

IEC Switches and Disconnects

Section 8

**ML Disconnect Switches**

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IEC Switches and Disconnects

ML Disconnect Switches

Introduction

The regulations EN 60204 part 1 and DIN VDE 0113 part 1 apply to the safety of machinery and the electrical equipment of machines.

Main switches are described in paragraph 5.3 and emergency-stop equipment in paragraph 10.7.

Main Switches

A manually operated main switch must be provided for every main circuit. It must be a switch-disconnector corresponding to utilization category AC23 (IEC 947-3), fulfilling the following requirements:

1. Disconnecting the electrical equipment from the main.
2. Visible contact indication or a disconnection function by construction (the handle is in the "OFF" position when all contacts are open).
3. If the main switch serves simultaneously as an emergency-stop switch, its handle should be red. Otherwise, black or gray handles are recommended.
4. It should be padlockable in the off position.
5. All active conductors are to be disconnected from the main. The breaking capacity should be sufficient to break the current of the largest motor in a blocked state together with the sum of the operating currents of the remaining motors/loads.
6. The handle of the main switch must be easily accessible and must lie between 24" – 74" (0.6 – 1.9 m) above the incomer level.

Emergency-stop equipment

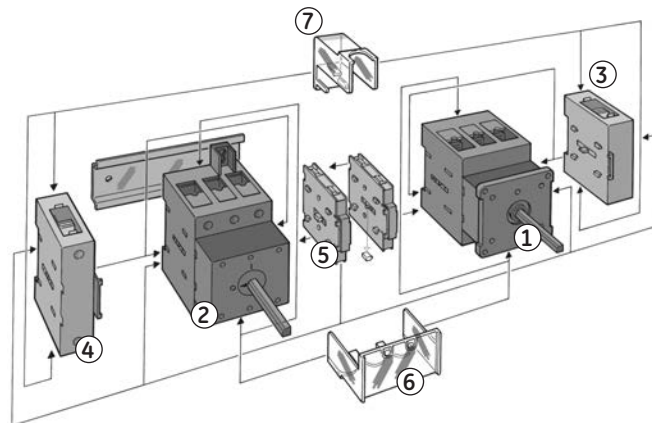
The main switch may fulfill the function of an emergency-stop switch on certain machines. The handles must be red on a yellow background. The contacts of a manually operated emergency-stop switch have to be opened by force (positive opening).

Standards

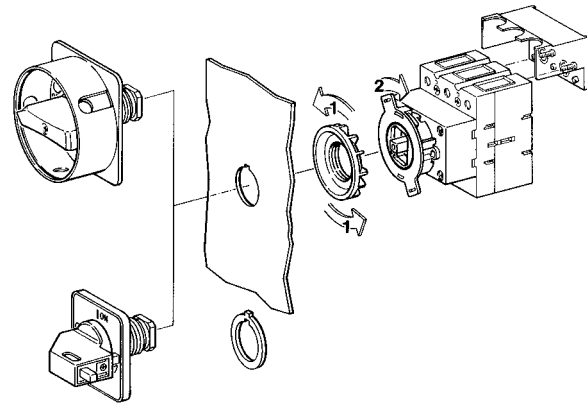
Complying with:

- IEC 947-3
- DIN VDE 0660
- low voltage directive 73/73 EEC
- low voltage directive EMC 89/336 EEC
- UL508
- CSA
- CE

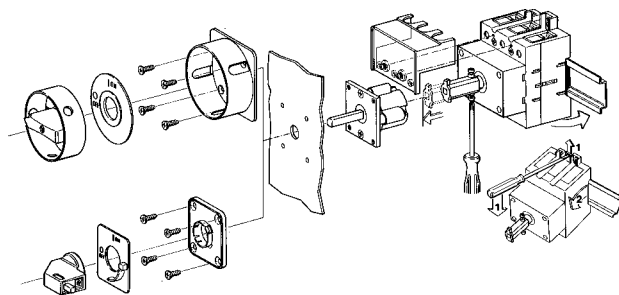
Mounting



- ① Front mounting (flush mounting)
- ② Rear mounting
- ③ Main contact and PE- or N-terminals for ①
- ④ Main contact and PE- or N-terminals for ②
- ⑤ Auxiliary switch 1NO-1NC for ① and ②
- ⑥ Triple terminal shroud for ① and ②
- ⑦ Single terminal shroud for ③ and ④



Central Mounting



Four-hole Mounting



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Mounting styles and availability by type

Mounting Style	Mounting Code	Handle/Lever and lock options	Type ML1		Type ML2		Type ML3	
			25A	40A	63A	80A	125A	
Front (Flush) Mounting	112	Red/yellow rotary handle, accepts 3 padlocks	✓	✓				
	Central Mounting: This through-the-door method requires no tools; the switch mounts with the supplied mounting ring, handle and adapter tab (which allows mounting in holes with diameters of either 22.5 mm or 30 mm). The handle and adapter tab mount on the outside of the door; the switch and mounting ring inside.	113	Black rotary handle, accepts 3 padlocks	✓	✓			
		142	Red/yellow lever, accepts 1 or 2 padlocks	✓	✓			
		143	Black lever, accepts 1 or 2 padlocks	✓	✓			
		200	Standard black lever, no padlocking provision	✓	✓	✓	✓	✓
	212	Red/yellow rotary handle, accepts 3 padlocks	✓	✓	✓	✓	✓	
	4-hole Mounting: Four screws go through the door, securing the front of the switch to the inside of the door and the handle/lever to the exterior.	213	Black rotary handle, accepts 3 padlocks	✓	✓	✓	✓	✓
		242	Red/yellow lever, accepts 1 or 2 padlocks	✓	✓			
		243	Black lever, accepts 1 or 2 padlocks	✓	✓			
		900	Standard black lever, no padlocking provision	✓	✓	✓	✓	✓
Rear Mounting	Rear Panel or DIN Rail Mounting: The switch is rear mounted, either with screws to the back of a panel or on a DIN rail. The entire switch, including the lever, remains inside the panel.	942	Red/yellow lever, accepts 1 or 2 padlocks	✓	✓	✓	✓	✓
		943	Black lever, accepts 1 or 2 padlocks	✓	✓	✓	✓	✓
		812	Red/yellow rotary handle, accepts 3 padlocks	✓	✓	✓	✓	✓
	Door Coupling: This through-the-door method is used on a hinged door and allows the handle/lever to remain in place as the door is opened and closed. The switch is rear mounted via DIN rail or screws, and the handle/lever and door coupling mechanism remain outside the panel. An optional extension shaft can compensate for the distance from rear of the panel to the front of the door.	813	Black rotary handle, accepts 3 padlocks	✓	✓	✓	✓	✓
		842	Red/yellow lever, accepts 1 or 2 padlocks	✓	✓			
		843	Black lever, accepts 1 or 2 padlocks	✓	✓			
		312	Red/yellow rotary handle, accepts 3 padlocks	✓	✓	✓	✓	✓
	Cover Coupling: This is similar to the door coupling, except it is used with unhinged doors. Door coupling hardware is not included and not necessary.	313	Black rotary handle, accepts 3 padlocks	✓	✓	✓	✓	✓
		342	Red/yellow lever, accepts 1 or 2 padlocks	✓	✓			
		343	Black lever, accepts 1 or 2 padlocks	✓	✓			



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Open Main Switches

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Front Mounting

Mounting Style	Handle Style	Number of Padlocks	Terminal Cover Included	IP	Handle/Lever Color	ML Switch Type	Ampere Rating	Product Number	List Price GO-10CS
Central Mounting	Locking Lever	1 or 2	Yes	IP65	Red/Yellow	ML1	25A	D/640006-142	\$73.00
Central Mounting	Locking Lever	1 or 2	Yes	IP65	Red/Yellow	ML1	40A	D/650006-142	\$113.00
Central Mounting	Locking Lever	1 or 2	Yes	IP65	Black/Gray	ML1	25A	D/640006-143	\$73.00
Central Mounting	Locking Lever	1 or 2	Yes	IP65	Black/Gray	ML1	40A	D/650006-143	\$113.00
Central Mounting	Locking Rotary Handle	3	Yes	IP65	Red/Yellow	ML1	25A	D/640006-112	\$76.00
Central Mounting	Locking Rotary Handle	3	Yes	IP65	Red/Yellow	ML1	40A	D/650006-112	\$116.00
Central Mounting	Locking Rotary Handle	3	Yes	IP65	Black/Gray	ML1	25A	D/640006-113	\$76.00
Central Mounting	Locking Rotary Handle	3	Yes	IP65	Black/Gray	ML1	40A	D/650006-113	\$116.00
4-hole Mounting	Locking Lever	1 or 2	Yes	IP55	Red/Yellow	ML1	25A	D/640006-242	\$68.00
4-hole Mounting	Locking Lever	1 or 2	Yes	IP55	Red/Yellow	ML1	40A	D/650006-242	\$108.00
4-hole Mounting	Locking Lever	1 or 2	Yes	IP55	Black/Gray	ML1	25A	D/640006-243	\$68.00
4-hole Mounting	Locking Lever	1 or 2	Yes	IP55	Black/Gray	ML1	40A	D/650006-243	\$108.00
4-hole Mounting	Locking Rotary Handle	3	Yes	IP55	Red/Yellow	ML1	25A	D/640006-212	\$74.00
4-hole Mounting	Locking Rotary Handle	3	Yes	IP55	Red/Yellow	ML1	40A	D/650006-212	\$114.00
4-hole Mounting	Locking Rotary Handle	3	Yes	IP55	Red/Yellow	ML2	63A	D/660006-212	\$134.00
4-hole Mounting	Locking Rotary Handle	3	Yes	IP55	Red/Yellow	ML2	80A	D/670006-212	\$198.00
4-hole Mounting	Locking Rotary Handle	3	Yes	IP55	Red/Yellow	ML3	125A	D/680006-212	\$240.00
4-hole Mounting	Locking Rotary Handle	3	Yes	IP55	Black/Gray	ML1	25A	D/640006-213	\$74.00
4-hole Mounting	Locking Rotary Handle	3	Yes	IP55	Black/Gray	ML1	40A	D/650006-213	\$114.00
4-hole Mounting	Locking Rotary Handle	3	Yes	IP55	Black/Gray	ML2	63A	D/660006-213	\$134.00
4-hole Mounting	Locking Rotary Handle	3	Yes	IP55	Black/Gray	ML2	80A	D/670006-213	\$198.00
4-hole Mounting	Locking Rotary Handle	3	Yes	IP55	Black/Gray	ML3	125A	D/680006-213	\$240.00
4-hole Mounting	Standard Lever	-	No	IP55	Black	ML1	25A	D/640006-200	\$64.00
4-hole Mounting	Standard Lever	-	No	IP55	Black	ML1	40A	D/650006-200	\$104.00
4-hole Mounting	Standard Lever	-	No	IP55	Black	ML2	63A	D/660006-200	\$124.00
4-hole Mounting	Standard Lever	-	No	IP55	Black	ML2	80A	D/670006-200	\$164.00
4-hole Mounting	Standard Lever	-	No	IP55	Black	ML3	125A	D/680006-200	\$220.00



