

Panelboards

Type P2 Panelboards

General

Features

Flexibility is the hallmark of the P2 panel. This panel offers a wide array of factory-assembled options to meet almost all lighting panel applications. With this design, the ability to mix breaker frames in unit space up to 250 amps will also meet many distribution panel requirements in a much smaller package. Bussing options for the P2 vary from the typical temperature rated to 750 A/Si aluminum to 1000A/Si copper. Standard bussing in the P2 panel is tin-plated. Silver-plated copper is also offered as an option. Integrated time clocks, bus mounted contactors, as mains or sub mains, split bus, and subfeed lugs (up to 400 amp) are just a few of the options of this unique panel.

Like a lighting panel, P2 is set up around 18, 30, 42, 54, 66, 78, and 90 circuit configurations. It will also allow the user to configure the panel to the smallest possible size. The P2 panel starts with 9" of unit space (18 circuits of 1" pole breakers). Breakers mounted in unit space can be mixed and matched to meet customer requirements. All 1" pole breakers (BL, BQD, ED frames) are mounted in 3" or 6" pole increments. Breaker frames, above 125 amps, are mounted in 6" single breaker mountings.

As an example of a minimum panel, (6) 20 amp 1-pole BL breakers (3" of unit space) and a 3-pole 225 amp QJ breaker (6" of unit space) equaling 9" of unit space can be configured in a P2 panel without any extra provisions or space required. FD 250 amp and JD 400 amp breakers are mounted as subfeed breakers outside of unit space.

Another unique feature of the P2 panel is that blank unit space can be added to allow for future expansions or modifications. Any expansions or modifications must be in 3" increments. BL, BQD, and ED frame breakers have 3" or 6" pole kits, and can be mixed in unit space by these increments. Breakers of the same frame can cross from one mounting to another if contiguous. QJ frame breakers are mounted in 6" increments for two- and three pole, single mounted units. Changes in the unit space length for BL, BQD, or ED frame breakers require an addition deadfront, center strip kit. Check with sales or the factory for additional unit space kits.

Main Lug / Main Breaker

Enclosure – Standard Type 1 enclosure is 20" wide x 5.75" deep X. Box Height is determined by main device and unit space. See charts for box height.

Voltage – 600V AC max.
250V DC max.

Amperage – 600 amp max.

Short circuit rating – 200 KAIC max. symmetrical or equal to the lowest rated device installed unless a series rating is indicated. Panels with subfeed or feed-thru lugs without a main device, circuit breaker or fusible unit, are limited to a three-cycle rating. The three-cycle rating for the P2 panel is limited to 22 KAIC. Note that the main device may be mounted remote from the panel.

Bussing – The P2 panel has more options to meet market requirements. The standard bussing is temperature rated aluminum. The rating is per the requirements of UL 67 – the standard for panelboards. All aluminum bussing is tin-plated. Optional bussing for the P2 panel is: 750 A/Si aluminum, temperature rated copper, and 1000 A/Si copper. The copper bus option for this panel is tin-plated.

Weight – Approximate

Total panelboard weight when filled with a normal quantity of breakers and accessories is about 3 lbs. (1 kg) per inch (54g per mm) of box height.

Gauge Steel of Boxes Fronts, Surface and Flush

| Dimensions in inches (mm) | | Gauge Steel | |
|---------------------------|------------------|-------------|-------|
| Width | Height | Box | Front |
| 20 (508) | 26–74 (660–1880) | #16 | #14 |

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PANELBOARDS

Panelboards

Type P2 Panelboards

Selection/Dimensions

Standard Circuit P2 Panels

Base Box Size Requirements for P2 Panels with Standard Line Lugs, and fewer than 55 poles of 1" module (BL, BQD, ED, NGB) branch breakers and provisions. Unit Spaces range from 9" to 45" (in 6" increments). Boxes range from 26" to 74" high (in 6" increments). Inclusion of optional modifications may require size increases that must be added to these base values to calculate the final box size for the panel (see pages 11-29, 11-30). Vertical Main breaker options with the "Vert." designation are added-price options (see page 11-26). Values in brackets [], at the bottom of each column, indicate the maximum allowable 1" module branch poles for each main type.

| "B" Dimension Box Height | P2 Panels with Standard Line Lugs. Unit Space (starting with 9" and adding 6" increments) "A" Dimension | | | | | | | | | | | | | | |
|--------------------------|---|-------|-----------|------------------------------|----------------------------|-----------------|----------------|----------------------------|----------------|----------------------------|----------|---------|----------|---------|----------|
| | Main Lugs | | | Main Breakers | | | | | | | | | | | |
| | 125A | 250A | 400A 600A | 125A Horiz. BL, BQD, NGB, ED | 125A Vert. ED ^① | 125A Horiz. CED | 225A Horiz. QJ | 225A Vert. QJ ^① | 250A Horiz. FD | 250A Vert. FD ^① | 250A CFD | 400A JD | 400A CJD | 600A LD | 600A CLD |
| 26 | 9 | — | — | 9 | — | — | — | — | — | — | — | — | — | — | — |
| 32 | 15 | 9 | — | 15 | 9 | 9 | 9 | — | — | — | — | — | — | — | — |
| 38 | 21 | 15 | 9 | 21 | 15 | 15 | 15 | 9 | 9 | — | — | — | — | — | — |
| 44 | 27 | 21 | 15 | 27 | 21 | 21 | 21 | 15 | 15 | 9 | — | — | — | — | — |
| 50 | 27 | 27 | 21 | 27 | 27 | 27 | 27 | 21 | 21 | 15 | 9 | 9 | — | — | — |
| 56 | 39 | 27 | 27 | 39 | 33 | 33 | 33 | 27 | 27 | 21 | 15 | 15 | — | 9 | — |
| 62 | 45 | 39 | 33 | 45 | 39 | 39 | 39 | 33 | 33 | 27 | 21 | 21 | 9 | 15 | 9 |
| 68 | 45 | 45 | 39 | 45 | 45 | 45 | 45 | 39 | 39 | 33 | 27 | 27 | 15 | 21 | 15 |
| 74 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 39 | 33 | 33 | 21 | 27 | 21 |
| | [54p] | [54p] | [54p] | [54p] | [54p] | [54p] | [54p] | [54p] | [54p] | [54p] | [54p] | [54p] | [42p] | [54p] | [42p] |

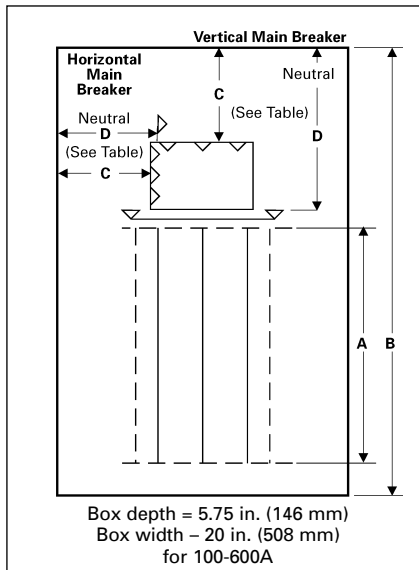
Extended Circuit P2 Panels

Base box size requirements for Extended Circuit P2 Panels with Standard Line Lugs, and 55 or more poles of 1" module (BL, BQD, ED, NGB) branch breakers and provisions. Unit Spaces range from 33" to 45" (in 6" increments). Boxes range from 56" to 74" high (in 6" increments). Inclusion of optional modifications may require size increases that must be added to these base values to calculate the final box size for the panel (see pages 11-29, 11-30). Vertical Main breaker options with the "Vert." designation are added-price options (see page 11-26). Values in brackets [], at the bottom of each column, indicate the maximum allowable 1" module branch poles for each main type.

