

Connecting the power of the sun

600 Vdc per pole
1000 Vdc

DC disconnects

for grounded and ungrounded
photovoltaic installations



EATON

Powering Business Worldwide

600 Vdc and 1000 Vdc features and benefits



DCG4065FPM



DCG3104URM



DCU2064UPM



DCG3063FRM

Standard features

- UL Listed to the UL 98B standard
- Marked as suitable for NEC 690 PV applications per UL 1741 requirements
- Suitable for use on positive and negative grounded systems
 - Not polarity sensitive
- Bi-directional functionality
 - Will break high-energy DC arc regardless of direction of current flow
- Ampacity range—30, 60, 100, 200 and 400 A
- Clear polycarbonate deadfront shield
- Equipment ground
- NEMA® 3R, 4 and 4X stainless steel enclosures
- Flex Center modification available, such as viewing windows, pilot lights and more

600 Vdc specific features

- First UL Listed 600 Vdc per pole, bi-directional solution in the market
- 2-, 3-, 4- and 6-circuit configurations for grounded systems ①
- 1-, 2- and 3-circuit configurations for ungrounded systems ①
- Fusible and non-fusible
- Grounded configurations include isolated return terminals. Exceptions include 6-circuit 30, 60, 100 A and 4-circuit 400 A
- Suitable for use on a circuit capable of delivering up to 10,000 A, 600 Vdc

1000 Vdc specific features

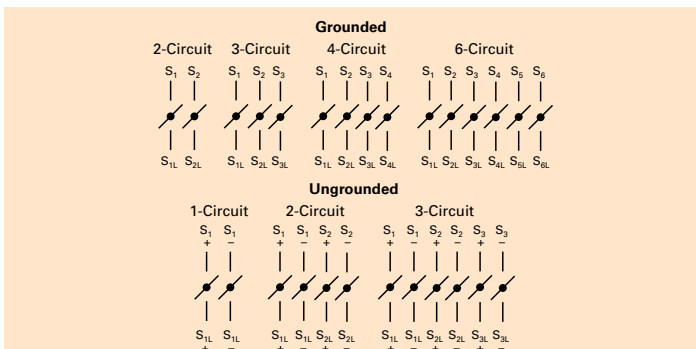
- 1-, 2- and 3-circuit configurations for both grounded and ungrounded systems ①
- Fusible and non-fusible ②
- Factory-installed jumpers
- Grounded configurations include isolated return terminals. Exceptions include 2-circuit 400 A
- Suitable for use on a circuit capable of delivering up to 10,000 A, 1000 Vdc

① See wiring diagrams below.

② Fusible configurations have provisions for Class J fuse types (200 A and 400 A only). Currently there are no 1000 Vdc fusible disconnect versions available at 100 A and below.

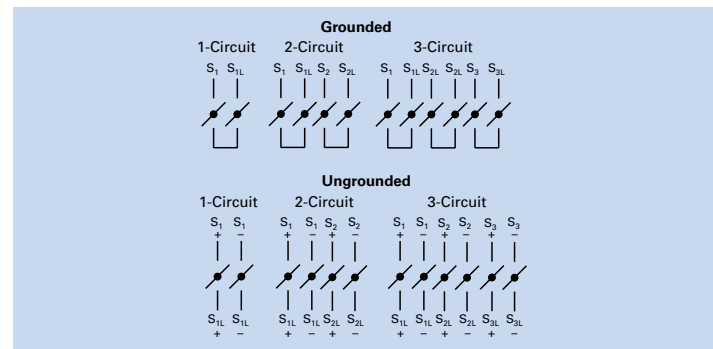
Wiring diagrams

600 Vdc/pole (30–400 A)



Note: Majority of grounded configurations have isolated return terminals. For specific circuit configurations available, please see matrix in the middle of [page 4](#).

1000 Vdc/pole (30–400 A)



The best solution for switching PV circuits

Eaton is pleased to introduce the market's first UL® Listed 600 Vdc per pole, bi-directional disconnect. Listed to the UL 98B standard, this design has the capacity to switch multiple circuits of up to 600 Vdc each.

The use of renewable energy sources is on the rise. Photovoltaic (PV) systems are among the fastest growing of the new green technologies, and they are being installed on a variety of building types and landscapes throughout North America. This results in a growing need for products to meet the requirements of these systems. Eaton DC disconnects meet these requirements—enter Eaton's new lineup of 600 Vdc per pole and 1000 Vdc switches, tested and listed to the rigorous UL 98B standard, in line with NEC® 690 Code requirements for PV installations.