Central Mounting, Locking Lever



4-hole Mounting, Locking Rotary Handle



Central Mounting, Locking Rotary Handle



4-hole Mounting, Standard Lever



4-hole Mounting, Locking Lever

See switching diagrams beginning on page 8-16. Diagram number corresponds to last three digits in base product number. For example, diagram number for D/640006-142 is 006.



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ML Disconnect Switches

Open Main Switches

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Rear Mounting

Mounting Style	Handle Style	Number of Padlocks	Terminal Cover Included	IP	Handle/Lever Color	ML Switch Type	Ampere Rating	Product Number	List Price GO-10CS
Rear Panel or DIN Rail Mounting	Locking Lever	1 or 2	Yes	IP30	Red/Yellow	ML1	25A	D/640006-942	\$82.00
Rear Panel or DIN Rail Mounting	Locking Lever	1 or 2	Yes	IP30	Red/Yellow	ML1	40A	D/650006-942	\$119.00
Rear Panel or DIN Rail Mounting	Locking Lever	1 or 2	Yes	IP30	Red/Yellow	ML2	63A	D/660006-942	\$144.00
Rear Panel or DIN Rail Mounting	Locking Lever	1 or 2	Yes	IP30	Red/Yellow	ML2	80A	D/670006-942	\$214.00
Rear Panel or DIN Rail Mounting	Locking Lever	1 or 2	Yes	IP30	Red/Yellow	ML3	125A	D/680006-942	\$254.00
Rear Panel or DIN Rail Mounting	Locking Lever	1 or 2	Yes	IP30	Black/Gray	ML1	25A	D/640006-943	\$82.00
Rear Panel or DIN Rail Mounting	Locking Lever	1 or 2	Yes	IP30	Black/Gray	ML1	40A	D/650006-943	\$119.00
Rear Panel or DIN Rail Mounting	Locking Lever	1 or 2	Yes	IP30	Black/Gray	ML2	63A	D/660006-943	\$144.00
Rear Panel or DIN Rail Mounting	Locking Lever	1 or 2	Yes	IP30	Black/Gray	ML2	80A	D/670006-943	\$214.00
Rear Panel or DIN Rail Mounting	Locking Lever	1 or 2	Yes	IP30	Black/Gray	ML3	125A	D/680006-943	\$254.00
Rear Panel or DIN Rail Mounting	Standard Lever	-	No	IP30	Black	ML1	25A	D/640006-900	\$90.00
Rear Panel or DIN Rail Mounting	Standard Lever	-	No	IP30	Black	ML1	40A	D/650006-900	\$121.00
Rear Panel or DIN Rail Mounting	Standard Lever	-	No	IP30	Black	ML2	63A	D/660006-900	\$146.00
Rear Panel or DIN Rail Mounting	Standard Lever	-	No	IP30	Black	ML2	80A	D/670006-900	\$216.00
Rear Panel or DIN Rail Mounting	Standard Lever	-	No	IP30	Black	ML3	125A	D/680006-900	\$256.00
Door Coupling	Locking Lever	1 or 2	Yes	IP55	Red/Yellow	ML1	25A	D/640006-842	\$86.00
Door Coupling	Locking Lever	1 or 2	Yes	IP55	Red/Yellow	ML1	40A	D/650006-842	\$123.00
Door Coupling	Locking Lever	1 or 2	Yes	IP55	Black/Gray	ML1	25A	D/640006-843	\$86.00
Door Coupling	Locking Lever	1 or 2	Yes	IP55	Black/Gray	ML1	40A	D/650006-843	\$123.00
Door Coupling	Locking Rotary Handle	3	Yes	IP55	Red/Yellow	ML1	25A	D/640006-812	\$94.00
Door Coupling	Locking Rotary Handle	3	Yes	IP55	Red/Yellow	ML1	40A	D/650006-812	\$125.00
Door Coupling	Locking Rotary Handle	3	Yes	IP55	Red/Yellow	ML2	63A	D/660006-812	\$150.00
Door Coupling	Locking Rotary Handle	3	Yes	IP55	Red/Yellow	ML2	80A	D/670006-812	\$220.00
Door Coupling	Locking Rotary Handle	3	Yes	IP55	Red/Yellow	ML3	125A	D/680006-812	\$260.00
Door Coupling	Locking Rotary Handle	3	Yes	IP55	Black/Gray	ML1	25A	D/640006-813	\$94.00
Door Coupling	Locking Rotary Handle	3	Yes	IP55	Black/Gray	ML1	40A	D/650006-813	\$125.00
Door Coupling	Locking Rotary Handle	3	Yes	IP55	Black/Gray	ML2	63A	D/660006-813	\$150.00
Door Coupling	Locking Rotary Handle	3	Yes	IP55	Black/Gray	ML2	80A	D/670006-813	\$220.00
Door Coupling	Locking Rotary Handle	3	Yes	IP55	Black/Gray	ML3	125A	D/680006-813	\$260.00



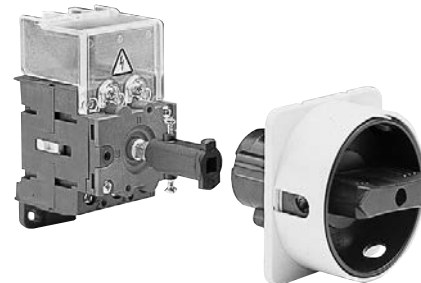
Rear Panel or DIN-rail Mount, Locking Lever



Rear Panel or DIN-rail Mount, Standard Lever



Door Coupling, Locking Lever



Door Coupling, Locking Rotary Handle

See switching diagrams beginning on page 8-16. Diagram number corresponds to last three digits in base product number. For example, diagram number for D/640006-942 is 006.



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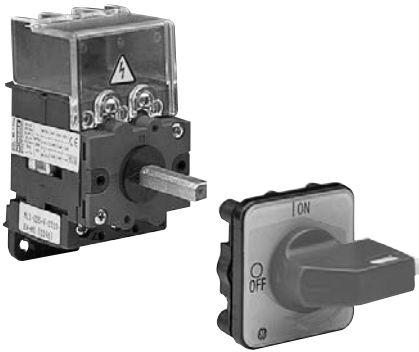
ML Disconnect Switches

Open Main Switches (Continued)

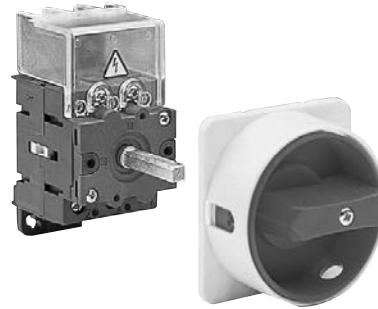
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Rear Mounting (continued)

Mounting Style	Handle Style	Number of Padlocks	Terminal Cover Included	IP	Handle/Lever Color	ML Switch Type	Ampere Rating	Product Number	List Price GO-10CS
Cover Coupling	Locking Lever	1 or 2	Yes	IP55	Red/Yellow	ML1	25A	D/640006-342	\$84.00
Cover Coupling	Locking Lever	1 or 2	Yes	IP55	Red/Yellow	ML1	40A	D/650006-342	\$121.00
Cover Coupling	Locking Lever	1 or 2	Yes	IP55	Black/Gray	ML1	25A	D/640006-343	\$84.00
Cover Coupling	Locking Lever	1 or 2	Yes	IP55	Black/Gray	ML1	40A	D/650006-343	\$121.00
Cover Coupling	Locking Rotary Handle	3	Yes	IP55	Red/Yellow	ML1	25A	D/640006-312	\$92.00
Cover Coupling	Locking Rotary Handle	3	Yes	IP55	Red/Yellow	ML1	40A	D/650006-312	\$123.00
Cover Coupling	Locking Rotary Handle	3	Yes	IP55	Red/Yellow	ML2	63A	D/660006-312	\$148.00
Cover Coupling	Locking Rotary Handle	3	Yes	IP55	Red/Yellow	ML2	80A	D/670006-312	\$218.00
Cover Coupling	Locking Rotary Handle	3	Yes	IP55	Red/Yellow	ML3	125A	D/680006-312	\$258.00
Cover Coupling	Locking Rotary Handle	3	Yes	IP55	Black/Gray	ML1	25A	D/640006-313	\$92.00
Cover Coupling	Locking Rotary Handle	3	Yes	IP55	Black/Gray	ML1	40A	D/650006-313	\$123.00
Cover Coupling	Locking Rotary Handle	3	Yes	IP55	Black/Gray	ML2	63A	D/660006-313	\$148.00
Cover Coupling	Locking Rotary Handle	3	Yes	IP55	Black/Gray	ML2	80A	D/670006-313	\$218.00
Cover Coupling	Locking Rotary Handle	3	Yes	IP55	Black/Gray	ML3	125A	D/680006-313	\$258.00



Cover Coupling, Locking Lever



Cover Coupling, Locking Rotary Handle

See switching diagrams beginning on page 8-16. Diagram number corresponds to last three digits in base product number. For example, diagram number for D/640006-942 is 006.



