UL 98 Fusible

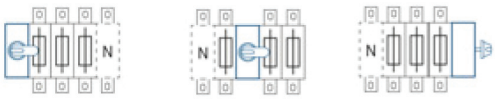
Disconnect Switches

LOW VOLTAGE SWITCHES

Mersen's fusible disconnect switches are listed to UL 98 and bear the CE mark conforming to IEC 60947-3. They are "service entrance" devices capable of fully rated load-break and load-make. While long-term safety, reliability, and functionality are always paramount in the design of our products, these switches are also engineered to have the smallest footprint. The modular design allows placement of the handle anywhere amongst the poles. The fuse doors cannot open when the switch is in the "ON" position, and all switches are double-break, which isolates both fuse clips from voltage during fuse replacement. The switches' "Test" position allows actuation of the auxiliary contacts without main power. Power taps enable energizing a CPT or surge device without the need for a separate terminal block. A wide range of ergonomic handles and accessories is available.

CONFIGURATIONS:

**Not all configurations are available*



Gearbox on the side *Gearbox in the middle* *Side operated*

Catalog number designation						
M Switch	**60** Ampacity	**J** Type	**3** Number of Poles/Left of handle	**0** Number of Poles/Right of handle	**—** Revision	**S** Special Configuration
M = Mersen AC Switch	**30-1200**	**CC** = CC fused **J** = J fused **L** = L fused	**1, 2, 3, 4, etc. (N = Neutral)**	**Blank** = < 200A non-fused, 0, 2	**Blank** = 0	**S** = side-operated **N** = Non-fused switched Neutral

RATINGS UL:

- **Volts:** 600VAC
- **Amps:** 30, 60, 100, 200, 400, 600, 800, and 1200A
- **Short-Circuit Current Rating (SCCR):** Up to 200kA with Class CC, J, or L Fuses

FEATURES/BENEFITS:

- Multiple Configurations
- Power taps
- Adjustable shaft depth
- Fuse monitoring
- Double break, isolating live and load side of fuse
- Interlocked fuse doors

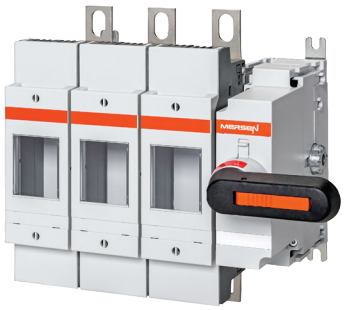
APPROVALS:

- All UL Fusible Disconnect Switches meet UL & CSA requirements
- UL listed guide WHTY, File E191605 for UL 98 (ratings from 30A to 1200A)
- IEC 60947-3

UL LISTED FRONT AND SIDE OPERATED

M30CC12
30A, CC fused, 3-pole with pole on left side of handle and 2 poles on right side

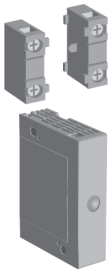
M60J30
60A, J fused, with 3 poles on left side of handle



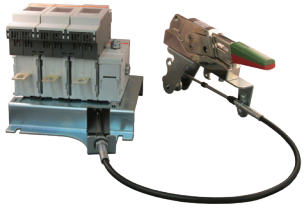
M200J30 with HDF200
200A, J fused, 3 poles on left side of direct handle

Switch Body	**Ampere Rating**	**30**	**60**	**100**	**200**
	Base Part #	M30	M60	M100	M200
	Fuse Type	CC, J	J	J	J
	3- and 4-pole configurations	12, 22, 30S	12, 22, 22N, 30, 30S, 40, 40N	12, 22, 22N, 30, 30S, 40, 40N	30, 40
	S = Side operated (Direct Side Operated Handles are included with 'S' option)				
Handles and Shafts	**Direct Front Operation**				
		HDF30	HDF200	HDF200	HDF200
	External Front Operation - Pistol style				
	Minimum recommended handle length	45 mm			
	NEMA Type 1, 3R, 12, IP65	HB45	HB65, HB80		
	NEMA Type 4, 4X	HB45X	HB65X, HB80X		
	NEMA 4X Stainless Steel	HM65X			
	B=Black. Substitute 'R' for 'B' if a red handle is desired. Ex. HR45				
	Shafts				
	Shaft— SPAxxx (xxx = length in mm)	SPA130, SPA210, SPA290, SPA360, SPA430			
Accessories	**Terminal Lugs**				
	6 per package	Integral	Integral	LUG100 (#14 - 2/0)	LUG200 (#6 -300MCM)
	Terminal Shrouds				
	3-pole (3 single shrouds per package)	Integral	Integral	TSF160-13	TSF200-13
	4-pole (4 single shrouds per package)			TSF160-14	TSF200-14
	Shrouds with "-3" suffix are single shrouds that cover all three terminals. Shrouds with "-13" or "-14" are single pole shrouds with 3 or 4 per				
	Auxiliary Contacts*				
	NO	OA1G10, w/OSZ4	OA1G10	OA1G10	OA1G10
	NC	OA3G01, w/OSZ4	OA3G01	OA3G01	OA3G01
	NO, between poles	OA4B1C	N/A	N/A	N/A
	Mounting plate OA1G10/OA3G01	OSZ4	Not needed	Not needed	Not needed
	Module for 8 aux. contacts	OEA28	OEA28	OEA28	OEA28
	*Rated 2A max continous @690VAC				
	Flange Operation for Cable Actuation				
	Cable Flange Handle, NEMA 12	FHC12	FHC12	FHC12	FHC12
	Cable Flange Handle, NEMA 4X	FHC4X	FHC4X	FHC4X	FHC4X
	Bracket Assembly	FOM2	FOM3 for M60J12, FOM4 for M60J30	FOM4	FOM4
	Cable for FHC handles	CABLE36*	CABLE36*	CABLE36*	CABLE36*
	*Other cable lengths available: 48", 60", 72", 84", 96", 108". For example, CABLE108.				

