

MERSEN
Expertise, our source of energy

GLOBAL LINE
OF PREMIUM COMPACT
LOW VOLTAGE SWITCHGEAR

UL LOW VOLTAGE
DISCONNECT
SWITCHES



MERSEN'S LINE OF PREMIUM LOW VOLTAGE SWITCHGEAR

THE SAFEST WAY TO SWITCH POWER ON AND OFF IN YOUR INDUSTRIAL CONTROL PANELS

You need a range of disconnect switches for your industrial control requirements ranging from "Service Entrance Rated" to motor isolation. You need DIN-rail and direct mountable disconnect switches that conform to UL 508 and UL 98. You need a range of handles, shafts and accessories to select from.

Mersen Electrical Power has now the broadest range of switches in the industry, with a full line of accessories to accommodate virtually any application. This range is global and encompasses both UL and IEC standard products for AC and DC applications. On the UL side, our fusible line of switches now extends to 1200A Class L.

Compact size enables the smallest footprint amongst the competition. Our 40A UL508 switches are only 35mm wide! Comfortable pistol-style handles allow greater leverage and gripping force. Robust design incorporates rugged, pivot-able mounting feet.



Non-Fusible Switches 16A to 1200A, 600VAC

- **Performance:** Higher power ratings than competition, suitable for many applications
- **Size:** Typically has the smallest footprint
- **Flexibility in installation:** Fast and reliable installation every time
- **Environmental impact:** All products conform to RoHS and REACH



Fusible Switches 30A to 1200A, 600VAC

- **Safety:** Safe to install and safe to the user
- **Performance:** Suitable for all locations in low voltage networks
- **Size:** Typically has the smallest footprint
- **Flexibility in installation:** Complete range of accessories which support installation flexibility
- **Environmental impact:** All products conform to RoHS and REACH



PV-Rated Switches 100A to 400A, Up to 1500 VDC

- **Safety:** Touchsafe design with visible contacts
- **Performance:** Higher power ratings than competition, suitable for many applications
- **Size:** Typically has the smallest footprint
- **Flexibility in installation:** Fast and reliable installation every time
- **Environmental impact:** All products conform to RoHS and REACH



UL 508 NON-FUSIBLE DISCONNECT SWITCHES (M163 - M803)



The M-series Load Break Switch is the most compact industrial-grade switch on the market. Capable of making or breaking loads up to 600V (UL), it is suitable as a motor disconnect. Extremely compact and robust, these switches have a variety of mounting options including DIN-rail, base, or door-mounting. A wide assortment of handles, shafts and accessories is available to accommodate any installation requirement.

FEATURES/BENEFITS

- Compact
- Robust
- DIN-rail, base, or door-mounting
- Choice of handles and shafts
- Padlockable
- Side-mount auxiliary contacts and additional poles
- Double-break, silver-plated contacts

APPLICATIONS

- Line of sight disconnect
- Electrical isolation
- Branch-circuit switch
- Motor disconnect

CATALOG NUMBER DESIGNATION

| | | | |
|---|-------------------------------------|---------------------------------|---|
| M Switch M = Mersen AC Switch | 80 Ampacity 16-80 | 3 Number of Poles | DM Special Configurations DM: Door Mounting |
|---|-------------------------------------|---------------------------------|---|

DISCONNECT SWITCHES

UL 508 NON-FUSIBLE

RATINGS (UL):

- **Volts:** 600VAC
- **Amps:** 20, 30, 40, 63, and 80A.
Suitable as motor disconnect up to 40hp.





APPROVALS:

- UL 508 listed E196672
- IEC 60947-3



UL 508 NON-FUSIBLE DISCONNECT SWITCHES (M163 - M803)

UL 508 Disconnect Switches—Front Operated

| | | | | | | |
|---|---|--|---|-----------|----------------|-----------|
|  M163 |  M163DM |  M633 |  M633DM | | | |
| Switch Body | Ampere Rating | 20 | 30 | 40 | 63 | 80 |
| | Base Part # | M163 | M253 | M403 | M633 | M803 |
| | Door-Mounted Version | M163DM | M253DM | M403DM | M633DM | M803DM |
| Handles and Shafts | Direct Front Operation Locking Handle | | | | | |
| | | HD40 | HD40 | HD40 | HD125 | HD125 |
| | External Front Operation | | | | | |
| | Selector Style NEMA Type 1, 3R, 12 | HSBX, HSRX | | | | |
| | Shaft—SAxxx (xxx = length in mm) | SA85, SA105, SA120, SA130, SA180, SA250 | | | | |
| | Door mounted version (no shaft required) | HSBPDM, HSRPDM | | | HSBWDM, HSRWDM | |
| | Pistol Style NEMA Type 1, 3R, 12 | HB45, HR45, HB65, HR65, HB80, HR80 | | | | |
| | NEMA Type 4, 4X | HB45X, HR45X, HB65X, HR65X, HB80, HB80X | | | | |
| | NEMA 4X Stainless Steel | HM65X | | | | |
| | Shaft—SAxxx (xxx = length in mm) | SPA130, SPA210, SPA290, SPA360, SPA430 | | | | |
| | B=Black, R=Black | | | | | |
| Accessories | Fourth Poles | | | | | |
| | Limited to one additional pole per switch | 4P40 | 4P40 | 4P40 | 4P80 | 4P80 |
| | Door mounted switch 4th poles are left-side mounted | 4P40DM | 4P40DM | 4P40DM | 4P80DM | 4P80DM |
| | Neutral Poles | | | | | |
| | Limited to one additional pole per switch | NP40 | NP40 | NP40 | NP80 | NP80 |
| | Door mounted switch neutral poles | NP40DM | NP40DM | NP40DM | NP80DM | NP80DM |
| | Terminal Shrouds | | | | | |
| | 3-pole | TS40-3 | TS40-3 | TS40-3 | TS63-3 | TS63-3 |
| | 4-pole (Add this to the 3-pole shroud) | TS40-1 | TS40-1 | TS40-1 | TS63-1 | TS63-1 |
| | Auxiliary Contacts* | | | | | |
| | NC Right side mounting | OA1G01 | OA1G01 | OA1G01 | OA1G01 | OA1G01 |
| | NO left side mounting | OA1G10 | OA1G10 | OA1G10 | OA1G10 | OA1G10 |
| | NO+NC (Mounting on either side) | OA2G11 | OA2G11 | OA2G11 | OA2G11 | OA2G11 |
| | *Rated 2A max continuous @690VAC | | | | | |
| Minimum switching capacity for the auxiliary contacts OA1G01, OA1G10, OA2G11 is 10mA at a voltage of 24V DC | | | | | | |

