Direct Current Circuit Breakers

PVGard Solar Circuit Breakers

Dry-Type Transformer Family

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Direct Current Circuit Breakers

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Direct Current Circuit Breakers

Product Description

DC (direct current) systems and applications are becoming commonplace as alternative energy sources have expanded and the number of DC devices and data centers using DC power has swelled.

Eaton offers molded case circuit breakers and switches to meet circuit protection and switching requirements for a host of different DC end use requirements. Applications include UPS battery supply circuits, solar systems and electric vehicle charging, as well as commercial and industrial distribution.

Current ratings are available from 15 to 2500A, with a full scale of voltage and interrupting ratings to address needs ranging from standard to the highest performance. Optional internal accessories provide remote tripping and indication of breaker status.

The DC breaker family is UL® 489 listed and exceeds the requirements in UL 489 Supplement SC for UPS applications. Eaton breakers may be applied in both ungrounded and select grounded applications, with poles connected in series to operate at the maximum voltages shown on **Page V15-T3-3**. To use DC circuit breakers on 600V grounded systems, three poles in series must be connected on the ungrounded leg.

The HFDDC through HMDLDC DC breakers use the same internal and external accessories as their Series C or Series G AC frame equivalents. NBDC and PBDC use the same internal and external accessories as standard NB and PB breakers.

Many of the Eaton AC molded case circuit breakers carry 250 Vdc ratings for ungrounded systems. Refer to **Volume 4—Circuit Protection**, CA08100005E, Tab 2 for these interrupting tables.

Quick Reference Direct Current Circuit Breakers

UL 489 Interrupting Capacity Ratings

Circuit Breaker Type	Maximum Amperes	Interrupting Capacity (kA) Volts DC ① 125	Poles in Series	250 ②	Poles in Series	500	600	Poles in Series	750 ②	Poles in Series
EGEDC	100	10	1	35	2	35	—	3	—	—
EGSDC	100	35	1	42	2	50	—	3	—	—
EGHDC	100	42	1	50	2	65	—	3	—	—
HFDDC	225	42	1	50	2	—	42	3	42	4
JGEDC	250	35	1	35	2	—	35	3	—	—
JGSDC	250	42	1	42	2	—	50	3	—	—
JGHDC	250	50	1	50	2	—	65	3	—	—
HJDDC	250	42	1	50	2	—	42	3	—	—
HKDDC	400	42	1	50	2	—	42	3	—	—
LGEDC	600	22	1	22	2	—	35	3	—	—
LGSDC	600	22	1	22	2	—	50	3	—	—
LGHDC	600	50	1	50	2	—	65	3	—	—
HLDDC	600	42	1	50	2	—	35	3	—	—
HLDDC ③	1200	42	1	50	2	—	—	—	—	—
HMDLDC	800	42	1	50	2	—	35	3	—	—
NBDC	1200	42	1	50	2	—	50	3	—	—
PBDC	2500	42	1	65	2	—	65	3	—	—

IEC 60947-2 Interrupting Capacity Ratings

Circuit Breaker Type	Maximum Amperes	125 Volts DC Icu	Ics	Poles in Series	250 Volts DC Icu	Ics	Poles in Series	600 Volts DC Icu	Ics	Poles in Series
EGEDC	100	10	10	1	10	10	2	—	—	—
EGSDC	100	35	35	1	35	35	2	—	—	—
EGHDC	100	42	42	1	42	42	2	—	—	—
JGEDC	250	22	22	1	22	22	2	—	—	—
JGSDC	250	22	22	1	22	22	2	—	—	—
JGHDC	250	42	42	1	42	42	2	—	—	—
HJDDC	250	—	—	—	—	—	—	20	10	3
LGEDC	600	22	22	1	22	22	2	—	—	—
LGSDC	600	22	22	1	22	22	2	—	—	—
LGHDC	600	42	42	1	42	42	2	—	—	—
HLDDC	600	—	—	—	—	—	—	20	10	3
HMDLDC	800	—	—	—	—	—	—	20	10	3

Notes

① DC ratings apply to substantially non-inductive circuits. Time constants per UL 489.

② EGEDC through HMDLDC have been tested up to 300 Vdc to allow for battery charging voltages. 750 Vdc is common in transportation applications. HFDDC, four-pole 750 Vdc is available up to 150A maximum. 300 Vdc and 750 Vdc are not UL 489 listed voltage ratings.

③ Four-pole frame with two-poles connected in parallel.

See **Page V15-T3-13** for series connection diagrams. Use NEC® rated cable to connect/short poles in series as shown.

Catalog Number Selection

DC Circuit Breaker

HFDDC 3 150 W

Frame	
EGEDC	= Series G—E (100A max.)
EGSDC	= Series G—E (100A max.)
EGHDC	= Series G—E (100A max.)
HFDDC	= Series C—F (225A max.)
JGEDC	= Series G—J (250A max.)
JGSDC	= Series G—J (250A max.)
JGHDC	= Series G—J (250A max.)
HJDDC	= Series C—J (250A max.)
HKDDC	= Series C—K (400A max.)
LGEDC	= Series G—L (600A max.)
LGSDC	= Series G—L (600A max.)
LGHDC	= Series G—L (600A max.)
HLDDC	= Series C—L (1200A max.)
HMDLDC	= Series C—M (800A max.)
NBDC	= NB (1200A max.)
PBDC	= PB (2500A max.)

Number of Poles
1 = Single-pole
2 = Two-pole
3 = Three-pole
4 = Four-pole

Trip Unit Ampere Rating	
015	= 15A
020	= 20A
025	= 25A
030	= 30A
035	= 35A
040	= 40A
045	= 45A
050	= 50A
060	= 60A
070	= 70A
080	= 80A
090	= 90A
100	= 100A
110	= 110A
125	= 125A
150	= 150A
175	= 175A
200	= 200A
225	= 225A
250	= 250A
300	= 300A
350	= 350A
400	= 400A
450	= 450A
500	= 500A
600	= 600A
700	= 700A
800	= 800A
900	= 900A
1000	= 1000A
1200	= 1200A
1600	= 1600A
2000	= 2000A
2500	= 2500A

Suffix	
Series C, NB and PB Frames	
K	= Molded case switch
L	= Line and load terminals, F-Frame
MW	= 135% magnetic trip unit, without terminals
W	= Without terminals
Series G Frames	
FFG	= Fixed thermal, fixed magnetic trip unit, with terminals
FFW	= Fixed thermal, fixed magnetic trip unit, without terminals
FAG	= Fixed thermal, adjustable magnetic trip unit, with terminals
FAW	= Fixed thermal, adjustable magnetic trip unit, without terminals
KSG	= Molded case switch, with terminals
KSW	= Molded case switch, without terminals