IEC Switches and Disconnects

ML Disconnect Switches

Enclosed Switches

Description

The maintenance switch is an enclosed main switch with a rotary handle lockable by 3 padlocks.

If the switch is to be used as an emergency-stop switch, it should be ordered with a red handle and yellow frontplate; otherwise black/gray are appropriate.

There are six sizes of standard enclosures. Each is equipped with a cover coupling and a double PE-terminal (Ground). Switches type 640 (3 and 4-pole) are provided with an additional N-terminal.

All enclosures have a degree of protection IP65 and are made of solid impact- and flame-resistant plastic. These switches are not UL Listed in this enclosure.



Black/Gray Enclosed Switch

Locking Rotary Handle

No. of Poles	ML Switch Type	Enclosure Type	Ampere Rating	Number of Padlocks	Handle/Lever Color	Product Number	List Price GO-10CS
3	ML1	E2	25A	3	Red/Yellow	D/640006-712	\$141.00
3	ML1	E3	32A	3	Red/Yellow	D/650006-712	\$209.00
3	ML2	E4	50A	3	Red/Yellow	D/660006-712	\$237.00
3	ML2	E5	63A	3	Red/Yellow	D/670006-712	\$294.00
3	ML3	E7	100A	3	Red/Yellow	D/680006-712	\$338.00
4	ML1	E2	25A	3	Red/Yellow	D/640007-712	\$170.00
4	ML1	E3	32A	3	Red/Yellow	D/650007-712	\$251.00
4	ML2	E4	50A	3	Red/Yellow	D/660007-712	\$287.00
4	ML2	E5	63A	3	Red/Yellow	D/670007-712	\$348.00
4	ML3	E7	100A	3	Red/Yellow	D/680007-712	\$410.00
3 + (1NO+1NC)	ML1	E2	25A	3	Red/Yellow	D/640206-712	\$183.00
3 + (1NO+1NC)	ML1	E3	32A	3	Red/Yellow	D/650206-712	\$251.00
3 + (1NO+1NC)	ML2	E4	50A	3	Red/Yellow	D/660206-712	\$279.00
3 + (1NO+1NC)	ML2	E5	63A	3	Red/Yellow	D/670206-712	\$336.00
3 + (1NO+1NC)	ML3	E7	100A	3	Red/Yellow	D/680206-712	\$380.00
4 + (1NO+1NC)	ML1	E2	25A	3	Red/Yellow	D/640207-712	\$212.00
4 + (1NO+1NC)	ML1	E3	32A	3	Red/Yellow	D/650207-712	\$293.00
4 + (1NO+1NC)	ML2	E4	50A	3	Red/Yellow	D/660207-712	\$329.00
4 + (1NO+1NC)	ML2	E5	63A	3	Red/Yellow	D/670207-712	\$390.00
4 + (1NO+1NC)	ML3	E7	100A	3	Red/Yellow	D/680207-712	\$452.00
6	ML1	E3	25A	3	Red/Yellow	D/640138-712	\$267.00
6	ML1	E4	32A	3	Red/Yellow	D/650138-712	\$340.00
6	ML2	E5	50A	3	Red/Yellow	D/660138-712	\$439.00
6	ML2	E6	63A	3	Red/Yellow	D/670138-712	\$549.00
6	ML3	E7	100A	3	Red/Yellow	D/680138-712	\$686.00
6 + (1NO+1NC)	ML1	E3	25A	3	Red/Yellow	D/640238-712	\$309.00
6 + (1NO+1NC)	ML1	E5	32A	3	Red/Yellow	D/650238-712	\$382.00
6 + (1NO+1NC)	ML2	E5	50A	3	Red/Yellow	D/660238-712	\$481.00
6 + (1NO+1NC)	ML2	E6	63A	3	Red/Yellow	D/670238-712	\$591.00
6 + (1NO+1NC)	ML3	E7	100A	3	Red/Yellow	D/680238-712	\$728.00
3	ML1	E2	25A	3	Black/Gray	D/640006-713	\$141.00
3	ML1	E3	32A	3	Black/Gray	D/650006-713	\$209.00
3	ML2	E4	50A	3	Black/Gray	D/660006-713	\$237.00
3	ML2	E5	63A	3	Black/Gray	D/670006-713	\$294.00
3	ML3	E7	100A	3	Black/Gray	D/680006-713	\$338.00
4	ML1	E2	25A	3	Black/Gray	D/640007-713	\$170.00
4	ML1	E3	32A	3	Black/Gray	D/650007-713	\$251.00
4	ML2	E4	50A	3	Black/Gray	D/660007-713	\$287.00
4	ML2	E5	63A	3	Black/Gray	D/670007-713	\$348.00
4	ML3	E7	100A	3	Black/Gray	D/680007-713	\$410.00
3 + (1NO+1NC)	ML1	E2	25A	3	Black/Gray	D/640206-713	\$183.00
3 + (1NO+1NC)	ML1	E3	32A	3	Black/Gray	D/650206-713	\$251.00
3 + (1NO+1NC)	ML2	E4	50A	3	Black/Gray	D/660206-713	\$279.00
3 + (1NO+1NC)	ML2	E5	63A	3	Black/Gray	D/670206-713	\$336.00
3 + (1NO+1NC)	ML3	E7	100A	3	Black/Gray	D/680206-713	\$380.00
4 + (1NO+1NC)	ML1	E2	25A	3	Black/Gray	D/640207-713	\$212.00
4 + (1NO+1NC)	ML1	E3	32A	3	Black/Gray	D/650207-713	\$293.00
4 + (1NO+1NC)	ML2	E4	50A	3	Black/Gray	D/660207-713	\$329.00
4 + (1NO+1NC)	ML2	E5	63A	3	Black/Gray	D/670207-713	\$390.00
4 + (1NO+1NC)	ML3	E7	100A	3	Black/Gray	D/680207-713	\$452.00
6	ML1	E3	25A	3	Black/Gray	D/640138-713	\$267.00
6	ML1	E4	32A	3	Black/Gray	D/650138-713	\$340.00
6	ML2	E5	50A	3	Black/Gray	D/660138-713	\$439.00
6	ML2	E6	63A	3	Black/Gray	D/670138-713	\$549.00
6	ML3	E7	100A	3	Black/Gray	D/680138-713	\$686.00
6 + (1NO+1NC)	ML1	E3	25A	3	Black/Gray	D/640238-713	\$309.00
6 + (1NO+1NC)	ML1	E5	32A	3	Black/Gray	D/650238-713	\$382.00
6 + (1NO+1NC)	ML2	E5	50A	3	Black/Gray	D/660238-713	\$481.00
6 + (1NO+1NC)	ML2	E6	63A	3	Black/Gray	D/670238-713	\$591.00
6 + (1NO+1NC)	ML3	E7	100A	3	Black/Gray	D/680238-713	\$728.00

See switching diagrams beginning on page 8-16. Diagram number corresponds to last three digits in base product number. For example, diagram number for D/640006-713 is 006.



IEC Switches and Disconnects

ML Disconnect Switches

Emergency Stop Switches with Undervoltage Release

Section 8

Description

Emergency-stop switches with undervoltage release are equipped with a red/yellow lockout rotary handle for 3 padlocks. The regulations EN 60204 part 1 and DIN VDE 0113 part 1, paragraph 7.5, demand an undervoltage protection. This prevents restarting, at recovery voltage, after a main fails or falls below a set voltage level, preventing damage to the machine or the working process. In the case of a main failure, the undervoltage coil actuates a mechanism that switches the main switch to the off position. The trip-free nature of the mechanism ensures that the main switch cannot be turned on in the absence of coil voltage, even when the switch actuator is operated.

UL Listing is pending on the 32A and 50A emergency-stop switches and on the enclosed versions. The 25A switch is not UL Listed. Consult your GE Energy sales office for details.