Switching devices primarily designed for DC service require design features to increase the total arcing voltage. This can be achieved by designing larger single air gaps and multiple gaps in series, or by using magnetic fields to force arc movement. In this new safety switch design, Eaton uses magnetic fields, created with the use of permanent magnets, to stretch the arc. These new products are not polarity sensitive, so they can be used on either negative or positive grounded systems, and they provide protection regardless of whether the current flow is in the "normal" direction or is reversed (possible due to miswiring or under a fault condition).

Grounded PV systems

A large number of PV systems in North America to date are grounded systems. These systems will be either positive grounded or negative grounded. In a positive grounded system, the disconnect will switch (break) the negative (-) conductor only. Conversely, in a negative grounded system, the disconnect will switch (break) the positive (+) conductor only. It is important that the disconnect applied within a grounded PV system be properly rated for that specific system. Eaton's new lineup of switches (600 Vdc and 1000 Vdc) are designed and UL Listed for use in both positive and negative grounded applications—one switch can be used on either system.

Ungrounded PV systems

Somewhat less common today are ungrounded (floating) PV systems. These use transformerless inverters and, relative to the disconnects within the system, both the positive (+) and the negative (-) conductors are switched. Eaton is proud to also offer a series of disconnects (600 Vdc and 1000 Vdc) for ungrounded systems.



Safety

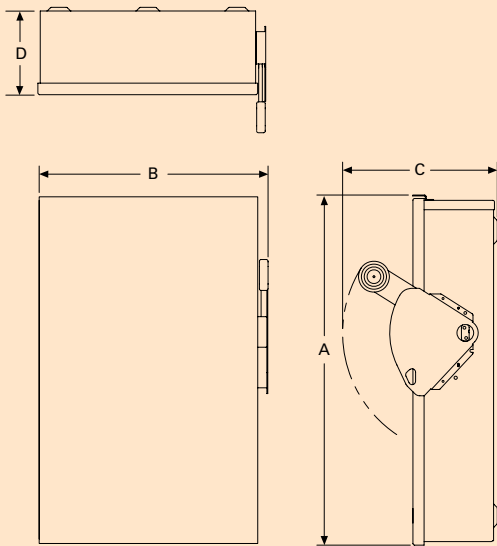
Operators benefit from using Eaton's tried-and-true K-switch base and mechanism because of the visible means of disconnect when the switch handle is in the OFF position. Blade disengagement from the stationary contact can be seen when viewing the switch base (Figure 1).

1000 Vdc SYSTEMS

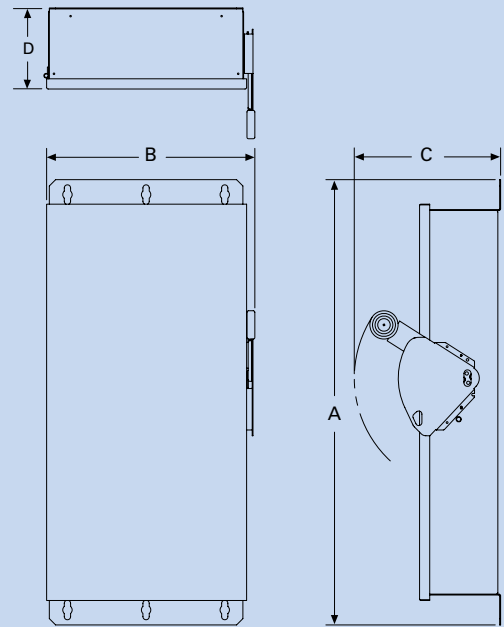
Eaton new 1000 Vdc disconnects are designed for use in large-scale projects where the higher voltage helps drive improved efficiencies.



