frame Interrupt Rating				R-frame Interrupt Rating			
	G	J	K	L	G	J	K	L
240 Vac	65 kA	100 kA	65 kA	125 kA	65 kA	100 kA	65 kA	125 kA
480 Vac	35 kA	65 kA	50 kA	100 kA	35 kA	65 kA	65 kA	100 kA
600 Vac	18 kA	25 kA	50 kA	25 kA	18 kA	25 kA	65 kA	50 kA

PowerPacT P- and R-frame for I-Line™ Panelboards and Switchboards

Table 9.143: PowerPacT P-frame 1200 A (600 Vac, 50/60 Hz) 3P Circuit Breaker with Electronic Trip Unit (PowerPacT P-frame circuit breakers utilize 9 in. of the available I-Line bussing.)

Electronic Trip Unit			Sensor Rating	Cat. No.*[71][72][73][74]*	Terminal Wire Range
Type	Function	Code			
Basic Electronic Trip Unit (Not Interchangeable)	Fixed long-time, Adjustable Instantaneous	ET1.0I	600 A	P( )A36060	(3) 3/0 AWG–500 kcmil Al or Cu AL800M23K
			800 A	P( )A36080	
			1000 A	P( )A36100	(4) 3/0 AWG–500 kcmil Al or Cu AL1200P24K
			1200 A	P( )A36120	
MicroLogic Interchangeable Standard Trip Unit	LI	3.0	250 A	P( )A36025(C)U31A	(3) 3/0 AWG–500 kcmil Al or Cu AL800M23K
			400 A	P( )A36040(C)U31A	
			600 A	P( )A36060(C)U31A	
			800 A	P( )A36080(C)U31A	
			1000 A	P( )A36100U31A	(4) 3/0 AWG–500 kcmil Al or Cu AL1200P24K
			1200 A	P( )A36120U31A	
	LSI	5.0	250 A	P( )A36025(C)U33A	(3) 3/0 AWG–500 kcmil Al or Cu AL800M23K
			400 A	P( )A36040(C)U33A	
			600 A	P( )A36060(C)U33A	
			800 A	P( )A36080(C)U33A	
			1000 A	P( )A36100U33A	(4) 3/0 AWG–500 kcmil Al or Cu AL1200P24K
			1200 A	P( )A36120U33A	
MicroLogic Interchangeable Ammeter Trip Unit	LI	3.0A	250 A	P( )A36025(C)U41A	(3) 3/0 AWG–500 kcmil Al or Cu AL800M23K
			400 A	P( )A36040(C)U41A	
			600 A	P( )A36060(C)U41A	
			800 A	P( )A36080(C)U41A	
			1000 A	P( )A36100U41A	(4) 3/0 AWG–500 kcmil Al or Cu AL1200P24K
			1200 A	P( )A36120U41A	
	LSI	5.0A	250 A	P( )A36025(C)U43A	(3) 3/0 AWG–500 kcmil Al or Cu AL800M23K
			400 A	P( )A36040(C)U43A	
			600 A	P( )A36060(C)U43A	
			800 A	P( )A36080(C)U43A	
			1000 A	P( )A36100U43A	(4) 3/0 AWG–500 kcmil Al or Cu AL1200P24K
			1200 A	P( )A36120U43A	
	LSIG	6.0A	250 A	P( )A36025(C)U44A	(3) 3/0 AWG–500 kcmil Al or Cu AL800M23K
			400 A	P( )A36040(C)U44A	
			600 A	P( )A36060(C)U44A	
			800 A	P( )A36080(C)U44A	
			1000 A	P( )A36100U44A	(4) 3/0 AWG–500 kcmil Al or Cu AL1200P24K
			1200 A	P( )A36120U44A	
MicroLogic Interchangeable Power Trip Unit	LSI	5.0P	250 A	P( )A36025(C)U63AE1	(3) 3/0 AWG–500 kcmil Al or Cu AL800M23K
			400 A	P( )A36040(C)U63AE1	
			600 A	P( )A36060(C)U63AE1	
			800 A	P( )A36080(C)U63AE1	
			1000 A	P( )A36100U63AE1	(4) 3/0 AWG–500 kcmil Al or Cu AL1200P24K
			1200 A	P( )A36120U63AE1	
	LSIG	6.0P	250 A	P( )A36025(C)U64AE1	(3) 3/0 AWG–500 kcmil Al or Cu AL800M23K
			400 A	P( )A36040(C)U64AE1	
			600 A	P( )A36060(C)U64AE1	
			800 A	P( )A36080(C)U64AE1	
			1000 A	P( )A36100U64AE1	(4) 3/0 AWG–500 kcmil Al or Cu AL1200P24K
			1200 A	P( )A36120U64AE1	
MicroLogic Interchangeable Harmonic Trip Unit	LSI	5.0H	250 A	P( )A36025(C)U73AE1	(3) 3/0 AWG–500 kcmil Al or Cu AL800M23K
			400 A	P( )A36040(C)U73AE1	
			600 A	P( )A36060(C)U73AE1	
			800 A	P( )A36080(C)U73AE1	
			1000 A	P( )A36100U73AE1	(4) 3/0 AWG–500 kcmil Al or Cu AL1200P24K
			1200 A	P( )A36120U73AE1	