UL 508 NON-FUSIBLE DISCONNECT SWITCHES (M163 - M803)

| TECHNICAL DATA ACCORDING TO UL/cULus | | | | | | | | | | | | | |
|--|---------------------------|-----------------|--------------|----------|------------------|----------|------------------|----------|------------------|----------|----------|----------|----------|
| Part Number | pf= 0.7...0.8 | -40° to 40 °C | A | M163 | | M253 | | M403 | | M633 | | M803 | |
| General Purpose Amp Rating | | | | 20 | 30 | 40 | 60 | 80 | | | | | |
| Maximum Operating Voltage | | | V | 600 | 600 | 600 | 600 | 600 | 600 | 600 | 600 | 600 | 600 |
| Max. horsepower rating / motor FLA current | pf= 0.4...0.5 Three phase | 240 V | HP/A | 5/15.2 | 7.5/22.0 | 10/28.0 | 15/42.0 | 20/54.0 | | | | | |
| | | 480 V | HP/A | 10/14.0 | 15/21.0 | 20/27.0 | 30/40.0 | 40/52.0 | | | | | |
| | | 600 V | HP/A | 11-Oct | 20/22.0 | 25/27.0 | 30/32.0 | 40/41.0 | | | | | |
| | Single phase | 120 V | HP/A | 1/16.0 | 1.5/20.0 | 2/24.0 | 2/24.0 | 2/24.0 | | | | | |
| | | 240 V | HP/A | 2/13.2 | 3/18.7 | 5/30.8 | 7.5/40.0 | 10/57.5 | | | | | |
| Short circuit rating with fuse | Maximum fuse size | | A | 30 | 60 ²⁾ | 30 | 60 ²⁾ | 30 | 60 ²⁾ | 100 | 150 | 100 | 150 |
| | Fuse type | CC | kA | 10 | | 10 | | 10 | | | | | |
| | Fuse type | J | kA | 10 | 10 | 10 | 10 | 10 | 10 | 100 | | 100 | |
| | Fuse type | T | kA | 10 | 10 | 10 | 10 | 10 | 10 | 100 | | 100 | |
| | Fuse type | RK1 | kA | 10 | | 10 | | 10 | | 10 | 5 | 10 | 5 |
| | Fuse type | RK5 | kA | 5 | 5 | 5 | 5 | 5 | 5 | | 5 | | 5 |
| | Fuse type | L | kA | | | | | | | | | | |
| | Fuse type | H | kA | | | | | | | | | | |
| Endurances | | | | | | | | | | | | | |
| Min. electrical endurance, pf. 0.75...0.8 | | | oper. cycles | 6 000 | 6 000 | 6 000 | 6 000 | 6 000 | 6 000 | 6 000 | 6 000 | 6 000 | 6 000 |
| Mechanical endurance | | | operations | 20 000 | 20 000 | 20 000 | 20 000 | 20 000 | 20 000 | 20 000 | 20 000 | 20 000 | 20 000 |
| Terminal lug kits | | | | Integral | Integral | Integral | Integral | Integral | Integral | Integral | Integral | Integral | Integral |
| Wire range | | | AWG | 18-8 | 18-8 | 18-8 | 14-4 | 14-4 | | | | | |
| Torque | | Wire tightening | lb. in | 7 | 7 | 7 | 18 | 18 | | | | | |
| | | Lug mounting | | | | | | | | | | | |

UL 98 NON-FUSIBLE DISCONNECT SWITCHES



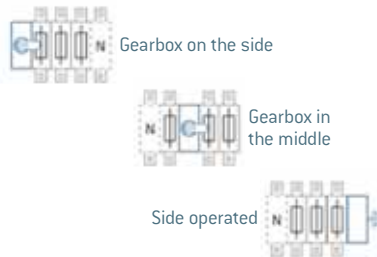
Mersen’s non-fusible disconnect switches are listed to UL 98 and bear the CE mark as conformance to IEC 60947-3. They are “service entrance” devices that are capable of fully rated load-break and load-make. All switches over 100A have windows to provide visual indication of the contact status. Engineered to have the smallest footprint, these switches also employ a modular design that enables the handle to be placed amongst the poles or at the ends.

A wide range of ergonomic handles are available, as are all manner of accessories, to accommodate multiple applications.