Figure 1



NEMA Type 3R dimensions



NEMA Type 4, 4X stainless dimensions

PV disconnect dimensions in inches

600 Vdc non-fusible and fusible

Ampere rating	Number of circuits	NEMA Type 3R ①				NEMA Types 4, 4X stainless ①			
		A	B	C	D	A	B	C	D
Grounded									
30, 60	3	16.27	8.87	9.89	5.25	19.08	8.76	10.22	5.50
30, 60	6	19.08	12.88	10.22	5.50	19.08	12.88	10.22	5.50
100	3	21.99	11.84	9.89	5.25	24.95	11.79	10.22	5.50
100	6	24.95	16.13	10.22	5.50	24.95	16.13	10.22	5.50
200	2	35.38	16.54	11.63	6.44	35.38	16.54	11.63	6.44
200	3	35.38	16.54	11.63	6.44	35.38	16.54	11.63	6.44
200	4	35.38	24.46	11.63	6.44	35.38	24.46	11.63	6.44
200	6	39.18	30.18	11.63	6.44	39.18	30.18	11.63	6.44
400 ②	2	57.47	24.12	12.43	7.19	57.47	24.12	12.43	7.19
400 ②	3	57.47	24.12	12.43	7.19	57.47	24.12	12.43	7.19
400 ②	4	57.47	24.12	12.43	7.19	57.47	24.12	12.43	7.19
Ungrounded									
30, 60	1	16.27	8.87	9.89	5.25	19.08	8.76	10.22	5.50
30, 60	3	19.08	12.88	10.22	5.50	19.08	12.88	10.22	5.50
100	1	21.99	11.84	9.89	5.25	24.95	11.79	10.22	5.50
100	3	24.95	16.13	10.22	5.50	24.95	16.13	10.22	5.50
200	1	35.38	16.54	11.63	6.44	35.38	16.54	11.63	6.44
200	2	35.38	16.54	11.63	6.44	35.38	16.54	11.63	6.44
200	3	35.38	24.46	11.63	6.44	35.38	24.46	11.63	6.44
400 ②	1	57.47	24.12	12.43	7.19	57.47	24.12	12.43	7.19
400 ②	2	57.47	24.12	12.43	7.19	57.47	24.12	12.43	7.19

① NEMA Type 4 and 4X stainless steel enclosures are suitable for mounting in either vertical or horizontal positions. NEMA Type 3R enclosures must be mounted vertically.

② For smaller NEMA 3R enclosure, consult factory.

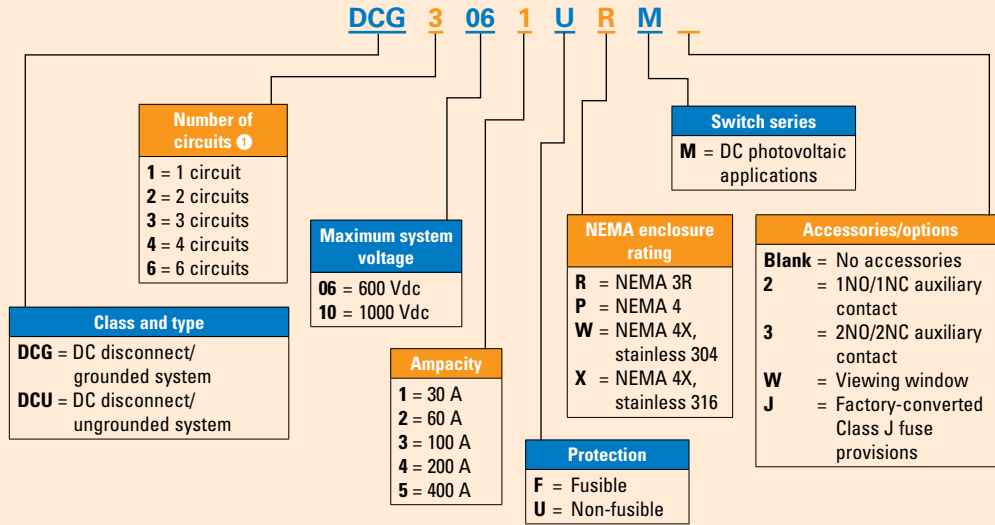
1000 Vdc non-fusible (fusible available at 200 A and 400 A)

Ampere rating	Number of circuits	NEMA Type 3R ①				NEMA Types 4, 4X stainless ①			
		A	B	C	D	A	B	C	D
Grounded									
30, 60	1	16.27	8.87	9.89	5.25	14.14	8.76	10.22	5.50
30, 60	2	19.08	12.88	10.22	5.50	19.08	12.88	10.22	5.50
100	1	21.99	11.84	9.89	5.25	24.95	11.79	10.22	5.50
100	2	24.95	16.13	10.22	5.50	24.95	16.13	10.22	5.50
200	1	35.38	16.95	11.63	6.44	35.38	16.95	11.63	6.44
200	2	35.38	24.57	11.63	6.44	35.38	24.57	11.63	6.44
200	3	35.38	24.57	11.63	6.44	35.38	24.57	11.63	6.44
400 ②	1	57.47	24.12	12.43	7.19	57.47	24.12	12.43	7.19
400 ②	2	57.47	24.12	12.43	7.19	57.47	24.12	12.43	7.19
Ungrounded									
30, 60	1	16.27	8.87	9.89	5.25	14.14	8.76	10.22	5.50
30, 60	2	19.08	12.88	10.22	5.50	19.08	12.88	10.22	5.50
100	1	21.99	11.84	9.89	5.25	24.95	11.79	10.22	5.50
100	2	24.95	16.13	10.22	5.50	24.95	16.13	10.22	5.50
200	1	35.38	16.54	11.63	6.44	35.38	16.54	11.63	6.44
200	2	35.38	16.54	11.63	6.44	35.38	16.54	11.63	6.44
200	3	35.38	24.26	11.63	6.44	35.38	24.26	11.63	6.44
400 ②	1	57.47	24.12	12.43	7.19	57.47	24.12	12.43	7.19
400 ②	2	57.47	24.12	12.43	7.19	57.47	24.12	12.43	7.19