Product Selection

Type EGEDC DC Circuit Breakers— Three-Pole High Interrupting Capacity 35 kAIC at 500 Vdc

Maximum Continuous Ampere Rating at 40°C	Complete Circuit Breaker with Terminals Catalog Number	Complete Circuit Breaker without Terminals Catalog Number
25	EGEDC3025FFG	EGEDC3025FFW
30	EGEDC3030FFG	EGEDC3030FFW
35	EGEDC3035FFG	EGEDC3035FFW
40	EGEDC3040FFG	EGEDC3040FFW
45	EGEDC3045FFG	EGEDC3045FFW
50	EGEDC3050FFG	EGEDC3050FFW
60	EGEDC3060FFG	EGEDC3060FFW
70	EGEDC3070FFG	EGEDC3070FFW
80	EGEDC3080FFG	EGEDC3080FFW
90	EGEDC3090FFG	EGEDC3090FFW
100	EGEDC3100FFG	EGEDC3100FFW

Type EGSDC DC Circuit Breakers— Three-Pole High Interrupting Capacity 50 kAIC at 500 Vdc

Maximum Continuous Ampere Rating at 40°C	Complete Circuit Breaker with Terminals Catalog Number	Complete Circuit Breaker without Terminals Catalog Number
25	EGSDC3025FFG	EGSDC3025FFW
30	EGSDC3030FFG	EGSDC3030FFW
35	EGSDC3035FFG	EGSDC3035FFW
40	EGSDC3040FFG	EGSDC3040FFW
45	EGSDC3045FFG	EGSDC3045FFW
50	EGSDC3050FFG	EGSDC3050FFW
60	EGSDC3060FFG	EGSDC3060FFW
70	EGSDC3070FFG	EGSDC3070FFW
80	EGSDC3080FFG	EGSDC3080FFW
90	EGSDC3090FFG	EGSDC3090FFW
100	EGSDC3100FFG	EGSDC3100FFW

Type EGHDC DC Circuit Breakers— Three-Pole High Interrupting Capacity 65 kAIC at 500 Vdc

Maximum Continuous Ampere Rating at 40°C	Complete Circuit Breaker with Terminals Catalog Number	Complete Circuit Breaker without Terminals Catalog Number
25	EGHDC3025FFG	EGHDC3025FFW
30	EGHDC3030FFG	EGHDC3030FFW
35	EGHDC3035FFG	EGHDC3035FFW
40	EGHDC3040FFG	EGHDC3040FFW
45	EGHDC3045FFG	EGHDC3045FFW
50	EGHDC3050FFG	EGHDC3050FFW
60	EGHDC3060FFG	EGHDC3060FFW
70	EGHDC3070FFG	EGHDC3070FFW
80	EGHDC3080FFG	EGHDC3080FFW
90	EGHDC3090FFG	EGHDC3090FFW
100	EGHDC3100FFG	EGHDC3100FFW

HFDDC

Type HFDDC DC Circuit Breakers— Three-Pole High Interrupting Capacity 42 kAIC at 600 Vdc

Maximum Continuous Ampere Rating at 40°C	Complete Circuit Breaker with Line and Load Terminals ① Single-Pole Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
15	HFDDC1015L	HFDDC2015L	HFDDC3015L	HFDDC4015L
20	HFDDC1020L	HFDDC2020L	HFDDC3020L	HFDDC4020L
25	HFDDC1025L	HFDDC2025L	HFDDC3025L	HFDDC4025L
30	HFDDC1030L	HFDDC2030L	HFDDC3030L	HFDDC4030L
35	HFDDC1035L	HFDDC2035L	HFDDC3035L	HFDDC4035L
40	HFDDC1040L	HFDDC2040L	HFDDC3040L	HFDDC4040L
45	HFDDC1045L	HFDDC2045L	HFDDC3045L	HFDDC4045L
50	HFDDC1050L	HFDDC2050L	HFDDC3050L	HFDDC4050L
60	HFDDC1060L	HFDDC2060L	HFDDC3060L	HFDDC4060L
70	HFDDC1070L	HFDDC2070L	HFDDC3070L	HFDDC4070L
80	HFDDC1080L	HFDDC2080L	HFDDC3080L	HFDDC4080L
90	HFDDC1090L	HFDDC2090L	HFDDC3090L	HFDDC4090L
100	HFDDC1100L	HFDDC2100L	HFDDC3100L	HFDDC4100L
110	HFDDC1110L	HFDDC2110L	HFDDC3110L	HFDDC4110L
125	HFDDC1125L	HFDDC2125L	HFDDC3125L	HFDDC4125L
150	HFDDC1150L	HFDDC2150L	HFDDC3150L	HFDDC4150L
175	—	HFDDC2175L	HFDDC3175L	—
200	—	HFDDC2200L	HFDDC3200L	—
225	—	HFDDC2225L	HFDDC3225L	—

Type JGEDC DC Circuit Breakers— Three-Pole High Interrupting Capacity 35 kAIC at 600 Vdc

Maximum Continuous Ampere Rating at 40°C	Complete Breaker Catalog Number	Circuit Breaker Frame Only ② Catalog Number	Thermal-Magnetic Trip Unit Catalog Number	Standard Terminals Catalog Number
70	JGEDC3070FAG	JGEDC3250NN	JT3070FA	T250FJ
90	JGEDC3090FAG	JGEDC3250NN	JT3090FA	T250FJ
100	JGEDC3100FAG	JGEDC3250NN	JT3100FA	T250FJ
125	JGEDC3125FAG	JGEDC3250NN	JT3125FA	T250FJ
150	JGEDC3150FAG	JGEDC3250NN	JT3150FA	T250FJ
175	JGEDC3175FAG	JGEDC3250NN	JT3175FA	T250FJ
200	JGEDC3200FAG	JGEDC3250NN	JT3200FA	T250FJ
225	JGEDC3225FAG	JGEDC3250NN	JT3225FA	T250FJ
250	JGEDC3250FAG	JGEDC3250NN	JT3250FA	T250FJ

Notes

① For breaker without terminals, replace "L" with "W" at end of catalog number.

② For complete breaker, order individual frame, trip unit and terminals for field installation.

