

PV-Rated

Disconnect Switches

DISCONNECT SWITCHES



Mersen offers a range of DC disconnect switches specially designed for PV applications, in one- and two-circuit configurations for both 1000VDC applications. The technology inside the switch and the visible contacts allow a quick, safe, and reliable DC breaking at all current levels up to 1000VDC. The product is ready and simple to install independent of the polarity, with limited power losses, and a smaller footprint than competition.

APPLICATIONS:

- Medium and large power photovoltaic installations up to 1000VDC
- “Make and break” on load and provide safety isolation at string combiner box level

RATINGS:

- **Volts:** 1000VDC
- **Amps:** IEC: 100 to 500A, UL98: 100 to 400A
- **Short-Circuit Current Rating (SCCR):** 5 to 10kA for higher ratings

FEATURES/ BENEFITS:

- IEC version and UL version
- Visible contacts
- Compact footprint
- Direct installation for floating polarity configuration
- Jumper bar available for grounded configuration

APPROVALS:





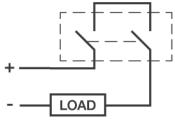
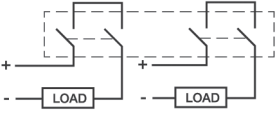
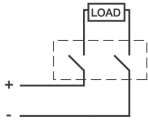
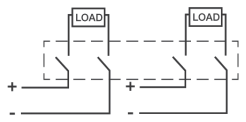





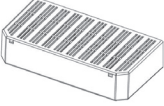

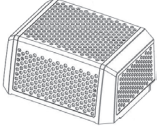

- UL98B File #E466972 WHVA
- IEC 60947-3 CE



Catalog number designation

MD Switch	100 Ampacity	E Type	1 Number of Poles/Left of handle	1 Number of Poles/Right of handle	— Revision
MD = Mersen DC Switch	100-500A	E = IEC U = UL-listed V = 1500V	1, 2, 3	1, 2, 3	Blank = 0

DS

UL 98B Listed DC Switches							
							
MD100U11	MD100U22	MD100E11	MD100E22				
							
Switch Body	Ampere Rating	100	100	160	200	200	250
1000VDC 2-pole Configuration		MD100U11	MD100E11	MD160E11	MD200U11	MD200E11	MD250E11
1000VDC 2x2-pole Configuration		MD180U22	MD100E22	MD160E22	MD180U22*	MD200E22	MD250E22
B=Black. Substitute 'R' for 'B' if a red handle is desired. Ex. HR45 *180A Rating							
Handles and Shafts	Direct Front Operation	1000VDC					
		HDD250	HDD250	HDD250	HDD250	HDD250	HDD250
		1000VDC					
		External Pistol style					
		NEMA Type 1, 3R, 12		HB65, HB80			
		NEMA Type 4, 4X		HB65X, HB80X			
		B=Black. Substitute 'R' for 'B' if a red handle is desired. Ex. HR65					
		Shafts					
		Shaft— SPAxxx (xxx = length in mm), SFBxxx (xxx = length in mm)		SPA130, SPA210, SPA290, SPA360, SPA430			
Accessories	Auxiliary Contacts*	NO Right side mounting	OA1G10	OA1G10	OA1G10	OA1G10	OA1G10
		NC left side mounting	OA3G01	OA3G01	OA3G01	OA3G01	OA3G01
		Module for SF aux. contacts	OEA28	OEA28	OEA28	OEA28	OEA28
		*Rated 2A max continuous @690VAC					
		Terminal Shroud for Short Circuit Link					
		For MDxxxU11, UV12	JC250		JC250		
		For MDxxxU22	JC500-2		JC500-2		
		For MDxxxE11, E22, EV12**		JUMP250	JUMP250	JUMP250	JUMP250
		**Shipped with one link per circuit					
		Terminal Shroud for Lugs					
		1 Terminal Shroud	TDS250S		TDS250S		
		Kit of 4 Terminal Shrouds		TS250-14	TS250-14	TS250-14	TS250-14
		A shorter version is available for DC Switches up to 250A. 1 piece per package: TDS250S					

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TECHNICAL DATA FOR 1000VDC-RATED SWITCHES							
Technical data in accordance to UL 98B for switch-disconnectors (Suitable for use in photovoltaic systems in accordance with article 690 of the NEC)							
Switch Size			MD100U	MD200U	MD250U	MD315U	MD400U
Voltage Rating		VDC	1000	1000	1000	1000	1000
Current Rating		A	100	200 1)	250	320	400
Rated Ambient Temp.		°C	-20...+50	-20...+50	-20...+50	-20...+50	-20...+50
Short Circuit Rating		kA, 1000V	5	5	10	10	10
	Class of Fuse		Circuit breaker	Circuit breaker	Circuit breaker	Circuit breaker	Circuit breaker
Mechanical Endurance (Divide by 2 for operation cycles) Oper.			4000	4000	2000	2000	2000
Terminal Lugs			LUG200	LUG200	LUG400	LUG400	LUG400
Wire Range		MCM	#4-300	#4-300	#2-600	#2-600	#2-600
Technical data according to IEC		Same as type	MD160E	MD250E	MD315E	MD400E	MD500E
1) For 4 pole switches (double circuit use), the current rating at 1000 VDC is 180 A.							
TECHNICAL DATA ACCORDING TO IEC 60947 FOR SWITCH-DISCONNECTORS							
Switch Size		A	MD100E	MD160E	MD200E	MD250E	
Rated Insulation voltage U_i	Pollution degree 2	V	1500	1500	1500	1500	
	Pollution degree 3	V	1500	1500	1500	1500	
Rated impulse withstand 50 Hz 1 min		kV					
		kV	12	12	12	12	
Rated thermal current I_{th} ...with minimum cable or bar cross section	In open air, normal conditions ¹⁾	A	100	160	200	250	
	In enclosure 40°C	A	100	160	200	250	
	In enclosure 60°C	A	100	160	200	250	
Rated operational current / poles in series DC-21B	Cu	mm ²	35	70	95	120	
	1000	V	100 / 2	160 / 2	200 / 2	250 / 2	
			100 / 2x2	160 / 2x2	200 / 2x2	250 / 2x2	
Rated short-time withstand current, 1000 V, 1 s, R.M.S. -value I^{tw}		kA	5	5	5	5	
Rated short circuit making capacity, 1000 V, Peak value I_{sm}		kA	5	5	5	5	
Power loss / pole At rated current		W	2	4	6	9,5	
Cable size	Cu	mm ²					
Terminal bolt size	Metric thread diameter x length	mm	M8x25	M8x25	M8x25	M8x25	
Terminal tightening torque	Counter torque required	Nm	15-22	15-22	15-22	15-22	
1) Normal conditions defined in IEC 60947-1-6.1							