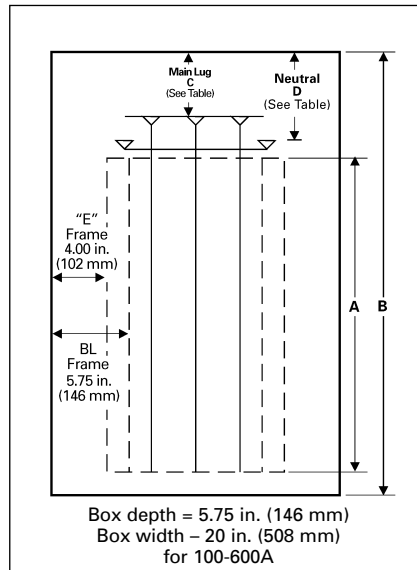
| "B" Dimension Box Height | P2 Panels with Standard Line Lugs. Unit Space (starting with 9" and adding 6" increments) "A" Dimension | | | | | | | | | | | | | | |
|--------------------------|---|-------|-----------|------------------------------|----------------------------|-----------------|----------------|----------------------------|----------------|----------------------------|----------|---------|----------|---------|----------|
| | Main Lugs | | | Main Breakers | | | | | | | | | | | |
| | 125A | 250A | 400A 600A | 125A Horiz. BL, BQD, NGB, ED | 125A Vert. ED ^① | 125A Horiz. CED | 225A Horiz. QJ | 225A Vert. QJ ^① | 250A Horiz. FD | 250A Vert. FD ^① | 250A CFD | 400A JD | 400A CJD | 600A LD | 600A CLD |
| 56 | 33 | — | — | 33 | — | — | 33 | — | — | — | — | — | — | — | — |
| 62 | 39 | 33 | 33 | 39 | 33 | 33 | 39 | 33 | — | — | — | — | — | — | — |
| 68 | 45 | 39 | 39 | 45 | 39 | 39 | 45 | 39 | 33 | — | — | — | — | — | — |
| 74 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 39 | 33 | — | 33 | — | — | — |
| | [90p] | [90p] | [90p] | [90p] | [90p] | [90p] | [90p] | [90p] | [78p] | [66p] | [54p] | [66p] | [42p] | [54p] | [42p] |

①Note: The vertical main breaker application for ED, QJ, and FD adds 6" of box height.

Main breaker wire bending space diagram



Main lug wire bending space diagram



Panelboards

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Selection/Dimensions

Standard Circuit P2 Panels

Main Breaker Wire Bending

| Standard Circuits (up to 54 1" module branch poles) | | | |
|---|----------------|----------------|----------------|
| Panel Amps | Breaker Frames | C ^① | D ^① |
| 100 | BL | 5.75 | 8.00 |
| | BQD | 5.13 | 8.00 |
| 125 | NGB | 4.63 | 8.00 |
| | ED (horiz.) | 4.00 | 8.00 |
| | ED (vert.) | 6.56 | 11.13 |
| 225 | QJ (horiz.) | 5.00 | 7.00 |
| | QJ (vert.) | 10.06 | 16.69 |
| 250 | FD (horiz.) | 5.00 | 7.00 |
| | FD (vert.) | 13.25 | 22.72 |
| 400 | JD | 15.38 | 25.00 |
| 600 | LD | 15.38 | 23.00 |

Extended Circuit P2 Panels

Main Breaker Wire Bending

| Extended Circuits (more than 54 1" module branch poles) | | | |
|---|----------------|----------------|----------------|
| Panel Amps | Breaker Frames | C ^① | D ^① |
| 100 | BL | 5.75 | 6.56 |
| | BQD | 5.13 | 6.56 |
| 125 | NGB | 4.63 | 6.56 |
| | ED (horiz.) | 4.00 | 6.56 |
| | ED (vert.) | 12.56 | 14.88 |
| 225 | QJ (horiz.) | 5.00 | 6.44 |
| | QJ (vert.) | 10.06 | 15.53 |
| 250 | FD (horiz.) | 5.00 | 5.63 |
| | FD (vert.) | 19.25 | 25.71 |
| 400 | JD | 15.38 | 23.75 |
| 600 | LD (54p max) | N/A | N/A |

Main Lug Connectors

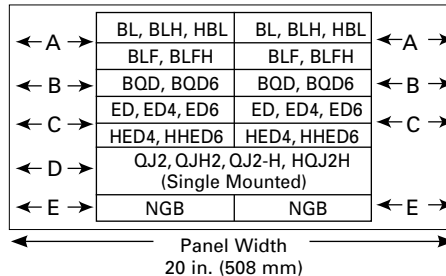
| Standard Circuits (up to 54 1" module branch poles) | | | |
|---|---|----------------|----------------|
| Panel Amps | Standard Connectors | C ^① | D ^① |
| 125 | (1) #14-2/0 | 6.62 | 8.19 |
| 250 | (1) #6 AWG - 350 MCM | 11.75 | 10.72 |
| 400 | (1) #4 AWG - 600 MCM or (2) #6 - 250 MCM | 14.00 | 13.09 |
| 600 | (2) #4 AWG - 500 MCM | 14.00 | 11.00 |

Main Lug Connectors

| Extended Circuits (more than 54 1" module branch poles) | | | |
|---|---|----------------|----------------|
| Panel Amps | Standard Connectors | C ^① | D ^① |
| 125 | (1) #14-2/0 | 12.62 | 8.91 |
| 250 | (1) #6 AWG - 350 MCM | 17.75 | 13.69 |
| 400 | (1) #4 AWG - 600 MCM or (2) #6 - 250 MCM | 14.00 | 14.19 |
| 600 | (2) #4 AWG - 500 MCM | 14.00 | 14.23 |

Branch Breaker Side Gutters Inches (mm)

| Reference Letter | Panel Width 20" (508) |
|------------------|-----------------------|
| A | 5.750 (146) |
| B | 5.125 (130) |
| C | 4.000 (102) |
| D ^② | 5.000 (127) |
| E | 4.625 (117) |



① Refer to diagrams at the bottom of page 11-24.
② Single branch mounting construction.

