

Panelboards

General Specifications

General

Service Entrance Equipment

When a panelboard is used as service entrance equipment, it must be located near the point of entrance of building supply conductors. The National Electrical Code prior to 2020 allowed a maximum of six service disconnects in the same panelboard. The 2020 NEC now restricts panelboards to one service disconnect in a panelboard enclosure. Adoption of this code vary by a state or local jurisdiction. Consult the local code authorities to determine if this has been adopted in the area where the panel is to be installed and configure the panel accordingly. Also, panels must include a connector for bonding and grounding the neutral conductor.

UL67 requires Service Entrance Barriers for all Panels used for Service Entrance. Siemens includes these barriers in all Factory assembled panels, marked as Service Entrance, and also has available Field Installable kits when needed.

Integrated Equipment Short Circuit Rating

The term “Integrated Equipment Short Circuit Rating” refers to the application of series connected circuit breakers in a combination that allows some breakers to have lower individual interrupting ratings than the available fault current. This is permitted as long as the series combination has been tested and certified by UL.

Standards

NEC: 2020 (where accepted)

NEMA: PB1.1

UL: 67, 50 and 50E. Listed by Underwriter’s Laboratories, Inc., under “Panelboards” File #E2269, and #E4016. Meets Federal Specification W-P-115c.

Wire Connectors

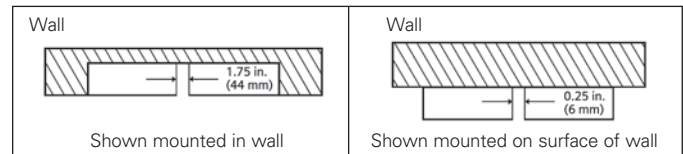
Standard wire connectors in Siemens panels are suitable for copper or aluminum cables rated 60/75 degree. Copper main lugs are a price-added option for most panel types and some Circuit Breakers (check with Siemens sales for availability). It should be noted that most copper lugs will only accept copper cables. Some applications, 100% rated devices in particular, require that the cable and connectors be rated 90 degree but are sized to the 75 degree tables.

Standard ground connectors are also suitable for copper or aluminum wire. Ground connector assemblies (EGK, ICK) have (6) 1/0 max. and (15) #6 max. connections. The 1/0 holes are capable of connecting up (3) #10 max. wires. The #6 holes can accept up to (2) #12 max. wires. Copper ground assemblies (ECGK, ICKG) are rated for copper wire only and have the same wiring capacity as the Al/Cu connectors.

Standard neutrals, like standard main lugs, are also rated for copper or aluminum wire. The neutral cross bar material follows the selection bus. Copper neutral lugs are rated for copper cable only and available as a price added option.

Lug Data

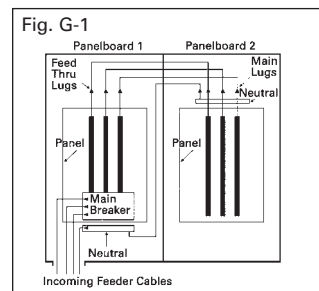
Space Required for Mounting of Double Panels



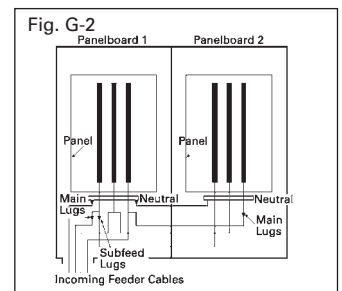
Use two or more panelboards with feed-thru or subfeed lugs when:

1. More circuit mounting space is required than is provided in the largest box size

Feed-Thru Lugs



Subfeed Lugs or Double Lug



Feed-thru lugs are mounted at the opposite end of the main bus from the main lugs or main breaker and are used to connect two or more panelboards to the incoming feeder. The feeder cables are brought into Panelboard 1 and connected to the main lugs or main breaker. Cables interconnecting the two panelboards are connected to the feed-thru lugs in Panelboard 1 and are carried over the main lugs in Panelboard 2. This arrangement could be reversed with the main lugs located at the top and the feed-thru lugs at the bottom of the panel.

Subfeed lugs are mounted directly beside the main incoming lugs and are used to connect two or more panelboards to the incoming feeder. The feeder cables are brought into Panelboard 1 and connected to the main lugs. Another set of cables that are the same size are connected to the subfeed lugs of Panelboard 1 and are carried over the main lugs of Panelboard 2.

