

Manual Motor Control Switches and Disconnects

Vario™, GS1, GS2, LK4, MD Enclosed, TeSys™ DF Fuseholders

Catalog
9421CT0301R07/15
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Manual Motor Control Switches and Disconnects

Mini-Vario and Vario Manual Motor Control Switches

Mini-Vario and Vario Manual Motor Control Switches

Product Description

Applications	Mini-Vario and Vario rotary manual motor control switches from 12 to 175 A are suitable for on-load making and breaking of resistive or mixed resistive and inductive circuits where frequent operation is required. They can also be used for direct switching of motors in utilization categories AC-3 and DC-3 specific to motors. Vario manual motor control switches are suitable for isolator applications with fully visible indication (since the handle cannot be in the open position unless all the contacts are actually open and separated by the appropriate isolating distance) and it is possible to padlock the handles.											
												
Switch type	Mini-Vario for standard applications			Vario for high performance applications								
Thermal current, UL/IEC	10 A / 12 A	16 A / 20 A	10 A / 12 A	16 A / 20 A	20 A / 25 A	20 A / 32 A	25 A / 40 A	45 A / 63 A	63 A / 80 A	100 A / 125 A	110 A / 175 A	
Operational current AC-23 A at 400 V	8.1 A	11 A	8.1 A	11 A	14.5 A	21.6 A	29 A	41.5 A	57 A	68.5 A	83 A	
Number of poles	3 to 5	3 to 5	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 + N + PE	3 + N + PE	
Number of auxiliary contacts	1 or 2	1 or 2	1 to 4	1 to 4	1 to 4	1 to 4	1 to 4	1 to 4	1 to 4	1 to 4	1 to 4	
Switch mounting from the front	Screw mounting 1 or 4 holes 1 x \varnothing 0.88 in. (1 x \varnothing 22.5 mm) hole or 1 x \varnothing 0.2 in. (4 x \varnothing 5.5 mm) screws			Screw mounting 1 or 4 holes 1 x \varnothing 0.88 in. (1 x \varnothing 22.5 mm) hole or 1 x \varnothing 0.2 in. (4 x \varnothing 5.5 mm) screws					1 x \varnothing 0.2 in. (4 x \varnothing 5.5 mm) screw			
Switch mounting from the back	Clip-on mounting on DIN rail			Clip-on mounting on DIN rail or screw						Screw		
Reversible terminal blocks	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Door mounting	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Mounting at back of enclosure with door interlock	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Enclosure catalog number ¹	V•DN12	V•DN20	V•D02 V•F02	V•D01 V•F01	V•D0 V•F0	V•D1 V•F1	V•D2 V•F2	V•F3	V•F4	V•F5	V•F6	

¹ Enclosures not UL Listed.



International Acceptance

UL Listed, CSA Certified, IEC Rated, CE Marked, and most other applicable international standards.

UL508, CSA 22.2 No. 14 - UL File # E164864 CCN NLRV, CSA File # LR81630 Class 3211 05.

Suitable for use in equipment or machinery as manual motor controllers and horsepower and ampere rated.

IEC

Tested in accordance to IEC 60947-3, IEC 60529, and IEC 60695-2-1.

CE

Compliance with the European Machine Directive IEC 60204.

