

SIEMENS



Reference guide

Small projects products

For panelboards, surge protection,
transformers and switches

Table of Contents

Enclosures	
Inside Cover	
Branch Breakers	
Breaker Mountings Kits	
Accessories/Lugs	
Miscellaneous Parts	
Retrofit Kit	
Surge Protection	
Transformers	
General Duty Safety Switches	
Heavy Duty Safety Switches	
Safety Switch Accessories	



Type P1 Unassembled Panelboards

Enclosures ¹

Height Inches	Type 1		Boxes	Type 3R/12 ^{2, 3}
	Trim			
	Surface	Flush		
32	S32B	F32B	B32	WP32
38	S38B	F38B	B38	WP38
44	S44B	F44B	B44	WP44
50	S50B	F50B	B50	WP50
62	S62B	F62B	B62	WP62
68	S68B	F68B	B68	WP68
74	S74B	F74B	B74	WP74

¹ 18 Circuit 400A panels are not available with Revised P1.

54 Circuit Panels are available for both 250A and 400A.

66 circuit panels are available as Factory assembled only if needed

² 3R/12 enclosures are complete and do not require a trim.

³ Enclosure height is directly related to the P1 panel maximum amperage and branch circuits (poles). P1 250 amp maximum can heights are 32", 38", 44" and 50" respectively. P1 400 amp maximum panels heights are 62", 68" and 74" for 30, 42 and 54 circuit panels respectfully.

Type P1 Unassembled Panelboards

Interiors only – Less branch breakers

1 Phase, 3 Wire

120/240V

Ampere Rating Mains	Max. No. of Poles	Interiors	Material
250	18	P1A18MC250AT	Aluminum
	30	P1A30MC250AT	
	42	P1A42MC250AT	
	54	P1A54MC250AT	
400	30	P1A30MC400AT	Aluminum
	42	P1A42MC400AT	
	54	P1A54MC400AT	
250	18	P1A18MC250CT	Copper
	30	P1A30MC250CT	
	42	P1A42MC250CT	
	54	P1A54MC250CT	
400	30	P1A30MC400CT	Copper
	42	P1A42MC400CT	
	54	P1A54MC400CT	

3 Phase, 4 Wire

208Y/120V

250	18	P1X18MC250AT	Aluminum
	30	P1X30MC250AT	
	42	P1X42MC250AT	
	54	P1X54MC250AT	
400	30	P1X30MC400AT	Aluminum
	42	P1X42MC400AT	
	54	P1X54MC400AT	
250	18	P1X18MC250CT	Copper
	30	P1X30MC250CT	
	42	P1X42MC250CT	
	54	P1X54MC250CT	
400	30	P1X30MC400CT	Copper
	42	P1X42MC400CT	
	54	P1X54MC400CT	

3 Phase, 4 Wire

480Y/277V

250	18	P1E18MC250AT	Aluminum
	30	P1E30MC250AT	
	42	P1E42MC250AT	
	54	P1E54MC250AT	
400	30	P1E30MC400AT	Aluminum
	42	P1E42MC400AT	
	54	P1E54MC400AT	
250	18	P1E18MC250CT	Copper
	30	P1E30MC250CT	
	42	P1E42MC250CT	
	54	P1E54MC250CT	
400	30	P1E30MC400CT	Copper
	42	P1E42MC400CT	
	54	P1E54MC400CT	

Type P1 Unassembled Panelboards

Interiors only, for xGB Breakers – Less Branch Breakers

Ampere Rating Mains	Max. No. of Poles	Interiors	Material
250	18	P1718MC250AT	Aluminum
	30	P1730MC250AT	
	42	P1742MC250AT	
	54	P1754MC250AT	
250	18	P1718MC250CT	Copper
	30	P1730MC250CT	
	42	P1742MC250CT	
	54	P1754MC250CT	
400	30	P1730MC400AT	Aluminum
	42	P1742MC400AT	
	54	P1754MC400AT	
400	30	P1730MC400CT	Copper
	42	P1742MC400CT	
	54	P1754MC400CT	

Branch Breakers Selection for P1

BL Branch Breakers – 10,000A IR

Amp Rating	1-Pole 120/240V	2-Pole 120/240V	2-Pole 240V	3-Pole 240V
15	B115	B215	B215R	B315
20	B120	B220	B220R	B320
25	B125	B225	B225R	B325
30	B130	B230	B230R	B330
35	B135	B235	B235R	B335
40	B140	B240	B240R	B340
45	B145	B245	B245R	B345
50	B150	B250	B250R	B350
55	B155	—	—	—
60	B160	B260	—	B360
70	B170	B270	—	B370
80	—	B280	—	B380
90	—	B290	—	B390
100	—	B2100	—	B3100

BLH Branch Breakers – 22,000A IR

Amp Rating	1-Pole 120/240V	2-Pole 120/240V	3-Pole 240V
15	B115H	B215H	B315H
20	B120H	B220H	B320H
25	B125H	B225H	B325H
30	B130H	B230H	B330H
40	B140H	B240H	B340H
50	B150H	B250H	B350H
55	B155H	—	—
60	B160H	B260H	B360H
70	B170H	B270H	B370H
80	—	B280H	B380H
90	—	B290H	B390H
100	—	B2100H	B3100H

HBL Branch Breakers – 65,000A IR

15	B115HH	B215HH	B315HH
20	B120HH	B220HH	B320HH
30	B130HH	B230HH	B330HH
40	B140HH	B240HH	B340HH
50	B150HH	B250HH	B350HH
60	—	B260HH	B360HH
70	—	B270HH	B370HH
80	—	B280HH	B380HH
90	—	B290HH	B390HH
100	—	B2100HH	B3100HH

BQD Branch Breakers

14,000A IR Max. @ 480/277V AC / 65,000A IR max. @ 240V AC

Amp Rating	1-Pole 277V	2-Pole 480/277V	3-Pole 480Y/277V
15	BQD115	BQD215	BQD315
20	BQD120	BQD220	BQD320
25	BQD125	BQD225	BQD325
30	BQD130	BQD230	BQD330
35	BQD135	BQD235	BQD335
40	BQD140	BQD240	BQD340
45	BQD145	BQD245	BQD345
50	BQD150	BQD250	BQD350
60	BQD160	BQD260	BQD360
70	BQD170	BQD270	BQD370
80	BQD180	BQD280	BQD380
90	BQD190	BQD290	BQD390
100	BQD1100	BQD2100	BQD3100

GB Family Branch Breakers

NGB – 25,000A IR Max. @ 480/277V AC / 100,000A IR max. @ 240V A

HGB – 35,000 A IR Max. @ 480/277V AC / 100,000 A IR @ 240V AC

LGB – 65,000 A IR Max. @ 480/277V AC / 100,000 A IR @ 240V AC

Amp Rating	1-Pole 277V	2-Pole 480/277V	3-Pole 480Y/277V
15	xGB1B015B	xGB2B015B	xGB3B015B
20	xGB1B020B	xGB2B020B	xGB3B020B
25	xGB1B025B	xGB2B025B	xGB3B025B
30	xGB1B030B	xGB2B030B	xGB3B030B
35	xGB1B035B	xGB2B035B	xGB3B035B
40	xGB1B040B	xGB2B040B	xGB3B040B
45	xGB1B045B	xGB2B045B	xGB3B045B
50	xGB1B050B	xGB2B050B	xGB3B050B
60	xGB1B060B	xGB2B060B	xGB3B060B
70	xGB1B070B	xGB2B070B	xGB3B070B
80	xGB1B080B	xGB2B080B	xGB3B080B
90	xGB1B090B	xGB2B090B	xGB3B090B
100	xGB1B100B	xGB2B100B	xGB3B100B
110	xGB1B110B	xGB2B110B	xGB3B110B
125	xGB1B125B	xGB2B125B	xGB3B125B

Replace x with N, H or L depending on desired type of breaker

Note: 2-pole and 3-pole xGB Frame Breakers are also rated at 14,000 A IR max. for 600Y/347V AC systems. UPB interiors are only rated to 480V max. – see factory assembled section for proper interiors.

GFCI Personnel Protection (5MA)

Breaker Type	Ampere Rating	Catalog Number	Interrupting Ratings (kA) (RMS Symmetrical Amperes)		
			Volts AC		
			120	120/240	240
BLF 1-Pole	15	BF115	10	—	—
	20	BF120	10	—	—
	25	BF125 ■	10	—	—
	30	BF130	10	—	—
BLF 2-Pole	15	BF215	—	10	—
	20	BF220	—	10	—
	30	BF230	—	10	—
	40	BF240 ■	—	10	—
	50	BF250 ■	—	10	—
	60	BF260 ■	—	10	—
BLHF 1-Pole	15	BF115H	22	—	—
	20	BF120H	22	—	—
	30	BF130H ■	22	—	—
BLHF 2-Pole	15	BF215H ■	—	22	—
	20	BF220H ■	—	22	—
	30	BF230H ■	—	22	—
	40	BF240H ■	—	22	—
	50	BF250H ■	—	22	—
	60	BF260H ■	—	22	—

EQF Equipment Protection (30MA)

Breaker Type	Ampere Rating	Catalog Number	Interrupting Ratings (kA) (RMS Symmetrical Amperes)		
			Volts AC		
			120	120/240	240
BLE 1-Pole 120V AC	15	BE115 ■	10	—	—
	20	BE120	10	—	—
	30	BE130	10	—	—
BLE 2-Pole 120/240V AC	15	BE215 ■	—	10	—
	20	BE220	—	10	—
	30	BE230	—	10	—
	40	BE240 ■	—	10	—
	50	BE250 ■	—	10	—
	60	BE260 ■	—	10	—
BLEH 1-Pole	15	BE115H ■	22	—	—
	20	BE120H ■	22	—	—
	30	BE130H ■	22	—	—
BLEH 2-Pole	15	BE215H ■	—	22	—
	20	BE220H ■	—	22	—
	30	BE230H ■	—	22	—
	40	BE240H ■	—	22	—
	50	BE250H ■	—	22	—
	60	BE260H ■	—	22	—

■ Built to order. Allow 2-3 weeks for delivery.