Note: P1 panelboards do not have subfeed lugs available. If this configuration is needed, move to a P2 or P3 panelboard.

Note: For Panelboards, Siemens uses this Document for the Operations and Maintenance manual: ANSI/NEMA PB 1.1-2013 [General Instructions for Proper Installation, Operation, and Maintenance of Panelboards Rated 600 Volts and Less (O&M Manual)]

** The PDF of this document can be downloaded (at no cost) for printing at this location:

<https://www.nema.org/standards/view/Panelboards> (ref. Material # 11-1056-01)

Panelboards

Miscellaneous accessories

Selection

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 PANELBOARDS

Spare Parts Kits for Revised P1 Panels

Kit Number	Current Product					Old Product is no longer Manufactured, some kits are available				Product Description	Drawing # ref for part or kit
	P1 Revised	P2	P3	C1	C2	P1 Original	S1, S2, SE	qty/ kit			
Note: Some kits apply to only specific enclosures used or configurations of the product listed											
Deadfront Parts											
NBK01A	X					X		1	Number Strips 1–60. Stick-on type; Use w/ P1 series Panels – includes 1/2" spacing numbers for BT twins	replaces NBK03	
NBK02A	X					X		1	Number Strips 61-120. Stick-on type; Use w/ P1 series Panels – includes 1/2" spacing numbers for BT twins	replaces NBK04-05	
NBK03A	X					X		1	Number Strips 121-240. Stick-on type; Use w/ P1 series Panels – includes 1/2" spacing numbers for BT twins	replaces NBK06-08	
P1DFS250AFT	X							1	P1 250A Deadfront Support - for Feed-thru interiors only (4 per interior) Part # 11-D-3323-01 (replaces # 11-D-3212-01)	11-D-3323	
P1DFS250ANFT	X							1	P1 250A Deadfront Support - for Non Feed-thru interiors only (4 per interior) Part # 11-D-3323-02 (replaces # 11-D-3212-02)	11-D-3323	
P1DFS400A	X							1	P1 400A Deadfront Support (new for 3VA) - for both FT and NFT interiors. (#11-D-3315-01 replaces # 11-D-3004-01) (4 per interior)	11-D-3315	
Filler Plates											
DFFP1A	X	X	X	X	X	X	X	1	DFFP1A Blank filler , 1 inch snap-in, replaced old QF3 and DFFP1 in Systems Products. Ref. old #12-1800-01 and 11-D-4554-01	11-D-4613-01	
DFFP01B	X			X		X		1	P1 Main or Subfeed 250A Blank Filler Plate (use for Original or Revised P1 - also replaces DFFP01A/11-D-4560-01/12-A-1801-01) (Installs Vertical for 400A Main w/small DF opening)	11-D-4612-01	
DFFP01C	X							1	P1 Main 400A Blank Filler Plate (use for Revised P1 400A with Large MB opening only)	11-D-4600-01	
DFFPVA41A	X							1	RP1 Main/Sub-feed, 3VA4/BL/BQD/ED/xGB filler (replaces DFFPED01 / 12-A-1802-01)	11-D-4604-01	
DFFPVA5262A	X							1	RP1 Main or Subfeed Filler 3VA52/61/62 – new filler for P1 150A-250A 3VA frame breakers	11-D-4617-01	
DFFPVA5363A	X	X	X					1	RP1 400A Main Filler 3VA53/63 (also used in P2/P3 applications) – for RP1 Deadfronts with Large MB opening only	11-D-4617-01	
MBKVA5363JD	X							1	RP1 400A Main only Filler 3VA53/63 – for Deadfronts with Small MB opening only (replacing a JD Main)	tbd - being developed	
DFFPED01 (replaced by DFFPVA41A)	X					X		1	P1 Main Filler 100-125A frames ED, BL/BQD or xGB (old filler used for Original or Revised P1 and other applications)	12-A-1802-61	
DFFPFD01	X	X	X			X	X	1	FD Main Filler Plate for 1-Ph and 3-Ph P1 Panels (use for Original or Revised P1 and other applications)(P2/P3 and S1/S2/SE)	12-A-1803-61	
DFFPJD01	X	X	X			X	X	1	JD Main Filler Plate for 1-Ph and 3-Ph P1 Panels – Small MB opening (use for Original or Revised P1 & other applications)(P2/P3 & S1/S2)	11-D-4522-61	
DFFPJD02	X					X		1	JD Main Filler Plate for 1-Ph and 3-Ph – for P1 Panels with Large MB Opening only.	11-D-4598-01	
DFFPQJ01	X					X		1	QJ Main Filler Plate for 3-Phase (3-pole) P1 Panels (use for Original or Revised P1 and other applications)	12-A-1804-61	
DFFPQJ02	X					X		1	QJ Main Filler Plate for 1-Phase (2-pole) P1 Panels (use for Original or Revised P1 and other applications)	12-A-1804-62	
MBKQRFK	X					X		1	P1/Revised P1 Filler for 1PH/3PH QR. Horizontal Mount only.	11-D-2643-01	
Service Entrance Barriers Kits (SEB)											
SEBKR1V1	X							1	SEB Kit for RP1 with FD, QJ or QR Horizontal Main	11-A-1148-01	
SEBKR1V2	X							1	SEB Kit for RP1 with ED Horizontal Main	11-A-1148-01	
SEBKR1V3	X							1	SEB Kit for RP1 with back-fed BL/BQD Main in Unit Space	11-A-1149-01	
SEBKR1V4	X							1	SEB Kit for RP1 with back-fed xGB Main in Unit Space	11-A-1149-01	
SEBKR1V5	X							1	SEB Kit for RP1 with BL/BQD/xGB Main - with steel breaker brackets	11-A-1165-01	
SEBKR1V6	X							1	SEB Kit for RP1 with BL/BQD/GB/3VA41 Main - with all plastic strap kit	11-A-1194-01	
SEBKR1V7	X							1	SEB Kit for RP1 with 3VA52/61/62 Horizontal Main	11-B-1060-01	
SEBKP1P2P3V1	X	X	X					1	SEB Kit for RP1 with RP1/P2/P3 with JD/LD or 3VA53/63 Vertical Main	11-A-1157-01	
Ground Bar & Bond Kits											
BK1A	X							1	Revised P1 Bonding Kit including Service Disconnect Label	11-A-2024-01	
ECGK	X	X	X			X		1	ECGK Copper Ground Bus Kit, Connection count: (6) of #14-1/0 and (15) of #14-6 Connections (21 Holes total). Some connections allow multiple wires.	11-A-2024-01	
EGK	X	X	X			X		1	ECGK Al/Cu Ground Bus Kit, Connection count: (6) of #14-1/0 and (15) of #14-6 Connections (21 Holes total). Some connections allow multiple wires.	11-A-2024-01	
ICGK	X	X	X			X		1	ICGK Insulated Copper Ground Bus Kit, Connection count: (6) of #14-1/0 and (15) of #14-6 Connections (21 Holes total). Some connections allow multiple wires.	11-A-2024-01	
IGK	X	X	X			X		1	IGK Insulated Al/Cu Ground Bus Kit, Connection count: (6) of #14-1/0 and (15) of #14-6 Connections (21 Holes total). Some connections allow multiple wires.	11-A-2024-01	