[71] To complete the catalog number, replace the blank ( ) with the appropriate interrupt rating (G, J, K, or L).
[72] For 100% rated circuit breakers add a “C” in the 9th character place. For example, the catalog number for a 100% standard-type trip unit with LI trip functions at 250 A would be PGA36025CU31A.
[73] The L interrupt rating is supplied in 480 V only. Change the 5th character (voltage rating) from a 6 (600 V) to a 4 (480 V); for example, PLA34025U31A.
[74] See Table 9.142 PowerPacT P- and R-frame Interrupt Ratings, page 9-62 for interrupt ratings.

Table 9.143 PowerPacT P-frame 1200 A (600 Vac, 50/60 Hz) 3P Circuit Breaker with Electronic Trip Unit(PowerPacT P-frame circuit breakers utilize 9 in. of the available I-Line bussing.) (cont'd.)

Electronic Trip Unit			Sensor Rating	Cat. No.*[75][76][77][78]*	Terminal Wire Range
Type	Function	Code			
	LSIG	6.0H	250 A	P( )A36025(C)U74AE1	(3) 3/0 AWG–500 kcmil Al or Cu AL800M23K
			400 A	P( )A36040(C)U74AE1	
			600 A	P( )A36060(C)U74AE1	
			800 A	P( )A36080(C)U74AE1	
			1000 A	P( )A36100U74AE1	(4) 3/0 AWG–500 kcmil Al or Cu AL1200P24K
			1200 A	P( )A36120U74AE1	

Table 9.144: PowerPacT R-frame 1200 A (600 Vac, 50/60 Hz) 3P Circuit Breaker with Electronic Trip Unit

Electronic Trip Unit			Sensor Rating	Cat. No. *[75][76][77][78]*	Terminal Wire Range
Type	Function	Code			
Basic Electronic Trip Unit (Not Interchangeable)	Fixed Long-Time, Adjustable Instantaneous	ET1.01	1200 A	R( )A36120	AL1200R53K (4) 3/0-600 kcmil Al or Cu
MicroLogic Interchangeable Standard Trip Unit	LI	3.0	1000 A	R( )A36100CU31A	
			1200 A	R( )A36120CU31A	
	LSI	5.0	1000 A	R( )A36100CU33A	
			1200 A	R( )A36120CU33A	
MicroLogic Interchangeable Ammeter Trip Unit	LI	3.0A	1000 A	R( )A36100CU41A	
			1200 A	R( )A36120CU41A	
	LSI	5.0A	1000 A	R( )A36100CU43A	
			1200 A	R( )A36120CU43A	
	LSI	6.0A	1000 A	R( )A36100CU44A	
			1200 A	R( )A36120CU44A	
MicroLogic Interchangeable Power Trip Unit	LSI	5.0P	1000 A	R( )A36100CU63AE1	
			1200 A	R( )A36120CU63AE1	
	LSIG	6.0P	1000 A	R( )A36100CU64AE1	
			1200 A	R( )A36120CU64AE1	
MicroLogic Interchangeable Harmonic Trip Unit	LSI	5.0H	1000 A	R( )A36100CU73AE1	
			1200 A	R( )A36120CU73AE1	
	LSIG	6.0H	1000 A	R( )A36100CU74AE1	
			1200 A	R( )A36120CU74AE1	