IP54, Front Mounting, 2-hole Mounting



IP55, In Plastic Enclosure

Front Mount 2 hole Mounting (IP54)

ML Switch Type	Ampere Rating	kW@AC3, 400V	HP@AC3, 400V	kW@AC23, 400V	HP@AC23, 400V	Operating Voltage	Coil Voltage ¹ for UVR	Product Number	List Price GO-10CS
151	25A	11	10.1	7.5	14.8	3 x 400V	230V, 50/60 Hz	D/151006-223	\$330.00
251	32A	15	14.8	11	20.1	3 x 400V	230V, 50/60 Hz	D/251006-223	\$350.00
451	50A	22	24.8	18.5	29.5	3 x 400V	230V, 50/60 Hz	D/451006-223	\$380.00
151	25A	11	10.1	7.5	14.8	3 x 400V	400V, 50/60 Hz	D/151006-240	\$330.00
251	32A	15	14.8	11	20.1	3 x 400V	400V, 50/60 Hz	D/251006-240	\$350.00
451	50A	22	24.8	18.5	29.5	3 x 400V	400V, 50/60 Hz	D/451006-240	\$380.00

Enclosed (IP55)

ML Switch Type	Ampere Rating	kW@AC3, 400V	HP@AC3, 400V	kW@AC23, 400V	HP@AC23, 400V	Operating Voltage	Coil Voltage ¹ for UVR	Product Number	List Price GO-10CS
151	25A	11	10.1	7.5	14.8	3 x 400V	230V, 50/60 Hz	D/151006-823	\$387.72
251	32A	15	14.8	11	20.1	3 x 400V	230V, 50/60 Hz	D/251006-823	\$407.72
151	25A	11	10.1	7.5	14.8	3 x 400V	400V, 50/60 Hz	D/151006-840	\$387.72
251	32A	15	14.8	11	20.1	3 x 400V	400V, 50/60 Hz	D/251006-840	\$407.72

See switching diagrams beginning on page 8-16. Diagram number corresponds to last three digits in base product number. For example, diagram number for D/151005-223 is 006.

¹Consult factory for other available coil voltages.

Undervoltage Release: Pick-up voltage ≥85%; Drop-out voltage 35%-75%; Continuous operation 100%



IEC Switches and Disconnects

ML Disconnect Switches

Accessories

Section 8

Contact Blocks

Contact Block Type	ML Switch Type	Ampere Rating	Location	Product Number	List Price GO-10CS
Neutral Switched, Early Make	ML1	25A, 40A	Door	D/650000-201	\$35.00
Neutral Switched, Early Make	ML2	63A, 80A	Door	D/670000-201	\$50.00
Neutral Switched, Early Make	ML3	125A	Door	D/680000-201	\$60.00
Neutral Switched, Early Make	ML1	25A, 40A	Base	D/650000-301	\$35.00
Neutral Switched, Early Make	ML2	63A, 80A	Base	D/670000-301	\$50.00
Neutral Switched, Early Make	ML3	125A	Base	D/680000-301	\$60.00
Switching Neutral	ML1	25A, 40A	Door	D/650000-202	\$35.00
Switching Neutral	ML2	63A, 80A	Door	D/670000-202	\$50.00
Switching Neutral	ML3	125A	Door	D/680000-202	\$60.00
Switching Neutral	ML1	25A, 40A	Base	D/650000-302	\$35.00
Switching Neutral	ML2	63A, 80A	Base	D/670000-302	\$50.00
Switching Neutral	ML3	125A	Base	D/680000-302	\$60.00
PE Terminal	ML1	25A, 40A	Door	D/650000-203	\$19.00
PE Terminal	ML2	63A, 80A	Door	D/670000-203	\$25.00
PE Terminal	ML3	125A	Door	D/680000-203	\$32.00
PE Terminal	ML1	25A, 40A	Base	D/650000-303	\$19.00
PE Terminal	ML2	63A, 80A	Base	D/670000-303	\$25.00
PE Terminal	ML3	125A	Base	D/680000-303	\$32.00
Fixed Neutral Module	ML1	25A, 40A	Door	D/650000-204	\$19.00
Fixed Neutral Module	ML2	63A, 80A	Door	D/670000-204	\$25.00
Fixed Neutral Module	ML3	125A	Door	D/680000-204	\$32.00
Fixed Neutral Module	ML1	25A, 40A	Base	D/650000-304	\$19.00
Fixed Neutral Module	ML2	63A, 80A	Base	D/670000-304	\$25.00
Fixed Neutral Module	ML3	125A	Base	D/680000-304	\$32.00
Auxiliary Contact (1NO 1NC)	ML1, ML2, ML3	25A, 40A, 63A, 80A, 125A	Door	D/680000-205	\$42.00
Auxiliary Contact (1NO-1NC)	ML1, ML2, ML3	25A, 40A, 63A, 80A, 125A	Base	D/680000-305	\$42.00

ML1 accepts maximum of 2 auxiliary contact blocks. ML2 and ML3 accept maximum of 3 auxiliary contact blocks.

Terminal Covers

Accessory Type	ML Switch Type	Ampere Rating	Product Number	List Price GO-10CS
Single Terminal Cover	ML1	25A, 40A	D/650000-006	\$3.00
Single Terminal Cover	ML2, ML3	63A, 80A, 125A	D/680000-006	\$6.00
Triple Terminal Cover	ML1	25A, 40A	D/650000-007	\$7.00
Triple Terminal Cover	ML2	63A, 80A	D/670000-007	\$9.00
Triple Terminal Cover	ML3	125A	D/680000-007	\$11.00

Terminal covers are standard on all main switches except standard black handle (mounting code 200 & 900).

Order these for replacement purposes only.

Extension shafts for door coupling

Extension shafts are required when the distance between door and base exceeds that of the standard shaft (105-135 mm/4.13-5.31 inches for 25A & 40A units, 120-150 mm/4.72-5.91 inches for 63A, 80A and 125A units.)

Depth range between door and base			Product Number	List Price GO-10CS
Type ML1 (25A, 40A) mm (in.)	Type ML2, ML3 (63A, 80A, 125A) mm (in.)	Extension Shaft Length mm (in.)		
170-215 (6.69-8.46)	185-320 (7.28-12.60)	65 (2.56)	D/680000-220	\$25.00
265-335 (10.43-13.19)	280-350 (11.02-13.78)	165 (6.50)	D/680000-230	\$25.00
365-435 (14.37-17.17)	380-450 (14.96-17.72)	265 (10.43)	D/680000-240 ¹	\$58.00
465-535 (18.31-21.06)	480-550 (18.90-21.65)	365 (14.37)	D/680000-250 ¹	\$60.00

¹Includes shaft support.

Shaft support

Product Number	List Price GO-10CS
D/680000-290	\$40.00



Neutral Switched, Early Make



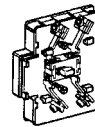
Switching Neutral



PE Terminal



Fixed Neutral Terminal



Auxiliary Contact



Terminal Cover (Single)



Triple Terminal Cover



Extension Shaft for Door Coupling



IEC Switches and Disconnects

ML Disconnect Switches

Technical Data

UL, CSA, IEC Ratings

UL/CSA Ratings

ML Switch Type	ML1	ML1	ML2	ML2	ML3
Ampere Rating	25A	40A	63A	80A	125A
General Purpose	25A @	40A @	63A @	80A @	125A @
3-phase	600V	600V	600V	600V	600V
Motor 3-phase @ 240V	7.5 HP	10 HP	15 hp	20 hp	25 HP
Motor 3-phase @ 480V	10 HP	20 HP	30 hp	40 hp	50 HP
Motor 3-phase @ 600V	10 HP	20 HP	30 HP	40 hp	50 HP
Motor 1-phase (2 pole) @ 120V	1 hp	1.5 HP	3 hp	4 hp	6 hp
Motor 1-phase (2 pole) @ 240V	2 hp	3 hp	7.5 hp	10 hp	15 hp
FLA 3-phase @ 240V	22 hp	28 hp	42 hp	54 hp	68 hp
FLA 3-phase @ 480V	14 hp	27 hp	40 hp	52 hp	65 hp
FLA 3-phase @ 600V	11 hp	22 hp	32 hp	41 hp	52 hp
FLA 1-phase (2 pole) @ 120V	16 hp	20 hp	34 hp	45 hp	66 hp
FLA 1-phase (2 pole) @ 240V	12 hp	17 hp	40 hp	50 hp	68 hp
Torque Terminal Screws (UL/CSA)	22.1 in-lbs	22.1 in-lbs	35.4 in-lbs	35.4 in-lbs	53.1 in-lbs
Cable Cross Section	14-7 AWG	14-3 AWG	14-2 AWG	14-2 AWG	8-1/0 AWG

Auxiliary Contacts (According to IEC 947-5-1)

Rated uninterrupted current	16 A
Rated insulation voltage Ui (III/3)	690 V
Rated impulse withstand voltage Uimp (III/3)	6 kV
Rated Operational Current Ie (AC15) @ 230V	6 A
Rated Operational Current Ie (AC15) @ 400V	4 A
Rated Operational Current Ie (AC15) @ 690V	2 A
Max. Fuse Rating gL	16 A
Rated Conditional Short-Circuit Current	3 kAeff
Cable Cross Section, Solid or Multi-Stranded, min.	1 mm ²
Cable Cross Section, Solid or Multi-Stranded, max.	4 mm ²
Cable Cross Section, Flexible with ferrule (DIN 46228), min.	1 mm ²
Cable Cross Section, Flexible with ferrule (DIN 46228), max.	2.5 mm ²
Terminal Screws (Pozidriv)	M3
Torque terminal screws	0.6 Nm