Manual Motor Control Switches and Disconnects

Mini-Vario and Vario Manual Motor Control Switches


Switch type	VN12 VZN12	V02 VZ02	VN20 VZN20	V01 VZ01	V0 VZ0	VVD0 VVE0	V1 VZ1	VVD1 VVE1
Environment								
Conforming to standards	IEC 60947-3							
Approvals	UL, CSA, GL, UL File # E164864 CCN NLRV, CSA File # LR81630 Class 3211 05							
Protective treatment	"TC"							
Degree of protection with protection shroud	IP 20 conforming to IEC 60529							
Ambient air temperature	-4 to +122 °F (-20 to +50 °C)							
Flame resistance	1760 °F (960 °C) conforming to IEC 60695-2-1							
Shock resistance 1/2 sine wave = 11ms conforming to IEC 60068-2-27	15 g	30 g	15 g	30 g				
Vibration resistance 10 to 150 Hz conforming to IEC 60068-2-6	5 g	1 g	1 g	1 g				
Electrical characteristics, AC operation								
Rated operational voltage (Ue)	690 V	690 V	690 V	690 V	690 V	690 V	690 V	690 V
Rated impulse withstand voltage (Uimp)	6 kV	8 kV	6 kV	8 kV	8 kV	8 kV	8 kV	8 kV
Conventional thermal currents in free air (Ith) and rated uninterrupted (Iu)	12 A		20 A		25 A		32 A	
Conventional thermal current in enclosure (Ithe)	10 A		16 A		20 A		25 A	
Rated operational power and current								
AC-21A/22A	230 to 690 V	A	12	20	25	32		
AC-23A	230 V	A (kW)	10.6 (3)	14 (4)	19.7 (5.5)	19.7 (5.5)		
	240 V	A (kW)	10.6 (3)	14 (4)	19.9 (5.5)	18.9 (5.5)		
	400 V	A (kW)	8.1 (4)	11 (5.5)	14.5 (7.5)	21.8 (11)		
	415 V	A (kW)	8.1 (4)	11 (5.5)	14 (7.5)	21 (11)		
	500 V	A (kW)	8.9 (5.5)	11.9 (7.5)	16.7 (11)	16.7 (11)		
	690 V	A (kW)	8.6 (7.5)	12.3 (11)	17.5 (15)	17.5 (15)		
Rated operational power								
AC-3	230/240 V	Hp (kW)	2 (1.5)	2 (1.5)	4 (3)	4 (3)	5 (4)	5 (4)
	400/415 V	Hp (kW)	4 (3)	4 (3)	5 (4)	5 (4)	7 (5.5)	10 (7.5)
	500 V	Hp (kW)	5 (4)	5 (4)	7 (5.5)	7 (5.5)	10 (7.5)	10 (7.5)
	690 V	Hp (kW)	5 (4)	7 (5.5)	7 (5.5)	10 (7.5)	15 (11)	15 (11)
Intermittent duty class	30		30		30		30	
Characteristics in normal operating conditions								
Rated making capacity AC-21A/22A/23A (I rms)	A / 400 V	120	200		250		320	
Rated breaking capacity AC-21A/22A/23A (I rms)	A / 400 V	120	200		200		250	
Short-circuit characteristics								
Permissible ms short time rating (Icw)	A / 400V / 1s	140	300	140	300	300	384	
Rated making capacity under short-circuit condition (Icm) I peak	kA / 400 V	0.5	1	0.5	1	1	1	
Rated conditional short-circuit current (I rms)	kA / 400 V	6	10	6	10	10	10	
with a M/G G fuses	12 A		20 A		25 A		35 A	

Manual Motor Control Switches and Disconnects Mini-Vario and Vario Manual Motor Control Switches