Panelboards

Type P2 Panelboards

Selection

Main Breaker Selection^①

| Ampere Rating | Breaker Type | Maximum Interrupting Rating (kA) | | | Ref. Catalog Number | Available Trip Values | |
|--------------------|--------------------|----------------------------------|------|------|---|---|------------------------------|
| | | 240V | 480V | 600V | | | |
| 100 | BL | 10 | — | — | BL | 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100 | |
| | HBL | 65 | — | — | HB | 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100 | |
| | BQD | 65 | 14 | — | BQ | 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100 | |
| | BLH | 22 | — | — | BH | 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100 | |
| | ED4 | 65 | 18 | — | E4 | 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100 | |
| | NGB | 100 | 25 | — | NB | 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 100 | |
| | ED6 | 100 | 25 | 14 | E6 | 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100 | |
| | HED4 | 100 | 42 | — | H4 | 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100 | |
| | HHED6 | 100 | 65 | 18 | HA | 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100 | |
| CED6 ^② | 200 | 200 | 100 | CE | 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100 | | |
| 125 | NGB | 100 | 25 | — | NB | 110, 125 | |
| | ED4 | 65 | 18 | — | E4 | 125 | |
| | ED6 | 65 | 25 | 18 | E6 | 125 | |
| | HED4 | 100 | 42 | — | H4 | 125 | |
| | HHED6 | 100 | 65 | 18 | HA | 125 | |
| | CED6 ^② | 200 | 200 | 100 | CE | 125 | |
| 225 | QJ2 | 10 | — | — | QJ | 60, 70, 80, 90, 100, 110, 125, 150, 175, 200, 225 | |
| | QJH2 | 22 | — | — | QH | 60, 70, 80, 90, 100, 110, 125, 150, 175, 200, 225 | |
| | QJ2H | 42 | — | — | Q2 | 60, 70, 80, 90, 100, 110, 125, 150, 175, 200, 225 | |
| | HQJ2H | 100 | — | — | Q3 | 60, 70, 80, 90, 100, 110, 125, 150, 175, 200, 225 | |
| | FD6 | 65 | 35 | 18 | FD | 70, 80, 90, 100, 110, 125, 150, 175, 200, 225 | |
| | FXD6 | 65 | 35 | 18 | FX | 70, 80, 90, 100, 110, 125, 150, 175, 200, 225 | |
| | HFD6 | 100 | 65 | 25 | HF | 70, 80, 90, 100, 110, 125, 150, 175, 200, 225 | |
| | HFXD6 | 100 | 65 | 25 | H2 | 70, 80, 90, 100, 110, 125, 150, 175, 200, 225 | |
| | CFD6 ^② | 200 | 200 | 100 | CF | 70, 80, 90, 100, 110, 125, 150, 175, 200, 225 | |
| | 250 | FD6 | 65 | 35 | 18 | FD | 250 |
| | | FXD6 | 65 | 35 | 18 | FX | 250 |
| | | HFD6 | 100 | 65 | 35 | HF | 250 |
| HFXD6 | | 65 | 35 | 25 | H2 | 250 | |
| CFD6 ^② | | 200 | 150 | 100 | CF | 50 | |
| 400 | | JXD6 ^② | 65 | 35 | 25 | JX | 200, 225, 250, 300, 350, 400 |
| | JD6 ^② | 65 | 35 | 35 | J6 | 200, 225, 250, 300, 350, 400 | |
| | HJXD6 ^② | 100 | 65 | 35 | H6 | 200, 225, 250, 300, 350, 400 | |
| | HJD6 ^② | 100 | 65 | 35 | H5 | 200, 225, 250, 300, 350, 400 | |
| | SJD6 ^② | 65 | 35 | 25 | SJ | 200, 300, 400 | |
| | SHJD6 ^② | 100 | 65 | 35 | S2 | 200, 300, 400 | |
| | CJD6 ^② | 200 | 200 | 100 | CJ | 200, 300, 400 | |
| | SCJD6 ^② | 200 | 200 | 100 | SC | 200, 300, 400 | |
| | 600 | LXD6 ^② | 65 | 35 | 25 | LX | 450, 500, 600 |
| LD6 ^② | | 65 | 35 | 25 | L6 | 250, 300, 350, 400, 450, 500, 600 | |
| HLXD6 ^② | | 100 | 65 | 35 | HL | 250, 300, 350, 400, 450, 500, 600 | |
| HLD6 ^② | | 100 | 65 | 35 | HO | 250, 300, 350, 400, 450, 500, 600 | |
| SLD6 ^② | | 65 | 35 | 25 | SL | 300, 400, 500, 600 | |
| SHLD6 ^② | | 100 | 65 | 35 | S6 | 300, 400, 500, 600 | |
| CLD6 ^② | | 200 | 150 | 100 | CL | 300, 400, 500, 600 | |
| SCLD6 | | 200 | 150 | 100 | C6 | 300, 400, 500, 600 | |

When an ED4, ED6, HED4, QJ2, QJH2, QJ2H, FD6, HFD6, or FXD6 frame main breaker, vertically mounted, is required, price as a main breaker panel and add from the table for the main breaker mounting.

Vertically Mounted Main Breaker

(available in 2-pole or 3-pole)

| Ampere Rating | Breaker Type(s) | Unit Space (in.) |
|---------------|-------------------------------------|------------------|
| 100 | ED4, ED6, HED4 | 6 |
| 225 | QJ2, QJH2, QJ2-H FXD6, FD6, HFD6 | 6 |

Subfeed Breakers (available in 2-pole or 3-pole)

| Breaker Type | Mounting Position When Used as Subfeed Breaker | Ampere Ratings For Load | Maximum Interrupting Rating (kA) Symmetrical | | |
|---------------------------|--|-------------------------|--|---------|---------|
| | Vertical | | 240V AC | 480V AC | 600V AC |
| FD6 ^③ , FXD6 | Twin | 70–250 | 65 | 35 | 22 |
| HFD6 ^③ , HFXD6 | Twin | 70–250 | 100 | 65 | 25 |
| JD6 ^③ , JXD6 | Single | 200–400 | 65 | 35 | 25 |
| HJD6 ^③ , HJXD6 | Single | 200–400 | 100 | 65 | 35 |

^① Interchangeable trip main breakers are mounted at top of panel only.

^② Vertically mounted.

^③ Twin mounted subfeed breakers are mounted at the bottom of panelboard only and adds 24" to the panel height.