According to IEC 947-3, EN 60947-3, DIN VDE 0660 Part 107, UL and CSA

ML Switch Type	ML1	ML1	ML2	ML2	ML3
Ampere Rating	25A	40A	63A	80A	125A
Rated uninterrupted current: Open	25 A	40 A	63 A	80 A	125 A
Rated uninterrupted current: Enclosed	25 A	32 A	50 A	63 A	100 A
Rated insulation voltage Ui (III/3)	690 V	690 V	690 V	690 V	690 V
Rated impulse withstand voltage Uimp (III/3)	6 kV	6 kV	6 kV	6 kV	6 kV
Rated operational current Ie AC21 A ³	25 A	40 A	63 A	80 A	125 A
Rated operational voltage Ue	690 V	690 V	690 V	690 V	690 V
Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Utilization Cat. AC3 Making/Breaking Capacity @ 3 x 230V	5.5 kW	7.5 kW	15 kW	18.5 kW	22 kW
Utilization Cat. AC3 Making/Breaking Capacity @ 3 x 400V	7.5 kW	11 kW	22 kW	30 kW	37 kW
Utilization Cat. AC3 Making/Breaking Capacity @ 3 x 690V	7.5 kW	11 kW	22 kW	30 kW	45 kW
Utilization Cat. AC3 Capacity @ 1 x 230V	-	-	-	-	-
Utilization Cat. AC23A ³ Making/Breaking Capacity @ 3 x 230V	7.5 kW	11 kW	18.5 kW	22 kW	25 kW
Utilization Cat. AC23A ³ Making/Breaking Capacity @ 3 x 400V	11 kW	15 kW	30 kW ¹	37 kW ²	45 kW
Utilization Cat. AC23A ³ Making/Breaking Capacity @ 3 x 690V	11 kW	15 kW	30 kW ¹	37 kW ²	45 kW
Rated Breaking Capacity @ 3 x 230V ³	260 A	390 A	630 A	750 A	870 A
Rated Breaking Capacity @ 3 x 400V ³	220 A	300 A	570 A	700 A	850 A
Rated Breaking Capacity @ 3 x 690V ³	130 A	170 A	330 A	400 A	490 A
Max. Fuse Rating gL	50A	50 A	80 A	80 A	125 A
Rated Conditional Short-Circuit Current	10 kAeff	10 kAeff	-	-	-
Rated Short-Circuit Making Capacity Icm	-	-	2.1 kA	2.1 kA	3.4 kA
Rated Short-Time Withstand Icw (1 s-current)	300 Aeff	480 Aeff	765 Aeff	960 Aeff	1500 Aeff
Disconnect Function up to Terminal Screws (Pozidriv)	690 V	690 V	690 V	690 V	690 V
Torque terminal screws	M4	M4	M5	M5	M6
Cable Cross Section, Solid or Multi-Stranded, min.	1.5 mm ²	1.5 mm ²	2.5 mm ²	2.5 mm ²	6 mm ²
Cable Cross Section, Solid or Multi-Stranded, max.	10 mm ²	10 mm ²	35 mm ²	35 mm ²	70 mm ²
Cable Cross Section, Flexible with ferrule (DIN 46228), min.	1.5 mm ²	1.5 mm ²	1.5 mm ²	1.5 mm ²	6 mm ²
Cable Cross Section, Flexible with ferrule (DIN 46228), max.	6 mm ²	6 mm ²	25 mm ²	25 mm ²	50 mm ²

¹22 kW in enclosure

²30 kW in enclosure

³ML2/ML3 according to EN60947-3 category B



IEC Switches and Disconnects

ML Disconnect Switches

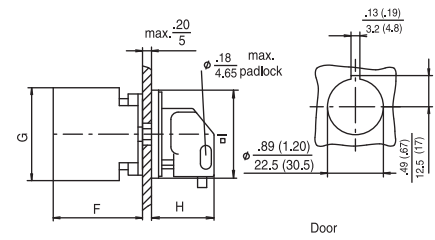
Outlines and Dimensions in. (mm)

(For Estimating Only)

Section 8

Central Mounting 1 or 2 Padlocks

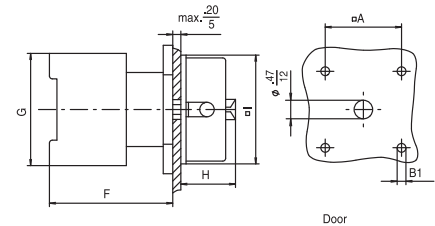
ML Switch Type	Ampere Rating	Dimension D in. (mm)	Dimension E in. (mm)	Dimension F in. (mm)	Dimension G in. (mm)	Dimension H in. (mm)	Dimension I in. (mm)
ML1	25A, 40 A	2.17 (55)	1.77 (45)	2.95 (75)	0.98 (25)	1.38 (35)	1.89 (48)



Central Mounting, 1 or 2 Padlocks ($\frac{\text{in}}{\text{mm}}$)

Central Mounting 3 Padlocks

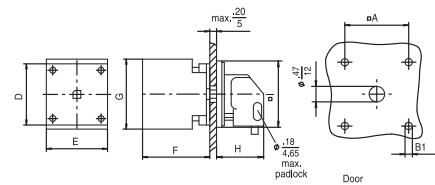
ML Switch Type	Ampere Rating	Dimension D in. (mm)	Dimension E in. (mm)	Dimension F in. (mm)	Dimension G in. (mm)	Dimension H in. (mm)	Dimension I in. (mm)
ML1	25A	2.17 (55)	1.77 (45)	2.95 (75)	0.98 (25)	1.38 (35)	2.60 (66)
ML1	40A	2.17 (55)	1.77 (45)	2.95 (75)	0.98 (25)	1.38 (35)	2.60 (66)



Central Mounting, 3 Padlocks ($\frac{\text{in}}{\text{mm}}$)

4-hole Mounting 1 or 2 Padlocks

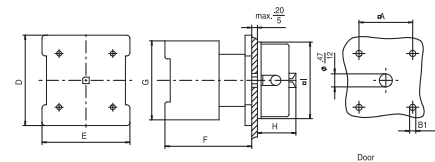
ML Switch Type	Ampere Rating	Dimension A in. (mm)	Dimension B1 in. (mm)	Dimension D in. (mm)	Dimension E in. (mm)	Dimension F in. (mm)	Dimension G in. (mm)	Dimension H in. (mm)	Dimension I in. (mm)
ML1	25A	1.42 (36)	0.18 (4.5)	1.73 (44)	1.73 (44)	1.97 (50)	2.17 (55)	1.38 (35)	1.89 (48)
ML1	40A	1.42 (36)	0.18 (4.5)	1.73 (44)	1.73 (44)	1.97 (50)	2.17 (55)	1.38 (35)	1.89 (48)



4-hole Mounting, 1 or 2 Padlocks ($\frac{\text{in}}{\text{mm}}$)

4-hole Mounting 3 Padlocks

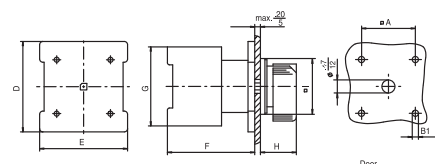
ML Switch Type	Ampere Rating	Dimension A in. (mm)	Dimension B1 in. (mm)	Dimension D in. (mm)	Dimension E in. (mm)	Dimension F in. (mm)	Dimension G in. (mm)	Dimension H in. (mm)	Dimension I in. (mm)
ML1	25A	1.42 (36)	0.18 (4.5)	1.73 (44)	1.73 (44)	1.97 (50)	2.17 (55)	1.26 (32)	2.60 (66)
ML1	40A	1.42 (36)	0.18 (4.5)	1.73 (44)	1.73 (44)	1.97 (50)	2.17 (55)	1.26 (32)	2.60 (66)
ML2	63A	1.89 (48)	0.22 (5.5)	2.28 (58)	2.28 (58)	2.83 (72)	2.95 (75)	1.46 (37)	3.39 (86)
ML2	80A	1.89 (48)	0.22 (5.5)	2.28 (58)	2.28 (58)	2.83 (72)	2.95 (75)	1.46 (37)	3.39 (86)
ML3	125A	1.89 (48)	0.22 (5.5)	3.07 (78)	3.07 (78)	2.83 (72)	80 (3.15)	1.46 (37)	3.39 (86)



4-hole Mounting, 3 Padlocks ($\frac{\text{in}}{\text{mm}}$)

4-hole Mounting Standard Lever Black

ML Switch Type	Ampere Rating	Dimension A in. (mm)	Dimension B1 in. (mm)	Dimension D in. (mm)	Dimension E in. (mm)	Dimension F in. (mm)	Dimension G in. (mm)	Dimension H in. (mm)	Dimension I in. (mm)
ML1	25A	1.42 (36)	0.18 (4.5)	1.73 (44)	1.73 (44)	1.97 (50)	2.17 (55)	1.14 (29)	1.89 (48)
ML1	40A	1.42 (36)	0.18 (4.5)	1.73 (44)	1.73 (44)	1.97 (50)	2.17 (55)	1.14 (29)	1.89 (48)
ML2	63A	1.89 (48)	0.22 (5.5)	2.28 (58)	2.28 (58)	2.83 (72)	2.95 (75)	1.30 (33)	2.52 (64)
ML2	80A	1.89 (48)	0.22 (5.5)	2.28 (58)	2.28 (58)	2.83 (72)	2.95 (75)	1.30 (33)	2.52 (64)
ML3	125A	2.68 (68)	0.22 (5.5)	3.07 (78)	3.07 (78)	2.83 (72)	80 (3.15)	1.38 (35)	3.46 (88)