Switch type	V2 VZ2	VVD2 VVE2	V3 VZ3	VVD3 VVE3	V4 VZ4	VVD4 VVE4	V5	V6	VZ7 VZ20	VZN05 VZN06
Environment										
Conforming to standards	IEC 947-3							IEC 947-5		
Approvals	UL, CSA, GL, UL File # E164864 CCN NLRV, CSA File # LR81630 Class 3211 05									
Protective treatment	"TC"									
Degree of protection with protection shroud	IP 20 conforming to IEC 529									
Ambient air temperature	-4 to +122 °F (-20 to +50 °C)									
Flame resistance	960 °C (1760 °F) conforming to IEC 695-2-1									
Shock resistance 1/2 sine wave = 11ms conforming to IEC 60068-2-27	30 g							—		
Vibration resistance 10 to 150 Hz conforming to IEC 60068-2-6	1 g							—		
Electrical characteristics, AC operation										
Rated operational voltage (Ue)	690 V	690 V	690 V	690 V	690 V	690 V	690 V	690 V	690 V	690 V
Rated impulse withstand voltage (Uimp)	8 kV	8 kV	8 kV	8 kV	8 kV	8 kV	8 kV	8 kV	8 kV	6 kV
Conventional thermal currents in free air (Ith) and rated uninterrupted (Iu)	40 A	63 A	80 A	125 A	175 A	12 A	6 A			
Conventional thermal current in enclosure (Ithe)	32 A	50 A	63 A	100 A	140 A	10 A	4 A			
Rated operational power and current										
AC-21A/22A	230 to 690 V	A	40	63	80	125	160	Ie/AC-15	Ie/AC-15	
AC-23A	230 V	A (kW)	25.8 (7.5)	50.3 (15)	61.2 (18.5)	71.9 (22)	96.6 (30)	6 A	6 A	
	240 V	A (kW)	24.8 (7.5)	48.2 (15)	58.5 (18.5)	68 (22)	92.7 (30)	6 A	6 A	
	400 V	A (kW)	29 (15)	41.5 (22)	57 (30)	68.5 (37)	83 (45)	4 A	4 A	
	415 V	A (kW)	28 (15)	40 (22)	55 (30)	66 (37)	80 (45)	4 A	4 A	
	500 V	A (kW)	28.5 (18.5)	44 (30)	54 (37)	64.5 (45)	79 (55)	2 A	2 A	
	690 V	A (kW)	17.5 (15)	25 (22)	33 (30)	42 (37)	49 (45)	1 A	1 A	
Rated operational power										
AC-3	230/240 V	Hp (kW)	7 (5.5)	14.75 (11)	20 (15)	30 (22)	40 (30)	—	—	
	400/415 V	Hp (kW)	14.75 (11)	24 (18.5)	30 (22)	40 (30)	50 (37)	—	—	
	500 V	Hp (kW)	20 (15)	30 (22)	40 (30)	50 (37)	60 (45)	—	—	
	690 V	Hp (kW)	14.75 (11)	24 (18.5)	24 (18.5)	40 (30)	50 (37)	—	—	
Intermittent duty class		30	30	30	30	30	—	—		
Characteristics in normal operating conditions										
Rated making capacity AC-21A/22A/23A (I rms)	A / 400 V	400	630	800	1250	1750	—	—		
Rated breaking capacity AC-21A/22A/23A (I rms)	A / 400 V	320	500	640	1000	1400	—	—		
Short-circuit characteristics										
Permissible ms short time rating (Icw)	A / 400 V / 1s	480	756	960	1500	2100	—	—		
Rated making capacity under short-circuit condition (Icm) I peak	kA / 400 V	1	2.1	2.1	2.8	2.8	—	—		
Rated conditional short-circuit current (I rms)	kA / 400 V	10	10	10	10	10	1	1		
with a M/G G fuses		50 A	63 A	80 A	125 A	200 A	16 A	1.6 A		

Manual Motor Control Switches and Disconnects

Mini-Vario and Vario Manual Motor Control Switches

Switch type			VN12 VZN12	V02 VZ02	VN20 VZN20	V01 VZ01	V0 VZ0	VVD0 VVE0	V1 VZ1	VVD1 VVE1	
Electrical characteristics, DC operation											
Rated operational current (contacts in series)											
DC-1 (L/R = 1 ms) 	24 V	1 contact	A	12	20	25	32				
		2 contacts	A	12	20	25	32				
		3 contacts	A	12	20	25	32				
	48 V	1 contact	A	12	20	25	32				
		2 contacts	A	12	20	25	32				
		3 contacts	A	12	20	25	32				
	60 V	1 contact	A	12	20	25	32				
		2 contacts	A	12	20	25	32				
		3 contacts	A	12	20	25	32				
	110 V	1 contact	A	1.5	2	9	10				
		2 contacts	A	8	10	12	16				
		3 contacts	A	12	20	25	32				
	220 V	1 contact	A	1.5	2	2.5	3				
		2 contacts	A	7	8	10	12				
		3 contacts	A	10	14	16	20				
	250V	1 contact	A	0.6	0.7	0.8	1				
		2 contacts	A	3	4	6	8				
		3 contacts	A	8	10	12	16				
	Rated operational current (contacts in series)										
	DC-2 TO DC-5 (L/R = 1ms)	24 V	1 contact	A	12	20	25	32			
			2 contacts	A	12	20	25	32			
			3 contacts	A	12	20	25	32			
		48 V	1 contact	A	12	20	25	32			
			2 contacts	A	12	20	25	32			
3 contacts			A	12	20	25	32				
60 V		1 contact	A	10	14	16	20				
		2 contacts	A	12	20	25	32				
		3 contacts	A	12	20	25	32				
110 V		1 contact	A	1.5	2	2.5	3				
		2 contacts	A	3	4	5	6				
		3 contacts	A	12	20	25	32				
220 V		1 contact	A	0.4	0.5	0.5	0.8				
		2 contacts	A	1.4	1.5	1.5	2				
		3 contacts	A	1	2	3	4				
250 V		1 contact	A	0.3	0.4	0.5	0.8				
		2 contacts	A	0.4	0.6	0.8	1				
		3 contacts	A	1.2	2.4	1.6	2				
Other characteristics											
Mechanical durability		millions of op. cycles	0.05	0.1	0.05	0.1	0.1	0.1	0.1	0.1	
Electrical durability in cat. AC-21		millions of op. cycles	0.05	0.1	0.05	0.1	0.1	0.1	0.1	0.1	
Electrical durability in cat. DC-1 to 5		operating cycles	30,000		30,000		30,000	30,000		30,000	
Suitable for isolation			yes		yes		yes	yes		yes	
Cabling		Flexible cable + cable end	AWG (mm ²)	12 (4)	10 (6)	12 (4)	10 (6)	10 (6)	10 (6)		10 (6)
	Solid cable	AWG (mm ²)	12 (4)	8 (10)	12 (4)	8 (10)	8 (10)	8 (10)		8 (10)	
Tightening torque		lb-in (N•m)	6.2 (0.7)	18.6 (2.1)	6.2 (0.7)	18.6 (2.1)	18.6 (2.1)	18.6 (2.1)		18.6 (2.1)	