FEATURES/BENEFITS

- Service entrance rated
- Front or side operation
- Most compact size
- Internally mounted auxiliary contacts
- Flange mounting accessories
- 15-year warranty

CONFIGURATIONS



DISCONNECT SWITCHES

UL 98 NON-FUSIBLE

RATINGS (UL):

- **Volts:** 600VAC
- **Amps:** 30A, 60A, 100A, 200A, 400A, 600A, 800A, 1200A
- **Short-Circuit Current Rating (SCCR):** Up to 200kA with fuses. Suitable as motor disconnect

APPROVALS:

- All UL switches meet the requirements of UL and CSA
- UL listed guide WHTY, File E191605 for UL 98 (ratings from 30 A to 1200 A)
- IEC 60947-3



CATALOG NUMBER DESIGNATION

| M | 200 | U | 3 | 0 | Revision | Special Configuration |
|----------------------|----------|---------------------|--------------------------------|-----------------------------------|-----------|---|
| Switch | Ampacity | Type | Number of Poles/Left of handle | Number of Poles/Right of handle | | |
| M = Mersen AC Switch | 16-1200 | U = non-fused UL 98 | 1-3 | Blank = < 200A non-fused, 0, 2, 3 | Blank = 0 | F = Flange-mount Actuation DM = Door mounted |

UL 98 NON-FUSIBLE DISCONNECT SWITCHES

UL 98 DISCONNECT SWITCHES







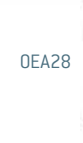
M100U3



M200U30 with HD250 Direct Handle



M200U30

| SWITCH BODY | AMPERE RATING | 30 | 60 | 100 | 200 |
|---|--|---|--------------------|---------------------|----------|
| Base Part # | | M30U3 | M60U3 | M100U3 | M200U |
| 3-pole configurations | | | | | 12, 30 |
| For Flange-mount Actuation | | M30U3F | M60U3F | M100U3F | |
| For Door-mounting | | M30U3DM | M60U3DM | M100U3DM | |
| HANDLES AND SHAFTS | DIRECT FRONT OPERATION LOCKING HANDLE | HD125 | HD125 | HD125 | HD250 |
|  HSBX  HD250  HB65 | EXTERNAL FRONT OPERATION | | | | |
| | Selector Style | HSBX, HSRX | | | N/A |
| | Shaft—SAxxx (xxx = length in mm) | SA85, SA105, SA120, SA130, SA180, SA250 | | | N/A |
| | Door mounted version (no shaft required) | HSBWDM, HSRWDM | | | N/A |
| | Pistol Style NEMA Type 1, 3R, 12 | HB45, HR45, HB65, HR65, HB80, HR80 | | | |
| NEMA Type 4, 4X | HB45X, HR45X, HB65X, HR65X, HB80X, HR80X | | | | |
| NEMA 4X Stainless Steel | HM65X | | | | |
| Shaft—SAxxx (xxx = length in mm) | SPA130, SPA210, SPA290, SPA360, SPA430 | | | | |
| B=Black, R=Black | | | | | |
| ACCESSORIES | FOURTH POLES | 4P60 | 4P60 | 4P125 | 4P250 |
|  4P125  4P250 | NEUTRAL POLES | NP60 | NP60 | NP125 | |
| | | | | | |
|  4P125  4P250 | TERMINAL SHROUDS | TS125-3 | TS125-3 | TS125-3 | TS250-13 |
| | | TS125-1 | TS125-1 | TS125-1 | TS250-14 |
| 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 | | | | | |
|  OA1G10  OA2G11  OEA28 | AUXILIARY CONTACTS* | OA1G01 | OA1G01 | OA1G01 | OA3G01 |
| | Normally Closed | OA1G01 | OA1G01 | OA1G01 | OA3G01 |
| | Normally Open | OA1G10 | OA1G10 | OA1G10 | OA1G10 |
| | NO+NC | OA2G11 | OA2G11 | OA2G11 | |
| | Module for 8 aux. contacts | N/A | N/A | N/A | OEA28 |
| *Rated 2A max continuous @690VAC | | | | | |
|  OA1G01  OA1G01  OA2G11  OEA28 | FLANGE OPERATION | Incl with M30U3F** | Incl with M60U3F** | Incl with M100U3F** | FOM4 |
| | Flange bracket assembly | | | | |
| | Rod Flange handle NEMA 12 | FHR12 | FHR12 | FHR12 | NA |
| | Rod Flange handle NEMA 4X | FHR4X | FHR4X | FHR4X | NA |
| | Rod, 16 inch | RODNF16 | RODNF16 | RODNF16 | NA |
| | Rod, 24 inch | RODNF24 | RODNF24 | RODNF24 | NA |
| | Cable Flange Handle, NEMA 12 | NA | NA | NA | FHC12 |
| | Cable Flange Handle, NEMA 4X | NA | NA | NA | FHC4X |
| | Cable for FHC handles | NA | NA | NA | CABLE36* |

Other cable lengths available: 48", 60", 72", 84", 96", 108". For example, CABLE108. **These switches have not been tested to conform to UL standards