P- and R-frame accessories, page 7-51.
P- and R-frame dimensions, Molded Case Circuit Breaker Dimensions, page 7-83.
P- and R-frame trip unit options, MicroLogic™ Electronic Trip Units, page 7-61.
P- and R-frame optional lugs, Mechanical Lugs, page 7-56.
P- and R-frame alternate rating plugs, MicroLogic™ Electronic Trip Units, page 7-61.

[75] To complete the catalog number, replace the blank ( ) with the appropriate interrupt rating (G, J, K, or L).
[76] For 100% rated circuit breakers add a “C” in the 9th character place. For example, the catalog number for a 100% standard-type trip unit with LI trip functions at 250 A would be PGA36025CU31A.
[77] The L interrupt rating is supplied in 480 V only. Change the 5th character (voltage rating) from a 6 (600 V) to a 4 (480 V); for example, PLA34025U31A.
[78] See Table 9.142 PowerPacT P- and R-frame Interrupt Ratings, page 9-62 for interrupt ratings.

I-Line™ Factory Assembled Panelboards

Table 9.145: I-Line 200% Rated Neutral—Standard Terminal Configuration

Panel Type	Ampacity	Type	Branch Space		Neutral Terminals Quantity and Size		Type 1 Enclosure					
							H		W		D	
			In.	mm	Main	Branch	In.	mm	In.	mm	In.	mm
HCJ	600 A	MLO	72	1829	(8) 750 kcmil	(35) 350 kcmil, (9)#14-1/0, (17)#14-#4	91	2311	32	813	9.50	210
	600 A (MG, MJ)	M/B	72	1829	(8) 750 kcmil		91	2311	32	813	9.50	241
	800 A	MLO	72	1829	(8) 750 kcmil		91	2311	32	813	9.50	210
	800 A (MG, MJ)	M/B	72	1829	(8) 750 kcmil		91	2311	32	813	9.50	241
HCR-U *[75]*	1200A	M/B, MLO	108	2743	(8) 750 kcmil	(8) 600 kcmil, (15) 350 kcmil (9) #14-1/0, (17)#14-#4	86	2184	44	1118	9.50	241
HCP	600A	M/B, MLO	63	1600	(8) 750 kcmil	(35) 350 kcmil, (9)#14-1/0, (17)#14-#4	68	1727	42	1067	9.50	241
	800A	M/B, MLO	99	2515	(8) 750 kcmil	(35) 350 kcmil, (9)#14-1/0, (17)#14-#4	86	2184	42	1067	9.50	241
HCP-SU *[76]*	800A	M/B, MLO	54	1371	(8) 750 kcmil	(8) 750 kcmil, (21) 350 kcmil, (9) #14-1/0, (17) #14-#4	86	2184	26	660	9.5	241

[75] 6 in. enclosure extension is required for HCRU I-Line panelboard.
[76] 9 in. enclosure extension is required for HCP-SU I-Line panelboard.