Type JGSDC DC Circuit Breakers—Three-Pole High Interrupting Capacity 50 kAIC at 600 Vdc

Maximum Continuous Ampere Rating at 40°C	Complete Breaker Catalog Number	Circuit Breaker Frame Only ① Catalog Number	Thermal-Magnetic Trip Unit Catalog Number	Standard Terminals Catalog Number
70	JGSDC3070FAG	JGSDC3250NN	JT3070FA	T250FJ
90	JGSDC3090FAG	JGSDC3250NN	JT3090FA	T250FJ
100	JGSDC3100FAG	JGSDC3250NN	JT3100FA	T250FJ
125	JGSDC3125FAG	JGSDC3250NN	JT3125FA	T250FJ
150	JGSDC3150FAG	JGSDC3250NN	JT3150FA	T250FJ
175	JGSDC3175FAG	JGSDC3250NN	JT3175FA	T250FJ
200	JGSDC3200FAG	JGSDC3250NN	JT3200FA	T250FJ
225	JGSDC3225FAG	JGSDC3250NN	JT3225FA	T250FJ
250	JGSDC3250FAG	JGSDC3250NN	JT3250FA	T250FJ

JGHDC3250NN

Type JGHDC DC Circuit Breakers—Three-Pole High Interrupting Capacity 65 kAIC at 600 Vdc

Maximum Continuous Ampere Rating at 40°C	Complete Breaker Catalog Number	Circuit Breaker Frame Only ① Catalog Number	Thermal-Magnetic Trip Unit Catalog Number	Standard Terminals Catalog Number
70	JGHDC3070FAG	JGHDC3250NN	JT3070FA	T250FJ
90	JGHDC3090FAG	JGHDC3250NN	JT3090FA	T250FJ
100	JGHDC3100FAG	JGHDC3250NN	JT3100FA	T250FJ
125	JGHDC3125FAG	JGHDC3250NN	JT3125FA	T250FJ
150	JGHDC3150FAG	JGHDC3250NN	JT3150FA	T250FJ
175	JGHDC3175FAG	JGHDC3250NN	JT3175FA	T250FJ
200	JGHDC3200FAG	JGHDC3250NN	JT3200FA	T250FJ
225	JGHDC3225FAG	JGHDC3250NN	JT3225FA	T250FJ
250	JGHDC3250FAG	JGHDC3250NN	JT3250FA	T250FJ

HJDDC3250

Type HJDDC DC Circuit Breakers—Three-Pole High Interrupting Capacity 42 kAIC at 600 Vdc

Maximum Continuous Ampere Rating at 40°C	Circuit Breaker Frame Only ① Catalog Number	Thermal-Magnetic Trip Unit Catalog Number	Standard Terminals Catalog Number
70	HJDDC3250F	JT3070T	TA250KB
90	HJDDC3250F	JT3090T	TA250KB
100	HJDDC3250F	JT3100T	TA250KB
125	HJDDC3250F	JT3125T	TA250KB
150	HJDDC3250F	JT3150T	TA250KB
175	HJDDC3250F	JT3175T	TA250KB
200	HJDDC3250F	JT3200T	TA250KB
225	HJDDC3250F	JT3225T	TA250KB
250	HJDDC3250F	JT3250T	TA250KB

Note

① For complete breaker, order individual frame, trip unit and terminals for field installation.

HKDDC3400

Type HKDDC DC Circuit Breakers— Three-Pole High Interrupting Capacity 42 kAIC at 600 Vdc

Maximum Continuous Ampere Rating at 40°C	Circuit Breaker Frame Only ① Catalog Number	Thermal-Magnetic Trip Unit Catalog Number	Standard Terminals Catalog Number
100	HKDDC3400F	KT3100T	TA300K
125	HKDDC3400F	KT3125T	TA300K
150	HKDDC3400F	KT3150T	TA300K
175	HKDDC3400F	KT3175T	TA300K
200	HKDDC3400F	KT3200T	TA300K
225	HKDDC3400F	KT3225T	TA300K
250	HKDDC3400F	KT3250T	TA350K
300	HKDDC3400F	KT3300T	TA350K
350	HKDDC3400F	KT3350T	TA350K
400	HKDDC3400F	KT3400T	3TA400K ②

LGEDC3630NN

Type LGEDC DC Circuit Breakers— Three-Pole High Interrupting Capacity 35 kAIC at 600 Vdc

Maximum Continuous Ampere Rating at 40°C	Complete Breaker Catalog Number	Circuit Breaker Frame Only ① Catalog Number	Thermal-Magnetic Trip Unit Catalog Number	Standard Terminals Catalog Number
250	LGEDC3250FAG	LGEDC3630NN	LT3250FA	TA350LK
300	LGEDC3300FAG	LGEDC3630NN	LT3300FA	TA350LK
350	LGEDC3350FAG	LGEDC3630NN	LT3350FA	TA350LK
400	LGEDC3400FAG	LGEDC3630NN	LT3400FA	TA350LK
500	LGEDC3500FAG	LGEDC3630NN	LT4500FA	3TA632LK ②
600	LGEDC3600FAG	LGEDC3630NN	LT3600FA	3TA632LK ②

Type LGSDC DC Circuit Breakers— Three-Pole High Interrupting Capacity 50 kAIC at 600 Vdc

Maximum Continuous Ampere Rating at 40°C	Complete Breaker Catalog Number	Circuit Breaker Frame Only ① Catalog Number	Thermal-Magnetic Trip Unit Catalog Number	Standard Terminals Catalog Number
250	LGSDC3250FAG	LGSDC3630NN	LT3250FA	TA350LK
300	LGSDC3300FAG	LGSDC3630NN	LT3300FA	TA350LK
350	LGSDC3350FAG	LGSDC3630NN	LT3350FA	TA350LK
400	LGSDC3400FAG	LGSDC3630NN	LT3400FA	TA350LK
500	LGSDC3500FAG	LGSDC3630NN	LT4500FA	3TA632LK ②
600	LGSDC3600FAG	LGSDC3630NN	LT3600FA	3TA632LK ②

Notes

① For complete breaker, order individual frame, trip unit and terminals for field installation.

② Three-pole kit.

Type LGHDC DC Circuit Breakers—Three-Pole High Interrupting Capacity 65 kAIC at 600 Vdc

Maximum Continuous Ampere Rating at 40°C	Complete Breaker Catalog Number	Circuit Breaker Frame Only ① Catalog Number	Thermal-Magnetic Trip Unit Catalog Number	Standard Terminals Catalog Number
250	LGHDC3250FAG	LGHDC3630NN	LT3250FA	TA350LK
300	LGHDC3300FAG	LGHDC3630NN	LT3300FA	TA350LK
350	LGHDC3350FAG	LGHDC3630NN	LT3350FA	TA350LK
400	LGHDC3400FAG	LGHDC3630NN	LT3400FA	TA350LK
500	LGHDC3500FAG	LGHDC3630NN	LT4500FA	3TA632LK ②
600	LGHDC3600FAG	LGHDC3630NN	LT3600FA	3TA632LK ②

HLDDC

Type HLDDC DC Circuit Breakers—Three-Pole High Interrupting Capacity 35 kAIC at 600 Vdc

Maximum Continuous Ampere Rating at 40°C	Circuit Breaker Frame Only ① Catalog Number	Thermal-Magnetic Trip Unit Catalog Number	Standard Terminals Catalog Number
300	HLDDC3600F	LT3300T	TA602LD
350	HLDDC3600F	LT3350T	TA602LD
400	HLDDC3600F	LT3400T	TA602LD
450	HLDDC3600F	LT3450T	TA602LD
500	HLDDC3600F	LT3500T	TA602LD
600	HLDDC3600F	LT3600T	3TA603LDK ②

Type HLDDC DC Circuit Breakers—Two-Pole High Interrupting Capacity 50 kAIC at 250 Vdc ③④

Maximum Continuous Ampere Rating at 40°C	Complete Breaker Catalog Number
600	HLDDC20600
700	HLDDC20700
800	HLDDC20800
900	HLDDC20900
1000	HLDDC21000
1200	HLDDC21200

Notes

① For complete breaker, order individual frame, trip unit and terminals for field installation.
② Three-pole kit.
③ Includes breaker frame, trip unit and terminals.
④ Four-pole breaker with two poles wired in parellel.