Manual Motor Control Switches and Disconnects Mini-Vario and Vario Manual Motor Control Switches

Switch type			V2 VZ2	VDD2 VVE2	V3 VZ3	VVD3 VVE3	V4 VZ4	VVD4 VVE4	V5	V6	VZ7 VZ20	VZN5 VZN06	
Electrical characteristics, DC operation													
Rated operational current (contacts in series)													
DC-1 (L/R = 1 ms) 	24 V	1 contact	A	40	63	80	125	175	175	8 (Ie/DC-11)			
		2 contacts	A	40	63	80	125	175	175	—			
		3 contacts	A	40	63	80	125	175	175	—			
	48 V	1 contact	A	40	63	80	125	175	175	175	8 (Ie/DC-11)		
		2 contacts	A	40	63	80	125	175	175	175	—		
		3 contacts	A	40	63	80	125	175	175	175	—		
	60 V	1 contact	A	35	40	50	60	70	70	70	4 (Ie/DC-11)		
		2 contacts	A	40	63	80	125	175	175	175	—		
		3 contacts	A	40	63	80	125	175	175	175	—		
	110 V	1 contact	A	12	20	25	30	12	12	12	2 (Ie/DC-11)		
		2 contacts	A	20	63	80	125	175	175	175	—		
		3 contacts	A	40	63	80	125	175	175	175	—		
	220 V	1 contact	A	4	6	8	12	15	15	15	1 (Ie/DC-11)		
		2 contacts	A	14	25	30	40	50	50	50	—		
		3 contacts	A	25	30	40	80	100	100	100	—		
	250V	1 contact	A	2	4	5	6	10	10	10	0.8 (Ie/DC-11)		
		2 contacts	A	12	20	25	30	40	40	40	—		
		3 contacts	A	20	30	40	50	61	61	61	—		
Rated operational current (contacts in series)													
DC-2 TO DC-5 (L/R = 1ms)	24 V	1 contact	A	40	63	80	125	175	175	—			
		2 contacts	A	40	63	80	125	175	175	—			
		3 contacts	A	40	63	80	125	175	175	—			
	48 V	1 contact	A	40	63	80	125	175	175	175	—		
		2 contacts	A	40	63	80	125	175	175	175	—		
		3 contacts	A	40	63	80	125	175	175	175	—		
	60 V	1 contact	A	25	40	50	60	70	70	70	—		
		2 contacts	A	40	63	80	125	175	175	175	—		
		3 contacts	A	40	63	80	125	175	175	175	—		
	110 V	1 contact	A	5	6	8	10	12	12	12	—		
		2 contacts	A	8	10	20	22	24	24	24	—		
		3 contacts	A	40	50	63	70	80	80	80	—		
	220 V	1 contact	A	1	1.5	2	2.2	2.4	2.4	2.4	—		
		2 contacts	A	3	4	6	7	8	8	8	—		
		3 contacts	A	7	10	15	16	13	13	13	—		
	250 V	1 contact	A	1	1.2	1.5	1.6	1.8	1.8	1.8	—		
		2 contacts	A	2	3	6	7	8	8	8	—		
		3 contacts	A	6	8	10	12	14	14	14	—		
Other characteristics													
Mechanical durability			millions of op. cycles	0.1	0.03	0.03	0.03	0.03	0.03	0.03	0.1	0.05	
Electrical durability in cat. AC-21			millions of op. cycles	0.1	0.03	0.03	0.03	0.03	0.03	0.03	0.1 (AC-15)	0.05	
Electrical durability in cat. DC-1 to 5			operating cycles	30 K	30 K	30 K	30 K	30 K	30 K	30 K	30 K (DC-11)		
Suitable for isolation				yes	yes	yes	yes	yes	yes	yes	—		
Cabling	Flexible cable with cable end	AWG (mm ²)	10 (6)	6 (16)	6 (16)	2/0 (70)	2/0 (70)	2/0 (70)	2/0 (70)	2/0 (70)	18 to 16 (2 x 0.75 to 1.5)		
	Solid cable	AWG (mm ²)	8 (10)	4 (25)	4 (25)	3/0 (95)	3/0 (95)	3/0 (95)	3/0 (95)	3/0 (95)	16 to 14 (2 x 1 to 2.5)		
Tightening torque			lb-in (N·m)	18.6 (2.1)	35.4 (4)	35.4 (4)	200 (22.6)	200 (22.6)	200 (22.6)	200 (22.6)	6.2 (0.7)		