For QMB/QMJ Panelboards and Switchboards

Table 9.146: QMB Branch Switch Units

Unit Ampere Rating	Unit Height (In.)	Catalog Number	Class R Fuse Kits		Electrical Interlock Kit	Horsepower Ratings *[1]*												
						240 Vac				480 Vac				600 Vac				250 Vdc
						Std.		Max.		Std.		Max.		Std.		Max.		
			No. Kits Req'd.	Catalog Number	Catalog Number *[2]*	1Ø	3Ø	1Ø	3Ø	1Ø	3Ø	1Ø	3Ø	1Ø	3Ø	1Ø	3Ø	
2-pole, 240 Vac, 250 Vdc																		
30 A-30 A	4.5	QMB221TW	2	HRK30	QMB300EK (1 or 2)	1.5	3	3	7.5	—	—	—	—	—	—	—	—	5
30 A-Blank		QMB221HW *[3]*	1							—	—	—	—	—	—	—	—	5
60 A-60 A		QMB222TW		QMB36R	QMB300EK (1 or 2)	3	7.5	10	15	—	—	—	—	—	—	—	—	10
60 A-Blank		QMB222HW *[3]*								—	—	—	—	—	—	—	—	10
100 A-100 A	6	QMB223TW		QMB100R	QMB610EK (1 or 2)	7.5	15	15	30	—	—	—	—	—	—	—	—	20
100 A-Blank		QMB223HW *[3]*								—	—	—	—	—	—	—	—	
200 A	9	QMB224W		HRK1020	QMB200EK (1 or 2)	—	25	15	60	—	—	—	—	—	—	—	—	40
400 A	15	QMB225W		QMB4060R	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	9	QMB225WT3 *[4]*		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
600 A	Use 3-pole devices for 2-pole application.					—	—	—	—	—	—	—	—	—	—	—	—	—
3-pole, 240 Vac																		
30 A-30 A	4.5	QMB321TW	2	HRK30	QMB300EK (1 or 2)	—	3	—	7.5	—	—	—	—	—	—	—	—	—
30 A-Blank		QMB321HW *[3]*	1			—		—		—	—	—	—	—	—	—	—	—
60 A-60 A		QMB322TW		QMB36R		—	7.5	—	15	—	—	—	—	—	—	—	—	—
60 A-Blank		QMB322HW *[3]*				—		—		—	—	—	—	—	—	—	—	—
100 A-100 A	6	QMB323TW		QMB100R	QMB610EK (1 or 2)	—	15	—	30	—	—	—	—	—	—	—	—	—
100 A-Blank		QMB323HW *[3]*				—		—		—	—	—	—	—	—	—	—	—
200 A	9	QMB324W		HRK1020	QMB200EK (1 or 2)	—	25	—	60	—	—	—	—	—	—	—	—	—
400 A	15	QMB325W		QMB4060R	—	—	50	—	125	—	—	—	—	—	—	—	—	—
	9	QMB325WT3 *[4]*	—	—	—	—		—	—	—	—	—	—	—	—	—	—	—
600 A	15	QMB326W	1	QMB4060R	—	—	75	—	150	—	—	—	—	—	—	—	—	—
		QMB326WT3 *[4]*	—	—	—	—		—	—	—	—	—	—	—	—	—	—	—
800 A		QMB327WT3 *[4]*	—	—	—	—		—	—	—	—	—	—	—	—	—	—	—
2-pole, 600 Vac, 250 Vdc *[5]*																		