HMDLDC3800F

Type HMDLDC DC Circuit Breakers— Three-Pole High Interrupting Capacity 35 kAIC at 600 Vdc

Maximum Continuous Ampere Rating at 40°C	Circuit Breaker Frame Only ① Catalog Number	Thermal-Magnetic Trip Unit Catalog Number	Standard Terminals Catalog Number
300	**HMDLDC3800F**	**MT3300T**	**TA700MA1**
350	**HMDLDC3800F**	**MT3350T**	**TA700MA1**
400	**HMDLDC3800F**	**MT3400T**	**TA700MA1**
450	**HMDLDC3800F**	**MT3450T**	**TA700MA1**
500	**HMDLDC3800F**	**MT3500T**	**TA700MA1**
600	**HMDLDC3800F**	**MT3600T**	**TA700MA1**
700	**HMDLDC3800F**	**MT3700T**	**TA700MA1**
800	**HMDLDC3800F**	**MT3800T**	**TA800MA2**

Type NBDC DC Circuit Breakers— Three-Pole High Interrupting Capacity 50 kAIC at 600 Vdc

Maximum Continuous Ampere Rating at 40°C	Complete Circuit Breaker Factory Assembled without Terminals ② Catalog Number	Includes Magnetic Trip Unit Calibrated at 135%	Standard Terminals Catalog Number
700	**NBDC3700MW**	Included	**TA1000NB1**
800	**NBDC3800MW**	Included	**TA1000NB1**
900	**NBDC3900MW**	Included	**TA1000NB1**
1000	**NBDC31000MW**	Included	**TA1000NB1**
1200	**NBDC31200MW**	Included	**TA1200NB1**

Type PBDC DC Circuit Breakers— Three-Pole High Interrupting Capacity 65 kAIC at 600 Vdc

Maximum Continuous Ampere Rating at 40°C	Complete Circuit Breaker Factory Assembled without Terminals ② Catalog Number	Includes Magnetic Trip Unit Calibrated at 135%	Standard Rear Connectors Catalog Number
1600	**PBDC31600W**	Included	**BA2000PB**
2000	**PBDC32000W**	Included	**BA2000PB**
2500	**PBDC32500W**	Included	**BA2500PB**

Notes

① Includes frame and trip unit. Order terminals or connectors separately.

② For complete breaker, order individual frame, trip unit and terminals for field installation.

DC Breaker Terminal Wire Ranges

Breaker Frame	Maximum Breaker Ampacity	Terminal Body Material	Wire Type	AWG Wire Range/ Number of Conductors	Metric Wire Range mm^2	Number of Terminals Included	Standard Terminal Catalog Number
EGEDC, EGSDC, EGHDC	100	Aluminum	Cu/Al	14–1/0	2.5–50	3	**3TA125EF**
HFDDC	20	Steel	Cu/Al	14–10 (1)	2.5–4 (1)	3	**3T20FB**
	100	Steel	Cu/Al	14–1/0 (1)	2.5–50 (1)	3	**3T100FB**
	225	Aluminum	Cu/Al	4–4/0 (1)	25–95 (1)	3	**3TA225FD**
JGEDC, JGSDC, JGHDC	250	Stainless steel	Cu	4–350 (1)	25–185 (1)	1	**T250FJ**
HJDDC	250	Aluminum	Cu/Al	4–350 kcmil (1)	25–185 (1)	1	**TA250KB**
HKDDC	225	Aluminum	Cu/Al	3–350 kcmil (1)	35–185 (1)	1	**TA300K**
	350	Aluminum	Cu/Al	250–500 kcmil (1)	120–240 (1)	1	**TA350K**
	400	Aluminum	Cu/Al	3/0–250 kcmil (2)	95–120 (1)	3	**3TA400K**
LGEDC, LGSDC, LGHDC	400	Aluminum	Cu/Al	2–500 (1)	35–240 (1)	1	**TA350LK**
	630	Aluminum	Cu/Al	2–500 kcmil (2)	35–240 (2)	1	**TA632L**
	630	Aluminum	Cu/Al	2–500 kcmil (2)	35–240 (2)	3	**3TA632LK**
HLDDC	500	Aluminum	Cu/Al	3/0–350 kcmil (2)	95–150 (2)	1	**TA602LD**
	600	Aluminum	Cu/Al	400–500 kcmil (2)	185–240 (2)	3	**3TA603LDK**
HMDLDC	600	Aluminum	Cu/Al	1–500 kcmil (2)	—	1	**TA700MA1**
	800	Aluminum	Cu/Al	3/0–400 kcmil (3)	—	1	**TA800MA2**
NBDC	700	Aluminum	Cu/Al	3/0–400 kcmil (3)	95–185 (3)	1	**TA1000NB1**
	800	Aluminum	Cu/Al	3/0–400 kcmil (3)	95–185 (3)	1	**TA1000NB1**
	900	Aluminum	Cu/Al	3/0–400 kcmil (3)	95–185 (3)	1	**TA1000NB1**
	1000	Aluminum	Cu/Al	3/0–400 kcmil (3)	95–185 (3)	1	**TA1000NB1**
	1200	Aluminum	Cu/Al	4/0–500 kcmil (4)	120–240 (4)	1	**TA1200NB1**

Molded Case Switches

Eaton's DC molded case switches are used in applications requiring a compact, high-capacity disconnect. They are UL 489 listed and have automatic high instantaneous current protection. These devices do not provide overload protection.