① NEMA Type 4 and 4X stainless steel enclosures are suitable for mounting in either vertical or horizontal positions. NEMA Type 3R enclosures must be mounted vertically.

② For smaller NEMA 3R enclosure, consult factory.

Catalog numbering system



❶ Not all configurations for ampere rating and number of circuits are available. All circuit configurations can be found in the product dimension tables.

DC disconnect circuit configurations (non-fusible and fusible)

Maximum Vdc system voltage	Disconnect ampere rating	Grounded systems number of circuits				Ungrounded systems number of circuits			
		1	2	3	4	6	1	2	3
600	30	● ❶		●		◆	◆		◆
	60	● ❶		●		◆	◆		◆
	100	● ❶		●		◆	◆		◆
	200	● ❶	●	●	●	◆		◆	◆
	400	● ❶	●	●	◆	◆		◆	◆
	600	● ❶		●					
1000	30	●	◆				◆	◆	
	60	●	◆				◆	◆	
	100	●	◆				◆	◆	
	200	●	●	●			◆	◆	◆
	400	●	■				◆	◆	

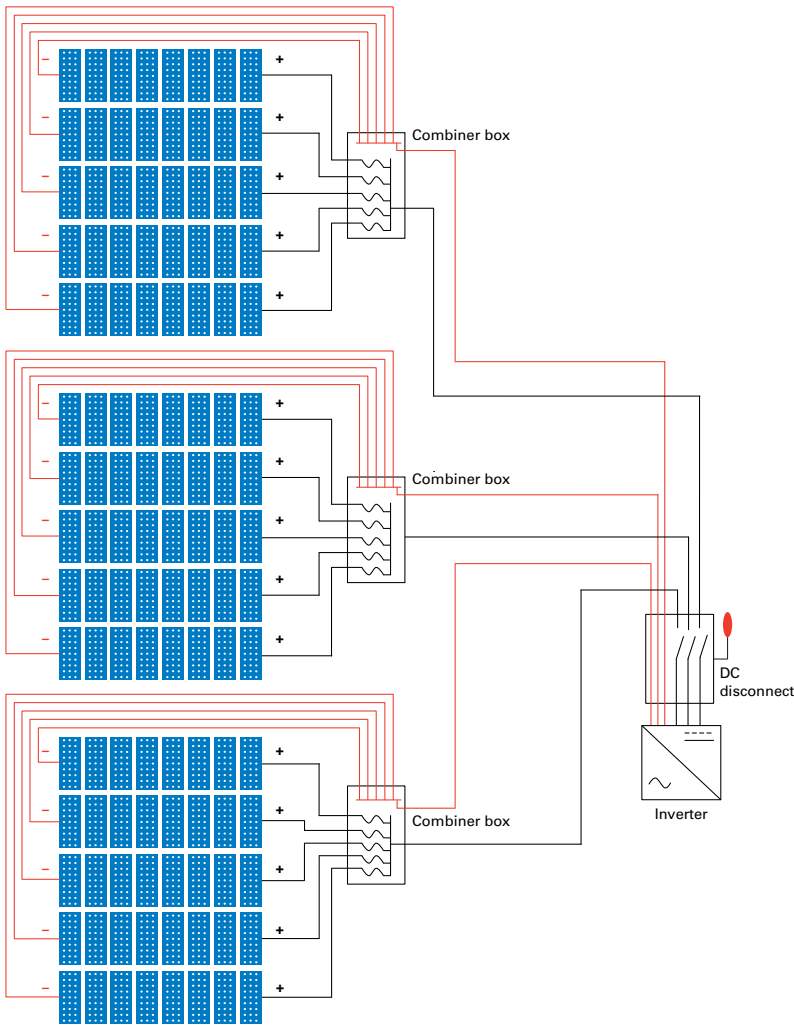
- Indicates grounded conductor terminal included with isolated lugs for each circuit.
- ◆ Indicates no grounded conductor terminal included.
- Indicates only non-fusible version includes grounded conductor terminal with isolated lug for each circuit.
- ❶ Not a DCG/DCG type product—please reference Eaton’s DH16 series of single circuit DC disconnects (PA00801007E).