HB65
HR45
HDF200
OA3G01
OA1G10



OEA28



FOM4, FHC12, and CABLE36 with M200J30

UL LISTED FRONT AND SIDE OPERATED

M400J30
400A, J fused, 3-pole with 3 poles on left side of handle

M800L30
800A, L fused, with 3 poles on left side of handle

Switch Body	Ampere Rating	400	600	800	1200
	Base Part #	M400	M600	M800	M1200
	Fuse Type	J	J	L	L
	3- and 4-pole configurations	12, 30, 40	12, 30, 40	12, 30, 40	30, 40
Handles and Shafts	**Direct Front Operation**				
		HDF400	HDF800T	HDF800T	HDF1250T
	External Front Operation				
	Minimum recommended handle length	95 mm	125 mm	125 mm	274 mm
	NEMA Type 1, 3R, 12	HB125, HB145, HB274			
	NEMA Type 4, 4X	HB125X, HB145X, HB274X			
	NEMA 4X Stainless Steel	HM125X, HM175X			
	B=Black. Substitute 'R' for 'B' if a red handle is desired. Ex. HR125				
	Shafts				
	Shaft— SFBxxx (xxx = length in mm)	SFB185, SFB280, SFB325, SFB395, SFB535			
Accessories	**Terminal Lugs**				
	6 per package	LUG400 #2 - 600MCM	LUG800 2 x #2 600MCM	LUG800 2 x #2 600MCM	LUG1200 4 x #2 600MCM
	Terminal Shrouds				
	3-pole	TSF400-3	TSF600-3	TSF800-13	TSF1250-13
	Suffix "-3" indicates a single piece 3-pole shroud; Suffix "-13" indicates three individual single pole shrouds per package.				
	When a switch is to be installed with lugs and terminal shrouds, a TSFXXX-3 (single piece, 3-pole) model of shroud is recommended.				
	Auxiliary Contacts*				
	Normally Open	OA1G10	OA1G10	OA1G10	OA1G10
	Normally Closed	OA3G01	OA3G01	OA3G01	OA3G01
	Module for 8 aux. contacts	OEA28	OEA28	OEA28	OEA28
	*Rated 2A max continous @690VAC				

HB125

HDF400

SFB135

OA1G01
OA1G10

OEA28

TSF400-13

TEMPERATURE DERATING

Amb. °C (Min)	Amb. °C (Max)	Thermal current (Ith) derating
35	40	1.00
40	45	0.96
45	50	0.93
50	55	0.89
55	60	0.85

Amb. °C (Min)	Amb. °C (Max)	Thermal current (Ith) derating
60	65	0.80
65	70	0.76
70	75	0.71
75	80	0.65
80	85	0.60

TECHNICAL DATA ACCORDING TO UL/cULus							
General Purpose Amp Rating	**pf= 0.7...0.8**	**-5° to 40 °C**	**A**	**30**	**60**	**100**	**200**
Maximum Operating Voltage			VAC	600	600	600	600
			VDC	250	250	250	250
Max. horsepower rating / motor FLA current	pf= 0.4...0.5 Three phase	240 V	HP/A	7.5/22.0	15/42.0	30/80.0	60/154.0
		480 V	HP/A	15/21.0	30/40.0	60/77.0	125/156.0
		600 V	HP/A	20/22.0	50/52.0	75/77.0	150/144.0
	Single phase	120 V	HP/A	2/24.0			
		240 V	HP/A	3/17.0			
Short circuit rating with fuse, 3- and 4- pole types			kA	200	200	200	200
	UL/CSA fuse size		A	30	60	100	200
	UL/CSA fuse type			J/CC	J	J	J
Endurances							
Min. electrical endurance, pf. 0.75...0.8			oper. cycles	6000	6000	6000	6000
Mechanical endurance			operations	20 000	20 000	20 000	16 000
Terminal lug kits				Integral	Integral	LUG100	LUG200
Wire range			AWG	#18-8	#14-4	#14-2/0	#4-300MCM
Torque		Wire tightening	lb. in	17	30/355	120	275
		Lug mounting	lb. in	N/A	N/A	50	72
TECHNICAL DATA ACCORDING TO IEC 60947-3							
Rated insulation voltage	Pollution degree 3		V	1 000	1 000	1 000	1 000
Dielectric strength		50 Hz 1min.	kV	10	10	10	10
Rated impulse withstand voltage			kV	12			12
Rated thermal current in ambient 40 °C /	In open air		A/W	32/3.5	63/7.5	160/12	200/17
max. fuse power dissipation[1]	In enclosure[2]		A/W	32/3.5	63/7.5	160/10, 135/12	200/15
...with minimum cable cross section		Cu	mm^2	6	16	70	95
Rated operational current, AC-23A		up to 500 V	A	32	63	160	200
		690 V	A	32	63	160	200
Rated operational current, AC-23[3]	The kW-ratings are accurate for three-phase 1500 R.P.M. standard asynchronous motors.	230 V	kW	7.5	18.5	45	60
		400 V	kW	15	30	75	110
		415 V	kW	15	30	75	110
		500 V	kW	18.5	37	90	132
		690 V	kW	22	55	132	200
Rated breaking capacity in category AC-23		up to 500 V	A	256	504	1280	1600
		690 V	A	256	504	1280	1600
Rated short-time withstand current, 1 s	r.m.s. -value	690 V, 1 s	kA	1	2.5	5	8
Power loss / pole	With rated current, without fuse		W	2	4	9	8
Weight without accessories	3-pole switch fuses		kg	0.7	1.3	1.5	2.6
	4-pole switch fuses		kg	0.9	1.6	1.8	
Built-in terminal size		Cu	mm^2	0.75...10	2.5...25		
Terminal bolt size (included)	Metric thread diameter x length		mm			M6x20	M8x25
Fuse-links bolts tightening torque			Nm			4	4