Molded Case Switches

Maximum Continuous Ampere Rating at 40°C	Interrupting Capacity (Volts DC)	Poles in Series	With Line and Load Terminals Catalog Number	Without Line and Load Terminals Catalog Number
600 Vdc Maximum				
100	42	3	**HFDDC3100KL**	**HFDDC3100KW**
150	42	3	**HFDDC3150KL**	**HFDDC3150KW**
225	42	3	**HFDDC3225KL**	**HFDDC3225KW**
250	65	3	**JGKDC3250KSG**	**JGKDC3250KSW**
250	42	3	**HJDDC3250K**	**HJDDC3250KW**
400	35	3	**HKDDC3400K**	**HKDDC3400KW**
	65	3	**LGKDC3400KSG**	**LGKDC3400KSW**
600	65	3	**LGKDC3630KSG**	**LGKDC3630KSW**
	35	3	**HLDDC3600K**	**HLDDC3600WK**
800	35	3	**HMDLDC3800K**	**HMDLDC3800WK**
500 Vdc Maximum				
100	65	3	**EGK3100KSG**	**EGK3100KSW**
250 Vdc Maximum				
100	50	2	**HFDDC2100KL**	**HFDDC2100KW**
150	50	2	**HFDDC2150KL**	**HFDDC2150KW**
225	50	2	**HFDDC2225KL**	**HFDDC2225KW**
1200	50	①	**HLDDC21200K** ①	**HLDDC21200WK** ①

Note

① Four-pole frame with two-pole connected in parallel.

Accessories

Internal Accessories

Description	Factory Installation (HFDDC)	HFDDC ①	EGEDC, EGSDC, EGHDC	JGEDC, JGSDC, JGHDC LGEDC, LGSDC, LGHDC	HJDDC	HKDDC	HLDDC	HMDLDC	NBDC	PBDC
					Field Installation Kits					
Right-Pole Mounting										
Auxiliary switch										
1A-1B	A06	A1X1PK	AUX1A1BPK	AUX1A1BPK	A1X2PK	A1X13PK	A1X4PK	A1X4PK	4980D16G05	2602D32G14
2A-2B	A13	A2X1RPK	AUX2A2BPK	AUX2A2BPK	A2X2PK	A2X3PK	A2X4PK	A2X4PK	4980D16G06	2602D32G15
Alarm switch										
1 make/1 break	B06	A1L1RPK	ALM1M1BEPK	ALM1M1BJPK	A1L2RPK	A1L3RPK	A1L4RPK	A1L4RPK	—	—
Auxiliary and alarm combo										
1A-1B, 1 make/1 break	C05	AAL1RPK	AUXALRMEPK	AUXALRMJPK	AAL2RPK	AAL3RPK	AA114RPK	AA114RPK	—	—
Left-Pole Mounting										
Shunt trip										
12 Vdc	S02	SNT1LP03K	SNT012CPK	SNT012CPK	SNT2P04K	SNT3P04K	SNT4LP03K	SNT4LP03K	2606D58G14	2606D59G28
24 Vdc	S02	SNT1LP03K	SNT060CPK	SNT060CPK	SNT2P04K	SNT3P04K	SNT4LP03K	SNT4LP03K	2606D58G13	2606D59G27
48 Vdc	S06	SNT1LP08K	SNT060CPK	SNT060CPK	SNT2P06K	SNT3P06K	SNT4LP23K	SNT4LP23K	2606D58G12	2606D59G26
60 Vdc	S06	SNT1LP08K	SNT060CPK	SNT060CPK	SNT2P06K	SNT3P06K	SNT4LP23K	SNT4LP23K	2606D58G11	2606D59G25
125 Vdc	S10	SNT1LP12K	SNT120CPK	SNT120CPK	SNT2P11K	SNT3P11K	SNT4LP26K	SNT4LP26K	2606D58G10	2606D59G24
250 Vdc	S14	SNT1LP18K	—	—	SNT2P14K	SNT3P14K	SNT4LP14K	SNT4LP14K	2606D58G09	2606D59G23
120 Vac	S06	SNT1LP12K	SNT120CPK	SNT120CPK	SNT2P11K	SNT3P11K	SNT4LP11K	SNT4LP11K	2060D58G05	2060D59G19
Undervoltage release										
12 Vdc	U30	UVH1LP20K	UVR012DPK	UVR012DPK	UVH2LP20K	UVH3LP20K	UVH4LP20K	UVH4LP20K	372D032G06	4976D85G11
24 Vdc	U34	UVH1LP21K	UVR024DPK	UVR024DPK	UVH2LP21K	UVH3LP21K	UVH4LP21K	UVH4LP21K	372D032G07	4976D85G12
48 Vdc	U38	UVH1LP22K	UVR048DPK	UVR048DPK	UVH2LP22K	UVH3LP22K	UVH4LP22K	UVH4LP22K	372D032G08	4976D85G13
125 Vdc	U42	UVH1LP26K	UVR125DPK	UVR125DPK	UVH2LP26K	UVH3LP26K	UVH4LP26K	UVH4LP26K	372D032G09	4976D85G17
250 Vdc	U46	UVH1LP28K	UVR250DPK	UVR250DPK	UVH2LP28K	UVH3LP28K	UVH4LP28K	UVH4LP28K	372D032G10	4976D85G18
120 Vac	U14	UVH1LP08K	UVR120APK	UVR120APK	UVH2LP08K	UVH3LP08K	UVH4LP08K	UVH4LP08K	373D632G05	5674D29G01

Note

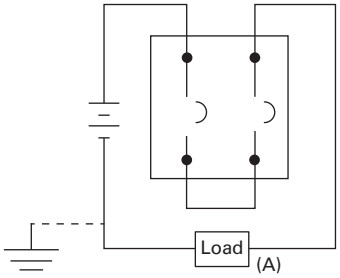
① F-Frame circuit breakers are factory sealed. Underwriters Laboratories requires that internal accessories be installed at the factory. Internal accessories are UL listed for factory installation under E7819. Where local codes and standards permit and UL listing is not required, internal accessories can be field installed. Accessory installation should be done before the circuit breaker is mounted and connected.

One accessory can be mounted per pole, per breaker. Factory installation of accessories is available. Contact Eaton for assistance with part number configuration.

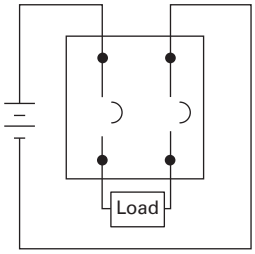
Wiring Diagrams

Series Connection Diagrams for DC Application ①②

250 Vdc Maximum—Two Poles in Series

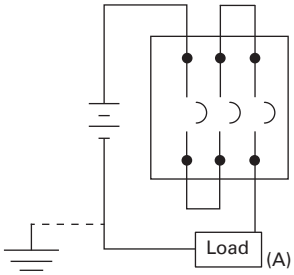


Suitable for use on ungrounded systems, or grounded systems that have one end of load (A) connected to grounded terminal, opposite poles in series connection.

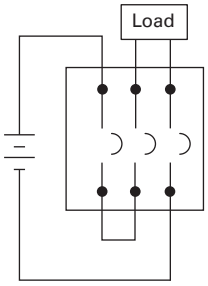


Suitable for use on ungrounded systems only.