4-hole Mounting, Standard Black Handle ($\frac{\text{in}}{\text{mm}}$)



IEC Switches and Disconnects

ML Disconnect Switches

Outlines and Dimensions in. (mm)

(For Estimating Only)

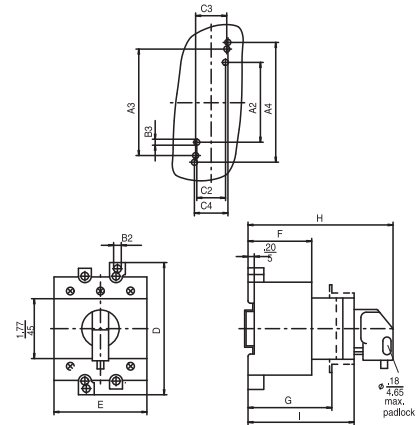
Section 8

Rear Panel or DIN Rail Mounting Standard Lever Black

ML Switch Type	Ampere Rating	Dimension A2 in. (mm)	Dimension A3 in. (mm)	Dimension A4 in. (mm)	Dimension B2 in. (mm)	Dimension B3 in. (mm)	Dimension C2 in. (mm)	Dimension C3 in. (mm)
ML1	25A	2.36 (60)	2.56 (65)	2.76 (70)	0.17 (4.2)	0.15 (3.8)	0.87 (22)	1.18 (30)
ML1	40A	2.36 (60)	2.56 (65)	2.76 (70)	0.17 (4.2)	0.15 (3.8)	0.87 (22)	1.18 (30)
ML2	63A	-	3.15 (80)	3.54 (90)	0.22 (5.5)	0.20 (5.2)	-	0.93 (23.5)
ML2	80A	-	3.15 (80)	3.54 (90)	0.22 (5.5)	0.20 (5.2)	-	0.93 (23.5)
ML3	125A	-	3.15 (80)	3.54 (90)	0.22 (5.5)	0.20 (5.2)	-	0.93 (23.5)

Rear Panel or DIN Rail Mounting Standard Lever Black

ML Switch Type	Ampere Rating	Dimension C4 in. (mm)	Dimension D in. (mm)	Dimension E in. (mm)	Dimension F in. (mm)	Dimension G in. (mm)	Dimension H in. (mm)	Dimension I in. (mm)
ML1	25A	0.98 (25)	3.07 (78)	2.07 (52.5)	1.65 (42)	1.91 (48.5)	3.44 (87.5)	2.66 (67.5)
ML1	40A	0.98 (25)	3.07 (78)	2.07 (52.5)	1.65 (42)	1.91 (48.5)	3.44 (87.5)	2.66 (67.5)
ML2	63A	0.98 (25)	3.94 (100)	2.11 (53.5)	1.93 (49)	-	3.94 (100)	3.11 (79)
ML2	80A	0.98 (25)	3.94 (100)	2.11 (53.5)	1.93 (49)	-	3.94 (100)	3.11 (79)
ML3	125A	0.98 (25)	3.94 (100)	2.76 (70)	1.93 (49)	-	3.94 (100)	3.11 (79)



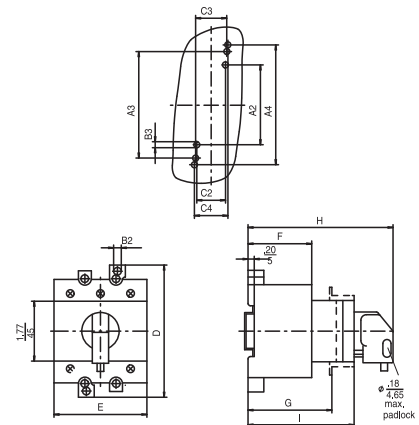
Rear Panel or DIN-Rail Mounting, Standard, Black (in/mm)

Rear Panel or DIN Rail Mounting 1 or 2 Padlocks

ML Switch Type	Ampere Rating	Dimension A2 in. (mm)	Dimension A3 in. (mm)	Dimension A4 in. (mm)	Dimension B2 in. (mm)	Dimension B3 in. (mm)	Dimension C2 in. (mm)	Dimension C3 in. (mm)
ML1	25A	2.36 (60)	2.56 (65)	2.76 (70)	0.17 (4.2)	0.15 (3.8)	0.87 (22)	1.18 (30)
ML1	40A	2.36 (60)	2.56 (65)	2.76 (70)	0.17 (4.2)	0.15 (3.8)	0.87 (22)	1.18 (30)
ML2	63A	-	3.15 (80)	3.54 (90)	0.22 (5.5)	0.20 (5.2)	-	0.93 (23.5)
ML2	80A	-	3.15 (80)	3.54 (90)	0.22 (5.5)	0.20 (5.2)	-	0.93 (23.5)
ML3	125A	-	3.15 (80)	3.54 (90)	0.22 (5.5)	0.20 (5.2)	-	0.93 (23.5)

Rear Panel or DIN Rail Mounting 1 or 2 Padlocks

ML Switch Type	Ampere Rating	Dimension C4 in. (mm)	Dimension D in. (mm)	Dimension E in. (mm)	Dimension F in. (mm)	Dimension G in. (mm)	Dimension H in. (mm)	Dimension I in. (mm)
ML1	25A	0.98 (25)	3.07 (78)	2.07 (52.5)	1.65 (42)	1.91 (48.5)	3.60 (91.5)	2.66 (67.5)
ML1	40A	0.98 (25)	3.07 (78)	2.07 (52.5)	1.65 (42)	1.91 (48.5)	3.60 (91.5)	2.66 (67.5)
ML2	63A	0.98 (25)	3.94 (100)	2.11 (53.5)	1.93 (49)	-	4.09 (104)	3.11 (79)
ML2	80A	0.98 (25)	3.94 (100)	2.11 (53.5)	1.93 (49)	-	4.09 (104)	3.11 (79)
ML3	125A	0.98 (25)	3.94 (100)	2.76 (70)	1.93 (49)	-	4.09 (104)	3.11 (79)



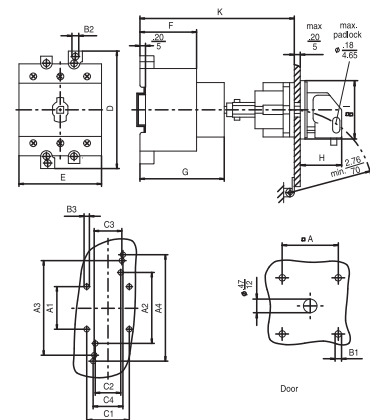
Rear Panel or DIN-Rail Mounting, 1 or 2 Padlocks (in/mm)

Door Coupling 1 or 2 Padlocks

ML Switch Type	Ampere Rating	Dimension A in. (mm)	Dimension A2 in. (mm)	Dimension A3 in. (mm)	Dimension A4 in. (mm)	Dimension B1 in. (mm)	Dimension B2 in. (mm)	Dimension B3 in. (mm)	Dimension C2 in. (mm)	Dimension C3 in. (mm)
ML1	25A	1.42 (36)	2.36 (60)	2.56 (65)	2.76 (70)	0.18 (4.5)	0.17 (4.2)	0.15 (3.8)	0.87 (22)	1.18 (30)
ML1	40A	1.42 (36)	2.36 (60)	2.56 (65)	2.76 (70)	0.18 (4.5)	0.17 (4.2)	0.15 (3.8)	0.87 (22)	1.18 (30)

Door Coupling 1 or 2 Padlocks

ML Switch Type	Ampere Rating	Dimension C4 in. (mm)	Dimension D in. (mm)	Dimension E in. (mm)	Dimension F in. (mm)	Dimension G in. (mm)	Dimension H in. (mm)	Dimension I in. (mm)	Dimension K in. (mm)
ML1	25A	0.98 (25)	3.07 (78)	1.77 (45)	1.65 (42)	2.17 (55)	1.38 (35)	1.89 (48)	4.13-5.31 (105-135)
ML1	40A	0.98 (25)	3.07 (78)	1.77 (45)	1.65 (42)	2.17 (55)	1.38 (35)	1.89 (48)	4.13-5.31 (105-135)



Door Coupling, 1 or 2 Padlocks (in/mm)



IEC Switches and Disconnects

ML Disconnect Switches

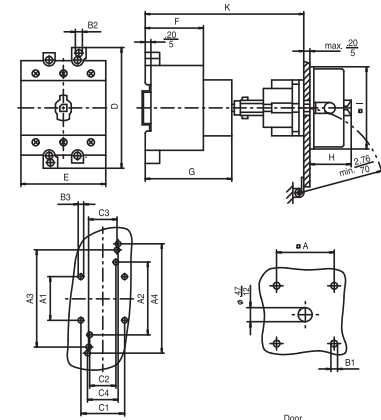
Outlines and Dimensions in. (mm)

(For Estimating Only)