Panelboards

Lighting panel ground bus information: P1, P2, P3

Selection

Lighting panel ground bus information: P1-P2-P3

Catalog Number	Description	Comments
EGK	Al Ground Bus 44 Connections	Type 1, 3R, 3R/12
ECGK	Cu Ground Bus 44 Connections	Type 1, 3R, 3R/12
IGK	Insulated Al Ground Bus	Type 1, 3R, 3R/12
ICGK	Insulated Cu Ground Bus	Type 1, 3R, 3R/12

EGK / ECGK / IGK / ICGK Installation Instructions:

Ground bus to be mounted in either left or right gutter with hardware provided. Applied torque ratings shall be 45-lbs-inch for three No. 10 AWG solid copper conductors in the large holes. For all other combinations of conductors, refer to the torque rating label on the panelboard.

Note: For IGK / ICGK, insure ground bar is attached to Glastic insulator with two screws before mounting insulator to enclosure. Ground Bar mounts thru side holes oriented as shown on picture below.

Construction notes:

- a) AL Ground bus kits can be used with either AL or CU Cable.
- b) CU Ground bus kits only accept CU Cable.

Wire size range of the EGK/ECGK/IGK/ICGK lug connections/holes:

(Note: The multiple combinations typically only apply when used as an equipment ground. If similar bar is used as a neutral bar, only one wire can be used in each hole.)