500 Vdc or 600 Vdc Maximum—Three Poles in Series

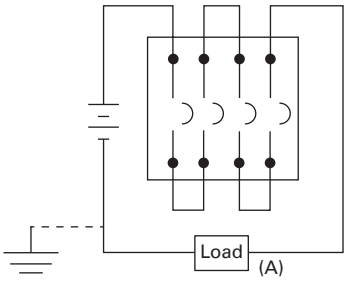


Suitable for use on ungrounded systems, or grounded systems that have one end of load (A) connected to grounded terminal, opposite poles in series connection.

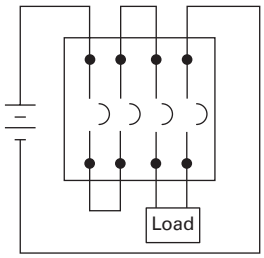


Suitable for use on ungrounded systems only.

750 Vdc Maximum—Four Poles in Series



Suitable for use on ungrounded systems, or grounded systems that have one end of load (A) connected to grounded terminal, opposite poles in series connection.



Suitable for use on ungrounded systems only.

Notes

① Poles in series connection is customer supplied. Use rated cable per NEC.

② For grounded systems, all poles in series must be connected on non-grounded terminal, with load connected to grounded terminal.

Dimensions

Approximate Dimensions in Inches (mm)

DC Breaker Dimensions

Frame	Number of Poles	Width	Height	Depth
EGEDC, EGSDC, EGHDC	3	3.00 (76.2)	5.50 (139.7)	2.99 (75.9)
HFDDC	1	1.38 (35.1)	6.00 (152.4)	3.38 (86.0)
	2	2.75 (70.0)	6.00 (152.4)	3.38 (86.0)
	3	4.13 (105.0)	6.00 (152.4)	3.38 (86.0)
	4	5.50 (139.7)	6.00 (152.4)	3.38 (86.0)
JGEDC, JGSDC, JGHDC	3	4.13 (104.9)	7.00 (177.8)	3.57 (90.7)
HJDDC	2, 3	4.13 (105.0)	10.00 (254.0)	4.06 (103.1)
HKDDC	2, 3	5.50 (139.7)	10.13 (257.3)	4.10 (104.1)
LGEDC, LGSDC, LGHDC	3	5.48 (139.2)	10.13 (257.3)	4.09 (103.9)
600A Max. HLDDC	2, 3	8.25 (209.6)	10.75 (273.1)	4.06 (103.1)
1200A Max. HLDDC	4	11.00 (279.4)	10.75 (273.1)	4.06 (103.1)
HMDLDC	2, 3	8.25 (209.6)	16.00 (406.4)	4.06 (103.1)
NBDC	3	8.25 (209.6)	16.00 (406.4)	5.50 (139.7)
PBDC	3	12.06 (306.3)	22.06 (560.3)	9.06 (230.1)

PVGard Solar Photovoltaic Circuit Breakers

Contents

Description ***Page***

PVGard Solar Circuit Breakers
- Product Selection **V15-T3-16**
- Accessories **V15-T3-17**
- Wiring Diagrams. **V15-T3-20**
- Dimensions **V15-T3-20**

PVGard Solar Circuit Breakers

Product Description

- Thermal-magnetic circuit breakers
- Designed to meet UL 489B for solar photovoltaic circuit protection
- Rated for 100% continuous current at 50°C ambient temperature
- Requires poles in series connection

Application Description

Photovoltaic (PV) systems convert the energy of the sun into electrical power that is fed directly into the electric grid. The DC circuit breaker is a key component in the solar installation. PVGard DC circuit breakers are used to protect the wiring from the modules to the combiner box or inverter from overcurrents. Each breaker has its own handle for disconnecting means. One circuit breaker is used per 1000 Vdc load.

Eaton offers a complete line of 600 Vdc circuit breakers, as well as protection for the AC side of the inverter. Refer to **Volume 4—Circuit Protection**, CA08100005E, Tab 2 for AC breaker selection.

Features

PVGard breakers are uniquely designed with these features:

- Meets the higher voltage and lower fault current levels of solar systems
- Tested to extreme ambient conditions from –40°C to +90°C
- Optional shunt trip on signal from PVGard DC arc fault detector

Standards and Certifications

- UL File E7819, Category Control Number DIUR

Listed

Quick Reference PVGard Solar Circuit Breakers

UL 489B Interrupting Capacity (kA) 1000 Vdc

Circuit Breaker Type	Minimum Amps	Maximum Amps	kA	Poles in Series
HFD-PV	30	100	3	4
HKD-PV	125	250	3	4
LGH-PV	250	400	5	4
HMDL-PV	300	600	7.5	3

Product Selection

Catalog number includes breaker frame and trip unit. Order terminals separately. See **Page V15-T3-19**.

HFD-PV Frame

HFD-PV Frame, 100A Maximum, 1000 Vdc, 1.5 kA ①

Current Rating Amperes	Poles in Series	Trip Unit	Catalog Number
30	4	Fixed thermal, fixed magnetic	**HFDPV4030W**
40	4	Fixed thermal, fixed magnetic	**HFDPV4040W**
50	4	Fixed thermal, fixed magnetic	**HFDPV4050W**
60	4	Fixed thermal, fixed magnetic	**HFDPV4060W**
70	4	Fixed thermal, fixed magnetic	**HFDPV4070W**
80	4	Fixed thermal, fixed magnetic	**HFDPV4080W**
90	4	Fixed thermal, fixed magnetic	**HFDPV4090W**
100	4	Fixed thermal, fixed magnetic	**HFDPV4100W**

HKD-PV Frame

HKD-PV Frame, 250A Maximum, 1000 Vdc, 3 kA ①

Current Rating Amperes	Poles in Series	Trip Unit	Catalog Number
125	4	Fixed thermal, fixed magnetic	**HKDPV4125W**
150	4	Fixed thermal, fixed magnetic	**HKDPV4150W**
175	4	Fixed thermal, fixed magnetic	**HKDPV4175W**
200	4	Fixed thermal, fixed magnetic	**HKDPV4200W**
225	4	Fixed thermal, fixed magnetic	**HKDPV4225W**
250	4	Fixed thermal, fixed magnetic	**HKDPV4250W**

LGH-PV Frame

LGH-PV Frame, 400A Maximum, 1000 Vdc, 3 kA ①

Current Rating Amperes	Poles in Series	Trip Unit	Catalog Number
250	4	Fixed thermal, fixed magnetic	**LGHPV4250FFW**
300	4	Fixed thermal, fixed magnetic	**LGHPV4300FFW**
350	4	Fixed thermal, fixed magnetic	**LGHPV4350FFW**
400	4	Fixed thermal, fixed magnetic	**LGHPV4400FFW**

HMDL-PV Frame

HMDL-PV Frame, 600A Maximum, 1000 Vdc, 5 kA ①

Current Rating Amperes	Poles in Series	Trip Unit	Catalog Number
300	3	Fixed thermal, fixed magnetic	**HMDLPV3300W**
350	3	Fixed thermal, fixed magnetic	**HMDLPV3350W**
400	3	Fixed thermal, fixed magnetic	**HMDLPV3400PV**
450	3	Fixed thermal, fixed magnetic	**HMDLPV3450W**
500	3	Fixed thermal, fixed magnetic	**HMDLPV3500W**
600	3	Fixed thermal, fixed magnetic	**HMDLPV3600W**

Note

① Terminals not included with frames.