30 A-30 A	4.5	QMB261TW	1	QMB36R	QMB300EK (1 or 2)	1.5	—	3	—	3	5	7.5	15	3	—	10	—	5
30 A-Blank		QMB261HW *[3]*					—		—						—		—	
60 A-60 A		QMB262TW		QMB60R	QMB610EK (1 or 2)	3	—	10	—	5	15	20	30	10	—	25	—	10
60 A-Blank		QMB262HW *[3]*					—		—						—		—	
100 A-100 A	6	QMB263TW	2	HRK1020		7.5	—	15	—	10	25	30	60	15	—	40	—	20
100 A-Blank		QMB263HW *[3]*	1				—		—			—	—	—	—	—	—	
200 A	9	QMB264W		HRK1020	QMB200EK (1 or 2)	15	—	—	—	25	50	50	125	30	—	50	—	40
400 A	Use 3-pole devices for 2-pole application.				—	—	—	—	—	—	—	—	—	—	—	—	—	—
600 A																		
3-pole, 600 Vac, 250 Vdc *[5]*																		
30 A-30 A	4.5	QMB361TW	1	QMB36R	QMB300EK (1 or 2)	—	3	—	7.5	—	5	—	15	—	7.5	—	20	—
		QMJ361T	—	—		—	—	—	—	—	—	—	—	—	—	—	20	5
30 A-Blank		QMB361HW *[3]*	1	QMB36R		—	3	—	7.5	—	5	—	15	—	7.5	—	20	—
60 A-60 A	6	QMB362TW		QMB60R	QMB610EK (1 or 2)	—	7.5	—	15	—	15	—	30	—	15	—	50	—
		QMJ362T	—	—		—	—	—	—	—	—	—	—	—	—	—	—	10
60 A-Blank		QMB362HW *[3]*		QMB60R		—	7.5	—	15	—	15	—	30	—	15	—	50	—
60 A-30 A		QMB362T21W	1	QMB60R and QMB36R		—	—	—	—	—	—	—	—	—	—	—	—	—
100 A-100 A	7.5	QMB363TW	2	HRK1020		—	15	—	30	—	25	—	60	—	30	—	75	—
	6	QMJ363T	—	—		—	—	—	—	—	—	—	—	—	—	—	—	20
100 A-Blank	7.5	QMB363HW *[3]*	1	HRK1020		—	15	—	30	—	25	—	60	—	30	—	75	—
	6	QMJ363H *[3]*	—	—		—	—	—	—	—	—	—	—	—	—	—	—	20
100 A-30 A	7.5	QMB363T31W	1	QMB36R		—	—	—	—	—	—	—	—	—	—	—	—	—
100 A-60 A		QMB363T32W		QMB60R														
200 A	9	QMB364W	1	HRK1020	QMB200EK (1 or 2)	—	25	—	60	—	50	—	125	—	60	—	150	—
200 A-200 A	7.5	QMJ364T	—	—	QMB610EK (1 or 2)	—	25	—	60	—	50	—	125	—	60	—	150	40
200 A-Blank		QMJ364H *[3]*		—		—	—	—	—	—	—	—	—	—	—	—	—	—
400 A *[6]*	15	QMB365W	1	QMB4060R	—	—	—	—	—	—	100	—	250	—	125	—	350	50
400 A	9	QMJ365	—	—	QMB200EK (1 or 2)	—	50	—	125	—	100	—	250	—	125	—	350	50
400 A *[6]*		QMB365WT6 *[7]*		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
600 A *[6]*	15	QMB366W	1	QMB4060R	—	—	—	—	—	—	150	—	400	—	250	—	500	—
600 A		QMJ366	—	—	—	—	75	—	150	—	—	—	—	—	—	—	—	—
800 A		QMB367W		—	—	—	—	—	—	—	150	—	400	—	250	—	500	—