^④ Subfeed breaker is mounted at bottom of panelboard only. 400 amp subfeed breaker adds 24" to the panel height. (Only for use with MLO)

Panelboards

Type P2 Panelboards

Selection

Branch Circuit Breakers

| Max. Amp Rating | Bolt-On Breaker Type | Amps | Availability | | | Maximum Interrupting Rating (kA) | | | | | | |
|------------------|----------------------|---------|--------------|--------|--------|----------------------------------|-------------|---------|---------|---------|---------|---------|
| | | | 1-Pole | 2-Pole | 3-Pole | 120V AC | 120/240V AC | 240V AC | 277V AC | 480V AC | 600V AC | 250V DC |
| 100 | BL | 15-60 | ✓ | ✓ | ✓ | 10 | — | — | — | — | — | — |
| | | 70 | ✓ | ✓ | ✓ | — | 10 | — | — | — | — | — |
| | | 80-100 | — | ✓ | ✓ | — | — | 10 | — | — | — | — |
| | BLH | 15-60 | ✓ | ✓ | ✓ | — | 22 | — | — | — | — | — |
| | | 70 | ✓ | ✓ | ✓ | — | 22 | — | — | — | — | — |
| | | 80-100 | — | ✓ | ✓ | — | — | 22 | — | — | — | — |
| | HBL | 15-55 | ✓ | ✓ | ✓ | — | 65 | — | — | — | — | — |
| | | 60-100 | — | ✓ | ✓ | — | 65 | — | — | — | — | — |
| | BL, HID | 15-30 | ✓ | ✓ | — | 10 | 10 | — | — | — | — | — |
| | BLR (240V) | 15-60 | — | ✓ | — | — | — | 10 | — | — | — | — |
| | | 70-100 | — | ✓ | — | — | — | 10 | — | — | — | — |
| | BLE (GFCI) | 15-30 | ✓ | ✓ | — | 10 | — | — | — | — | — | — |
| | | 40-60 | — | ✓ | — | — | 10 | — | — | — | — | — |
| | BLEH | 20-30 | ✓ | — | — | 22 | — | — | — | — | — | — |
| | | 15-60 | ✓ | ✓ | — | — | 22 | — | — | — | — | — |
| | BLF (GFCI) | 15-30 | ✓ | ✓ | — | 10 | — | — | — | — | — | — |
| 40-60 | | ✓ | ✓ | — | — | 10 | — | — | — | — | — | |
| BLHF (GFCI) | 15-30 | ✓ | ✓ | — | 22 | — | — | — | — | — | — | |
| | 40-60 | ✓ | ✓ | — | — | 22 | — | — | — | — | — | |
| BGL ^② | 15-30 | — | ✓ | ✓ | 10 | 10 | — | — | — | — | — | |
| BAF | 15-20 | ✓ | ✓ | — | 10 | — | — | — | — | — | — | |
| BAFH | 15-20 | ✓ | ✓ | — | 22 | — | — | — | — | — | — | |
| BQD | 15-60 | ✓ | ✓ | ✓ | — | 65 | — | 14 | — | — | 14 | |
| | 70-100 | ✓ | ✓ | ✓ | — | 65 | — | — | 14 | — | 14 | |
| NGB | 15-60 | ✓ | ✓ | ✓ | 100 | 100 | 100 | 25 | 25 | — | 14 | |
| | 70-100 | ✓ | ✓ | ✓ | 100 | 100 | 100 | 25 | 25 | — | 14 | |
| | 110-125 | — | ✓ | ✓ | 100 | 100 | 100 | 25 | 25 | — | 14 | |
| 125 | ED4 | 15-60 | ✓ | ✓ | ✓ | 65 | — | — | 22 | — | — | — |
| | | 70-100 | ✓ | ✓ | ✓ | — | — | 65 | — | 18 | — | 30 |
| | | 110-125 | — | ✓ | ✓ | — | — | 65 | — | 18 | — | — |
| | ED6 | 15-60 | — | ✓ | ✓ | — | — | 65 | — | 25 | 18 | 30 |
| | | 70-100 | — | ✓ | ✓ | — | — | 65 | — | 25 | 18 | — |
| | | 110-125 | — | ✓ | ✓ | — | — | 65 | — | 25 | 18 | — |
| | HED4 ^① | 15-60 | ✓ | ✓ | ✓ | — | — | 65 | — | 42 | 18 | 30 |
| | | 70-100 | ✓ | ✓ | ✓ | — | — | 65 | — | 42 | 18 | — |
| | | 110-125 | — | ✓ | ✓ | — | — | 65 | — | 42 | 18 | — |
| | HHED6 | 15-60 | — | ✓ | ✓ | — | — | 100 | 65 | — | — | — |
| | | 70-100 | — | ✓ | ✓ | — | — | 100 | 42 | 65 | — | 30 |
| | | 110-125 | — | ✓ | ✓ | — | — | 100 | — | 65 | — | — |
| 225 | QJ2 | 60-225 | — | ✓ | ✓ | — | — | 10 | — | — | — | — |
| | QJH2 | 60-225 | — | ✓ | ✓ | — | — | 22 | — | — | — | — |
| | QJ2H | 60-225 | — | ✓ | ✓ | — | — | 42 | — | — | — | — |
| | HQJ2H | 60-225 | — | — | ✓ | — | — | 100 | — | — | — | — |

Branch Device Limitations

In areas where 2008 NEC has not been adopted, some limitations may apply for panels used in systems requiring neutral connections. By application rule (480.14 in all versions of the NEC prior to 2008), lighting and appliance panels are limited to 42 installed circuits. Each over current device pole counts as a circuit.

Branch Neutral Connections

| Wire Range | Max. Number of Connections | Max. Amp ^③ |
|---|----------------------------|-----------------------|
| #14-#6 | 26 | 65 |
| #14-1/0 | 28 | 125 |
| #6-350 kcmil | 3 | 250 |
| (1) #4-600 kcmil or (2) #6-250 kcmil | 1 | 400 |

① 1-Pole HED 4 15-30A Rated 65kA 35 through 100A Rated 25kA.

② Two pole breaker is one phase and neutral.

Three pole is two phase and neutral.

③ Based on 75 degree copper.

NOTE: QJ Breakers are single mounted in unit space and take 6" of unit space. Limited to (4) per panel max. BL, HBL, BLH and BQD breakers are mounted in common mountings in 3" or (6) pole increments. ED4, ED6, HED4 and HHED6 breakers are mounted in common mountings in 3" or (6) pole increments.