Section 8

Door Coupling 3 Padlocks

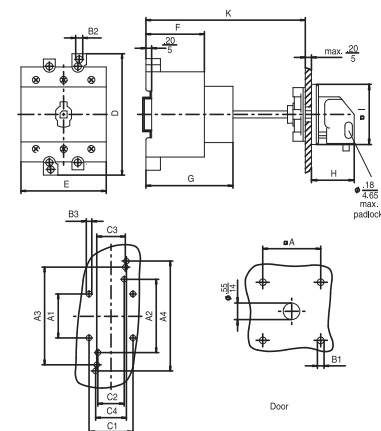
Switch Type	Ampere Rating	Dimension A in. (mm)	Dimension A2 in. (mm)	Dimension A3 in. (mm)	Dimension A4 in. (mm)	Dimension B1 in. (mm)	Dimension B2 in. (mm)	Dimension B3 in. (mm)	Dimension C2 in. (mm)	Dimension C3 in. (mm)
ML1	25A	1.42 (36)	2.36 (60)	2.56 (65)	2.76 (70)	0.18 (4.5)	0.17 (4.2)	0.15 (3.8)	0.87 (22)	1.18 (30)
ML1	40A	1.42 (36)	2.36 (60)	2.56 (65)	2.76 (70)	0.18 (4.5)	0.17 (4.2)	0.15 (3.8)	0.87 (22)	1.18 (30)
ML2	63A	1.42 (36)	-	3.15 (80)	3.54 (90)	0.22 (5.5)	0.22 (5.5)	0.20 (5.2)	-	0.93 (23.5)
ML2	80A	1.42 (36)	-	3.15 (80)	3.54 (90)	0.22 (5.5)	0.22 (5.5)	0.20 (5.2)	-	0.93 (23.5)
ML3	125A	1.42 (36)	-	3.15 (80)	3.54 (90)	0.22 (5.5)	0.22 (5.5)	0.20 (5.2)	-	0.93 (23.5)



Door Coupling, 3 Padlocks ($\frac{in}{mm}$)

Door Coupling 3 Padlocks

Switch Type	Ampere Rating	Dimension C4 in. (mm)	Dimension D in. (mm)	Dimension E in. (mm)	Dimension F in. (mm)	Dimension G in. (mm)	Dimension H in. (mm)	Dimension I in. (mm)	Dimension K in. (mm)
ML1	25A	0.98 (25)	3.07 (78)	1.77 (45)	1.65 (42)	2.17 (55)	1.26 (32)	2.60 (66)	4.13-5.31 (105-135)
ML1	40A	0.98 (25)	3.07 (78)	1.77 (45)	1.65 (42)	2.17 (55)	1.26 (32)	2.60 (66)	4.13-5.31 (105-135)
ML2	63A	0.98 (25)	3.94 (100)	2.11 (53.5)	1.93 (49)	2.83 (72)	1.46 (37)	3.39 (86)	4.72-5.91 (120-150)
ML2	80A	0.98 (25)	3.94 (100)	2.11 (53.5)	1.93 (49)	2.83 (72)	1.46 (37)	3.39 (86)	4.72-5.91 (120-150)
ML3	125A	0.98 (25)	3.94 (100)	2.76 (70)	1.93 (49)	2.83 (72)	1.46 (37)	3.39 (86)	4.72-5.91 (120-150)



Door Coupling, 1 or 2 Padlocks ($\frac{in}{mm}$)

Cover Coupling 1 or 2 Padlocks

Switch Type	Ampere Rating	Dimension A in. (mm)	Dimension A2 in. (mm)	Dimension A3 in. (mm)	Dimension A4 in. (mm)	Dimension B1 in. (mm)	Dimension B2 in. (mm)	Dimension B3 in. (mm)	Dimension C2 in. (mm)	Dimension C3 in. (mm)
ML1	25A	1.42 (36)	2.36 (60)	2.56 (65)	2.76 (70)	0.18 (4.5)	0.17 (4.2)	0.15 (3.8)	0.87 (22)	1.18 (30)
ML1	40A	1.42 (36)	2.36 (60)	2.56 (65)	2.76 (70)	0.18 (4.5)	0.17 (4.2)	0.15 (3.8)	0.87 (22)	1.18 (30)

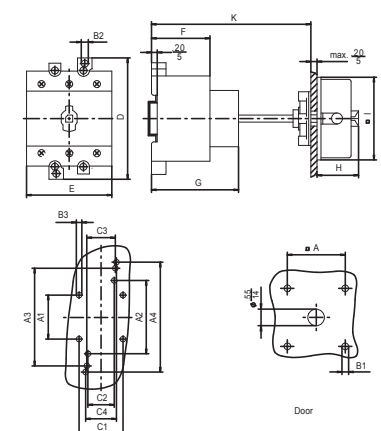
Cover Coupling 1 or 2 Padlocks

Switch Type	Ampere Rating	Dimension C4 in. (mm)	Dimension D in. (mm)	Dimension E in. (mm)	Dimension F in. (mm)	Dimension G in. (mm)	Dimension H in. (mm)	Dimension I in. (mm)	Dimension K in. (mm)
ML1	25A	0.98 (25)	3.07 (78)	1.77 (45)	1.65 (42)	2.17 (55)	1.38 (35)	1.89 (48)	4.13-5.31 (105-135)
ML1	40A	0.98 (25)	3.07 (78)	1.77 (45)	1.65 (42)	2.17 (55)	1.38 (35)	1.89 (48)	4.13-5.31 (105-135)

Cover Coupling, 1 or 2 Padlocks ($\frac{in}{mm}$)

Cover Coupling 3 Padlocks

Switch Type	Ampere Rating	Dimension A in. (mm)	Dimension A2 in. (mm)	Dimension A3 in. (mm)	Dimension A4 in. (mm)	Dimension B1 in. (mm)	Dimension B2 in. (mm)	Dimension B3 in. (mm)	Dimension C2 in. (mm)	Dimension C3 in. (mm)
ML1	25A	1.42 (36)	2.36 (60)	2.56 (65)	2.76 (70)	0.18 (4.5)	0.17 (4.2)	0.15 (3.8)	0.87 (22)	1.18 (30)
ML1	40A	1.42 (36)	2.36 (60)	2.56 (65)	2.76 (70)	0.18 (4.5)	0.17 (4.2)	0.15 (3.8)	0.87 (22)	1.18 (30)
ML2	63A	1.42 (36)	-	3.15 (80)	3.54 (90)	0.22 (5.5)	0.22 (5.5)	0.20 (5.2)	-	0.93 (23.5)
ML2	80A	1.42 (36)	-	3.15 (80)	3.54 (90)	0.22 (5.5)	0.22 (5.5)	0.20 (5.2)	-	0.93 (23.5)
ML3	125A	1.42 (36)	-	3.15 (80)	3.54 (90)	0.22 (5.5)	0.22 (5.5)	0.20 (5.2)	-	0.93 (23.5)



Cover Coupling, 3 Padlocks ($\frac{in}{mm}$)

Cover Coupling 3 Padlocks

Switch Type	Ampere Rating	Dimension C4 in. (mm)	Dimension D in. (mm)	Dimension E in. (mm)	Dimension F in. (mm)	Dimension G in. (mm)	Dimension H in. (mm)	Dimension I in. (mm)	Dimension K in. (mm)
ML1	25A	0.98 (25)	3.07 (78)	1.77 (45)	1.65 (42)	2.17 (55)	1.26 (32)	2.60 (66)	3.46-3.86 (88-98)
ML1	40A	0.98 (25)	3.07 (78)	1.77 (45)	1.65 (42)	2.17 (55)	1.26 (32)	2.60 (66)	3.46-3.86 (88-98)
ML2	63A	0.98 (25)	3.94 (100)	2.11 (53.5)	1.93 (49)	2.83 (72)	1.46 (37)	3.39 (86)	4.06-4.45 (103-113)
ML2	80A	0.98 (25)	3.94 (100)	2.11 (53.5)	1.93 (49)	2.83 (72)	1.46 (37)	3.39 (86)	4.06-4.45 (103-113)
ML3	125A	0.98 (25)	3.94 (100)	2.76 (70)	1.93 (49)	2.83 (72)	1.46 (37)	3.39 (86)	4.06-4.45 (103-113)



IEC Switches and Disconnects

ML Disconnect Switches

Outlines and Dimensions in. (mm)

(For Estimating Only)

Section 8

Enclosed Switches Enclosure

Enclosure Type	Dimension A in. (mm)	Dimension B in. (mm)	Dimension C in. (mm)	Dimension D in. (mm)	Dimension E2 in. (mm)	Dimension E3 in. (mm)	Dimension F2 in. (mm)	Dimension F3 in. (mm)
E2	3.70 (94)	5.12 (130)	3.19 (81)	1.26 (32)	-	3.11 (79)	-	4.53 (115)
E3	5.12 (130)	5.12 (130)	3.90 (99)	1.26 (32)	-	4.53 (115)	-	4.53 (115)
E4	4.33 (110)	7.09 (180)	0.43 (11)	1.26 (32)	1.97 (50)	3.74 (95)	4.72 (120)	6.50 (165)
E5	7.09 (180)	7.17 (182)	4.37 (111)	1.46 (37)	4.72 (120)	6.50 (165)	4.72 (120)	6.57 (167)
E6	7.09 (180)	10.00 (254)	4.37 (111)	1.46 (37)	4.72 (120)	6.50 (165)	7.48 (190)	9.41 (239)
E7	10.43 (265)	10.43 (265)	5.51 (140)	1.46 (37)	7.64 (194)	-	9.06 (230)	-