DC disconnect lug capacities

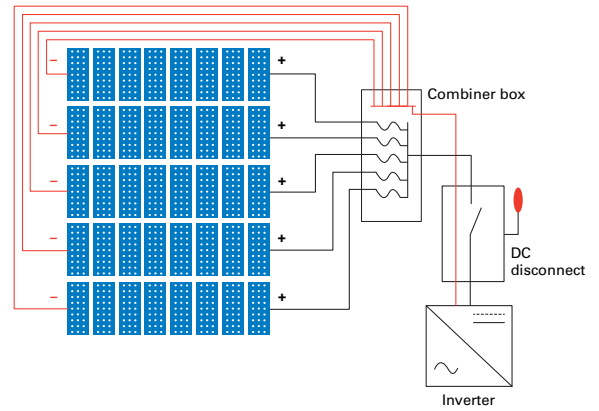
Maximum Vdc system voltage	Ampere rating	Lug capacity ❶ ❷					
		Main		Solid return (for grounded conductor)		Equipment ground	
		Input	Output	Input	Output	Input	Output
600	30	#2-#14 AWG	#2-#14 AWG	1/0-#14 AWG	1/0-#14 AWG	#4-#14 AWG	#4-#14 AWG
	60	#2-#14 AWG	#2-#14 AWG	1/0-#14 AWG	1/0-#14 AWG	#4-#14 AWG	#4-#14 AWG
	100	1/0-#14 AWG	1/0-#14 AWG	1/0-#14 AWG	1/0-#14 AWG	#4-#14 AWG	#4-#14 AWG
	200	300 kcmil-#6	300 kcmil-#6	300 kcmil-#6	300 kcmil-#6	#4-#14 AWG	250 kcmil-#6
	400	(1) 750 kcmil-1/0 and (1) 600 kcmil-#2	(1) 750 kcmil-1/0 and (1) 600 kcmil-#2	(2) 750 kcmil-1/0	(2) 750 kcmil-1/0	1/0-#14	350 kcmil-#6
1000	30	#2-#14 AWG	#2-#14 AWG	#2-#14 AWG	#2-#14 AWG	#4-#14 AWG	#4-#14 AWG
	60	#2-#14 AWG	#2-#14 AWG	#2-#14 AWG	#2-#14 AWG	#4-#14 AWG	#4-#14 AWG
	100	1/0-#14 AWG	1/0-#14 AWG	1/0-#14 AWG	1/0-#14 AWG	#4-#14 AWG	#4-#14 AWG
	200	300 kcmil-#6	300 kcmil-#6	300 kcmil-#6	300 kcmil-#6	#4-#14 AWG	250 kcmil-#6
	400	(1) 750 kcmil-1/0 and (1) 600 kcmil-#2	(1) 750 kcmil-1/0 and (1) 600 kcmil-#2	(2) 750 kcmil-1/0	(2) 750 kcmil-1/0	1/0-#14	350 kcmil-#6

- ❶ All lug capacities shown are for standard lugs. For options, including compression type, consult factory.
- ❷ All lugs are Cu/Al rated.

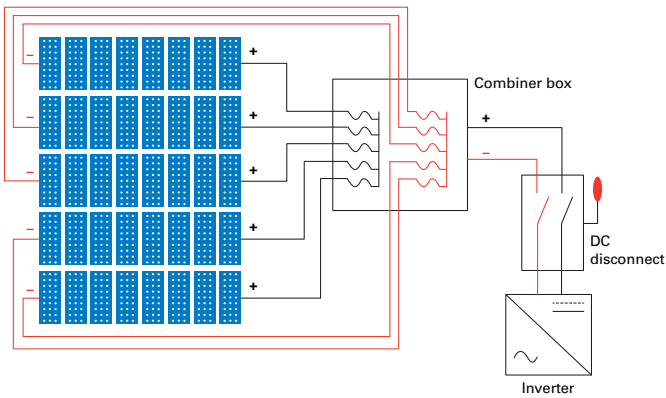
One-line example diagrams



600 Vdc (grounded system)



1000 Vdc (grounded system)



600 and 1000 Vdc (ungrounded system)

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