AFCI – Combination Type Arc Fault Circuit Interrupter

Breaker Type	Ampere Rating	Catalog Number	Interrupting Ratings (kA) (RMS Symmetrical Amperes)		
			Volts AC		
			120	120/240	240
BAF2 1-pole	15	B115AFC	10	—	—
	20	B120AFC	10	—	—
BAFH2 1-pole	15	B115AFCH	22	—	—
	20	B120AFCH	22	—	—
HBAF2 1-pole	15	BA115AFCHH	65	—	—
	20	BA120AFCHH	65	—	—
BAF 2-pole	15	B215AFC	10	—	—
	20	B220AFC	10	—	—
BAFH 2-pole	15	B215AFCH	22	—	—
	20	B220AFCH	22	—	—

AFCI – Branch Feeder Type Arc Fault Circuit Interrupter

Breaker Type	Ampere Rating	Catalog Number	Interrupting Ratings (kA) (RMS Symmetrical Amperes)		
			Volts AC		
			120	120/240	240
BAF2 1-pole	15	BA115AF	10	—	—
	20	BA120AF	10	—	—
BAFH2 1-pole	15	BA115AFH	22	—	—
	20	BA120AFH	22	—	—
HBAF2 1-pole	15	BA115AFHH	65	—	—
	20	BA120AFHH	65	—	—

Switching Neutrals

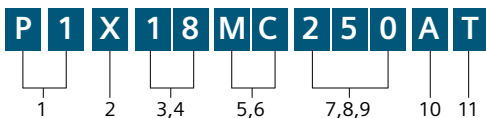
Breaker Type	Ampere Rating	Catalog Number	Maximum Interrupting Ratings (kA)		
			Volts AC		
			120	120/240	240
BG 2-Wire Common Trip	15	BG215 ■	10	—	—
	20	BG220 ■	10	—	—
	30	BG230 ■	10	—	—
BG 3-Wire Common Trip	15	BG315 ■	—	10	—
	20	BG320 ■	—	10	—
	30	BG330 ■	—	10	—

■ Built to order.

Dual Function AFCI/GFCI Circuit Breaker

Breaker Type	Ampere Rating	Catalog Number	Interrupting Ratings (kA) RMS Symmetrical Amperes		
			Volts AC		
			120	120/240	240
BFGA2 1-pole	15	BA115DF	10	—	—
	20	BA120DF	10	—	—
BFGAH2 1-pole	15	BA115DFH	22	—	—
	20	BA120DFH	22	—	—
HBFGA2 1-pole	15	BA115DFHH	65	—	—
	20	BA120DFHH	65	—	—

Catalog Numbering System Unassembled Panelboards

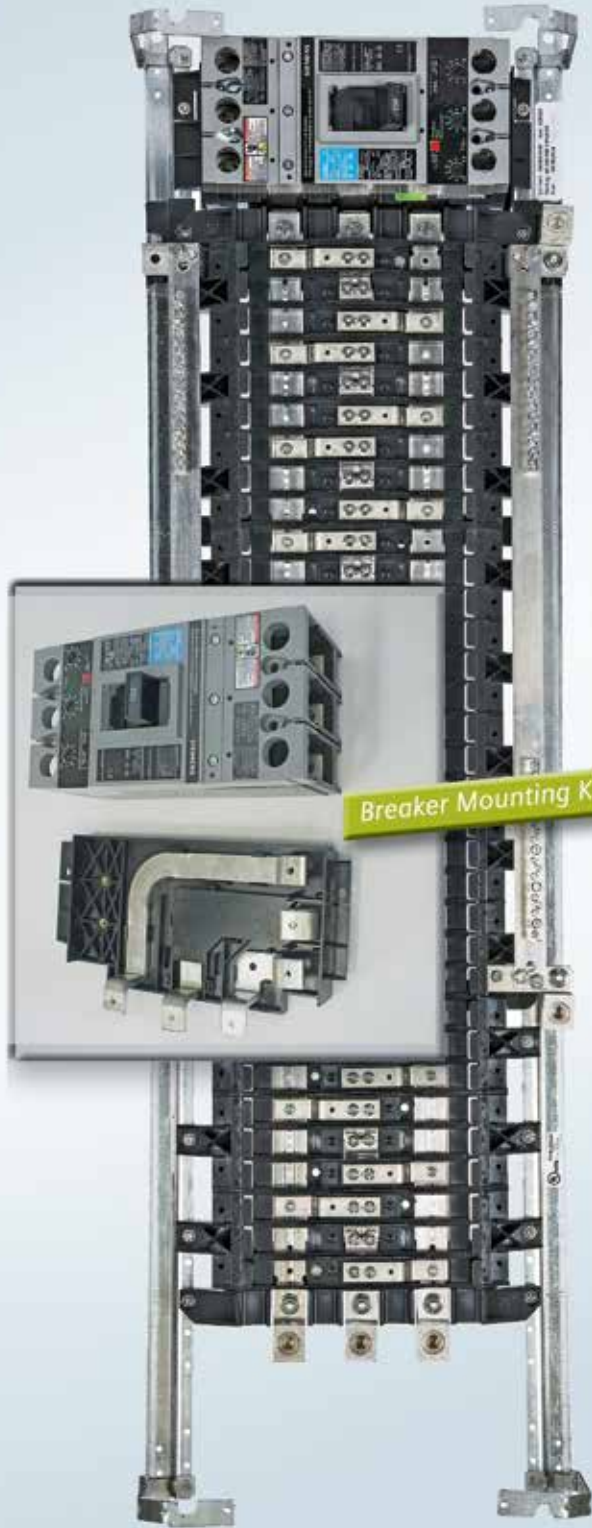


1. **P1**
2. **Voltage and System**
X = 208Y/120, 3 Phase, 4 Wire
A = 120/240V, 1 Phase, 3 Wire
E = 480Y/277V, 3 Phase, 4 Wire
7 = xGB interior, 480Y/277V, 3-Phase 4-Wire
- 3, 4. **Circuit** – 18, 30, 42 , 54* (* Revised P1 only)
- 5, 6. **Mains**
MC = Convertible mains
Select Main Lug Kit or Breaker Mounting Kit
Select Main Breaker Kit
- 7, 8, 9. **Amperage** – 400A Max
10. **Main Bus Material**
A = Tin-plated aluminum
C = Copper Temp. Rated
11. **SubFeed Space Indicator**
"T" indicates that a subfeed space is available –
Feed-Through configuration. Factory assembled panels
may have an "N" indicating a NFT or Non-Feed-Through
configuration.

Type P1 unassembled panelboards are completely convertible from main lug to main breaker and vice-versa. Additionally, feed-thru lugs, or a subfeed circuit breaker up to 400 amperes can be added without increasing the box height. Follow these easy steps to select and price the proper P1 panel from stock:

1. Compute total number of poles to determine interior catalog number.
2. List catalog number and price of interior, box and front.
3. Select main lug kit or main breaker kit from appropriate tables. Note: Main/Subfeed Breaker mounting kits may be ordered with or without breakers included.
4. List required branch circuit breakers and filler plates to cover any unused portions.
5. Select any modifications or accessories.

The Original P1 series interiors can be identified as "not having" either a "T" or an "N" at the end of the Panel number. The Revised P1 panels were introduced in January 2015. Revised P1 Panels DO NOT use the same accessories as the Original P1.



Breaker Mounting Kits

Breaker Mounting Kits

250A Max. – Main or Subfeed without Breaker

Amp rating	Breaker type	Service	Catalog number
100	BQD	3 Phase	MBKBFA ²
100	BL, BLH, HBL	1 Phase 3 Phase	MBKBFA ² MBKBFA ²
125	NGB, HGB, LGB	1 Phase 3 Phase	MBKBFA ² MBKBFA ²
125	ED4, ED6, HED4, HED6	1 Phase 3 Phase	MBKED1A MBKED3A
225	QJ2, QJH2, QJ2-H	1 Phase 3 Phase	MBKQJ1A MBKQJ3A
250	FXD6, FD6, HFD6, HFXD6	1 Phase 3 Phase	MBKFD1A MBKFD3A
400 ¹	JXD2, JD6, JXD6, HJD6, HJXD6	1 Phase 3 Phase	MBKJD1A MBKJD3A

¹ 400 amp kit is for main only – not allowed for subfeed breaker.