Manual Motor Control Switches and Disconnects

Mini-Vario and Vario Manual Motor Control Switches

Selection



VCDN20

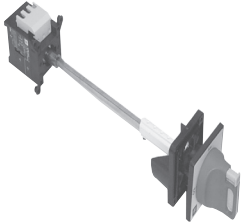
- 3-pole rotary manual motor control switches, 10–16 A (UL), 12–20 A (IEC).
- Marking on operator.
- Padlockable operating handle (padlocks not supplied).

Complete Units

Degree of protection IP65, NEMA/UL Type 1 and 12.

Table 1: Main Manual Motor Control Switches for Door Mounting

Operator Handle	Front Plate in. (mm)	Mounting in. (mm)	Rating (A)		Catalog Number	Weight lbs (kg)
			UL	IEC		
Red, padlockable with up to 3 padlocks	Yellow 2.38 x 2.38 (60 x 60)	Ø 0.88 (22.5)	10	12	VCDN12	0.39 (0.177)
			16	20	VCDN20	0.39 (0.177)



VCCDN20

Table 2: Main Manual Motor Control Switches for Mounting at Back of an Enclosure¹

Operator Handle	Front Plate in. (mm)	Mounting in. (mm)	Rating (A)		Catalog Number	Weight lbs (kg)
			UL	IEC		
Red, padlockable with up to 3 padlocks	Yellow 2.38 x 2.38 (60 x 60)	Ø 0.88 (22.5)	10	12	VCCDN12	0.736 (0.334)
			16	20	VCCDN20	0.736 (0.334)

¹ Switches supplied with a shaft extension VZN17 and a door interlock plate KZ32 (see page 10).

Table 3: Main Manual Motor Control Switches for Door Mounting

Operator Handle	Front Plate in. (mm)	Mounting in. (mm)	Rating (A)		Catalog Number	Weight lbs (kg)
			UL	IEC		
Black, padlockable with up to 3 padlocks	Black 2.38 x 2.38 (60 x 60)	Ø 0.88 (22.5)	10	12	VBDN12	0.39 (0.177)
			16	20	VBDN20	0.39 (0.177)



VBDN20

Enclosures

- Degree of protection IP55, non-NEMA.
- Sealable enclosure.

Table 4: Enclosed Main Manual Motor Control Switches²

Operator Handle	Front Plate in. (mm)	Rating (A) IEC	Power in AC23 at 400 V Hp (kW)	No. Add-on Modules Possible	Catalog Number	Weight lbs (kg)
Red, padlockable with: 1 padlock 0.32" (Ø 8 mm) shank or 3 padlocks 0.24" (Ø 6 mm) shank	Yellow 2.38 x 2.38 (60 x 60)	10	5 (4)	2	VCFN12GE	0.93 (0.422)
		16	7 (5.5)	2	VCFN20GE	0.93 (0.422)

² Enclosure not UL or CSA listed.