1. Connection count: (6) of #14-1/0 and (15) of #14-6 Connections (21 Holes total). (note: one Connection may be needed for incoming Ground Connection)
2. The Maximum wire size the standard ground accepts is: 1/0 in the Large Holes and #6 in the Smaller Holes.
3. Small Hole can accept:
(1-2 wires) #14-12; (1 wire) #10; (1 wire) #8-#6.
4. The Large Hole can accept:
(1-3 wires) #14-#10; (1 wire) #8; (1 wire) #6 - #4; (1 wire) #3-1/0.
5. Max. connections if largest wire size is used:
 $(6 \times 1) + (15 \times 1) = 21$
6. Max. connections if smallest wire size is used:
 $(6 \times 3) + (15 \times 2) = 48$
7. Request for Ground Lug greater than 1/0 in Size requires a Special Modification in COMPAS when Line Item is entered (specify number of connections needed greater than 1/0) or Manual Line for Custom Ground (specify number of connections needed greater than 1/0).

This chart is on labels for P1, P2 and P3 enclosures.

Note: Ground bus mounting locations may be available in alternate corners from shown below, or all 4 corners in some enclosures.

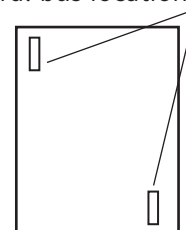
USE SIEMENS EQUIPMENT GROUND BUS TYPES EGK, IGK, ECGK, ICGK

Torque required to secure wire sizes listed below:

Small Terminal	
(1-2 Wires)-#14-#12	20 lb-in
(1 Wire)-#10	20 lb-in
(1 Wire)-#8-#6	30 lb-in

Large Terminal	
(1-3 Wires)-#14-#10	35 lb-in
(1 Wire)-#8	40 lb-in
(1 Wire)-#6-#16	45 lb-in
(1 Wire)-#3-1/0	50 lb-in

Grd. bus location



Type 1, 3R and 3R/12 Enclosure



EGK / ECGK kit parts



IGK / ICGK kit parts

Panelboards

Miscellaneous accessories

Selection

Spare Parts and Field installable Kits for P2/P3 Panels (cont.)