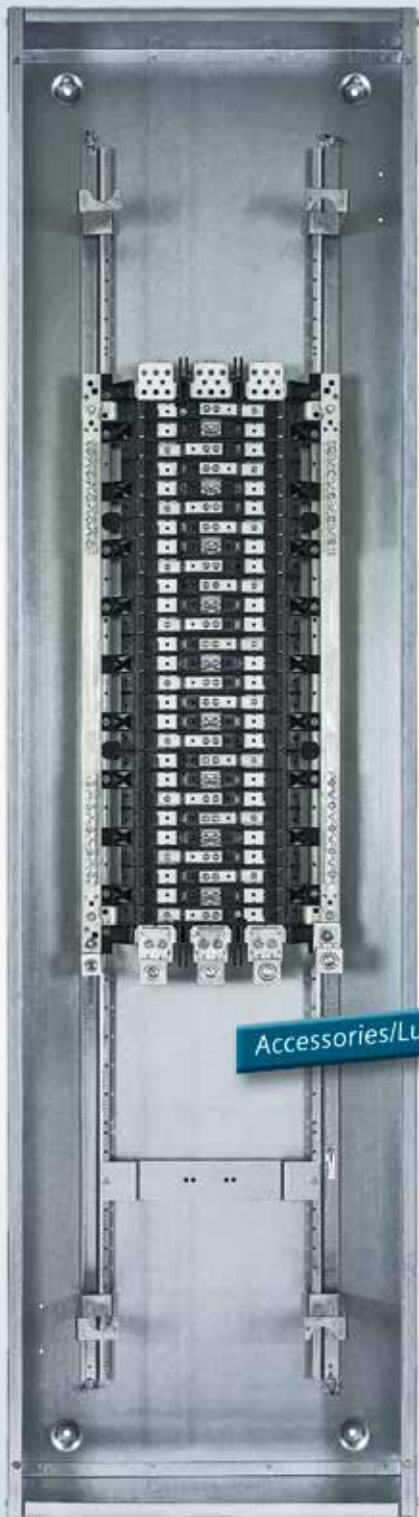
² Back-fed main occupies branch space.

Breaker Mounting Kits With Breakers for P1 Panels

(250A and lower can be used as subfeed kits also)

Catalog Number	Description	Rating	
		240V	480V
MBKED3100A	Kit w/3 pole ED4 100A breaker	65kA	18kA
MBKED3125A	Kit w/3 pole ED4 125A breaker	65kA	18kA
MBKQJ1125A	Kit w/2 pole QJ2 125A breaker	10kA	—
MBKQJ1150A	Kit w/2 pole QJ2 150A breaker	10kA	—
MBKQJ1175A	Kit w/2 pole QJ2 175A breaker	10kA	—
MBKQJ1200A	Kit w/2 pole QJ2 200A breaker	10kA	—
MBKQJ1225A	Kit w/2 pole QJ2 225A breaker	10kA	—
MBKQJ3125A	Kit w/3 pole QJ2 125A breaker	10kA	—
MBKQJ3150A	Kit w/3 pole QJ2 150A breaker	10kA	—
MBKQJ3175A	Kit w/3 pole QJ2 175A breaker	10kA	—
MBKQJ3200A	Kit w/3 pole QJ2 200A breaker	10kA	—
MBKQJ3225A	Kit w/3 pole QJ2 225A breaker	10kA	—
MBKQJ1125HA	Kit w/2 pole QJ2H 125A breaker	42kA	—
MBKQJ1150HA	Kit w/2 pole QJ2H 150A breaker	42kA	—
MBKQJ1175HA	Kit w/2 pole QJ2H 175A breaker	42kA	—
MBKQJ1200HA	Kit w/2 pole QJ2H 200A breaker	42kA	—
MBKQJ1225HA	Kit w/2 pole QJ2H 225A breaker	42kA	—
MBKQJ3125HA	Kit w/3 pole QJ2H 125A breaker	42kA	—
MBKQJ3150HA	Kit w/3 pole QJ2H 150A breaker	42kA	—
MBKQJ3175HA	Kit w/3 pole QJ2H 175A breaker	42kA	—
MBKQJ3200HA	Kit w/3 pole QJ2H 200A breaker	42kA	—
MBKQJ3225HA	Kit w/3 pole QJ2H 225A breaker	42kA	—
MBKFD3150A	Kit w/3 pole FXD6 150A breaker	65kA	35kA
MBKFD3175A	Kit w/3 pole FXD6 175A breaker	65kA	35kA
MBKFD3200A	Kit w/3 pole FXD6 200A breaker	65kA	35kA
MBKFD3225A	Kit w/3 pole FXD6 225A breaker	65kA	35kA
MBKFD3250A	Kit w/3 pole FXD6 250A breaker	65kA	35kA
MBKJD1300A ¹	Kit w/2 pole JXD6 300A breaker	65kA	35kA
MBKJD3300A ¹	Kit w/3 pole JXD6 300A breaker	65kA	35kA
MBKJD1400A ¹	Kit w/2 pole JXD6 400A breaker	65kA	35kA
MBKJD3400A ¹	Kit w/3 pole JXD6 400A breaker	65kA	35kA
MBKJD12300A ¹	Kit w/2 pole JXD6 300A breaker	65kA	—
MBKJD32300A ¹	Kit w/3 pole JXD6 300A breaker	65kA	—
MBKJD12400A ¹	Kit w/2 pole JXD6 400A breaker	65kA	—
MBKJD32400A ¹	Kit w/3 pole JXD6 400A breaker	65kA	—

¹ Kits can be used for either top feed or bottom feed.



Accessories/Lugs

Lug Kits — Main or Feed Thru

Amp Rating	Matl.	Wire Range (includes Neutral)	Service	Catalog Number
250	AL	(1) #6 AWG-350 kcmil (CU or AL)	1 Phase	MLKA1A
			3 Phase	MLKA3A
	CU	(1) #6 AWG-350 kcmil (CU or AL)	1 Phase	MLKC1A
			3 Phase	MLKC3A
400	AL	(2) 1/0 - 250 kcmil or (1) #2 AWG-600 kcmil	1 Phase	4MLKA1A
			3 Phase	4MLKA3A
	CU	(2) 1/0 - 4/0 or (1) 1/0 - 600 kcmil	1 Phase	4MLKC1A
			3 Phase	4MLKC3A
400	AL	AL 1/0-750 kcmil (max. 600 kcmil CU wire)	1 Phase	4MLKA1B
			3 Phase	4MLKA3B

Copper Neutral Lug Kits — 250A

Number of Circuits	Description	Revised P1 Catalog Number
18	2 or 4 Branch Neutral Strips, 1 Main Neutral Lug, Hardware	Use 30 ckt kit
30		CNKL30A
42		CNKL42A
54, 66		CNLK54A

2/0 Neutral Lug Kits — 250A and 400A

18	2 or 4 Branch Neutral Strips, Hardware	Use 30 ckt kit
30		LNLK30A
42		LNLK42A
54, 66		LNLK54A

200% Neutral Lug Kits/250A

18	2 or 4 Branch Neutral Strips, 1 Main Neutral Lug, Hardware	Use 30 ckt kit
30		2NK30A
42		2NK42A
54, 66		2NK54A

200% Neutral Lug Kits/400A

18	2 or 4 Branch Neutral Strips, 1 Main 600MCM Neutral Lug, Hardware	Use 30 ckt kit
30		42NLK30A
42		42NLK42A
54, 66		42NLK54A



Miscellaneous Parts

Type P1, P2, P3, SE and S3 Panelboards

Miscellaneous Parts and Accessories

Catalog #	Description
BK1	Bonding Kit for 400A max. Original P1 panels
BK1A	Bonding Kit for 400A max. Revised P1 Panels
BK2	Bonding Kit for S1/S2 400 and 600
BK3	Bonding kit for S3
P2BK1	Bonding Kit for P2 250A Max.
P2BK2	Bonding Kit for P2 400A Max.
P2BK3	Bonding Kit for P2 600A Max.
P3BK1	Bonding kit for P3
IMK1	Interior Adjusting Kit
11-1824-01	Directory Card Holder
12-1110-01	Directory Card
11-1056-01	NEMA Instruction Book
NBK03	Number Strips 1–42, Stick-on type: Use w/P1 series Panels
NBK04	Number Strips 43–84, Stick-on type: Use w/P1 series Panels
NBK05	Number Strips 85–126, Stick-on type: Use w/P1 series Panels
NBK06	Number Strips 127–168, Stick-on type: Use w/P1 series Panels
EGK	AL Ground Bus 44 Connections
ECGK	CU Ground Bus 44 Connections
IGK	Insulated AL Ground Bus
ICGK	Insulated CU Ground Bus
EWK1	End Wall Kit with Knockouts (20" W x 5.75" DP)
EWK2	End Wall Kit with Knockouts (24" W x 7.75" DP)
EBF1	NEB/HEB Filler Plate
P1SCRWS	Package of 42 breaker mounting screws for P1
DFFP1	1" Branch circuit filler plate (suitable for replacing QF3 in P1 thru P5 Panelboards and Switchboards)
P1CONBPHCU ¹	Connector kit – 6 pcs. B-phase Copper
P1CONBPHAL ¹	Connector kit – 6 pcs. B-phase Aluminum
P1CONACPHCU ¹	Connector kit – 6 pcs. A or C-phase Copper
P1CONACPHAL ¹	Connector kit – 6 pcs. A or C-phase Aluminum

¹ Replacement Parts Only.