VCFN-GE
(Yellow cover with red handle)

Manual Motor Control Switches and Disconnects Mini-Vario and Vario Manual Motor Control Switches

Table 5: Switch Bodies

Description	Rating (A)		Catalog Number	Weight lbs (kg)
	UL	IEC		
3-Pole manual motor control switch	10	12	VN12	0.242 (0.110)
	16	20	VN20	0.242 (0.110)



Table 6: Add-on Modules

Description	Rating (A)		Catalog Number	Weight lbs (kg)
	UL	IEC		
Main pole module	10	12	VZN12	0.04 (0.020)
	16	20	VZN20	0.04 (0.020)
Neutral pole module with early make and late break contacts	N/A	12 and 20	VZN11	0.04 (0.020)
Grounding module	N/A	12 and 20	VZN14	0.035 (0.016)
Auxiliary contact block module	1 N.O. late make contact		VZN05	0.04 (0.020)
	1 N.C. early break contact		VZN06	0.04 (0.020)
Input terminal protection shrouds	For add-on pole modules or auxiliary contact block modules (single-pole shroud)		VZN26	0.008 (0.004)
	For switch bodies (3-pole switch shroud)		VZN08	0.015 (0.007)

VN20



VZN11



VZN14



VZN05

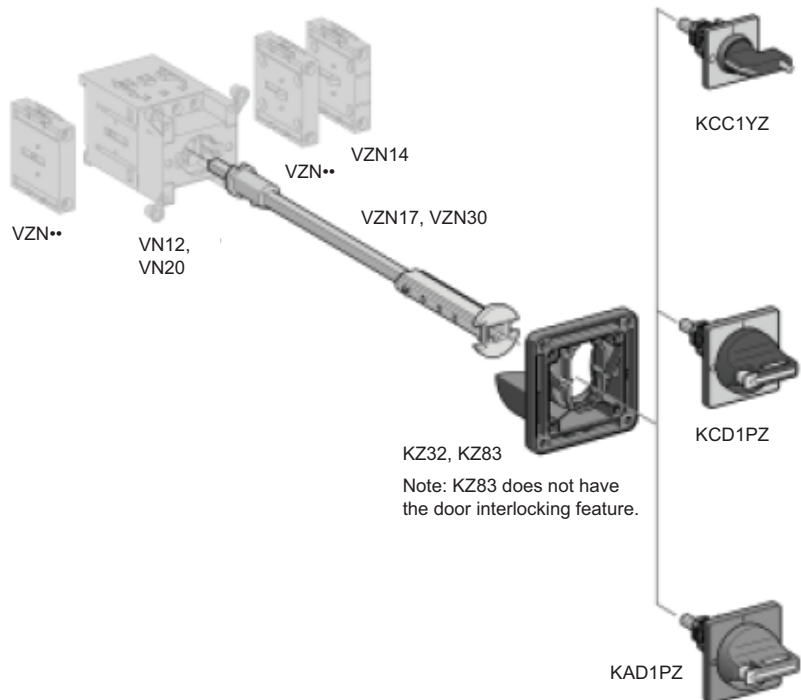
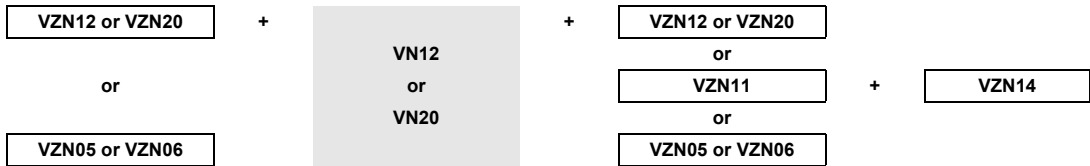


VZN26



VZN08

Maximum Number of Add-on Modules that can be attached to a Switch Body



Manual Motor Control Switches and Disconnects

Mini-Vario and Vario Manual Motor Control Switches

- Degree of protection IP65, NEMA/UL Type 1 and 12.
- Marking on operator.
- Padlockable operating handle (padlocks not supplied).
- Operator mounting by 1 \varnothing 0.88 in. (22.5 mm) hole.
- For other accessories and enclosures, see pages 19 and 20.