Kit Number	Current Product					Old Product is no longer Manufactured, some kits are available			Product Description	Drawing # ref for part or kit
	P1 Revised	P2	P3	C1	C2	P1 Original	S1, S2, SE	qty/kit		
Note: Some kits apply to only specific enclosures used or configurations of the product listed										
Service Entrance Barriers Kits (SEB)										
SEBKP1P2P3V1	X	X	X			X		1	SEB Kit, (RP1, P1, P2, P3), JD/LD and 3VA53/63 Vertical Main	11-D-2740-01
SEBKP2V1		X						1	SEB Kit, P2 BL/BQD Horizontal Main	11-D-2733-01
SEBKP2V2		X						1	SEB Kit, P2 xGB Horizontal Main	11-D-2734-01
SEBKP2V3		X	X					1	SEB Kit, (P2, P2 with SEM3, P3), FD/QJ/QR Horizontal Main	11-D-2735-01
SEBKP2V4		X	X					1	SEB Kit, (P2, P2 w/SEM3, P3) FD/QJ/QR Vertical Main	11-D-2736-01
SEBKP2V5		X						1	SEB Kit, (P2, P2 w/SEM3) ED Horizontal Main	11-D-2738-01
SEBKP2V6		X						1	SEB Kit, (P2, P2 w/SEM3) ED Vertical Main	11-D-2739-01
SEBKP2V7		X	X					1	SEB Kit, P2/P3 3VA52/61/62 Horizontal Main	11-D-2898-01
Neutral, Ground Bar, & Bond Kits										
BNK2		X						1	Neutral Lug Kit, 3-Step, for P2 neutrals and others. (14x #14-1/0 max and 14x #14-#6 max connections). Kit includes mounting hardware & instructions.	11-A-1862
BNK350N		X	X					1	Neutral Lug kit, Narrow 350 kcmil Lug with two mounting screws. Used in P2/P3 neutrals and other locations.	11-A-1869-61
LPP2NB01		X						1	Neutral Lug kit, 2-Step, for P2 neutrals and others. (3x #6-1/0 max and 18x #14-#6 max connections). Kit includes mounting hardware & instructions.	15-A-1800-61
BNKP2EX1		X						1	P2 Neutral Extension (150A max) allows for additional #6 and 1/0 connections closer to AFCI/GFCI breakers and others with pigtails as needed. Requires connection to main neutral with 1/0 Copper cable not included. (11) #6 & (3)1/0 connections included.	11-1850-01 11-C-2011-01"
ECGK	X	X	X			X		1	ECGK Copper Ground Bus Kit, Connection count: (6) of #14-1/0 and (15) of #14-6 Connections (21 Holes total). Some connections allow multiple wires.	31-A-2006
EGK	X	X	X			X		1	EGK Al/Cu Ground Bus Kit, Connection count: (6) of #14-1/0 and (15) of #14-6 Connections (21 Holes total). Some connections allow multiple wires.	31-A-2006
ICGK	X	X	X			X		1	ICGK Insulated Copper Ground Bus Kit, Connection count: (6) of #14-1/0 and (15) of #14-6 Connections (21 Holes total). Some connections allow multiple wires.	31-2011
IGK	X	X	X			X		1	IGK Insulated Al/Cu Ground Bus Kit, Connection count: (6) of #14-1/0 and (15) of #14-6 Connections (21 Holes total). Some connections allow multiple wires.	31-2010
P2BK1		X						1	P2 250A Max Horiz. MB Bonding Strap Kit	11-D-2068-01
P2BK2		X						1	P2 125A max. Main Lug Bonding Strap Assembly	11-D-2068-02
P2BK3		X						1	P2 250-600A MLO and all Vert MB Bonding Kit	11-D-2068-03
General Hardware and misc.										
IMK1	X	X	X			X		1	Interior Mounting Kit with Adjustment Provisions for P1/P2/P3	11-A-2024-01
LPDC01	X	X	X	X	X	X	X	10	Panelboard Directory Card. 5.5""X5"", for 1-90 circuits. Mates with pouch # 11-1824-01	12-1110
LPDC02	X	X	X	X	X	X	X	10	Panelboard Directory Vinyl Pouch, 6.3"x6.1". Mates with Directory Card #12-1110-01	11-1824
MCHK	X	X	X	X	X	X	X	1	MCHK - Metal Card Holder Kit - Field Installable	12-A-2098-00
LPJSPDNUT01	X	X	X	X	X	X	X	25	Replacement J-nuts for use with lighting panel fronts and deadfronts. Also used in miscellaneous other applications.	11-A-1820-61
LPTS01	X	X	X	X	X	X	X	25	Trim Screw, Lighting Panel Front, 0.547" Length, ¼-20 Machine Screw Thread (kit pending - not yet available) ref #11-A-1819-01	11-A-1819
LP3RHP01	X	X	X			X		12	3R/12 Hinge Pin, 0.188"" dia. Steel w/Zinc plate (kit pending, not yet available) ref # 11-1902-01	11-1902
ref 31-1905-01	X	X	X	X	X	X		1	NEMA 3R T-Handle with hardware, uses B363A key - does not include key (kit needed with all mounting hardware and keys - in process)	31-1905
XTP060	X	X	X	X	X	X	X	1	TUP61 Grey Touch-up Paint, 12 oz Spray Can	na
Endwall kits	X	X	X	X	X	X		na	See SpeedFax page 11-34 for Endwall kits that are available	na
Locks and Keys	X	X	X	X	X	X		na	See SpeedFax page 11-38 for Replacement lock & key kits that are available	na

Panelboards

Type P3 Panelboard Kits and Accessories

Selection

Standard Enclosures

Box Height (in.)	Catalog Number				
	Type 1 Standard Trim			Type 3R	Type 3R/12
	Box	Surface	Flush		
56	24WD56	P3S56	P3F56	24NRD56	24WPD56
62	24WD62	P3S62	P3F62	24NRD62	24WPD62
68	24WD68	P3S68	P3F68	24NRD68	24WPD68
74	24WD74	P3S74	P3F74	24NRD74	24WPD74
80	24WD80	P3S80	P3F80	24NRD80	24WPD80