Accessories

External Accessories

Description	Frame	Catalog Number
Imperial Base Mounting Hardware		
0.164-32 x 1.5-inch pan-head steel screws and lockwashers	HFDPV	**BMH1**
0.250-20 x 1.5 inch pan-head steel screws and lockwashers	HKDPV	**BMH3**
—	LGHPV	N/A
0.3125-18 x 1.25 inch filister-head steel screws and lockwashers and flat washers	HMDLPV	**BMH5**
Metric Base Mounting Hardware		
M4–0.7 x 38 mm pan-head steel screws and lockwashers	HFDPV	**BMH1M**
M6–0.7 x 38 mm pan-head steel screws and lockwashers	HKDPV	**BMH3M**
—	LGHPV	Included
M8-1.25 x 35 mm pan-head steel screws and lockwashers	HMDLPV	**BMH5M**
Interphase Barriers		
	HFDPV	**IPB1**
	HKDPV	**IPB3**
	LGHPV	**IPB3**
	HMDLPV	**IPB4**
Non-Padlockable Handle Block		
	HFDPV	**LKD1**
	HKDPV	**LKD3**
	LGHPV	N/A
	HMDLPV	**LKD4**
Padlockable Handle Lock Hasp ①		
	HFDPV	**PLK1**
	HKDPV	**PLK3**
	LGHPV	**LPHL**
	HMDLPV	**HLK4**

Factory Modifications—Freeze Testing to –40°C ②

Frame	Modification Code
HFD-PV	F01
HKD-PV	F01
LGH-PV	F01
HMDL-PV	F01
Special calibration—contact Eaton for availability	

Notes

① Locks in ON and OFF position.
② Add 20% to list price.

Internal Accessories—Right Pole Mounting

	HFDPV ①		HKDPV		LGHPV		HMDLPV	
	Factory Modification Code	Field Kit Catalog Number	Factory Modification Code	Field Kit Catalog Number	Factory Modification Code	Field Kit Catalog Number	Factory Modification Code	Field Kit Catalog Number
Auxiliary Switch								
1A-1B	A06	**A1X1PK**	A06	**A1X13PK**	A1	**AUX1A1BPK**	A06	**A1X4PK**
2A-2B	A13	**A2X1RPK**	A13	**A2X3PK**	A2	**AUX2A2BPK**	A13	**A2X4PK**
Alarm Switch								
1 make/1 break	B06	**A1L1RPK**	B06	**A1L3RPK**	B1	**ALM1M1BJPK**	B06	**A1L4RPK**
Auxiliary and Alarm Combo								
1A-1B, 1 make/1 break	C05	**AAL1RPK**	C05	**AAL3RPK**	B2	**AUXALRMJPK**	C05	**AA114RPK**

Internal Accessories—Left Pole Mounting

	HFDPV ①		HKDPV		LGHPV		HMDLPV	
	Factory Modification Code	Field Kit Catalog Number	Factory Modification Code	Field Kit Catalog Number	Factory Modification Code	Field Kit Catalog Number	Factory Modification Code	Field Kit Catalog Number
Shunt Trip								
12 Vdc	S02	**SNT1LP03K**	S42	**SNT3P04K**	S4	**SNT012CPK**	S02	**SNT4LP03K**
24 Vdc	S02	**SNT1LP03K**	S42	**SNT3P04K**	S1	**SNT060CPK**	S02	**SNT4LP03K**
48 Vdc	S06	**SNT1LP08K**	S50	**SNT3P06K**	S1	**SNT060CPK**	S86	**SNT4LP23K**
60 Vdc	S06	**SNT1LP08K**	S50	**SNT3P06K**	S1	**SNT060CPK**	S86	**SNT4LP23K**
125 Vdc	S10	**SNT1LP12K**	S10	**SNT3P11K**	S2	**SNT120CPK**	S42	**SNT4LP26K**
250 Vdc	S14	**SNT1LP18K**	S14	**SNT3P14K**	—	—	S14	**SNT4LP14K**
120 Vac	S10	**SNT1LP12K**	S10	**SNT3P11K**	S2	**SNT120CPK**	S10	**SNT4LP11K**
Undervoltage Release								
12 Vdc	U30	**UVH1LP20K**	T02	**UVH3LP20K**	U1	**UVR012DPK**	T02	**UVH4LP20K**
24 Vdc	U34	**UVH1LP21K**	T02	**UVH3LP21K**	U2	**UVR024DPK**	T06	**UVH4LP21K**
48 Vdc	U38	**UVH1LP22K**	T10	**UVH3LP22K**	U4	**UVR048DPK**	T10	**UVH4LP22K**
125 Vdc	U42	**UVH1LP26K**	T14	**UVH3LP26K**	U6	**UVR125DPK**	T14	**UVH4LP26K**
250 Vdc	U46	**UVH1LP28K**	T18	**UVH3LP28K**	U8	**UVR250DPK**	T18	**UVH4LP28K**
120 Vac	U14	**UVH1LP08K**	U18	**UVH3LP08K**	U5	**UVR120APK**	U18	**UVH4LP08K**

Notes

① Underwriters Laboratories requires that internal accessories for the HFD-PV be installed at the factory. Internal accessories are UL listed for factory installation under E7819. Where local codes and standards permit and UL listing is not required, internal accessories can be field installed. Accessory installation should be done before the circuit breaker is mounted and connected.

One accessory can be mounted per pole, per breaker.