Retrofit Kit



400/600A S1/S2 and All SE Panels

Amp Rating	Breaker Type	Service	Catalog Number
125	ED2, ED4, ED6, HED4, HED6, HHED6	1 Phase	SMBKED1
225	ED2, ED4, ED6, HED4, HED6, HHED6	3 Phase	SMBKED3
225	QJ2, HQJ2, HQJ2H	1 Phase	SMBKQJ1
	QJ2, HQJ2, HQJ2H	3 Phase	SMBKQJ3
250	FXD6, FD6, HFXD6, HFD6	1 Phase	SMBKFD1
	FXD6, FD6, HFXD6, HFD6	3 Phase	SMBKFD3
400	JD6, JXD6, HJD6, HJXD6	1 Phase	SMBKJD1
	JD6, JXD6, HJD6, HJXD6	3 Phase	SMBKJD3
600	LD6, LXD6, HLD6, HLXD6	1 Phase	SMBKLD1
	LD6, LXD6, HLD6, HLXD6	3 Phase	SMBKLD3

SPP/FPP/S4/S5/P4/P5/F1/F2 Kits

Breaker Type	Mounting	Unit Height Inches	Category 1 10" Deep S4/P4/SPP FPP/P1	Category 2 12.75" Deep S5/P5/F2 SPP/FPP
BL/BQD	Twin	3.75	SBL	SBLBD
ED	Twin	3.75	SE6	SE6D
CED6	Single	3.75	SCE	SCED
QJ	Twin	5.00	SQJ	SQJD
FD6	Twin	5.00	SF6	SF6D
CFD6	Single	5.00	SCF	SCFD
JXD2, JXD6	Single	8.75	SJ1	SJ1D
JXD2, JXD6	Twin	8.75	—	SJ2D
SJD6	Single	8.75	SSJ1	SSJ1D
CJD6	Single	8.75	SCJ	SCJD
SCJD6	Single	8.75	SSCJ	SSCJD
LD6	Single	8.75	SL6	SL6D
SLD6	Single	8.75	SSL6	SSL6D
CLD6	Single	8.75	SCL	SCLD
SCLD6	Single	8.75	SSCL	SSCLD
LMD6, HLMD6	Single	8.75	SLM1	SLM1D
MD6, HMD6, CMD6	Single	10	—	SMND
SMD6, SHMD6	Single	10	—	SSMND
ND6, HND6	Single	10	—	SMND
SND6, SHND6 SCND6	Single	10	—	SSMND
MG1D	Single	10	—	NM, HM, LM, SNM, SHM
NG1D	Single	10	—	NN, HN, LN, SNN, SHN

P2/P3 Kits and Accessories

Kit Number	Description
BBKB32	BL/BQD 6-pole 3" branch breaker kit
BBKED32	ED 6-pole 3" branch breaker kit
BBKNB32	xGB branch mounting kit (NGB, HGB & LGB)
BBKQ1	QJ branch breaker kit for 2 and 3-pole single mount
BBKQ2	Branch breaker kit for 2 and 3-pole QJ twin mount (P3)
DKF1	BL, BQD, ED deadfront kit for 1" pole breakers
DFFP3	Deadfront filler 3"
DFFP6	Deadfront filler 6"
BNK2	Branch Neutral (P2)
P2BK1	P2 250A max. bonding kit
P2BK2	P2 400A max. bonding kit
P2BK3	P2 600A max. bonding kit
P3BK1	P3 bonding kit



Surge Protection

Internal TPS

All internal TPS standard monitoring includes LED Indicators

TPS3 01, L1, 05, L5, 06, L6 standard monitoring includes:

- LED indicators
- Audible Alarm with Silence and Test Buttons
- Dry Contacts

TPS3 02 is for new Revised P1 only – not for use in Original P1.

TPS3 01 Surge Protection Device (SPD) for Original P1, P2 Lighting Panelboards and P3 Power Distribution Panelboards, Motor Control Centers and Busway Systems

Mounts internal to:

- P1, P2 and P3 panels
- tiastar motor control centers – standard 6" bucket
- STP series busplug on SX series busway

Ordering Information – When an option is not selected, put a zero (0) in the field.



1. Voltage Code

- A = 120/240V, 1Ø, 3W
- B = 120/240V, 3Ø, 4W
- C = 120/208V, 3Ø, 4W
- D = 240V, 3Ø, 3W
- E = 277/480V, 3Ø, 4W
- F = 480V, 3Ø, 3W
- G = 600V, 3Ø, 3W
- K = 380/220V, 3Ø, 4W
- L = 600/347V, 3Ø, 4W
- S = 400/230V, 3Ø, 4W

2. Surge

- Current (kA)**
- 10 = 100kA per phase
 - 15 = 150kA per phase
 - 20 = 200kA per phase
 - 25 = 250kA per phase
 - 30 = 300kA per phase

3. Options

- X = Surge counter
- W = Terminal lug
- B = Busway application
- M = MCC application

Available accessories ordered separately. RMSIE – remote monitor.

Example: TPS3C0120X00 = SPD for a 208/120V panelboard with a surge capacity of 200kA per phase and a surge counter option.

TPS3 L2 is for new Revised P1 only – not for use in Original P1.

TPS3 L1 True 10 Mode Protection, Surge Protection Device (SPD) for Original P1, P2 Lighting and P3 Power Distribution Panelboards, Motor Control Centers and Busway Systems

Mounts internal to:

- P1, P2 and P3 panels
- tiastar motor control centers – standard 6" bucket
- STP series busplug on SX series busway

Ordering Information – When an option is not selected, put a zero (0) in the field



1. Voltage Code

- A = 120/240V, 1Ø, 3W
- B = 120/240V, 3Ø, 4W
- C = 120/208V, 3Ø, 4W
- E = 277/480V, 3Ø, 4W
- K = 380/220V, 3Ø, 4W
- S = 400/230V, 3Ø, 4W

2. Surge

- Current (kA)**
- 15 = 150kA per phase
 - 30 = 300kA per phase

3. Options

- X = Surge counter
- W = Terminal lug
- B = Busway application
- M = MCC application

Available accessories ordered separately. RMSIE – remote monitor.

Example: TPS3CL130X00 = 10 Mode SPD for a 208/120V panelboard with a surge current capacity of 300kA per phase and a surge counter option.

TPS3 05 Surge Protection Device (SPD) for P4 and P5 Panelboards and Distribution Switchboards

Mounts internal to:

- P4 and P5 panelboards and distribution switchboards

Ordering Information – When an option is not selected, put a zero (0) in the field.



1. Voltage Code

A = 120/240V, 1Ø, 3W
 B = 240/120V, 3Ø, 4W
 C = 120/208V, 3Ø, 4W
 D = 240V, 3Ø, 3W
 E = 277/480V, 3Ø, 4W
 F = 480V, 3Ø, 3W
 G = 600V, 3Ø, 3W¹
 K = 380/220V, 3Ø, 4W
 L = 600/347V, 3Ø, 4W
 S = 400/230V, 3Ø, 4W

2. Surge Current (kA)

10 = 100kA per phase
 15 = 150kA per phase
 20 = 200kA per phase
 25 = 250kA per phase
 30 = 300kA per phase

3. Options

X = Surge counter

¹ Available in 100 and 150 kA only.

Available accessories ordered separately. RMSIE – remote monitor.

Example: TPS3C0530X = SPD for a 208/120V power panel with a surge current capacity of 300kA per phase and a surge counter option.

TPS3 L5 True 10 Mode Protection Surge Protection Device (SPD) for P4 and P5 Panelboards and Distribution Switchboards

Mounts internal to:

• P4 and P5 panelboards and distribution switchboards

Ordering Information – When an option is not selected, put a zero (0) in the field.



1. Voltage Code

A = 120/240V, 1Ø, 3W
 B = 120/240V, 3Ø, 4W
 C = 120/208V, 3Ø, 4W
 E = 277/480V, 3Ø, 4W
 K = 380/220V, 3Ø, 4W
 S = 400/230V, 3Ø, 4W

2. Surge Current (kA)

15 = 150kA per phase
 30 = 300kA per phase

3. Options

X = Surge counter

Available accessories ordered separately. RMSIE – remote monitor.

Example: TPS3CL530X = 10 mode SPD for a 208/120V power panel with a surge current capacity of 300kA per phase and a surge counter option.

TPS3 06 Surge Protection Device (SPD) for Service Entrance Applications – SB1, SB2, SB3, Type RCS Switchboards, Type WL Low Voltage Switchgear, Motor Control Centers and Busway Systems

Mounts internal to:

- SB1, SB2, SB3 and Type RCS switchboards
- Type WL low voltage switchgear
- tiastar motor control centers - standard 12" bucket
- STP series busplug on SX series busway

Ordering Information – When an option is not selected, put a zero (0) in the field.



1. Voltage Code

- A = 120/240V, 1Ø, 3W
- B = 120/240V, 3Ø, 4W
- C = 120/208V, 3Ø, 4W
- D = 240V, 3Ø, 3W¹
- E = 277/480V, 3Ø, 4W
- F = 480V, 3Ø, 3W¹
- G = 600V, 3Ø, 3W²
- K = 380/220V, 3Ø, 4W
- L = 600/347V, 3Ø, 4W
- S = 400/230V, 3Ø, 4W

¹ Not available in 500 kA.

² Available in 150, 200, 250 kA only

³ G voltage code only available in 200 and 250 kA.

2. Surge Current (kA)

- 10 = 100kA per phase
- 15 = 150kA per phase
- 20 = 200kA per phase
- 25 = 250kA per phase
- 30 = 300kA per phase
- 40 = 400kA per phase
- 50 = 500kA per phase

3. Options

- X = Surge counter
- B = Busway application³
- M = MCC application³

Available accessories ordered separately. RMSIE – remote monitor.

Example: TPS3C0640X0 = SPD for a 208/120V switchboard with a surge current capacity of 400kA per phase and a surge counter option.

TPS3 L6 True 10 Mode Protection

Surge Protection Device (SPD) for Service Entrance Applications – SB1, SB2, SB3, Type RCS Switchboards, Type WL Low Voltage Switchgear, Motor Control Centers and Busway Systems

Mounts internal to:

- SB1, SB2, SB3 and Type RCS switchboards
- Type WL low voltage switchgear
- tiastar motor control centers - standard 12" bucket
- STP series busplug on SX series busway

Ordering Information – When an option is not selected, put a zero (0) in the field.



1. Voltage Code

- A = 120/240V, 1Ø, 3W
- B = 120/240V, 3Ø, 4W
- C = 120/208V, 3Ø, 4W
- E = 277/480V, 3Ø, 4W
- K = 380/220V, 3Ø, 4W
- S = 400/230V, 3Ø, 4W

2. Surge Current (kA)

- 15 = 150kA per phase
- 30 = 300kA per phase

3. Options

- X = Surge counter
- B = Busway application
- M = MCC application

Available accessories ordered separately. RMSIE – remote monitor.