Options For Type 1 Trims

Items must be ordered as manual line item on factory

Hinged trim – Add “H” suffix

Door-in-door – Add “D” suffix

Metal card holder – Add “M” suffix

Breaker Kits and Accessories

Kit Number	Description	Contents
BBKB32 (P2/P3)	BL/BQD 6-pole 3" branch breaker kit	Kit contains top barrier, (3) A/C connectors, (1) B connector, hardware
BBKNB32 (P2/P3)	NGB, HGB, LGB 6-pole 3" branch breaker kit	Kit contains top barrier, (3) A/C connectors, (1) B connector, hardware
BBKGB32 (P2/P3)	NGB2, HGB2, LGB2 6-pole 3" branch breaker kit	Kit contains top barrier, (3) A/C connectors, (1) B connector, hardware
BBKEB32 (P3)	NEB/HEB 6-pole 3" branch breaker kit	Kit contains top barrier, (3) A/C connectors, (1) B connector, hardware
BBKED32 (P2/P3)	ED 6-pole 3" branch breaker kit	Kit contains breaker support, inter-phase barriers, (3) A/C connectors, (1) B connector, hardware
BBKQ2 (P3)	Branch breaker kit for 2 and 3-pole QJ twin mount	Kit contains all connectors and cover plates necessary to mount both 2 and 3-pole breakers
BBKQR2 ^{①③}	P3 twin BKR mounting kit for QR 1-phase/3-phase	Kit contains all connectors and cover plates necessary to mount both 2 and 3-pole breakers (limit 6 QR per panel)
BBKVA52P3T ^②	P3 strap kit; twin mount 3VA52 branch	Uses 6" of unit space. Includes 2x BBKVA52P3HW, barrier, straps, & mounting hardware.
BBKA52P3HW	P3 branch breaker hardware kit	Includes screw retainers & mounting screws.
DFFP3	Deadfront filler 3"	3" empty space filler and hardware
DFFP6	Deadfront filler 6"	6" empty space filler and hardware
P3BK1	P3 bonding kit 800A max MLO+MB	Bonding strap and hardware. For all MLO+MB configurations.
EBF1	HEB/NEB Filler Plate	Filler Plate
BBKQRP2FK	P3 Filler for QR. Dual mount horizontal. 1-phase/3-phase.	Kit contains all cover plates necessary to change from QJ to QR both 2 and 3-pole breakers. For 1-phase panel, both breakers must change from QJ to QR, cannot have one of each installed.
SEBK3P3V1 ^②	Service entrance barrier kit CFD, FD (P3 only)	Kit contains barrier, mounting brackets, and hardware
SEBK1P2P3V1 ^②	JD, LD Service Entrance Barrier Kit (RP1, P1, P2, P3)	Kit contains barrier, mounting brackets, and hardware
SEBK2P3V3	FD, QJ, QR Horizontal Main Service Entrance Barrier (P2, P2 with SEM3, P3)	Kit contains barrier, mounting brackets, and hardware

① Although QR is rated 250A, it is limited to 225A in panelboard.

② Factory installed and Field installable Service Entrance Barrier kits are now available as required by UL67. (In COMPAS, you must select Service Entrance Required.)

③ Maximum 6 large frame breakers in unit space. (QR + 3VA52)

Type P1, P2, and P3 Panelboards

Miscellaneous Parts and Accessories

Catalog Number	Description
EGK	Al Ground Bus 44 Connections
BK1	Bonding kit for 250A max. and all P1 panels
IMK1	Interior Adjusting Kit
LPDC01	Directory Card (Pack of 10; ref. 12-1110-01)
LPDC02	Directory Card Holder (Pack of 10; ref. 11-1824-01)
NBK3	Number Strips 1-42. Snap-in type; Use w/P2 & P3 series Panels
NBK4	Number Strips 43-84. Snap-in type; Use w/P2 & P3 series Panels
NBK5	Number Strips 85-126. Snap-in type; Use w/P2 & P3 series Panels
NBK6	Number Strips 127-168. Snap-in type; Use w/P2 & P3 series Panels
NBK7	Number Strips 169-210. Snap-in type; Use w/P2 & P3 series Panels
NBK8	Number Strips 211-252. Snap-in type; Use w/P2 & P3 series Panels
ECGK	Cu Ground Bus 44 Connections
IGK	Insulated Al Ground Bus
ICGK	Insulated Cu Ground Bus
EWK2	End Wall Kit with Knockouts (24" W x 7.75" DP)
DFFP1	1" Filler Plate (used for BL/BQD/xGB/xGB2/ED blank positions) (Suitable for replacing QF3 in P1 thru P5 Panelboards and Switchboards)
ANSI/NEMA PB 1.1-2013	General Instructions for Proper Installation, Operation, and Maintenance of Panelboards Rated 600 Volts or Less (O&M Manual) ^①

① PDF can be downloaded (at no cost) and printed at this location: <http://www.nema.org/standards/pages/Panelboards.aspx>