Enclosed Switches Cable Entry

Enclosure Type	Dimension H ¹ in. (mm)	Dimension I ¹ in. (mm)	Dimension H ² in. (mm)	Dimension I ² in. (mm)	Dimension J ² in. (mm)
E2	PG 16/11	PG11	-	-	-
E3	PG 21/16	PG 16	-	-	-
E4	-	-	PG 21	PG 11	-
E5	-	-	PG 29	-	PG 11
E6	-	-	PG 29	PG 11	-
E7	PG 36/29	PG 29	-	-	-

¹Knock-out entry

²Cable entry

Emergency Stop Switches with Undervoltage Release

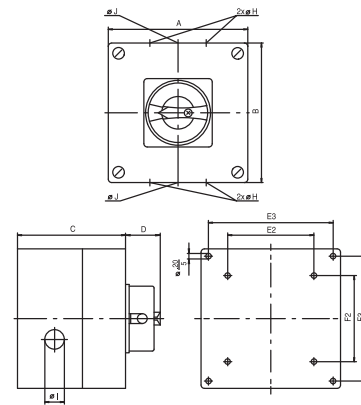
Front Mount 2 hole Mounting (IP54)

ML Switch Type	Dimension D in. (mm)	Dimension E in. (mm)	Dimension F in. (mm)	Dimension H in. (mm)	Dimension I in. (mm)
151	1.93 (49)	1.42 (36)	0.49 (12.5)	1.26 (32)	2.60 (66)
251	2.44 (62)	1.50 (38)	0.49 (12.5)	1.26 (32)	2.60 (66)
451	2.83 (72)	1.85 (47)	0.69 (17.5)	1.26 (32)	2.60 (66)

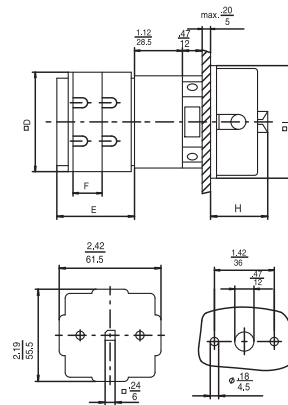
Emergency Stop Switches with Undervoltage Release

Insulated Enclosure

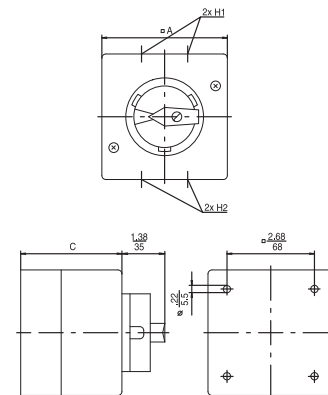
ML Switch Type	Dimension A in. (mm)	Dimension C in. (mm)	Dimension H(1) in. (mm)	Dimension H(2) in. (mm)
151	3.86 (98)	4.65 (118)	PG 16	PG 16
251	3.86 (98)	4.65 (118)	PG 16	PG 21



Enclosed Switches (in/mm)



2-hole Front Mounting (in/mm)



Insulated Enclosure (in/mm)



IEC Switches and Disconnects

ML Disconnect Switches

Outlines and Dimensions in. (mm)

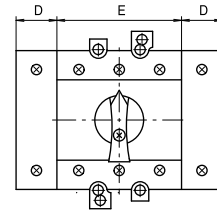
(For Estimating Only)

Accessories

Section 8

N Module and PE Terminal

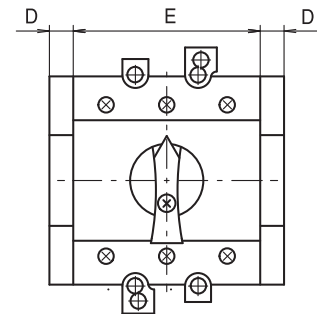
Ampere Rating	Dimension D in. (mm)	Dimension E in. (mm)
25A, 40A	0.57 (14.5)	1.77 (45)
63A, 80A	0.91 (23)	2.11 (53.5)
125A	0.91 (23)	2.76 (70)



N Module and PE Terminal

Auxiliary Contacts (1NO-1NC)

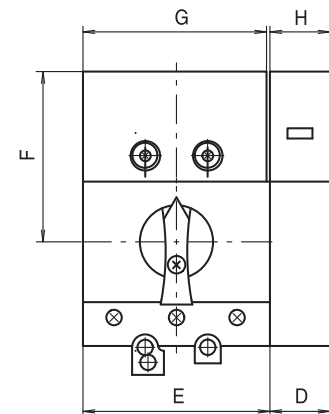
Ampere Rating	Dimension D in. (mm)	Dimension E in. (mm)
25A, 40A	0.37 (9.5)	1.77 (45)
63A, 80A	0.37 (9.5)	2.11 (53.5)
125A	0.37 (9.5)	2.76 (70)



Auxiliary Contacts (1NO-1NC)

Terminal Covers

Ampere Rating	Dimension D in. (mm)	Dimension E in. (mm)	Dimension F in. (mm)	Dimension G in. (mm)	Dimension H in. (mm)
25A, 40A	0.57 (14.5)	1.77 (45)	2.09 (53)	1.61 (41)	0.55 (14)
63A, 80A	0.91 (23)	2.11 (53.5)	2.40 (61)	2.05 (52)	0.89 (22.5)
125A	0.91 (23)	2.76 (70)	2.56 (65)	2.68 (68)	0.89 (22.5)



Terminal Covers

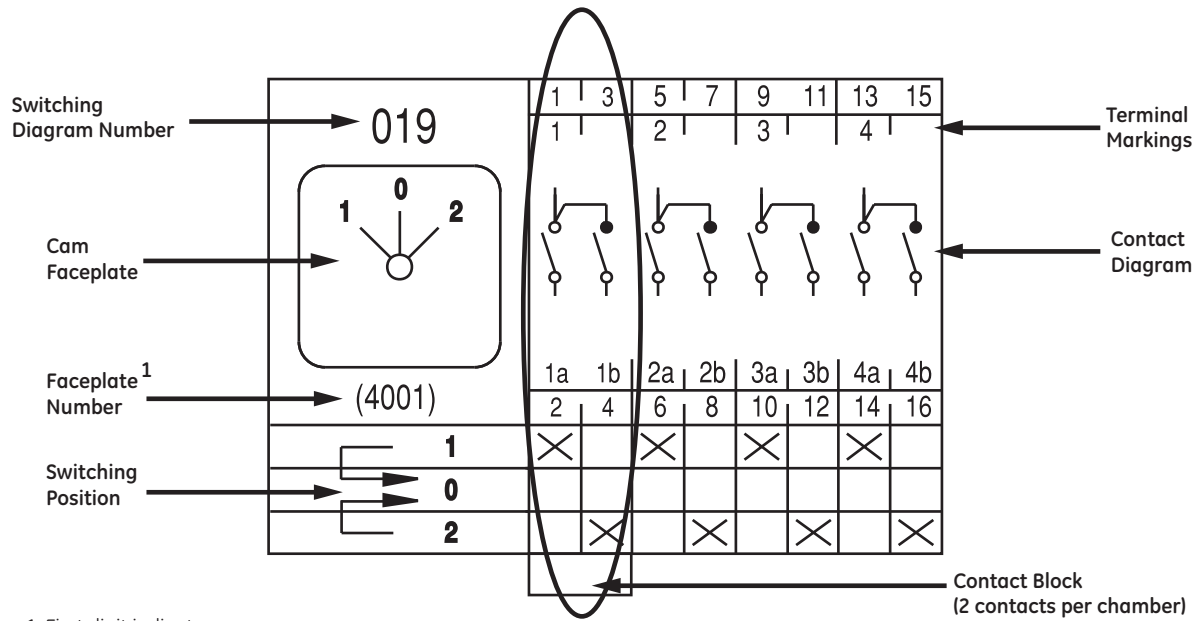


IEC Switches and Disconnects

ML Disconnect Switches

Switching Diagrams

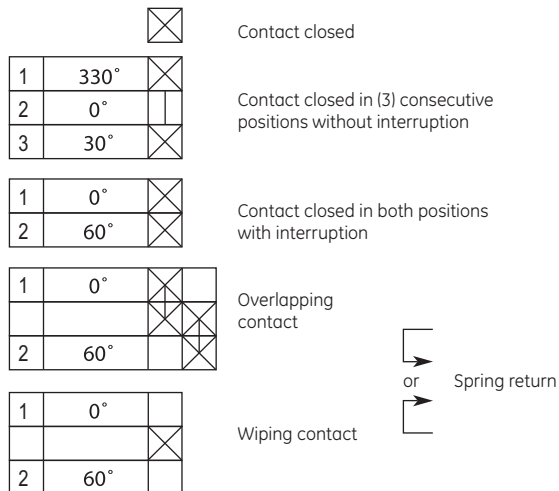
How to read the switching diagrams



1. First digit indicates switching angle
 2 = 20°
 3 = 30°
 4 = 45°
 6 = 60°
 9 = 90°

Contact diagram

Switching diagrams are sorted according to type coding.

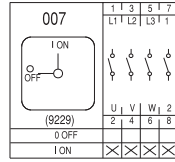
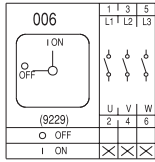


IEC Switches and Disconnects

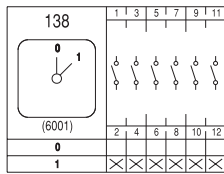
ML Disconnect Switches

Switching Diagrams

On/Off, Main & Changeover Switches



Volt-ammeter Selectors, Ammeter Selectors and Group Switches



Switching diagrams are sorted according to type coding.
Contact and diagram information: page 8-16