Example: TPS3CL645X0 = 10 mode SPD for a 208/120V switchboard with a surge current capacity of 450kA per phase and a surge counter option.

External or Wall Mount TPS

All external TPS standard monitoring includes LED indicators

TPS3 03, 09 and 11 standard monitoring include:

- LED Indicators

TPS3 12, and L12 standard monitoring include:

- LED Indicators
- Audible Alarm with Silence and Test Buttons
- Dry Contacts

TPS3 15, and L15 standard monitoring include:

- LED Indicators
- Audible Alarm with Silence and Test Buttons
- Dry Contacts
- Disconnect Switch

TPS3 03

Type 1 Surge Protective Device (SPD) TPS3 03

Mounts external to electrical distribution equipment

- Recommended for line side or load side applications

Ordering Information – When an option is not selected, put a zero (0) in the field.



1. Voltage Code

A = 120/240V, 1Ø, 3W
B = 120/240V, 3Ø, 4W
C = 120/208V, 3Ø, 4W
D = 240V, 3Ø, 3W
E = 277/480V, 3Ø, 4W
F = 480V, 3Ø, 3W
G = 600V, 3Ø, 3W
K = 380/220V, 3Ø, 4W
L = 600/347V, 3Ø, 4W

2. Surge

Current (kA)
05 = 50kA
per phase

3. Options

D = Dry contact
and audible
alarm

Available accessories ordered separately. RMSIE – remote monitor.

Example: TPS3C0305D = Type 1 SPD for a 208/120V application with a surge current capacity of 50kA per phase, in a standard NEMA 4X enclosure with dry contacts and audible alarm option.

TPS3 09 Type 1 Surge Protective Device (SPD) Internal to P1, P2 Lighting Panelboards, P3 Power Panelboards and Busway Systems

Mounts external to electrical distribution equipment

- Weatherproof hub included
- Recommended for line side or load side applications

Mounts internal to P1 panelboards and busway

- P1 – Field retrofit or factory install
- P2 and P3 – Factory install only
- *Consult factory for field retrofit

Ordering Information – When an option is not selected, put a zero (0) in the field.



1. Voltage Code

- A = 120/240V, 1Ø, 3W
- B = 120/240V, 3Ø, 4W
- C = 120/208V, 3Ø, 4W
- D = 240V, 3Ø, 3W
- E = 277/480V, 3Ø, 4W
- F = 480V, 3Ø, 3W
- G = 600V, 3Ø, 3W
- K = 380/220V, 3Ø, 4W
- L = 600/347V, 3Ø, 4W
- S = 400/230V, 3Ø, 4W

2. Surge

- Current (kA)**
10 = 100kA
per phase

3. Options

- D = Dry contact and audible alarm
- I = Internal mounting in P1, P2 panels ¹
- E = Extended indicator light

Available accessories ordered separately.

RMSIE – remote monitor.

FMKITC – Flush mount kit

TPS9IKITP1 – Mounting bracket for installation in P1 panels

¹ Requires TPS9IKITP1 mounting bracket accessory.

Example: TPS3C0910D00 = Type 1 SPD for a 208/120V panelboard with a surge current capacity of 100kA per phase with standard NEMA 4X enclosure, dry contacts and audible alarm option.

TPS3 11 – Type 1 Surge Protection Device (SPD)

Mounts external to electrical distribution equipment
- Recommended for line side or load side applications

Ordering Information – When an option is not selected, put a zero (0) in the field.



1. Voltage Code

A = 120/240V, 1Ø, 3W
B = 120/240V, 3Ø, 4W
C = 120/208V, 3Ø, 4W
D = 240V, 3Ø, 3W
E = 277/480V, 3Ø, 4W
F = 480V, 3Ø, 3W
G = 600V, 3Ø, 3W¹
K = 380/220V, 3Ø, 4W
L = 600/347V, 3Ø, 4W
S = 400/230V, 3Ø, 4W

2. Surge Current (kA)

10 = 100kA per phase
15 = 150kA per phase
20 = 200kA per phase

3. Options

D = Dry contact
and audible
alarm

Available accessories ordered separately.

RMSIE – Remote monitor

KITFMXF – Flush mount kit

¹ Available in 100kA per phase only.

Example: TPS3C1110D = Type 1 SPD for a 208/120V application with a surge current capacity of 100kA per phase, in a standard NEMA 4X enclosure with dry contacts and audible alarm option.

TPS3 12 Type 1 Surge Protective Device (SPD)

Mounts external to electrical distribution equipment

- Recommended for line side or load side applications

Ordering Information – When an option is not selected, put a zero (0) in the field.



1. Voltage Code	2. Surge Current (kA)	3. Enclosure	4. Options
A = 120/240V, 1Ø, 3W	10 = 100kA	0 = Standard NEMA	X = Surge counter
B = 120/240V, 3Ø, 4W	15 = 150kA per phase	1/12/3R/4 steel	D = Internal rotary disconnect
C = 120/208V, 3Ø, 4W	20 = 200kA per phase	V = NEMA 4X non-metallic	T = Thru-door disconnect
D = 240V, 3Ø, 3W ¹	25 = 250kA per phase	S = NEMA 4X stainless steel	
E = 277/480V, 3Ø, 4W	30 = 300kA per phase	F = NEMA 1 flush mount	
F = 480V, 3Ø, 3W ¹	40 = 400kA per phase	P = NEMA 1 screwcover	
G = 600V, 3Ø, 3W ²	50 = 500kA per phase	pullbox with extended display	
K = 380/220V, 3Ø, 4W		on 6 ft cable for line side mounting in SWBD/SWGR	
L = 600/347V, 3Ø, 4W			
S = 400/230V, 3Ø, 4W			

Available accessories ordered separately. RMSIE – Remote monitor

¹ Not available in 500kA.

² Available in 100, 150, 200, 250 kA only.

Example: TPS3C12100XD = Type 1 SPD for a 208/120V application with a surge current capacity of 100kA per phase, in a standard NEMA 1/12/3R/4 enclosure with a surge counter and internal rotary disconnect option.

TPS3 L12 True 10 Mode Protection Type 1 Surge Protective Device (SPD)

Mounts external to electrical distribution equipment
- Recommended for line side or load side applications

Ordering Information – When an option is not selected, put a zero (0) in the field.



1. Voltage Code	2. Surge Current (kA)	3. Enclosure	4. Options
A = 120/240V, 1Ø, 3W	15 = 150kA per phase	0 = Standard NEMA 1/12/3R/4 steel	X = Surge counter
B = 120/240V, 3Ø, 4W	30 = 300kA per phase	V = NEMA 4X non-metallic	D = Internal rotary disconnect
C = 120/208V, 3Ø, 4W	45 = 450kA per phase	S = NEMA 4X stainless steel	T = Thru-door disconnect
E = 277/480V, 3Ø, 4W		F = NEMA 1 flush mount	
K = 380/220V, 3Ø, 4W		P = NEMA 1 screwcover pullbox with extended display on 6 ft cable for line side mounting in SWBD/SWGR	
S = 400/230V, 3Ø, 4W			

Available accessories ordered separately. RMSIE – Remote monitor

Example: TPS3CL12150XD = 10 Mode, Type 1 SPD for a 208/120V application with a surge current capacity of 150kA per phase, in a standard NEMA 1/12/3R/4 enclosure with a surge counter and internal rotary disconnect option.

TPS3 15 Type 1 Surge Protective Device (SPD)

Mounts external to electrical distribution equipment

- Recommended for line side or load side applications

Ordering Information – When an option is not selected, put a zero (0) in the field.



1. Voltage Code	2. Surge Current (kA)	3. Enclosure	4. Options
A = 120/240V, 1Ø, 3W	40 = 400kA	0 = Standard NEMA	X = Surge counter
B = 120/240V, 3Ø, 4W	50 = 500kA per phase ³	1/12/3R/4 steel	T = Thru-door disconnect
C = 120/208V, 3Ø, 4W	50 = 500kA per phase ³	V = NEMA 4X non-metallic	
D = 240V, 3Ø, 3W ¹	60 = 600kA per phase	S = NEMA 4X stainless steel	
E = 277/480V, 3Ø, 4W	80 = 800kA per phase	F = NEMA 1 flush mount	
F = 480V, 3Ø, 3W ¹	1K = 1000kA per phase	P = NEMA 1 screwcover pullbox with extended display on 6 ft cable for line side mounting in SWBD/SWGR	
G = 600V, 3Ø, 3 W ²			
K = 380/220V, 3Ø, 4W			
L = 600/347V, 3Ø, 4W			
S = 400/230V, 3Ø, 4W			

Available accessories ordered separately. RMSIE – Remote monitor

Note: Internal disconnect switch is standard.

¹ Available in 600 and 800 kA only.

² Available in 400 and 500 kA only.

³ Available in G voltage code only.

Example: TPS3C1560SX0 = Type 1 SPD for a 208/120V application with a surge current capacity of 600kA per phase, in a NEMA 4X stainless steel enclosure with a surge counter option and standard disconnect switch.

TPS3 L15 True 10 Mode Protection Type 1 Surge Protective Device (SPD)

Mounts external to electrical distribution equipment
- Recommended for line side or load side applications

Ordering Information – When an option is not selected, put a zero (0) in the field.