Panelboards

Type P2 Panelboards

Selection

Main Lugs Only

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PANELBOARDS

| Maximum Panel Amp Rating | Maximum 1-pole Circuits | Box Height Inches | Catalog Number | Catalog Number | Catalog Number |
|--------------------------|-------------------------|-------------------|----------------|----------------|----------------|
| | | | 3Ø4W 208Y/120V | 1Ø3W 120/240V | 3Ø4W 480Y/277V |
| 125 | 18 | 26 | P2C18ML125ATS | P2A18ML125ATS | P2E18ML125ATS |
| | 30 | 32 | P2C30ML125ATS | P2A30ML125ATS | P2E30ML125ATS |
| | 42 | 38 | P2C42ML125ATS | P2A42ML125ATS | P2E42ML125ATS |
| | 54 | 56 | P2C54ML125ATS | P2A54ML125ATS | P2E54ML125ATS |
| | 66 | 62 | P2C66ML125ATS | P2A66ML125ATS | P2E66ML125ATS |
| | 78 | 68 | P2C78ML125ATS | P2A78ML125ATS | P2E78ML125ATS |
| | 90 | 74 | P2C90ML125ATS | P2A90ML125ATS | P2E90ML125ATS |
| 250 | 18 | 32 | P2C18ML250ATS | P2A18ML250ATS | P2E18ML250ATS |
| | 30 | 38 | P2C30ML250ATS | P2A30ML250ATS | P2E30ML250ATS |
| | 42 | 44 | P2C42ML250ATS | P2A42ML250ATS | P2E42ML250ATS |
| | 54 | 56 | P2C54ML250ATS | P2A54ML250ATS | P2E54ML250ATS |
| | 66 | 62 | P2C66ML250ATS | P2A66ML250ATS | P2E66ML250ATS |
| | 78 | 68 | P2C78ML250ATS | P2A78ML250ATS | P2E78ML250ATS |
| | 90 | 74 | P2C90ML250ATS | P2A90ML250ATS | P2E90ML250ATS |
| 400 | 18 | 38 | P2C18ML400ATS | P2A18ML400ATS | P2E18ML400ATS |
| | 30 | 44 | P2C30ML400ATS | P2A30ML400ATS | P2E30ML400ATS |
| | 42 | 50 | P2C42ML400ATS | P2A42ML400ATS | P2E42ML400ATS |
| | 54 | 56 | P2C54ML400ATS | P2A54ML400ATS | P2E54ML400ATS |
| | 66 | 62 | P2C66ML400ATS | P2A66ML400ATS | P2E66ML400ATS |
| | 78 | 68 | P2C78ML400ATS | P2A78ML400ATS | P2E78ML400ATS |
| | 90 | 74 | P2C90ML400ATS | P2A90ML400ATS | P2E90ML400ATS |
| 600 | 18 | 38 | P2C18ML600ATS | P2A18ML600ATS | P2E18ML600ATS |
| | 30 | 44 | P2C30ML600ATS | P2A30ML600ATS | P2E30ML600ATS |
| | 42 | 50 | P2C42ML600ATS | P2A42ML600ATS | P2E42ML600ATS |
| | 54 | 56 | P2C54ML600ATS | P2A54ML600ATS | P2E54ML600ATS |
| | 66 | 62 | P2C66ML600ATS | P2A66ML600ATS | P2E66ML600ATS |
| | 78 | 68 | P2C78ML600ATS | P2A78ML600ATS | P2E78ML600ATS |
| | 90 | 74 | P2C90ML600ATS | P2A90ML600ATS | P2E90ML600ATS |

Main Circuit Breaker

| Maximum Panel Amp Rating | Maximum 1-pole Circuits | Box Height Inches | Catalog Number | Catalog Number | Catalog Number |
|--------------------------|-------------------------|-------------------|----------------|----------------|----------------|
| | | | 3Ø4W 208Y/120V | 1Ø3W 120/240V | 3Ø4W 480Y/277V |
| 100 | 18 | 26 | P2C18BL100ATS | P2A18BL100ATS | P2E18BL100ATS |
| | 30 | 32 | P2C30BL100ATS | P2A30BL100ATS | P2E30BL100ATS |
| | 42 | 38 | P2C42BL100ATS | P2A42BL100ATS | P2E42BL100ATS |
| 125 | 18 | 26 | P2C18NB125ATS | P2A18NB125ATS | P2E18NB125ATS |
| | 30 | 32 | P2C30NB125ATS | P2A30NB125ATS | P2E30NB125ATS |
| | 42 | 38 | P2C42NB125ATS | P2A42NB125ATS | P2E42NB125ATS |
| | 54 | 56 | P2C54NB125ATS | P2A54NB125ATS | P2E54NB125ATS |
| | 66 | 62 | P2C66NB125ATS | P2A66NB125ATS | P2E66NB125ATS |
| | 78 | 68 | P2C78NB125ATS | P2A78NB125ATS | P2E78NB125ATS |
| | 90 | 74 | P2C90NB125ATS | P2A90NB125ATS | P2E90NB125ATS |
| 225 | 18 | 32 | P2C18QJ225ATS | P2A18QJ225ATS | P2E18FX225ATS |
| | 30 | 38 | P2C30QJ225ATS | P2A30QJ225ATS | P2E30FX225ATS |
| | 42 | 44 | P2C42QJ225ATS | P2A42QJ225ATS | P2E42FX225ATS |
| | 54 | 56 | P2C54QJ225ATS | P2A54QJ225ATS | P2E54FX225ATS |
| | 66 | 62 | P2C66QJ225ATS | P2A66QJ225ATS | P2E66FX225ATS |
| | 78 | 68 | P2C78QJ225ATS | P2A78QJ225ATS | P2E78FX225ATS |
| | 90 | 74 | P2C90QJ225ATS | P2A90QJ225ATS | P2E90FX225ATS |
| 250 | 18 | 38 | P2C18FX250ATS | P2A18FX250ATS | P2E18FX250ATS |
| | 30 | 44 | P2C30FX250ATS | P2A30FX250ATS | P2E30FX250ATS |
| | 42 | 50 | P2C42FX250ATS | P2A42FX250ATS | P2E42FX250ATS |
| | 54 | 62 | P2C54FX250ATS | P2A54FX250ATS | P2E54FX250ATS |
| | 66 | 68 | P2C66FX250ATS | P2A66FX250ATS | P2E66FX250ATS |
| | 78 | 74 | P2C78FX250ATS | P2A78FX250ATS | P2E78FX250ATS |
| | 400 | 18 | 50 | P2C18JX400ATS | P2A18JX400ATS |
| 30 | 56 | P2C30JX400ATS | P2A30JX400ATS | P2E30JX400ATS | |
| 42 | 62 | P2C42JX400ATS | P2A42JX400ATS | P2E42JX400ATS | |
| 54 | 68 | P2C54JX400ATS | P2A54JX400ATS | P2E54JX400ATS | |
| 66 | 74 | P2C66JX400ATS | P2A66JX400ATS | P2E66JX400ATS | |
| 600 | 18 | 56 | P2C18LX600ATS | P2A18LX600ATS | P2E18LX600ATS |
| | 30 | 62 | P2C30LX600ATS | P2A30LX600ATS | P2E30LX600ATS |
| | 42 | 68 | P2C42LX600ATS | P2A42LX600ATS | P2E42LX600ATS |
| | 54 | 74 | P2C54LX600ATS | P2A54LX600ATS | P2E54LX600ATS |

Panelboards

Type P2 Panelboard Modifications and Additions

Selection

Enclosures

Extra Gutter to Sides or Ends of the Can (Type 1 Only)

| Description |
|--|
| 6" end gutter |
| 2" side gutter |
| Barrier in gutter (add to extra gutter price – min 4" required) |
| 24" wide |
| Hinged trims |
| Piano hinged trims |
| Door-in-door trims |
| Screw to the box trims |
| Trim mounted devices See page 11-74 |
| • Pilot lights |
| • Toggle switches |
| • Push buttons |
| Painted boxes See page 11-74 |
| Custom colors See painted boxes |
| Increase gauge trims and boxes See page 11-74 |
| Stainless steel trims and boxes, Type 1 See page 11-74 |

Meters

(Contact sales for pricing and application engineering for space requirements)