UL 98 NON-FUSIBLE DISCONNECT SWITCHES

UL LISTED FRONT OPERATED



M400U30



M600U30



M200U30

| Switch body | Ampere Rating | 400 | 600 | 800 | 1200 | |
|---|---------------------------------------|----------|--|----------------------|----------------------|-----------------------|
| Base Part # | | M400U | M600U | M800U | M1200U | |
| 3-pole configurations | | 30, 12 | 30, 12 | 30, 12 | 30 | |
| Handles and Shafts | Direct Front Operation Locking Handle | | | | | |
| <p>SFB135</p> <p>HD800</p> | | HD400 | HD800 | HD800 | HD1000 | |
| | External Front Operation | | | | | |
| | Pistol Style NEMA Type 1, 3R, 12 | | HB125, HB145, HB274 | | | |
| | NEMA Type 4, 4X | | HB125X, HB145X, HB274X | | | |
| | NEMA 4X Stainless Steel | | HM125X, HM175X | | | |
| | Shaft— Sxxxx (xxx = length in mm) | | SFB185, SFB280, SFB325, SFB395, SFB535 | | | |
| Alignment Ring (optional, for pistol-style handle) | | ALRX10 | | | | |
| B=Black. Substitute 'R' for 'B' if a red handle is desired. Ex. HR125 | | | | | | |
| Accessories | Fourth Poles | | | | | |
| <p>4P400</p> <p>TS250-13</p> <p>OA1G10 OA3G01 OEA28</p> | | 4P400 | 4P800 | 4P800 | 4P1250 | |
| | 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 | | TS400-13 | TS600-3 | TS800-3 | TS1600-13 | |
| 4-pole | | TS400-14 | | | TS1600-14 | |
| 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* | | | | | | |
| Normally Open | | OA1G10 | OA1G10 | OA1G10 | OA1G10 | |
| Normally Closed | | OA3G01 | OA3G01 | OA3G01 | OA3G01 | |
| Module for 8 aux. contacts | | OEA28 | OEA28 | OEA28 | OEA28 | |
| *Rated 2A max continuous @690VAC | | | | | | |

UL 98 NON-FUSIBLE DISCONNECT SWITCHES

| TECHNICAL DATA ACCORDING TO UL/cULus | | | | | | | | |
|---|------------------------------------|--------------------|--------------|----------|----------|----------|-----------|-----|
| Part Number | | | | M30U3 | M60U3 | M100U3 | M200Uxx | |
| General Purpose Amp Rating | pf= 0.7...0.8 | -5° to 40 °C | A | 30 | 60 | 100 | 200 | |
| Maximum Operating Voltage | | | V | 600 | 600 | 600 | 600 | |
| Max. horsepower rating / motor FLA current | pf= 0.4...0.5 Three phase | 240 V | HP/A | 10/28.0 | 20/54.0 | 30/80.0 | 75/192.0 | |
| | | 480 V | HP/A | 20/27.0 | 40/52.0 | 50/65.0 | 150/180.0 | |
| | | 600 V | HP/A | 30/32.0 | 40/41.0 | 50/52.0 | 200/192.0 | |
| | Single phase | 120 V | HP/A | 2/24.0 | 3/34.0 | 5/56.0 | | |
| | | 240 V | HP/A | 5/28.0 | 7.5/40.0 | 15/68.0 | | |
| Short circuit rating with fuse | Maximum fuse size | | A | 60 | 150 | 150 | 200 | 400 |
| | Fuse type | CC | kA | | | | | |
| | Fuse type | J | kA | 50 | 50 | 50 | 200 | 65 |
| | Fuse type | T | kA | 50 | 50 | 50 | | |
| | Fuse type | RK1 | kA | | | | | |
| | Fuse type | RK5 | kA | | | | | |
| | Fuse type | L | kA | | | | | |
| Fuse type | H | kA | | | | | | |
| Maximum General Use, DC Ratings | | | | | | | | |
| Current rating | | at 250 VDC | A | | | | 200 | |
| | | at 600 VDC | A | | | | 100 | |
| DC horsepower rating for 4-pole switch | | at 600 VDC | HP | | | | 50 | |
| DC horsepower rating for 2-pole switch | In open air | at 125 VDC | HP | | | | 20 | |
| | In enclosure ²⁾ | at 250 VDC | HP | | | | - | |
| DC short circuit rating for 4-pole switch | with circuit breaker | | kA | | | | 10 | |
| DC short circuit rating for 2-pole switch | with circuit breaker at 250 VDC | | kA | | | | 14 | |
| | with circuit breaker at 600 VDC | | kA | | | | 10 | |
| | with class J fuse at 250 VDC | | kA | | | | 100 | |
| | ... with fuse size | | A | | | | 200 | |
| endurances | | | | | | | | |
| Min. electrical endurance, pf. 0.75...0.8 | | | oper. cycles | 6 000 | 6 000 | 6 000 | 6 000 | |
| Mechanical endurance | | | operations | 20 000 | 20 000 | 20 000 | 20 000 | |
| Terminal lug kits | | | | Integral | Integral | Integral | LUG-200 | |
| Wire range | | | AWG | 14-4 | 14-4 | 8-1/0 | 4-300MCM | |
| Torque | | Wire tightening | lb. in | 55 | 55 | 55 | 275 | |
| | | Lug mounting | | | | | 72 | |
| TECHNICAL DATA ACCORDING TO IEC 60947-3 | | | | | | | | |
| Rated insulation voltage and rated operational voltage AC20/DC20 | | Pollution degree 3 | V | 750 | 750 | 750 | 1 000 | |
| Dielectric strength | | 50 Hz 1min. | kV | 6 | 6 | 6 | 10 | |
| Rated impulse withstand voltage | | | kV | 8 | 8 | 8 | 12 | |
| Rated operational current, AC-22A | | up to 415 V | A | 40 | 63 | 100 | 250 | |
| | | 440...500 V | A | 40 | 63 | 100 | 250 | |
| | | 690 V | A | 40 | 63 | 100 | 250 | |
| Rated operational current, AC-23A | | up to 415 V | A | 40 | 63 | 80 | 250 | |
| | | 440 V | A | 40 | 63 | 65 | 250 | |
| | | 500 V | A | 40 | 63 | 60 | 250 | |
| | | 690 V | A | 40 | 63 | 40 | 250 | |
| Rated conditional short-circuit current I_p (r.m.s.) and corresponding max. allowed cut-off current i_c . The cut-off current i_c refers to values listed by fuse manufacturers | I_p (r.m.s.) | 50 kA | kA | 16.5 | 16.5 | 16.5 | | |
| | Max. fuse size gG/aM | 415 V | A | 125/125 | 125/125 | 125/125 | | |
| | I_p (r.m.s.) | 10 kA | kA | 8.2 | 8.2 | 8.2 | | |
| | Max. fuse size gG/aM | 690 V | A | 125/100 | 125/100 | 125/100 | | |
| (single phase test acc. to IEC60269) | I_p (r.m.s.) | 50 kA | kA | 10 | 10 | 10 | 35 | |
| | Max. fuse size gG/aM | 690 V | A | 63/63 | 63/63 | 63/63 | 355/315 | |
| | at prospective SC-current | 80 kA | kA | | | | 40.5 | |
| | Max. fuse size gG/aM | 690 V | A | | | | 355/315 | |
| Rated short-time withstand current | r.m.s. -value I_{cw} | 690 V, 1 s | kA | 2.5 | 2.5 | 2.5 | 8 | |
| Rated short circuit making capacity | Peak value I_{cm} | 690 V/500 V | A | 3.6 | 3.6 | 3.6 | 30 | |
| Power loss / pole | At rated operational current | | W | 0.7 | 1.6 | 4.0 | 6.5 | |
| Mechanical endurance | Divide by two for operation cycles | | Oper. | 20 000 | 20 000 | 20 000 | 20 000 | |
| Weight without accessories | | 3-pole | kg | 0.36 | 0.36 | 0.36 | 1.2 | |
| | | 4-pole | kg | 0.50 | 0.50 | 0.50 | 1.5 | |
| 1) UL Listed switches are also CSA Approved. 2) Fuse size 70A for RK5. | | | | | | | | |