*) = Utilization category B

1) Ambient temperature 60°C: derating 20%

2) Mounting on "ceiling": derating 10%. Mounting on wall, horizontal fuses: derating 8%.

3) Some fuses limit these figures further. Starting current characteristics must be considered separately.

4) Approval pending

5) 30 lb.in with cable size #14-10, 35 lb.in with cable size #8-4

TECHNICAL DATA ACCORDING TO UL/cULus							
General Purpose Amp Rating	**pf= 0.7...0.8**	**-5° to 40 °C**	**A**	**400**	**600**	**800**	**1200**
Maximum Operating Voltage			VAC	600	600	600	600
			VDC	250	250	250	250
Max. horsepower rating / motor FLA current	pf= 0.4...0.5 Three phase	240 V	HP/A	125.0/312.0	200/480.0	250/602.0	250/602.0
		480 V	HP/A	250.0/302.0	400/477.0	500/590.0	500/590.0
		600 V	HP/A	350.0/336.0	500/472.0	500/472.0	500/472.0
	Single phase	120 V	HP/A				
		240 V	HP/A				
Short circuit rating with fuse, 3- and 4- pole types			kA	200	200	200	200
	UL/CSA fuse size		A	400	600	800	1200
	UL/CSA fuse type			J	J	L	L
Endurances							
Min. electrical endurance, pf. 0.75...0.8			oper. cycles	1 000	1 000	500	500
Mechanical endurance			operations	12 000	4 000	3 000	2 000
Terminal lug kits				LUG400	LUG800	LUG800	LUG1200
Wire range			AWG	#2-600MCM	(2)#2-600MCM	(2)#2-600MCM	(4)#2-600MCM
Torque		Wire tightening	lb.in	375	500	500	500
		Lug mounting	lb.in	240	480	480	480
TECHNICAL DATA ACCORDING TO IEC 60947-3							
Rated insulation voltage	Pollution degree 3		V	1 000	1 000	1 000	1 000
Dielectric strength		50 Hz 1min.	kV	10	10	10	10
Rated impulse withstand voltage			kV	12	12	12	12
Rated thermal current in ambient 40 °C /	In open air		A/W	400/45	630/60	800/65	1250/110
max. fuse power dissipation[1]	In enclosure[2]		A/W	400/30	570/50	720/55	1000/85
...with minimum cable cross section		Cu	mm^2	240	2x185	2x240	2x400
Rated operational current, AC-23A		up to 500 V	A	400	630	800	1000 *)
		690 V	A	400	630	800	1000 *)
Rated operational current, AC-23[3]	The kW-ratings are accurate for three-phase 1500 R.P.M. standard asynchronous motors.	230 V	kW	132	200	250	315 *)
		400 V	kW	220	355	450	560 *)
		415 V	kW	230	355	450	560 *)
		500 V	kW	280	450	560	710 *)
		690 V	kW	400	630	710	1000 *)
Rated breaking capacity in category AC-23		up to 500 V	A	3200	6400	6400	8000
		690 V	A	3200	6400	6400	8000
Rated short-time withstand current, 1 s	r.m.s. -value		kA	14	20	20	
Power loss / pole	With rated current, without fuse		W	30	46	75	75
Weight without accessories	3-pole switch fuses		kg	5.7	11.5	11.5	29
	4-pole switch fuses		kg				
Built-in terminal size		Cu	mm^2				
Terminal bolt size (included)	Metric thread diameter x length		mm	M10x30	M12x40	M12x40	M12x50
Fuse-links bolts tightening torque			Nm	20	40	40	40

*) = Utilization category B

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