Panel Skirts

See page 11-75

Special Locks

| |
|-------------------------|
| TEY |
| TEU1 |
| Cat 60 |
| LL803 |
| LL806 |
| Yale 47 (NYC) |
| National C413A |
| Best Lock 7-pin tumbler |
| Southco 1/4 Fastener |
| Corbin 1001 FAB7 |

Panel Bus Modifications

| Main Bus | Catalog Number Addition Amperes Ratings | | | |
|---------------------------------|---|------|------|------|
| | 125A | 250A | 400A | 600A |
| 750 A/SI AL. | B | B | B | B |
| Copper (tin pltd.) | F | F | F | F |
| Copper (silver pltd.) | E | E | E | E |
| 1000 A/SI Copper (tin pltd.) | G | G | G | G |
| 1000 A/SI Copper (silver pltd.) | H | H | H | H |

Subfeed, Feed-Thru and Split Bus (for 2-pole or 3-pole)

| Ampere Rating | Connector Cu /Al Wire Range | Unit Space (inches) |
|---------------|-----------------------------|---------------------|
|---------------|-----------------------------|---------------------|

Subfeed (Double) Lugs for Main Lug Panelboards Only

| | | |
|---------|---|---|
| 100/125 | (2)—#12 AWG-2/0 kcmil | 6 |
| 225/250 | (2)—#6 AWG-350 kcmil (custom) | 6 |
| 400 | (4)—250 kcmil (custom) (2)—600 kcmil | 6 |

Feed-Thru Lugs — Cannot Be Used in Conjunction with TVSS or Subfeed Breakers (200% Neutral not available)

| | | |
|---------|--------------------------------|----|
| 100/125 | (1)—#12 AWG-2/0 kcmil | 6 |
| 225/250 | (1)—#6 AWG-350 kcmil | 6 |
| 400 | (2)—250 kcmil (1)—600 kcmil | 9 |
| 600 | (2)—250-500 kcmil | 12 |

Split Bus (1 per interior)

Requires feed thru lugs also to feed sub panel section and for space requirements.

| | | |
|---------|--------------------------------|---|
| 100/125 | (1)—#12 AWG-2/0 kcmil | 6 |
| 225/250 | (1)—#6 AWG-350 kcmil | 6 |
| 400 | (2)—250 kcmil (1)—600 kcmil | 6 |
| 600 | (2)—250-500 kcmil | 6 |

Contactors Mains or Submain*

See Page 11-73

- Asco 920 through 225 amps – adds 12" unit space as main, 15" unit space as submain
- External with manufacture supplied enclosure
- Siemens LEN through 30 amps - adds 6" as main; 18" for up to 100A submain and 21" for 200A. 7.75" depth cans for up to 100A and 10" depth cans for 200A.

* Call plant for correct can size.

Branch and Main Breaker Accessories

- See breaker section of this catalog.
- Handle blocks
 - Handle locks
 - Aux. Contacts[Ⓞ]
 - UVR[Ⓞ]

Increase Capacity Neutral up to 200% (N/A on Feed Thru Lugs & Subfeed Lugs)

| Main Bus Amps |
|---------------|
| 125 |
| 250 |
| 400 |
| 600 |

See page 11-30 for unit space adders and compatibility with other options.

(Devices mounted and wired to the trim should also have hinged trim specified)

Copper MLO Only

| Main Bus Amps |
|---------------|
| 125 |
| 250 |
| 400 |
| 600 |

Bus mounted SPD See Section 10

Service Entrance Label

Type P2 Panelboards are factory labeled suitable for use as service entrance equipment when NEC requirements are met. A panelboard cannot have more than six main disconnects, unless it is a lighting and appliance branch panelboard. Lighting and appliance branch panelboards are limited to two main disconnects.

Grounding of Panelboards

Ground Bars except for brazed to box are shipped with the panel interior factory mounted.

- Non-Insulated Equipment Ground Bar
- Copper Non-Insulated Ground Bar
- Al Insulated Equipment Ground Bar
- Cu Insulated Equipment Ground Bar
- Ground Bar Brazed to Box (Not recommended for painted or NEMA 3R enclosures)

Shunt Trip on Main or Branch

BL, BLH, HBL, NGB, ED4, HED4, HED6, HHED6 uses 1" unit space for shunt trip. All others may be used on mains or subfeeds. See breaker section for list price adders.

Time Clocks

Time clocks may be mounted in a 23" enclosure to be cable connected to the panel. Sangamo, Tork or Paragon time clock can be supplied and mounted in panelboard cabinet. Adds 12" to panel height. Mounts in Sub-area.

| Description |
|--|
| Time Clock (1 or 2-pole, single or double throw contacts; 3-pole, single throw) 277V maximum with plain dial |
| Astronomical dial |
| An omitting device |
| Reserve power or carryover |
| Space and mounting provisions only |

[Ⓞ] Accessories on 1" pole breakers (BL, BQD, ED) will take unit space.

Panelboards

Type P2 Panelboard Standard Modifications and Additions

Selection

Box Size Additions for Optional Features

| Options | Main Lugs | | | | Main Breakers | | | | | | | | | | | |
|----------------------------------|-----------|------|---------|---------|------------------------------|-----------------|---------------|----------------|---------------|----------------|---------------|----------------|---------|----------|---------|----------|
| | 125A | 250A | 400A | 600A | 125A Horiz. BL, BQD, ED, NGB | 125A Horiz. CED | 125A Vert. ED | 225A Horiz. QJ | 225A Vert. QJ | 225A Horiz. FD | 250A Vert. FD | 250A Vert. CFD | 400A JD | 400A CJD | 600A LD | 600A CLD |
| *Min. Box Size | 26" | 32" | 38" | 38" | 26" | 32" | 32" | 32" | 38" | 38" | 44" | 50" | 50" | 62" | 56" | 62" |
| 200% Neutral (lug type) | 0 | 0 | 6 (all) | 6 (all) | 0 | 0 | 0 | N/A | 0 | N/A | 0 | 0 | 0 | 0 | 0 | 0 |
| Std. Lugs (100% Neut. PNL) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CJ Lugs (100% Neut. PNL) | 6 | 6 | 6 | 0 | N/A | N/A | 0 | N/A | 0 | N/A | 0 | 0 | 0 | 0 | 0 | 0 |
| Comp Lugs (100% Neut. PNL) | 6 | 6 | 6 | 6 | N/A | N/A | 0 | N/A | 0 | N/A | 0 | 0 | 0 | 0 | 0 | 0 |
| Feed-thru Standard Lugs | 6 | 6 | 12 | 12 | 6 | 6 | 6 | N/A | 6 | N/A | 6 | 6 | 12 | 12 | 12 | 12 |
| Feed-thru Cu Lugs | 6 | 6 | 12 | N/A | N/A | N/A | 6 | N/A | 6 | N/A | 6 | 6 | 12 | 12 | N/A | N/A |
| Feed-thru Comp Lugs | 6 | 12 | 12 | N/A | N/A | N/A | 6 | N/A | 6 | N/A | 12 | 12 | 12 | 12 | N/A | N/A |
| Subfeed Standard Lugs | 0 | 6 | 6 | N/A | — | — | — | — | — | — | — | — | N/A | — | — | — |
| Split Bus | 6 | 6 | 6 | 6 | 6 | 6 | 6 | N/A | 6 | N/A | 6 | 6 | 6 | 6 | 6 | 6 |
| (1) FD Subfeed (Horizontal Mtg.) | N/A | 12 | 12 | 12 | N/A | N/A | N/A | N/A | N/A | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| (2) FD Subfeed (Vertical Mtg.) | N/A | 24 | 24 | 24 | N/A | N/A | N/A | N/A | N/A | 24 | 24 | 24 | 24 | N/A | N/A | N/A |
| SPD | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |

Split bus is paired with feed-thru lugs by default. Feed-thru lugs are to feed the section after the split.