UL 98 NON-FUSIBLE DISCONNECT SWITCHES

| TECHNICAL DATA ACCORDING TO UL/cULus | | | | | | | |
|---|------------------------------------|--------------------|--------------|------------|----------------|----------------|----------------|
| Part Number | | | | M400U | M600U | M800U | M1200U |
| General Purpose Amp Rating | pf= 0.7...0.8 | -5° to 40 °C | A | 400 | 600 | 800 | 1200 |
| Maximum Operating Voltage | | | V | 600 | 600 | 600 | 600 |
| Max. horsepower rating / motor FLA current | pf= 0.4...0.5 Three phase | 240 V | HP/A | 125/312.0 | 200/480.0 | 200/602 | 200/602 |
| | | 480 V | HP/A | 250/302.0 | 450/515.0 | 500/590 | 500/590 |
| | | 600 V | HP/A | 350/338.0 | 500/472.0 | 500/472 | 500/472 |
| | Single phase | 120 V | HP/A | | | | |
| | | 240 V | HP/A | | | | |
| Short circuit rating with fuse | Maximum fuse size | | A | 600 | 600 800 | 800 | 1200 |
| | Fuse type | CC | kA | | | | |
| | Fuse type | J | kA | 100 | 100 | | |
| | Fuse type | T | kA | | 100 | | |
| | Fuse type | RK1 | kA | | | | |
| | Fuse type | RK5 | kA | | 100 | 100 | 100 |
| | Fuse type | L | kA | | | | |
| Fuse type | H | kA | | | | | |
| Maximum General Use, DC Ratings | | | | | | | |
| Current rating | | at 250 VDC | A | 400 | 600 | | |
| | | at 600 VDC | A | 200 | 200 | | |
| DC horsepower rating for 4-pole switch | | at 600 VDC | HP | 50 | - | | |
| DC horsepower rating for 2-pole switch | In open air | at 125 VDC | HP | 40 | - | | |
| | In enclosure ²⁾ | at 250 VDC | HP | 50 | 50 | | |
| DC short circuit rating for 4-pole switch | with circuit breaker | | kA | 10 | 10 | | |
| DC short circuit rating for 2-pole switch | with circuit breaker at 250 VDC | | kA | 14 | 18 | | |
| | with circuit breaker at 600 VDC | | kA | 10 | 10 | | |
| | with class J fuse at 250 VDC | | kA | 100 | 100 | | |
| | ... with fuse size | | A | 400 | 500 | | |
| Endurances | | | | | | | |
| Min. electrical endurance, pf. 0.75...0.8 | | | oper. cycles | 1 000 | 1 000 | 500 | 500 |
| Mechanical endurance | | | operations | 16 000 | 10 000 | 6000 | 6000 |
| Terminal lug kits | | | | LUG400 | LUG800 | LUG800 | LUG1200 |
| Wire range | | | AWG | 2 - 600MCM | 2 x 2 - 600MCM | 2 x 2 - 600MCM | 4 x 2 - 600MCM |
| Torque | Wire tightening | | lb. in | 375 | 55 | 500 | 500 |
| | Lug mounting | | | 240 | 480 | 480 | 450-670 |
| TECHNICAL DATA ACCORDING TO IEC 60947-3 | | | | | | | |
| Rated insulation voltage and rated operational voltage AC20/DC20 | | 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 operational current, AC-22A | | up to 415 V | A | 400 | 800 | 1600 | 1600 |
| | | 440...500 V | A | 400 | 800 | 1600 | 1600 |
| | | 690 V | A | 400 | 800 | 1600 | 1600 |
| Rated operational current, AC-23A | | up to 415 V | A | 400 | 800 | 1250 | 1250 |
| | | 440 V | A | 400 | 800 | 1250 | 1250 |
| | | 500 V | A | 400 | 800 | 1250 | 1250 |
| | | 690 V | A | 400 | 800 | 1250 | 1250 |
| Rated conditional short-circuit current I_p (r.m.s.) and corresponding max. allowed cut-off current i_c . The cut-off current i_c refers to values listed by fuse manufacturers | I_p (r.m.s.) | 50 kA | kA | | | | |
| | Max. fuse size gG/aM | 415 V | A | | | | |
| | I_p (r.m.s.) | 50 kA | kA | | | | |
| | Max. fuse size gG/aM | 690 V | A | | | | |
| (single phase test acc. to IEC60269) | I_p (r.m.s.) | 50 kA | kA | 50.5 | 71.5 | | |
| | Max. fuse size gG/aM | 690 V | A | 500/500 | 800/1 000 | | |
| | at prospective SC-current | 80 kA | kA | 59 | 83.5 | | |
| | Max. fuse size gG/aM | 690 V | A | 500/500 | 800/1 000 | | |
| Rated short-time withstand current | r.m.s. -value I_{cw} | 690 V, 1 s | kA | 15 | 20 | 50 | 50 |
| Rated short circuit making capacity | Peak value I_{cm} | 690 V/500 V | A | 65 | 80 | 110 | 110 |
| Power loss / pole | At rated operational current | | W | 10 | 40 | 29 | 48 |
| Mechanical endurance | Divide by two for operation cycles | | Oper. | 26 000 | 10 000 | | |
| Weight without accessories | | 3-pole | kg | 2.2 | 5.2 | 15.2 | 15.2 |
| | | 4-pole | kg | 2.8 | 6.4 | | |