NOTE: See the Supplemental Digest for merchandised motor starter units, QMB RTI panelboards, and replacement switches for Series 1–4 and D2 QMB panelboards.

NOTE: For series E1 and E2, QMJ switches may be used in 400 A–1200 A interiors in a NEMA 1 without door only. QMJ switches cannot be used in series E1 and E2, 225 A panelboards. QMJ switches cannot be used in NEMA 1 with door or any NEMA 3R/12 enclosure.

[1] Horsepower rating applicable to 480Y/277 V system only.
[2] "1" indicates one normally open and one normally closed contact.
"2" indicates two normally open and two normally closed contacts.
[3] Blank units cannot be modified to accept a switch interior.
[4] Use 300 Vac Class T fuses only.
[5] Class J fuse provisions—to field modify switch, move load side fuse base to position indicated in switch. Not available on 100-30, 100-60, or 800 A switch units.
[6] 250 Vdc rating.
[7] Use 600 Vac Class T fuses only.

Fusible—600 Vac, 250 Vdc

Table 9.147: Available QMB Accessories

Electrical Interlocks
1 NO and 1NC Electrical Interlocks on Main Switches
2NO and 2NC Electrical Interlocks on Main Switchs
Equipment Ground Bars
Standard Ground Bar
Copper Ground Bar
Insulated/Isolated Ground Bar
Name Plates
Copper Neutral
Copper Neutral
125-400A
600A
800A
Enclsoure Modifications
Hinged Trim
Weatherproof - NEMA 3R
Lugs
Mechanical Lugs - Standard
Copper Mechanical Lugs
Copper Compression Lugs
Aluminum Compression Lugs
VCEL Lugs

UL Listed Short Circuit Ratings for QMB Starters		
Starter Size	**Fusible switch-600V Max. (with Class R or J Fuses) RMS Sym. Amps**	**Thermal-Magnetic Bircuit Breaker 600V Max. Rms Sym. Amps**
0	100,000	5,000
1	100,000	5,000
2	100,000	5,000
3	100,000	5,000

Common Features

QMB Layout Information

To maximize the quantity of branch switches, use QMJ switches from page 9-65. Class J fuses are available in time delay construction suitable for motor and transformer loads.

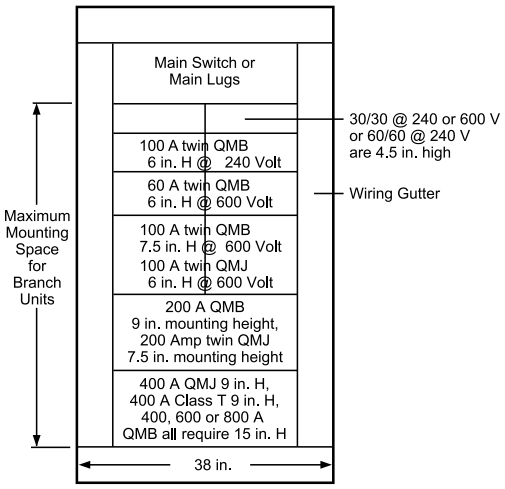


Table 9.148: I-Line™ Panelboard Split Bus Bars

Ampacity MLO	Additional Mounting Height Required On Split Bus Section *[8]*
	Split Bus
225 A	7.5 in.
400 A	9 in.
600 A	12 in.
800 A	12 in.
1200 A	18 in.

NOTE: For applications with main circuit breaker panelboards, contact your local Schneider Electric representative or distributor.

[8] For I-Line panelboards, dimension includes height of "SL" sub-feed lug kit from Digest, plus 3 in. from available branch mounting space.

Main Circuit Breaker Without Overload Trip
(Automatic Molded Case Switch)

- (Not UL Listed)

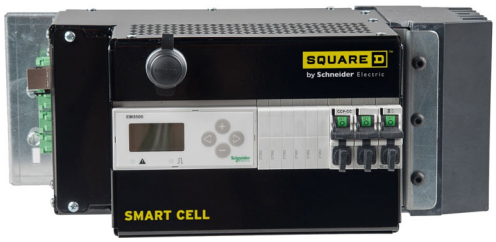
Shunt Trip Circuit Breakers

Special Features

For information on the following special features, please see the Supplemental and Obsolescence Digest.

- Powerlogic™ metering *[1]*
- Customer equipment space (NQ and NF) *[1]*
- Increased box depth *[1]*
- Increased gutters–top, bottom, and sides *[1]*
- Non-standard paint *[1]*
- Welded base channel *[1]*
- Type 1 gasketed *[1]*
- Type 2 drip hood *[1]*
- Type 3R/4/4X/5/12 stainless steel enclosure *[1]*
- Type 4X fiberglass enclosure *[1]*
- Stainless steel trim front *[1]*
- Padlockable hasp *[1]*
- Special locks (Corbin, Yale, Best) *[1]*
- Equal height boxes *[1]*
- Common trim to cover two equal height boxes *[1]*
- Panelboard skirt—hides conduits feeding a panelboard *[1]*
- Panelboard wireway—for terminating conduit in wireway endwall *[1]*
- Keyed mechanical interlocking of two or more circuit breakers (I-Line and QMB) *[1]*
- Motor operators (I-Line only)
- Panelboard interiors and special fronts to fit existing boxes
- A standard panelboard box has one blank endwall and one with knockouts. Blank endwalls or knockouts in both endwalls are also available *[1]*

Space-saving I-Line Smart Cell



Space-saving module for value-added digital solutions. The modular Square D I-Line Smart Cell enables value-added solutions in I-Line panelboards in a variety of combinations. The space-saving, self-contained unit fits onto the I-Line bus in place of a breaker, and allows the I-Line panelboard to be transformed into a digital communication or metered electrical distribution solution.