1. Voltage Code	2. Surge Current (kA)	3. Enclosure	4. Options
A = 120/240V, 1Ø, 3W	60 = 600kA per phase	0 = Standard NEMA 1/12/3R/4 steel	X = Surge counter T = Thru-door disconnect
B = 120/240V, 3Ø, 4W	90 = 900kA per phase	V = NEMA 4X non-metallic	
C = 208Y/120V 3Ø, 4W		S = NEMA 4X stainless steel	
E = 277/480V, 3Ø, 4W		F = NEMA 1 flush mount	
K = 380V/220V, 3Ø, 4W		P = NEMA 1 screwcover pullbox with extended display on 6 ft cable for line side mounting in SWBD/SWGR	
S = 400Y/230V, 4W			

Note: Internal disconnect switch is standard.

Example: TPS3CL15600X0 = 10 Mode, Type 1 SPD for a 208/120V application with a surge current capacity of 600kA per phase, in a standard NEMA 1/12/3R/4 enclosure with a surge counter option and standard disconnect switch.



Transformers

General Purpose Transformers

Standard Units

1P 480 x 240V Primary,
120/240V Secondary

KVA	Catalog Number
.25	1D1N205
.50	1D1N505
.75	1D1N705
1.0	1D1N001
1.5	1D1N105
2.0	1D1N002
3.0	1D1N003
5.0	1D1N005
7.5	1D1N007
10	1D1N010
15	1D1N015
15	1D1Y015TP1
25	1D1Y025TP1
37.5	1D1Y037TP1
50	1D1Y050TP1
75	1D1Y075TP1
100	1D1Y100TP1
167	1D1Y167TP1

3P 480 Primary,
208/120V Secondary

KVA	Catalog Number
3	3FR003
6	3FR006
9	3FR009
15	3F3Y015TP1
30	3F3Y030TP1
45	3F3Y045TP1
75	3F3Y075TP1
112.5	3F3Y112TP1
150	3F3Y150TP1
225	3F3Y225TP1
300	3F3Y300TP1
500	3F3Y500TP1

3P 480 Primary,
240V Secondary with
120V TAP on B Phase

KVA	Catalog Number
15	3F1Y015TP1
30	3F1Y030TP1
45	3F1Y045TP1
75	3F1Y075TP1
112.5	3F1Y112TP1
150	3F1Y150TP1
225	3F1Y225TP1
300	3F1Y300TP1
500	3F1Y500TP1

Modified Units

3P 480V Primary,
208Y/120V Secondary
Low Temperature 115C Rise

KVA	Catalog Number
15	3F3Y015FTP1
30	3F3Y030FTP1
45	3F3Y045FTP1
75	3F3Y075FTP1
112.5	3F3Y112FTP1
150	3F3Y150FTP1
225	3F3Y225FTP1

3P 480V Primary,
208Y/120V Secondary
Low Temperature 80C Rise

KVA	Catalog Number
15	3F3Y015BTP1
30	3F3Y030BTP1
45	3F3Y045BTP1
75	3F3Y075BTP1
112.5	3F3Y112BTP1
150	3F3Y150BTP1
225	3F3Y225BTP1

3P 480V Primary,
208Y/120V Secondary
Noise Attenuation w/
Electrostatic Shield

KVA	Catalog Number
15	3F3Y015ESTP1
30	3F3Y030ESTP1
45	3F3Y045ESTP1
75	3F3Y075ESTP1
112.5	3F3Y112ESTP1
150	3F3Y150ESTP1

3P 480V Primary,
208Y/120V Secondary
K13 (100% Non-Linear Load)

KVA	Catalog Number
15	3F3Y015K13TP1
30	3F3Y030K13TP1
45	3F3Y045K13TP1
75	3F3Y075K13TP1
112.5	3F3Y112K13TP1
150	3F3Y150K13TP1

Catalog Number Coding System for Transformers

3	F	3	Y	150	K	13	F	ES	C	LN3	Z4	TE	TEE	TP1	LZ	HM1	NP	30	TS7	TV	TB	SS	SSN4X	13	CC	W	VG	DS	BA
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	

Basic Rating Information

1. Phase
2. Primary Voltage
3. Secondary Voltage
4. Taps
5. kVA

Optional Modifications

6. K-Factor (K4, K13, K20, K30)
7. Low Temperature Rise: 130C = (G), 115C = (F) 80C = (B)
8. Electrostatic Shield 1 (ES)(ES2=dual) ES3=120dB attenuation on HM1 & 2
9. Copper Wound (C)
10. Low Noise X (where X = dB below NEMA, ex LN3 - 3dB below)
11. Seismic Zone 4 Rated (Z4)
12. Totally Enclosed NEMA 3R OR 4 (TE)
13. Totally Enclosed Encapsulated NEMA 3R or 4 (TEE)
14. Energy Efficient (NEMA - TP1)
15. Frequency 50/60Hz
16. Harmonic Mitigation (HM1=1 secondary/single output, HM2=2 secondaries/double output)
17. Super Energy Efficient - Surpasses NEMA-TP1 (available on TP1, HM1, HM2, "TP1NP," "HM1NP," "HM2NP)

18. Phase shift for HM1 select > (00) or (30) degree. Phase shift for HM2 select > (03) for 0 & 30 for 15 & 45 degree lagging, or (PN15) for 15 pos & 15 neg
19. Thermal Switches (TS7=170C, TS8=180C or TS0=200C) (TS72=2 switches, TS76=6 switches @170C, etc.)
20. TVSS - Filter Capacitors Secondary Side with Surge Suppression
21. Terminal Block
22. Stainless Steel Enclosure N-3R w/DS
23. Enclosure Types NEMA 4X (SSN4X), NEMA 12 (N12), NEMA 4 (N4)
24. Special Impedance - 14 = 4% max, 13 = 3% max etc.
25. Core and Coil Assembly with nameplate displayed on frame bracket (may be shipped in std. enclosure)
26. Wall Mounting Brackets (W)
27. Vent Guard
28. Drip Shields (weathershields) to provide NEMA-3R (DS)
29. Buy America

Note 1: If the catalog number will not completely describe the product, it will be identified as SPC- ___KVA-XFMR.

Note 2: "JST" suffix on catalog numbers defines units available in some of our distributor stock locations, may be available for immediate shipment - check for availability.

Note 3: TP1 alone has K1 load rating. K4 or higher K-Factor options with TP1 indicates associated load profile. Electrostatic Shield and 200% neutral are standard with K4 and above options. Suffix K13TP1 will indicate K-Factor rating and TP1 rating at K1 loading.

Note 4: Most transformers come standard with seismic rating. Contact factory for additional information.

Note 5: Primary and secondary terminal lugs are included on certain ventilated transformers. (15KVA - 75KVA 3PH & 15KVA - 50KVA 1PH)

Optional Product Offerings

1. For non-standard or non-cataloged voltages or non-cataloged primary taps refer to sales office.
2. Non-standard application, 50/60 Hz, special impedance, voltage, etc. - consult sales office.
3. Wall mounting brackets and weathershields - available at no charge on all indicated units when requested at time of initial project order. Contact sales office for feasibility of wall brackets on units with special temperature rise, low noise, or copper windings.
4. Special temperature rise:
 - 115° C rise, can tolerate 15% continuous overload. (Suffix Code F)¹
 - 80° C rise, can tolerate 30% continuous overload. (Suffix Code B)¹
5. Copper windings - Available on most designs. (Suffix Code C).
6. Low Noise Suffix code LN3 (3dB below std.) available as indicated. For LN5, etc. contact sales office with required sound level.
7. Totally Enclosed Non-Ventilated (TE)
8. Auto transformers (A)
9. Non-standard paint color - contact sales office.
10. Electrostatic shield (full width copper foil) for added noise attenuation and reduction of high frequency disturbances. (Suffix Code ES)²
11. Super Energy Efficient (NEMA Premium) - Exceeds NEMA TP1 efficiencies by 30%.
12. Harmonic mitigating transformers
13. Transformer and panel combinations

¹ With continuous overloads these units will be operating as 150°C rise designs.

² "XES" Suffix coding for shielded isolation with filters and surge suppression.

Optional Product Offerings

Phase		Primary		Secondary	
1-Phase	1	240x120	A	120/240	1
3-Phase	3	208	B	240 ¹	2
		240	C	208Y/120	3
		480x240	D	120/208 ¹	3
		277	E	480Y/277	5
		480	F	380Y/219	6
		600	G	230Y/133	7
		190/200/208/220/x380	Export	110/220	8
		400/416/440	Range H		
		190/208/220/240x380	Export		
		416/440/480	Range X		

TAP Designations

Description	Designation
None	N
2-5% FCBN	R
2-5% (1 FCAN, 1 FCBN)	S
2-2.5% FCBN	U
6-2.5% (2 FCAN, 4 FCBN)	Y

KVA

KVA	Catalog Code	KVA	Catalog Code	KVA	Catalog Code	KVA	Catalog Code
0.25	205	5	005	30	030	150	150
0.50	505	6	006	37.5	037	167	167
0.75	705	7.5	007	45	045	225	225
1	001	9	009	50	050	300	300
1.5	105	10	010	75	075	500	500
2	002	15	015	100	100	750	750
3	003	25	025	112.5	112	1000	1000

¹ Available in 3-phase 3 to 15 KVA only.

² Applies to HMT designs.

³ Taps are determined by transformer design and are not selectable on standard catalog units.

Terminal Lug Kits For Ventilated Transformers

Catalog Number	Single Phase KVA Sizes	Three Phase KVA Sizes	Terminal Lug ¹		Cable Range
			Qty .	Lug No.	
TLK34Q	—	112.5	11	AB-350S	6awg-350mcm
TLK14Q	100	—	12	AB-350S	6awg-350mcm

Terminal Lug Kits For Ventilated Transformers (cont'd)

Catalog Number	Terminal Lug ¹		Cable Range	Hardware Included	
	Qty.	Lug No.		Qty.	Bolt Size
TLK34Q	n/a	—	—	11	3/8" x 1 1/2"
TLK14Q	n/a	—	—	12	3/8" x 1 1/2"

¹ Terminal lugs are screw type, lug connectors suitable for both copper and aluminum cable. Each barrel is suitable for cable range shown. Lugs are rated 90°C.