1) UL Listed switches are also CSA Approved. 2) Fuse size 70A for RK5.

UL 98 FUSIBLE DISCONNECT SWITCHES

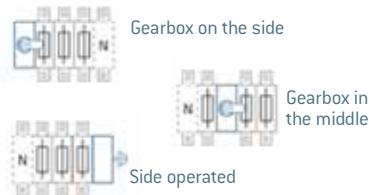


Mersen’s fusible disconnect switches are listed to UL 98 and bear the CE mark as conformance to IEC 60947-3. They are “service entrance” devices capable of fully rated load-break and load-make. While long-term safety, reliability, and functionality are always paramount in the design of our products, 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 are available, as are all manner of accessories.

FEATURES/BENEFITS

- Multiple Configurations
- Power taps
- Adjustable shaft depth
- Fuse monitoring
- Interlocked fuse doors

CONFIGURATIONS



CATALOG NUMBER DESIGNATION

| M | 60 | J | 3 | 0 | Revision | S |
|----------------------|----------|---|--------------------------------|---------------------------------|-----------|--|
| Switch | Ampacity | Type | Number of Poles/Left of handle | Number of Poles/Right of handle | | 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 F = Rod-Flange Actuated |

DISCONNECT SWITCHES

UL 98 FUSIBLE

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

APPROVALS:

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



UL 98 FUSIBLE DISCONNECT SWITCHES

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, 30F, 30S | 12, 22, 22N, 30, 30F, 30S, 40, 40N | 12, 22, 22N, 30, 30F, 30S, 40, 40N | 30, 40 | |
| S = Side operated F = Rod-Flange actuated (Direct Side Operated Handles are included with 'S' option) | | | | | | |
| Handles and Shafts | Direct Front Operation | | HDF30 | HDF200 | HDF200 | |
|  HB65  HR45  HDF200  | External Front Operation - Pistol style | | | | | |
| | 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 | | SPA130, SPA210, SPA290, SPA360, SPA430 | | | |
| | 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 continuous @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. | | | | | |
| | Flange Operation for Rod Actuation* | Flange bracket assembly | Incl with M30x30F | Incl with M60J30F | Incl with M100J30F | NA |
| | Rod Flange handle NEMA 12 | | FHR12 | FHR12 | FHR12 | NA |
| | Rod Flange handle NEMA 4X | | FHR4X | FHR4X | FHR4X | NA |
| | Rod, 16, 21, 26 inch (ex. ROD16) | | RODxx | RODxx | RODxx | NA |
| | *These products have not been tested for UL Compliance | | | | | |

FOM4, FHC12, and CABLE36 with M200J30

UL 98 FUSIBLE DISCONNECT SWITCHES

UL LISTED FRONT AND SIDE OPERATED

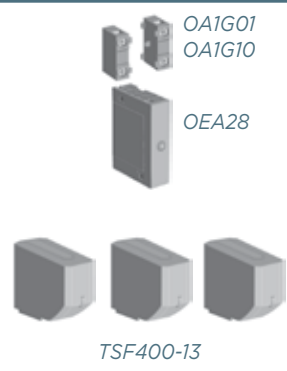


M400J30
400A, J fused, 3-pole with 3 poles on left side of handle



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 | HD1250T |
| | External Front Operation | | | | |
| | 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 | TSF600-3 | TSF1200-3 |
| | 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 continuous @690VAC | | | | |



UL 98 FUSIBLE DISCONNECT SWITCHES

| 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

UL 98 FUSIBLE DISCONNECT SWITCHES

| 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 ³⁾ |
| | | 690 V | A | 400 | 630 | 800 | 1000 ³⁾ |
| 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 ⁴⁾ |
| | | 400 V | kW | 220 | 355 | 450 | 560 ⁴⁾ |
| | | 415 V | kW | 230 | 355 | 450 | 560 ⁴⁾ |
| | | 500 V | kW | 280 | 450 | 560 | 710 ⁴⁾ |
| | | 690 V | kW | 400 | 630 | 710 | 1000 ⁴⁾ |
| 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

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

PV-RATED DISCONNECT SWITCHES



Mersen offers a range of DC disconnect switches especially designed for PV applications, in one- and two-circuit configurations for both 1000V and 1500V DC applications. The technology inside the switch and the visible contacts allow a quick, safe, and reliable DC breaking at all current levels up to 1500VDC. The product is ready and simple to install independent of the polarity, with limited power losses, and a smaller footprint than competition.