PVGard Solar Circuit Breaker Terminal Offering

Breaker Frame	Maximum Breaker Ampacity	Terminal Body Material	Wire Type	AWG Wire Range/ Number of Conductors	Metric Wire Range mm^2	Number of Terminals Included	Standard Terminal Catalog Number	Comments
HFD-PV	50	Steel	Cu/Al	14–4 (1)	2.5–25 (1)	3	**3TA50FB**	
	100	Aluminum	Cu/Al	6–300 kcmil (1)	16–150 (1)	3	**3TA225FDK**	Includes 3P terminal cover
	100	Copper	Cu	4–4/0 (1)	25–95 (1)	3	**3T225FD**	
HKD-PV	225	Aluminum	Cu/Al	3–350 kcmil (1)	35–185 (1)	1	**TA300K**	
	250	Aluminum	Cu/Al	250–500 kcmil (1)	120–240 (1)	1	**TA350K**	
	250	Aluminum	Cu/Al	3/0–250 kcmil (2)	95–120 (1)	4	**4TA400K**	Contains interphase barriers
	250	Aluminum	Cu/Al	2/0–250 kcmil (2) or 2/0–500 kcmil (1)	70–240 (2)	4	**4TA401K**	
	225	Copper	Cu	3–350 kcmil (1)	35–185 (1)	1	**T300K**	
	250	Copper	Cu	250–500 kcmil (1)	120–240 (1)	1	**T350K**	
	250	Copper	Cu	3/0–250 kcmil (2)	95–120 (1)	4	**4T400K**	Contains interphase barriers
LGH-PV	400	Aluminum	Cu/Al	2–500 kcmil (2)	35–240 (2)	4	**4TA632LK**	Includes 4P terminal cover
	250	Copper	Cu	2–500 kcmil (1)	35–240 (1)	1	**T350LK**	
	400	Copper	Cu	2–500 kcmil (2)	35–240 (2)	4	**4T632LK**	Includes 4P terminal cover
HMDL-PV	300	Aluminum	Cu/Al	1–500 kcmil (2)	—	1	**TA700MA1**	
	600	Aluminum	Cu/Al	3/0–400 kcmil (3)	—	1	**TA800MA2**	

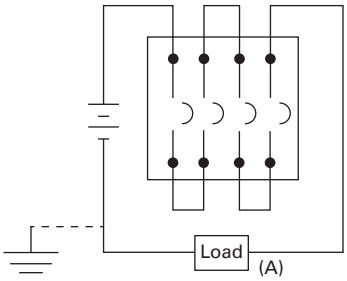
Endcap Kits

Breaker Frame	Number of Poles	Thread Type	Thread Size	Catalog Number
HFD-PV	4	Imperial	10–32	**KPEK14**
	4	Metric	M–5	**KPEKM14**
HKD-PV	4	Imperial	0.312–18	**KPEK34**
	4	Metric	M–8	**KPEKM34**
LGH-PV	4	Imperial	—	**N/A**
	4	Metric	M-10	**L4RTWK**
HMDL-PV	3	Imperial	—	—
	3	Metric	—	—

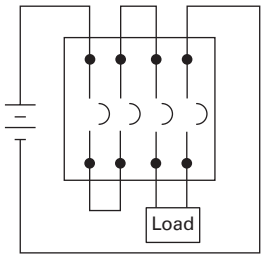
Wiring Diagrams

Series Connection Diagrams for DC Application ①②

HFD-PV, HKD-PV, LGH-PV—1000 Vdc Maximum—Four Poles in Series

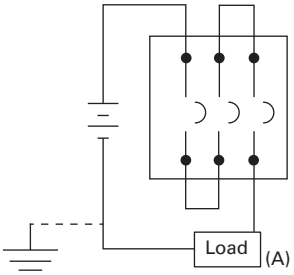


Suitable for use on ungrounded systems, or grounded systems that have one end of load (A) connected to grounded terminal, opposite poles in series connection.

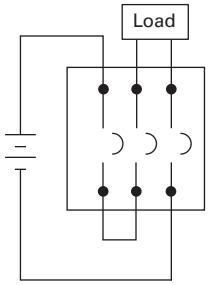


Suitable for use on ungrounded systems only.

HMDL-PV—1000 Vdc Maximum—Three Poles in Series



Suitable for use on ungrounded systems, or grounded systems that have one end of load (A) connected to grounded terminal, opposite poles in series connection.



Suitable for use on ungrounded systems only.

Dimensions

Approximate Dimensions in Inches (mm)

PVCGard Solar Circuit Breakers

Frame	Number of Poles	Width	Height	Depth
HFD-PV	4	5.50 (139.7)	6.00 (152.4)	3.38 (86.0)
HKD-PV	4	7.22 (183.4)	10.13 (257.3)	4.10 (104.1)
LGH-PV	4	7.22 (183.4)	10.13 (257.3)	4.09 (103.9)
HMDL-PV	3	8.25 (209.6)	16.00 (406.4)	4.06 (103.1)

Notes

① Poles in series connection is customer supplied. Use rated cable per NEC.

② For grounded systems, all poles in series must be connected on non-grounded terminal, with load connected to grounded terminal.

600 Vdc and 1000 Vdc Disconnects

Contents

Description

DC Switches

DC Switches

Product Description

Eaton's new offering of PV switches have multiple poles factory-wired, and they are approved for NEC Article 690 applications right from the box. Other manufacturers require the contractor to add jumpers to a two- or three-pole switch, add a neutral, and add labels to meet this requirement. For fusible switches, the new Eaton PV switch requires only one fuse per switch—saving the customer at least one fuse on each switch.

For more information on Eaton's DC Switches, please see **Tab 2.4** of this catalog.

DC Switched Combiners

Contents

Description

DC Switched Combiners

DC Switched Combiners

Product Description

The Eaton switched combiner (ESC) unites Eaton's 600 Vdc solar disconnect and source-combiner box in one convenient enclosure (1000 Vdc Switched Combiners available late 2012).

For more information on Eaton's DC Switched Combiners, please see **Tab 2.5** of this catalog.

Dry-Type Transformer Family

Contents

Description ***Page***

Encapsulated Transformers

Ventilated Transformers/
Open Core-Coil Assemblies **V15-T3-24**

Encapsulated Transformers

Product Description

Eaton's family of encapsulated transformers is ideally suited for harsh outdoor environments. Their standard enclosure is NEMA® 3R rated, and are also available in NEMA 3R stainless steel, or NEMA 4X enclosures. The core and coil assembly is completely embedded in a sand and resin compound that seals out moisture and other contaminants.

Please refer to **Volume 2—Commercial Distribution**, CA08100003E, Tab 2 for more information.

Dry-Type Transformer Family

Contents

Description	*Page*
Encapsulated Transformers	**V15-T3-23**
Ventilated Transformers/ Open Core-Coil Assemblies	

Ventilated Transformers/Open Core-Coil Assemblies

Product Description

Eaton offers a complete line of ventilated and totally enclosed non-ventilated transformers, in a variety of K-factor ratings and efficiency levels. Please refer to **Volume 2—Commercial Distribution**, CA08100003E, Tab 2 for additional information on Eaton's standard product offering.

In addition to these standard products, Eaton also offers custom design capabilities to meet the specific requirements of the solar industry. We offer special dimensions and layouts to meet a specific customer's needs. We can also design transformers to meet CEC weighted-efficiency levels, or other efficiency levels if necessary. Please contact your local Eaton representative for additional information on Eaton's custom design capabilities.