Smart Cells are available for:

- IFE Ethernet Modbus TCP interface with basic Web pages
- IFM Modbus serial interface
- Energy Reduction Maintenance Setting (ERMS)
- Maintenance Mode Switch (MMS)
- EM3560, PM5563 or PM8244 meter with or without communications
- Gateway & Data Logger

The I-Line Smart Cell assemblies are intended for use in HCP, HCP-SU, and HCR-U I-Line panelboards. The I-Line Smart Cell can be included in your Square D I-Line factory-assembled equipment or ordered individually for field installations such as Retrofit or RTI.

For more information refer to Handout (2700HO1501) or User Guide (NHA999570).

For Surgelogic™ I-Line plug-on SPD information, starting on Digest page .For field-installable I-Line door kits, see the Supplemental and Obsolescence Digest, Section 4.

[1] Supported by the Panelboard Product Selector.

NQ and NF Terminal Data

Table 9.149: NQ Standard Aluminum Mechanical Lugs—Main Lugs

Panel Type	Ampere Rating	Part Number	Lug Wire Range *[2]*
NQ	100 A	NQALM1	(1) #6-2/0 Al or Cu
	225 A	NQALM2	(1) #6-350 kcmil Al or Cu
	400 A	NQALM4	(1) 1/0-750 kcmil Al or Cu or (2) 1/0-350 kcmil Al or Cu
	600 A	NQALM6	(2) 1/0-750 kcmil Al or Cu
		NQALM6A	(1) 1/0-750 kcmil Al or Cu or (3) 250 kcmil Al-Cu

Table 9.150: NQ Standard Aluminum Mechanical Lugs—Main Circuit Breaker

Panel Type	Ampere Rating	Circuit Breaker Type	Lug Wire Range *[3][2]*
NQ	100 A	QOB	(1) #4–#2/0 Al or Cu
	150 A	HD, HG, HJ, HL	(1) #14–#3/0 Al or Cu
	225 A	QB, QD, QG, QJ	(1) #4-300 kcmil Al or Cu
	250 A	JD, JG, JJ, JL	(1) #3/0–350 kcmil Al or Cu *[3]*
	400 A	LA, LH	(1) #1–600 kcmil Al or Cu or (2) #1–250 kcmil Al or Cu
	600 A	LD, LG, LJ, LL	(2) #4/0-500 kcmil Al or Cu

Table 9.151: NF Standard Mechanical Lugs—Main Lugs

Panel Type	Ampere Rating	Part Number	Lug Wire Range *[2]*
NF	125 A	NFALM1	(1) #6–2/0 Al or Cu
	250 A	NFALM2	(1) #6–350 kcmil Al or Cu
	400 A	NFALM4	(1) #1/0–750 kcmil or (2) #1/0–350 kcmil Al or Cu
	600 A	NFALM6	(2)1/0-750 kcmil Al or Cu
	800 A	NFALM8	(3) 1/0-750 kcmil Al or Cu

Table 9.152: NF Standard Mechanical Lugs—Main Circuit Breaker

Panel Type	Ampere Rating	Circuit Breaker Type	Lug Wire Range *[3][2]*
NF	125 A	ED, EG, EJ	(1) #14–#2/0 Al or Cu
	150 A	HD, HG, HJ, HL	(1) #14–#3/0 Al or Cu
	250 A	JD, JG, JJ, JL	(1) #3/0–350 kcmil Al or Cu *[3]*
		DJ	(1) #2–600 Cu or #2–500 Al
	400 A	LA, LH	(1) #1–600 kcmil or (2) #1–250 kcmil Al or Cu
	600 A	LD, LG, LJ, LL, LR	(2) #4/0–500 kcmil Al or Cu