NOTE: N/A = OPTION NOT AVAILABLE

*Min. Box Size, corresponding to 9" of Unit Space.

Compression Lugs

| Style | Amp Rating | Breaker Type | Compression Connectors | Box Height Addition |
|--------------|------------|---|--|--|
| MLO | 125 | N/A | (1)#6 - 350 kcmil Al/Cu | 6 |
| | 250 | N/A | (1)#6 - 350 kcmil Al/Cu | 6 |
| | 400 | N/A | (1) 400 - 600 kcmil Cu or (2)#6 - 350 kcmil Al/Cu | 6 |
| | 600 | N/A | (2)#6 - 350 kcmil Cu or Cu/Al or 400 - 600 kcmil Al/Cu | 6 |
| Main Breaker | 100 | ED4, ED6, HED4 HHED6, CED6 [Ⓞ] | (1)#14-2/0 AWG Cu or Al | Box must go to 24" wide on CED6 breaker only Add 6" to box height for NØ |
| | 225 | QJ2, QJH2, QJ2H | (1)#6 AWG - 350 kcmil Cu or Al | Box must go to 24" wide |
| | 250 | FXD6, HFD6, CFD6 | (1)#6 AWG - 350 kcmil Cu or Al | Box must go to 24" wide for all breakers Requires an additional 6.0" box height |
| | 400 | JD6, JXD6, HJD6, CJD6, SJD6, SHJD6, SCJD6 | (2)#1/0 AWG - 500 kcmil Cu or Al | 9 |
| | 600 | LD6, LXD6, HLD6, CJD6, SLD6, SHLD6, SCLD6 | (2)#2/0 AWG - 500 kcmil Cu or Al | 6 |

Alternate Lugs

| Style | Amp Rating | Breaker Type | Standard AL Connectors | Box Height Addition |
|--------------|------------|---|---|---------------------|
| MLO | 400 | N/A | (1) 250 - 750 kcmil or (2)#3/0 AWG - 250 kcmil Cu or Al | 6 |
| Main Breaker | 400 | JD6, JXD6, HJD6, CJD6, SJD6, SHJD6, SCJD6 | (1)#4/0 AWG - 750 kcmil Cu or Al | 6 |

[Ⓞ] Not available for feed thru lug.

Panelboards

Type P2 Panelboard Connector Modifications

Selection

Enclosure Modifications

| Description |
|--|
| 20" Panel Width NEMA 3R enclosures NEMA 3R/12 enclosures Gasket between trim and box (Type 1) |
| 24" Panel Width NEMA 3R enclosures NEMA 3R/12 enclosures Gasket between trim and box (Type 1) |

NEMA-4 for Type P2 Water Tight, Dust Tight, Steel Enclosure (consult plant for actual enclosure size and for anything larger than 44")

| Box Height (inches) | Enclosure Size | | |
|------------------------|----------------|----|------|
| | H | W | D |
| 32 | 32 | 20 | 5.75 |
| 38 | 38 | 20 | 5.75 |
| 44 | 44 | 20 | 5.75 |

NEMA-4X for Type P2 Water Tight, Dust Tight and Corrosion Resistant (consult plant for actual enclosure size)

| Catalog Number | Enclosure - Stainless Steel Size (inches) | | | Enclosure - Fiberglass Size (inches) | | |
|-------------------|--|----|------|---|----|----|
| | H | W | D | H | D | W |
| B4X26 | 26 | 20 | 5.75 | 36 | 30 | 8 |
| B4X32 | 32 | 20 | 5.75 | 48 | 36 | 12 |
| B4X38 | 38 | 20 | 5.75 | | | |
| B4X44 | 44 | 20 | 5.75 | | | |
| B4X56 | 56 | 20 | 5.75 | | | |
| B4X62 | 62 | 20 | 5.75 | | | |
| B4X68 | 68 | 20 | 5.75 | | | |
| B4X74 | 74 | 20 | 5.75 | | | |

Panelboards

Type P2 Panelboard Kits and Accessories

Selection

Standard Enclosures

| Box Height Inches | Catalog Number | | | | |
|-------------------|----------------------|---------|-------|---------|------------|
| | Type 1 Standard Trim | | | Type 3R | Type 3R/12 |
| | Box | Surface | Flush | | |
| 26 | B26 | S26B | F26B | NR26 | WP26 |
| 32 | B32 | S32B | F32B | NR32 | WP32 |
| 38 | B38 | S38B | F38B | NR38 | WP38 |
| 44 | B44 | S44B | F44B | NR44 | WP44 |
| 50 | B50 | S50B | F50B | NR50 | WP50 |
| 56 | B56 | S56B | F56B | NR56 | WP56 |
| 62 | B62 | S62B | F62B | NR62 | WP62 |
| 68 | B68 | S68B | F68B | NR68 | WP68 |
| 74 | B74 | S74B | F74B | NR74 | WP74 |

Options For Type 1 Trims

Items must be ordered as manual line item on Spartanburg

Hinged trim – Replace "B" suffix with "H"

Door-in-door – Replace "B" suffix with "D"

Screw to Box - Replace "B" suffix with "C"

Metal card holder - Add "M" suffix on all trims

Option For 24" Wide Enclosures with Equal Gutter on Both Sides (Excludes NEMA 3R)

24" wide with equal gutter on both sides - Add "24" as prefix

Breaker Kits and Accessories

| Kit Number | Description | Contents |
|------------|---|---|
| BBKB32 | BL/BQD 6-pole 3" branch breaker kit | Kit contains top barrier, (3) A/C connectors, (1) B connector, hardware |
| BBKED32 | ED 6-pole 3" branch breaker kit | Kit contains breaker support, inter-phase barriers, (3) A/C connectors, (1) B connector, hardware |
| BBKNB32 | NGB 6-pole 3" branch breaker kit | Kit contains top barrier, (3) A/C connectors, (1) B connector, hardware |
| BBKQ1 | QJ branch breaker kit for 2 and 3-pole single mount | Kit to contain all connectors and cover plates necessary to mount both 2 and 3-pole breakers |
| DFK1 | BL, BQD, ED deadfront kit for 1" pole breakers | Center strips 3", 6", 9", 15", 21" plus mounting hardware |
| DFFP3 | Deadfront filler 3" | 3" empty space filler and hardware |
| DFFP6 | Deadfront filler 6" | 6" empty space filler and hardware |
| BNK2 | Branch neutral (P2) | Three tier lug with mounting hardware to increase neutral capacity |
| P2BK1 | P2 250A max. Bonding Kit | Bonding strap and hardware |
| P2BK2 | P2 400A max. Bonding Kit | Bonding strap and hardware |
| P2BK3 | P2 600A max. Bonding Kit | Bonding strap and hardware |