FEATURES/BENEFITS

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

APPLICATIONS

- Medium and large power photovoltaic installations up to 1500VDC
- “Make and break” on load and provide safety isolation at string combiner box level

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 |

DISCONNECT SWITCHES

UL 98B AND IEC-RATED DC SWITCHES

RATINGS:

- **Volts:** 1000 and 1500VDC
- **Amps:** IEC: 100 to 500A, UL98: 100 to 400A
- **Short-Circuit Current Rating (SCCR):** 5 to 10kA for higher ratings






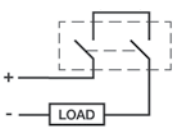
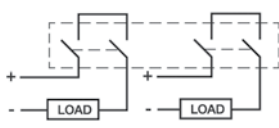
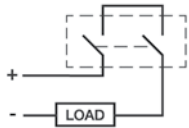
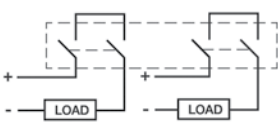





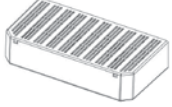
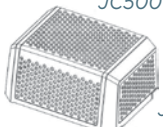
APPROVALS:

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








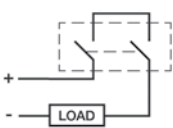
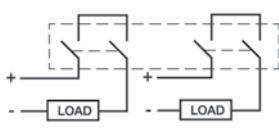
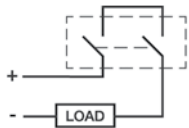
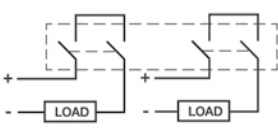





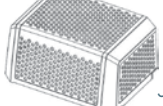
PV-RATED DISCONNECT SWITCHES

UL 98B Listed DC Switches

| UL 98B Listed DC Switches | | | | | | | |
|---|---|---|---|---|------------|------------|--|
|  |  |  |  |  | | | |
| MD100U11 | MD100U22 | MD250UV12 | MD400U11 | MD400U22 | | | |
|  |  |  |  | | | | |
| Switch Body | Ampere Rating | 100 | 200 | 250 | 320 | 400 | |
| | 100VDC 2-pole Configuration | MD100U11 | MD200U11 | MD250U11 | MD320U11 | MD400U11 | |
| | 100VDC 2x2-pole Configuration | MD180U22 | MD180U22* | | MD320U22 | MD400U22 | |
| | 150VDC 3-pole Configuration | | | MD250UV12 | MD320UV12 | MD400UV12 | |
| B=Black. Substitute 'R' for 'B' if a red handle is desired. Ex. HR45 *180A Rating | | | | | | | |
| Handles and Shafts | Direct Front Operation | | | | | | |
|  | 100VDC | HDD250 | HDD250 | HDD250 | HDD400 | HDD400 | |
| | 150VDC | HDD400 | HDD400 | HDD400 | | | |
| | External Pistol style | | | | | | |
| | NEMA Type 1, 3R, 12 | HB65, HB80 | | HB125, HB145 | | | |
| | NEMA Type 4, 4X | HB65X, HB80X | | HB125X, HB145X | | | |
|  | 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 | | SFB185, SFB280, SFB325, SFB395, SFB535 | | | |
| 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 | JC500 | JC500 | JC500 | |
| | For MDxxxU22 | JC500-2 | JC500-2 | JC500-2 | JC500-2 | JC500-2 | |
| | Terminal Shroud for Lugs | | | | | | |
| | Kit of 4 Terminal Shrouds | | | | | | |
| | 1 Terminal Shroud | TDS250S | TDS250S | TDS250S | TDS400 | TDS400 | |

PV-RATED DISCONNECT SWITCHES

UL 98B Listed DC Switches

| UL 98B Listed DC Switches | | | | | | | |
|---|---|---|---|---|-----------|-----------|--|
|  |  |  |  |  | | | |
| MD100U11 | MD100U22 | MD250UV12 | MD400U11 | MD400U22 | | | |
|  |  |  |  | | | | |
| Switch Body | Ampere Rating | 100 | 200 | 250 | 320 | 400 | |
| | 1000VDC 2-pole Configuration | MD100U11 | MD200U11 | MD250U11 | MD320U11 | MD400U11 | |
| | 1000VDC 2x2-pole Configuration | MD180U22 | MD180U22* | | MD320U22 | MD400U22 | |
| | 1500VDC 3-pole Configuration | | | MD250UV12 | MD320UV12 | MD400UV12 | |
| 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 | HDD400 | HDD400 | |
| | 1500VDC | HDD400 | HDD400 | HDD400 | | | |
| | External Pistol style | | | | | | |
| | NEMA Type 1, 3R, 12 | HB65, HB80 | | HB125, HB145 | | | |
| NEMA Type 4, 4X | HB65X, HB80X | | HB125X, HB145X | | | | |
|  | Shafts | | | | | | |
| | Shaft— SPAxxx (xxx = length in mm), SFBxxx (xxx = length in mm) | SPA130, SPA210, SPA290, SPA360, SPA430 | | SFB185, SFB280, SFB325, SFB395, SFB535 | | | |
| 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 | JC500 | JC500 | JC500 | |
|  | For MDxxxU22 | JC500-2 | JC500-2 | JC500-2 | JC500-2 | JC500-2 | |
| |  | Terminal Shroud for Lugs | | | | | |
| | Kit of 4 Terminal Shrouds | | | | | | |
| | 1 Terminal Shroud | TDS250S | TDS250S | TDS250S | TDS400 | TDS400 | |