I-Line and QMB/QMJ Terminal Data

Table 9.153: Standard Mechanical Lugs—Main Lugs

Panel Type	Ampere Rating	Wire Range Wire Bending Space per NEC Table 312-6 *[2]*
I-Line	100 A	—
	225 A	(1) #6–300 kcmil Al or Cu
	400 A	(1) #2–600 kcmil Al or Cu (2) #2–500 kcmil Al or Cu
	600 A	(2) #2–500 kcmil Al or Cu
	800 A	(3) 3/0–500 kcmil Al or Cu
	1200 A	(4) 3/0–500 kcmil Al or Cu

Table 9.154: Standard Mechanical Lugs—Main Circuit Breaker

Panel Type	Ampere Rating	Circuit Breaker Type	Wire Range Wire Bending Space per NEC Table 312-6 *[2]*
I-Line	125 A	BD, BG, BJ	(1) #14-#2/0 AWG Al or Cu
	150 A	HD, HG, HJ, HL	(1) #14-3/0 Al or Cu
	250 A	JD, JG, JJ, JL	(1) #1/0-300 kcmil Al or Cu
	400 A	LA, LH	(1) #1-600 kcmil Al or Cu
	800 A	MG, MJ, PG, PJ, PL	(3) 3/0-500 kcmil Al or Cu
	1200 A	PG, PJ, PL, RGC, RJC, RLC	(4) 3/0-500 kcmil Al or Cu

Table 9.155: Standard Mechanical Lugs—Main Lugs

Panel Type	Mains Ampere Rating	Wire Range Wire Bending Space per NEC Table 312-6 *[2]*
QMB	225 A	(1) #6–300 kcmil Al or Cu
	400 A	(1) 3/0-500 kcmil Al or CU and, (1) 3/0–750 kcmil Al or Cu
	600 A	(2) 3/0–500 kcmil Al or Cu
	800 A	(3) 3/0–500 kcmil Al or Cu or (2) 3/0–750 kcmil Al or Cu
	1200 A	(4) 3/0–500 kcmil Al or Cu or (4) 3/0–750 kcmil Al or Cu
	1600 A	VCEL compression lugs Standard.

Table 9.156: Standard Mechanical Lugs—Main Switch

Panel Type	Mains Ampere Rating	Wire Range Wire Bending Space per NEC Table 312-6 *[2]*
QMB	200 A	(1) #4–300 kcmil Al or Cu
	400 A	(1) 3/0–600 kcmil Al or Cu
	600 A	(2) 3/0–600 kcmil Al or Cu
	800 A	(3) 3/0–500 kcmil Al or Cu

Table 9.157: Standard Mechanical Lugs—QMB Branch Switch Units

Panel Type	Switch Ampere Rating	Wire Range Wire Bending Space per NEC Table 312-6 *[2]*
QMB	30 A	(1) #14–#2 Al or Cu
	60 A	(1) #14–#2 Al or Cu
	100 A	(1) #14–1/0 Al or Cu
	200 A	(1) #4–300 kcmil Al or Cu
	400 A	(2) 3/0–500 kcmil Al or Cu
	600 A	(2) 3/0–500 kcmil Al or Cu
	800 A	(3) 3/0–500 kcmil Al or Cu

Table 9.158: Standard Mechanical Lugs—QMJ Branch Switch Units *[4]*

Panel Type	Switch Ampere Rating	Wire Range Wire Bending Space per NEC Table 312-6 *[2]*
QMJ	30 A	(1) #14–#2 Al or Cu
	60 A	(1) #14–#2 Al or Cu
	100 A	(1) #14–1/0 Al or Cu
	200 A	(1) #6–300 kcmil Al or Cu
	400 A	(1) 1/0–750 kcmil Al or Cu
	600 A	(2) 3/0–600 kcmil Al or Cu

[2] (#) = Number of conductors per phase.
[3] The lug range shown is for the highest amperage of the circuit breaker frame shown in the table.
[4] Use only 90 ◦C insulated conductors based on an ampacity of 75 ◦C conductors.