GD Safety Switches

General Duty Enclosed Switches

Features:

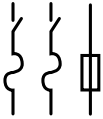
- Compact size
- Horsepower rated
- Indoor and Outdoor Enclosure
- Quick Make, Quick Break Mechanism
- Visible "ON" and "OFF" indications
- Padlock-Off Handle Feature
- Door Padlock Provision
- Bondable Interior (where indicated)
- Lugs Suitable for Copper and Aluminum Wires
- UL Listed
- Provisions for T, R, S, H and K Class Fuses (T&J 100-600A)

General Duty Enclosed Switches

240V Fusible

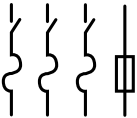
2P, 2F, and Neutral ^{1 2 3}

240V AC / 250V DC

System	Ampere Rating	Indoor Type 1 Catalog Number	Outdoor Type 3R Catalog Number
	30	GF221N	GF221NR
	60	GF222N	GF222NR
	100	GF223N	GF223NR
	200	GF224N	GF224NR
	400	GF225NH ⁴	GF225NRH ⁴
	400	GF225N	GF225NR
	600	GF226NH ⁴	GF226NRH ⁴
	600	GF226N	GF226NR

3P, 3F and Neutral ³


240V AC / 250V DC

System	Ampere Rating	Indoor Type 1 Catalog Number	Outdoor Type 3R Catalog Number
	30	GF321N	GF321NR
	60	GF322	GF322NR
	100	GF323N	GF323NR
	200	GF324N	GF324NR
	400	GF325NH ⁴	GF325NRH ⁴
	400	GF325N	GF325NR
	600	GF326NH ⁴	GF326NRH ⁴
	600	GF326N	GF326NR

240V Non-Fusible

2P or 3P

240V AC / 250V DC

System	Ampere Rating	Indoor Type 1 Catalog Number	Outdoor Type 3R Catalog Number
	30	GNF321	GNF321R
	60	GNF322	GNF322R
	100	GNF323	GNF323R
	200	GNF324	GNF324R
	400	GNF325	HNF365R use 600V Switch
	600	GNF326	HNF366R use 600V Switch

¹ These switches are UL listed for application on grounded B-phase systems.

² Suitable for use on 3-phase motor loads.

³ Service entrance rated.

⁴ Height reduced switches (45.25" rather than 56" in height) for use with 500MCM or smaller conductors.



HD Safety Switches

Heavy Duty Safety Switches

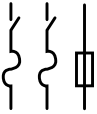
Features:

- Quick-make, quick-break operating mechanism that ensures positive operation.
- Visible blade, double-break switching action.
- Arc chutes dissipate heat and prolong switch life.
- Highly visible red handle grip. Designed for hook stick operation.
- Defeatable dual cover interlock.
- Center punch provided for field drilling to allow ON padlocking.
- Handle can be padlocked in the OFF position with up to (3) padlocks with 5/16" hasps.
- Generous top, bottom and side gutters that meet or exceed NEC wire-bending space requirements.
- Informative door labeling which includes replacement parts list.
- Tangential knockouts through 600A for easy conduit lineup.
- Side-hinged door that opens past 180 degrees for easier wiring.
- Unique enclosure design increases rigidity and prevents cuts and scrapes to conductors and installer's hands.
- Spring reinforced fuse clips that assure reliable contact for cool operation.
- Door latch securely holds door closed and allows cover padlocking.
- Front removable mechanical lugs that are suitable for CU/Al 60 or 75° C conductors.
- Lugs are field convertible to copper body and to a wide variety of compression connectors.
- Hinged clear line terminal shield with probe holes for inspecting or testing line side terminals.
- Embossed aluminum nameplate on Heavy Duty Switches provides highly visible ON/OFF indication.
- Drawn cover for increased rigidity and resistance to abuse.
- Top key hole and bottom mounting holes provide easy 2 to 3 point mounting.

Heavy Duty Safety Switches

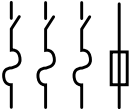
240V Fusible³
2P, 2F, and Neutral¹

240V AC / 250V DC

System	Ampere Rating	Indoor Type 1 Catalog Number	Outdoor Type 3R Catalog Number
	30	HF221N	HF221NR
	60	HF222N	HF222NR
	100	HF223N	HF223NR
	200	HF224N	HF224NR
	400	HF225NH ²	HF225NRH ²
	400	HF225N	HF225NR
	600	HF226NH ²	HF226NRH ²
	600	HF226N	HF226NR
	800	HF227N	HF227NR
	1200	HF228N ■	HF228NR ■

3P, 3F, and Neutral

240V AC / 250V DC

	30	HF321N	HF321NR
	60	HF322N	HF322NR
	100	HF323N	HF323NR
	200	HF324N	HF324NR
	400	HF325NH ²	HF325NRH ²
	400	HF325N	HF325NR
	600	HF326NH ²	HF326NRH ²
	600	HF326N	HF326NR
	800	HF327N	HF327NR
1200	HF328N	HF328NR	

■ Built to order. Allow 3-5 weeks for delivery.

¹ These switches are UL-listed for application on grounded B-phase systems and are suitable for 3-phase motor applications.


² Height reduced switch (45.25 rather than 56 inches in height) for use with 500MCM or smaller conductors.

³ Suitable for use as service entrance equipment.

Heavy Duty Safety Switches


240V Fusible¹
2P, 2F²

240V AC / 250V DC

System	Ampere Rating	Type 4/4X Stainless ⁴ Catalog Number	Type 12 Industrial ³ Catalog Number
	30	HF221S	HF221J
	60	HF222S	HF222J
	100	HF223S	HF223J
	200	HF224S	HF224J

3P, 3F²

(Also used for 2-Pole, 2-Wire Applications in 400-800A ratings) 240V AC / 250V DC

	30	HF321S	HF321J
	60	HF322S	HF322J
	100	HF323S	HF323J
	200	HF324S	HF324J
	400	HF325S	HF325J ■
	600	HF326S	HF326J ■
	800	HF327S ■	HF327J ■

■ Built to order. Allow 3-5 weeks for delivery.

¹ Suitable for use as service entrance equipment.

² When a neutral is required use a field installed neutral kit.


³ Also rated Type 3S/3R.

⁴ 304 grade stainless steel.

Heavy Duty Safety Switches


600V Fusible ⁴
2P, 2F ³

480V AC / 600V AC / 600V DC

System	Ampere Rating	Indoor Type 1 Catalog Number	Outdoor Type 3R Catalog Number
	30	HF261	HF261R
	60	HF262	HF262R
	100	HF263	HF263R
	400	HF265 ■	HF265R ■
	600	HF266 ■	HF266R ■

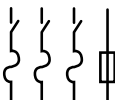
3P, 3F

480V AC / 600V AC / 250V DC ¹

	30	HF361	HF361R
	30	HF361L ⁵	HF361RL ⁵
	60	HF362	HF362R
	60	—	HF362RL ⁵
	100	HF363	HF363R
	200	HF364	HF364R
	400	HF365H ²	HF365RH ²
	400	HF365	HF365R
	600	HF366H ²	HF366RH ²
	600	HF366	HF366R
	800	HF367	HF367R
1200	HF368	HF368R	

3P, 3F and Solid Neutral

480V AC / 600V AC / 250V DC ¹

	30	HF361N	HF361NR
	60	HF362N	HF362NR
	100	HF363N	HF363NR
	200	HF364N	HF364NR
	400	HF365N	HF365NR
	600	HF366N	HF366NR
	800	HF367N	HF367NR
1200	HF368N	HF368NR	

■ Built to order. Allow 3-5 weeks for delivery.

¹ 60-200A 3-Pole switches are also rated 600V DC.

² Height reduced switch (45.25 rather than 56 inches in height) for use with 500MCM or smaller conductors.

³ Use 3-Pole switch for 200A applications.

⁴ Suitable for use as service entrance equipment except on 1200 Amp solidly grounded wye systems per NEC 230.95.


⁵ Indicates oversized enclosure (30A switch with 60A lugs in a 60A enclosure or 60A switch with 100A lugs in a 100A enclosure).

Heavy Duty Safety Switches

600V Fusible ¹


2P, 2F ²

480V AC / 600V AC / 600V DC

System	Ampere Rating	Type 4X Stainless Catalog Number	Type 12 ³ Industrial Catalog Number
	30	HF261S	HF261J ■
	60	HF262S	HF262J ■
	100	HF263S ■	HF263J ■
	400	HF265S ■	HF265J ■
	600	HF266S ■	HF266J ■

3P, 3F


480V AC / 600V AC / 250V DC

	30	HF361S	HF361J
	60	HF362S	HF362J
	100	HF363S	HF363J
	200	HF364S	HF364J
	400	HF355S	HF365J
	600	HF366S	HF366J
	800	HF367S	HF367J ■
	1200	HF368S ■	HF368J ■

600V Non-Fusible ¹


2P, 2F ²

480V AC / 600V AC / 600V DC

System	Ampere Rating	Type 4X Stainless Catalog Number	Type 12 ³ Industrial Catalog Number
	30	HNF261S	HNF261J
	60	HNF262S	HNF262J
	100	HNF263S ■	HNF263J ■
	400	HNF265S ■	HNF265J ■
	600	HNF266S ■	HNF266J ■

3P, 3F

480V AC / 600V AC / 250V DC

	30	HNF361S	HNF361J
	60	HNF362SH ⁴	HNF362JH ⁴
	60	HNF362S	HNF363J
	100	HNF363S	HNF363J
	200	HNF364S	HNF364J
	400	HNF355S	HNF365J
	600	HNF366S	HNF366J
	800	HNF367S	HNF367J ■
	1200	HNF368S ■	HNF368J ■

■ Built to order. Allow 3-5 weeks for delivery.