PV-RATED DISCONNECT SWITCHES

| 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 | MD250UV12 | MD320UV12 | MD400UV12 |
| Voltage Rating | | VDC | 1000 | 1000 | 1000 | 1000 | 1000 | 1500 | 1500 | 1500 |
| Current Rating | | A | 100 | 200 1) | 250 | 320 | 400 | 250 | 320 | 400 |
| Rated Ambient Temp. | | °C | -20...+50 | -20...+50 | -20...+50 | -20...+50 | -20...+50 | -20...+50 | -20...+50 | -20...+50 |
| Short Circuit Rating | | kA, 1000V | 5 | 5 | 10 | 10 | 10 | 10 | 10 | 10 |
| | Class of Fuse | | Circuit breaker | Circuit breaker | Circuit breaker | 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 | LUG400 | LUG400 | LUG400 |
| Wire Range | | | MCM | #4-300 | #4-300 | #2-600 | #2-600 | #2-600 | #2-600 | #2-600 |
| Technical data according to IEC | | | Same as type | MD160E | MD250E | MD315E | MD400E | MD500E | MD315EV12 | MD400EV12 |
| 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 | MD315E | MD400E | MD500E | |
| Rated Insulation voltage U_i | Pollution degree 2 | V | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 |
| | Pollution degree 3 | V | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 |
| Rated impulse withstand | 50 Hz 1 min | kV | | | | | | | | |
| | | kV | 12 | 12 | 12 | 12 | 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 | 315 | 400 | 630 | |
| | In enclosure 40°C | A | 100 | 160 | 200 | 250 | 315 | 400 | 550 | |
| | In enclosure 60°C | A | 100 | 160 | 200 | 250 | 315 | 400 | 440 | |
| | Cu | mm ² | 35 | 70 | 95 | 120 | 185 | 240 | 240 | |
| Rated operational current / poles in series DC-21B | 1000 | V | 100 / 2 | 160 / 2 | 200 / 2 | 250 / 2 | 315 / 2 | 400 / 2 | 500 / 2 | |
| | | | 100 / 2x2 | 160 / 2x2 | 200 / 2x2 | 250 / 2x2 | 315 / 2x2 | 400 / 2x2 | 500 / 2x2 | |
| Rated short-time withstand current, 1000 V, 1 s, R.M.S. -value I^{sc} | | kA | 5 | 5 | 5 | 5 | 10 | 10 | 10 | |
| Rated short circuit making capacity, 1000 V, Peak value I_{em} | | kA | 5 | 5 | 5 | 5 | 10 | 10 | 10 | |
| Power loss / pole | At rated current | W | 2 | 4 | 6 | 9,5 | 6 | 9,7 | 15,1 | |
| Cable size | Cu | mm ² | | | | | | | | |
| Terminal bolt size | Metric thread diameter x length | mm | M8x25 | M8x25 | M8x25 | M8x25 | M10x30 | M10x30 | M12x40 | |
| Terminal tightening torque | Counter torque required | Nm | 15-22 | 15-22 | 15-22 | 15-22 | 30-44 | 30-44 | 50-75 | |
| 1) Normal conditions defined in IEC 60947-1-6.1 | | | | | | | | | | |
| TECHNICAL DATA ACCORDING TO IEC 60947 FOR 1500VDC-RATED SWITCHES | | | | | | | | | | |
| Switch Size | | A | MD315EV12 | MD400EV12 | MD500EV12 | | | | | |
| Rated Insulation voltage U_i | Pollution degree 2 | V | 1500 | 1500 | 1500 | | | | | |
| | Pollution degree 3 | V | 1500 | 1500 | 1500 | | | | | |
| Rated thermal current I_{th} ...with minimum cable or bar cross section | | kV | 12 | 12 | 12 | | | | | |
| | In open air, normal conditions 1) | A | 315 | 400 | 630 | | | | | |
| Rated operational current / poles in series DC-21B | In enclosure 40°C | A | 315 | 400 | 550 | | | | | |
| | In enclosure 60°C | A | 315 | 400 | 440 | | | | | |
| | Cu | mm ² | 185 | 240 | 240 | | | | | |
| | 1000 | 1 circuit | V | 315 / 2 | 400 / 2 | 500 / 2 | | | | |
| Rated short-time withstand current, 1500 V, 1 s | 1000 | 2 circuits | V | 315 / 2 | 400 / 2 | 500 / 2 | | | | |
| | 1000 | 3 circuits | V | 315 / 2 | 400 / 2 | 500 / 2 | | | | |
| | 1500 | 1 circuit | V | 315 / 3 | 400 / 3 | 500 / 3 | | | | |
| | 1500 | 1 circuit | V | 315 / 4 | 400 / 4 | 500 / 4 | | | | |
| | 1500 | 2 circuits | V | 315 / 3 | 400 / 3 | 500 / 3 | | | | |
| Rated short circuit making capacity, 1500 V | R.M.S. -value I_{em} | kA | 10 | 10 | 10 | | | | | |
| Power loss / pole | At rated current | W | 6 | 9,7 | 15,1 | | | | | |
| Terminal bolt size | Metric thread dia. x length | mm | M 10x30 | M 10x30 | M 12x40 | | | | | |
| Terminal tightening torque | Counter torque required | Nm | 30-44 | 30-44 | 50-75 | | | | | |
| 1) Normal conditions defined in IEC 60947-1-6.1 | | | | | | | | | | |



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