Type P1, P2, and P3 Panelboards

Miscellaneous Parts and Accessories

| Catalog Number | Description | Catalog Number | Description |
|----------------|------------------------------|----------------|--|
| EGK | Al Ground Bus 44 Connections | NBK6 | Number Strips 86-168 |
| P2BK1 | P2 250A Bonding Kit | NBK7 | Number Strips 169-210 |
| P2BK2 | P2 400A Bonding Kit | NBK8 | Number Strips 211-252 |
| P2BK3 | P2 600A Bonding Kit | ECGK | Cu Ground Bus 44 Connections |
| IMK1 | Interior Adjusting Kit | IGK | Insulated Al Ground Bus |
| 11-1824-01 | Directory Card Holder | ICGK | Insulated Cu Ground Bus |
| 12-1110-01 | Directory Card | EWK1 | End Wall Kit with Knockouts (20" W x 5.75" DP) |
| 11-1056-01 | NEMA Instruction Book | EWK2 | End Wall Kit with Knockouts (24" W x 7.75" DP) |
| NBK3 | Number Strips 1-42 | QF3 | Filler Plate |
| NBK4 | Number Strips 43-84 | EBF1 | NEB/HEB Filler Plate |
| NBK5 | Number Strips 85-126 | | |

Panelboards

Type P2 Panelboards

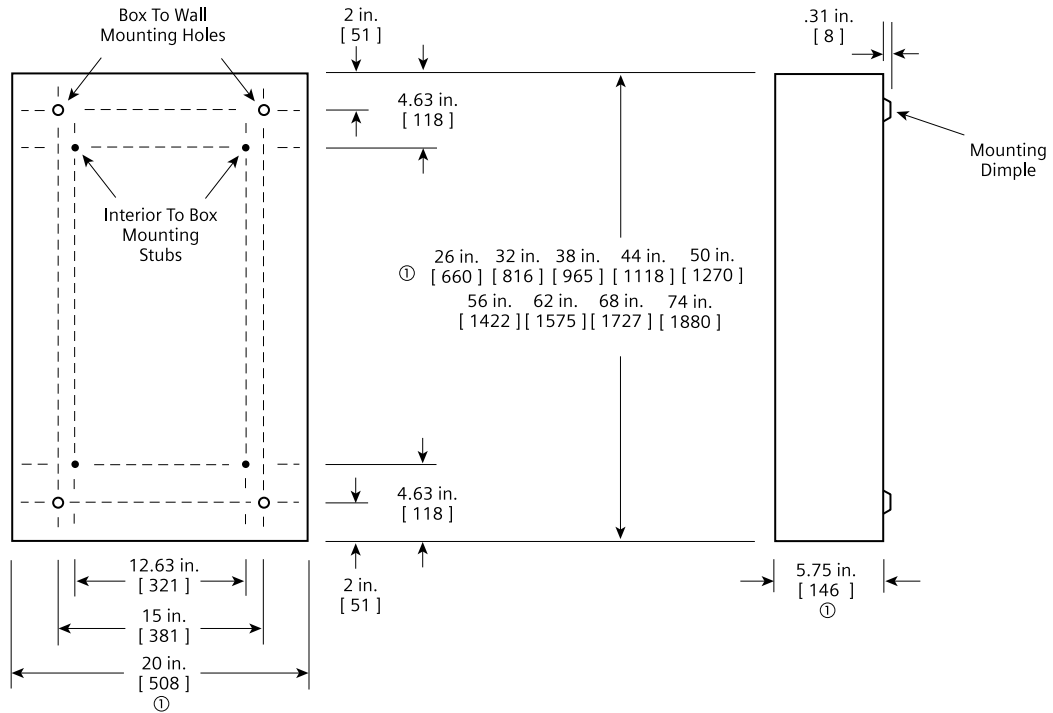
Dimensions

11

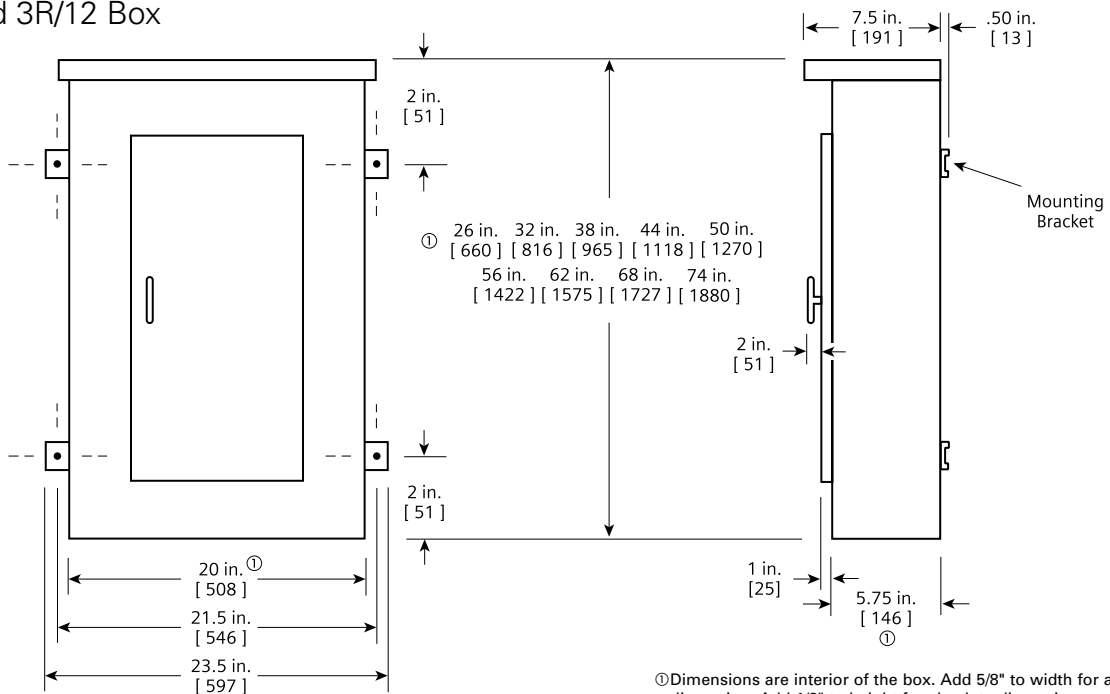
PANELBOARDS

Type 1 Box

Box is symmetrical



Type 3R and 3R/12 Box



① Dimensions are interior of the box. Add 5/8" to width for absolute dimension. Add 1/8" to height for absolute dimension.
 Dimensions shown in inches and millimeters [].