¹ Suitable for use as service entrance equipment except on 1200 Amp solidly grounded wye systems per NEC 230.95.

² Use 3-Pole switch for 200A applications.

³ Also rated Type 3S/3R.

⁴ Compact switch (11.1"H, 6.6"W box less cover and handle). Short circuit withstand rating – 100,000 RMS Sym. amps.

Heavy Duty Safety Switches Type 4/4X & 12 with Viewing Window

Description

30–600A, 3-pole 600V max. in fusible and non-fusible versions in Type 4/4X stainless steel and Type 12 enclosures.



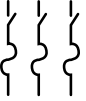

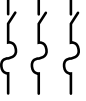

All allow viewing of visible blade position.

30–200A also allow viewing of indicating type fuses.

Features:

- Rugged installer-friendly enclosure design features a gasket flange with continuously welded seams
- Tool-free cover latches
- Two, three and four point mounting
- Metal handle with large insulating grip features a positive stop in both ON and OFF position
- Ground lugs provided as standard
- Type 12 enclosures are fabricated from galvanized steel and are also rated for 3R/3S outdoor applications
- The widest range of accessories available including 200% neutrals, gold plated PLC auxiliary contacts and isolated ground kits

Heavy Duty Safety Switches Type 4/4X & 12 with Viewing Window

System	Ampere Rating	Catalog Number
3-Pole, 3-Wire Fusible, Type 3R³		600V AC / 250V DC¹
	30	HF361RW
	60	HF362RW
3-Pole, 3-Wire Non-Fusible, Type 3R³		600V AC / 250V DC¹
	30	HNF361RW
	60	HNF362RW
3-Pole, 3-Wire Fusible, Type 12^{2,3}		600V AC / 250V DC¹
	30	HF361JW
	60	HF362JW
	100	HF363JW
	200	HF364JW
	400	HF365JW
	600	HF366JW
3-Pole, 3-Wire Non-Fusible, Type 12^{2,3}		600V AC / 250V DC¹
	30	HNF361JW
	60	HNF362JW
	100	HNF363JW
	200	HNF364JW
	400	HNF365JW
3-Pole, 3-Wire Fusible, Type 4X Stainless Steel^{3,4}		600V AC / 250V DC¹
	30	HF361SW
	60	HF362SW
	100	HF363SW
	200	HF364SW
	400	HF365SW
3-Pole, 3-Wire Non-Fusible, Type 4X Stainless Steel^{3,4}		600V AC / 250V DC¹
	30	HNF361SW
	60	HNF362SW
	100	HNF363SW
	200	HNF364SW
	400	HNF365SW

¹ 200A switches are also rated 600V DC.

² Also rated Type 3S/3R.

³ All switches are suitable for use as service entrance equipment. Use outside poles of 3-pole switch for 2-pole application.

⁴ 304 grade stainless steel. For switches with enclosures constructed from 316 grade stainless steel.



Safety Switch Accessories

Accessories

Auxiliary Contacts with 1 NO and 1 NC Isolated Contacts

Switch Amp Rating	Aux. Switch Catalog Number	Maximum Kit Ampere Rating			Maximum Kit Horsepower Rating		
		125 V AC	250 V AC	28 V DC	125 V AC	250 V AC	28 V DC
30-200	HA161234	10	10	—	1/2	3/4	—
400-1200	HA165678	10	10	—	1/2	3/4	—

with 2 NO and 2 NC Isolated Contacts

30-200	HA261234	10	10	7	1/2	3/4	—
400-1200	HA265678	10	10	7	1/2	3/4	—

Low Current PLC Type with 1 NO and 1 NC Gold Plated Contacts

30-200	HA361234	10	10	—	1/2	3/4	—
400-1200	HA365678	10	10	—	1/2	3/4	—

Equipment Ground Kits

Switch Amp Rating	Catalog Number	Number of Terminals	Wire Range Per Terminal (Cu/Al)
30 GD	GSGK60	2	#14-8 AWG
60-200 GD	HG61234	2	#14-4 AWG
30-200 HD	HG61234	2	#14-4 AWG
400 & 600	HG656	4	#14-2/0
800-1200	HG678	8	#6 AWG-250 kcmil

Isolated Ground Kits

Switch Amp Rating	Catalog Number	Number of Terminals		Wire Range Per Terminal (Cu/Al)
		Isolated	Grounded	
30-200	HG261234	2	2	#14-4 AWG
400-600	HG2656	4	4	#14-2/0

Hubs – Type 3R¹

Conduit Size Inches	Catalog Number	Used On
Cover	ECHA000	30A GD Only
3/4	ECHA075	
1	ECHA100	
1 1/4	ECHA125	
Cover	ECHS000	60-200A GD 30-200A HD
3/4	ECHS075	
1	ECHS100	
1 1/4	ECHS125	
1 1/2	ECHS150	
2	ECHS200	
2 1/2	ECHS250	400-1200A
2 1/2	ECHV250	
3	ECHV300	
3 1/2	ECHV350	
4	ECHV400	

¹ Suitable for 3R switches.

Accessories

Class R Fuse Clip Kits

All General Duty and Heavy Duty Switches are field convertible to accept Class R Fuse Clip Kits. The kits prevent the installation of Class H and K fuses (one kit required per 3-pole switch).

Class R Fuse Clip Kits

Catalog Number	Description
GSRK321	30A, 240V Kit (GD only)
HR21	30A, 240V Kit (HD only)
HR612	30A, 600V Kit/60A, 240 Kit
HR62	60A, 600V Kit
HR63	100A Kit
HR64	200A Kit
HR656	400A / 600A Kit

Class J Fusing

All 30-600A, 600V and 100-600A, 240V fusible Heavy Duty Switches are field convertible to accept Class J fuses by moving the load base to a pre-drilled J fuse position. All 100-600A, 240V fusible General Duty switches can also be field converted to accept Class J fuses.

Class T Fuse Adapter Kits

All 100-600A, General Duty and 100- 200Amp and 1200Amp Heavy Duty Switches are field convertible to accept Class T fuses. 400-800A switches are field convertible to accept Class T fuses by moving the load base to a pre-drilled T fuse position.

Class T Fuse Adapter Kits ¹

Catalog Number	Description
HT23	100A, 240V Kit
HT63	100A, 600V Kit
HT24	200A 240V Kit
HT64 ■	200A 600V Kit
TFAK82	1200A, 240V Kit

Neutral Kits

Standard Neutral Kits can be field installed in General and Heavy Duty Switches.

Neutral Kits

Switch Ampere Rating	Kit Catalog Number
30 GD	W410190
30 HD, 60 GD	HN612
60, 100 HD, 100 GD	HN623
200	HN64
400 & 600	HN656
800 & 1200	HN678

■ Built to order. Allow 6-8 weeks for delivery.

¹ One kit per 3 pole switch required.

Accessories

200% Neutral Kits ¹

UL listed 200% Neutrals are available for 100-600A Heavy Duty Switches. They are typically used with non-linear transformers or where increased neutral ampacity/lug capacity is required.

200% Neutral Kits ¹

Switch Ampere Rating	Kit Catalog Number	Wire Range Line & Load Lugs (Cu/Al)
100	HN263	(2) #14-1/0 AWG
200	HN264	(2) #6 AWG - 300 Kcmil
400	HN656	(2) 1/0 AWG - 750 Kcmil or (4) 1/0 AWG - 250 Kcmil
600	HN678	(4) 1/0 AWG - 750 Kcmil

Internal Shield Kits (for fusible switches)

Kits provide a clear plastic inner door to prevent accidental contact with live parts. Test probe holes are provided and fuses can be replaced without removal of kit.

Internal Shield Kits ²

Switch ampere rating	Kit Catalog Number
30A HD	HSK61SSW
60A HD	HSK62SSW
100A HD	HSK63SSW
200A HD	HSK64SSW

Fuse Puller Kits

Fuse puller kits are field installable in 30-100A Type VBII Heavy Duty Switches (one kit required 3-pole switch).

Fuse Puller Kits

Switch ampere rating	Kit Catalog Number
30	HP61
60	HP62 ■
100	HP63 ■

■ Built to order. Allow 6-8 weeks for delivery.

¹ One kit per 3 pole switch required.

² Not designed for use in Non-metallic 4X safety switches. Not designed for use with Auxiliary Contacts.

Accessories

Quick Connects

They provide two point control power take-off capability and are normally used on two poles on the line side when it is required to have control power available when the switch is in the OFF position. They provide a mounting provision for standard 1/4" quick connect terminal. Installed in the line or load side. 30A VBII switches have lugs UL listed to accept (2) wires per pole as standard so a 30A kit is not required.

Quick Connects

Catalog Number	Description
HCQ62	60A 2 wire quick connect kit
HCQ63	100A 2 wire quick connect kit
HCQ64	200A 2 wire quick connect kit

Copper Lug Kits

Heavy duty switches are UL approved to accept field installed copper lug kits.

Copper Lug Kits

Switch Ampere Rating	Catalog Number	Description
30-60	HLC612	(9) Lugs/Kit #14-4 AWG Cu
100	HLC63 ■	(9) Lugs/Kit #14-1/0 AWG Cu
200	HLC64 ■	(9) Lugs/Kit #6 AWG-300 Kcmil Cu
400-1200	HLC65678	(1) Lugs/Kit #1/0 AWG-600 Kcmil Cu

■ Built to order. Allow 6-8 weeks for delivery.

The information provided in this brochure contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.

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