Table 7: Operators for Main Manual Motor Control Switches

Operator Handle	Front Plate in. (mm)	Catalog Number	Weight lbs (kg)
Red, padlockable with 1 padlock	Yellow 1.75 x 1.75 (45 x 45)	KCC1YZ	0.11 (0.05)
Red, padlockable with up to 3 padlocks	Yellow 2.38 x 2.38 (60 x 60)	KCD1PZ	0.185 (0.084)

Table 8: Operators for Main Manual Motor Control Switches

Operator Handle	Front Plate in. (mm)	Catalog Number	Weight lbs (kg)
Black, padlockable with up to 3 padlocks	Black 2.38 x 2.38 (60 x 60)	KAD1PZ	0.185 (0.084)

Table 9: Components for Door Interlocking

For Mounting at the Back of an Enclosure, in Addition to a Direct Operator					
Description	Front Plate in. (mm)	Enclosure Depth in. (mm)	Package Quantity	Catalog Number	Weight lbs (kg)
Shaft extension	—	11.88 to 13.38 (300 to 340)	1	VZN17	0.22 (0.100)
		15.75 to 17 (400 to 430)	1	VZN30	0.286 (0.130)
Door interlock plate	1.75 x 1.75 (45 x 45) or 2.38 x 2.38 (60 x 60)	—	5	KZ32	0.375 (0.170)
Plate for door mounting	1.75 x 1.75 (45 x 45) or 2.38 x 2.38 (60 x 60)	—	5	KZ83	0.451 (0.205)

Manual Motor Control Switches and Disconnects Mini-Vario and Vario Manual Motor Control Switches

- 3-pole rotary manual motor control switches: 10 to 115 A (UL), 12 to 175 A (IEC).
- Marking on operator.
- Padlockable operating handle (padlocks not supplied).
- Degree of protection IP65, NEMA/UL Type 1 and 12.

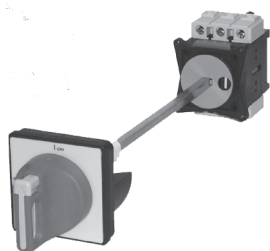
Table 10: Main Manual Motor Control Switches for Door Mounting



VCF0

Operator Handle	Front Plate in. (mm)	Mounting in. (mm)	Rating (A)		Catalog Number	Weight lbs (kg)
			UL	IEC		
Red, padlockable with up to 3 padlocks	Yellow 2.38 x 2.38 (60 x 60)	Ø 0.88 (22.5)	10	12	VCD02	0.474 (0.215)
			16	20	VCD01	0.474 (0.215)
			20	25	VCD0	0.474 (0.215)
			20	32	VCD1	0.474 (0.215)
			25	40	VCD2	0.474 (0.215)
		4 screws	10	12	VCF02	0.55 (0.25)
			16	20	VCF01	0.55 (0.25)
			20	25	VCF0	0.55 (0.25)
			20	32	VCF1	0.55 (0.25)
			25	40	VCF2	0.55 (0.25)
Red, long, padlockable with up to 3 padlocks	Yellow 3.5 x 3.5 (90 x 90)	4 screws	45	63	VCF3	1.234 (0.560)
			63	80	VCF4	1.234 (0.560)
			100	125	VCF5	2.644 (1.200)
			115	175	VCF6	2.644 (1.200)

Table 11: Main Manual Motor Control Switches for Mounting at Back of an Enclosure ¹



VCCF0

Operator Handle	Front Plate in. (mm)	Mounting in. (mm)	Rating (A)		Catalog Number	Weight lbs (kg)
			UL	IEC		
Red, padlockable with up to 3 padlocks	Yellow 2.38 x 2.38 (60 x 60)	Ø 0.88 (22.5)	10	12	VCCD02	0.864 (0.392)
			16	20	VCCD01	0.864 (0.392)
			20	25	VCCD0	0.864 (0.392)
			20	32	VCCD1	0.864 (0.392)
			25	40	VCCD2	0.864 (0.392)
		4 screws	10	12	VCCF02	1.615 (0.527)
			16	20	VCCF01	1.615 (0.527)
			20	25	VCCF0	1.615 (0.527)
			20	32	VCCF1	1.615 (0.527)
			25	40	VCCF2	1.615 (0.527)
Red, long, padlockable with up to 3 padlocks	Yellow 3.5 x 3.5 (90 x 90)	4 screws	45	63	VCCF3	0.969 (0.440)
			63	80	VCCF4	1.498 (0.680)
			100	125	VCCF5	2.909 (1.320)
			115	175	VCCF6	2.909 (1.320)

¹ Unit supplied with a shaft extension VZ17 and a door interlock plate KZ32 or KZ74, see page 10.

Manual Motor Control Switches and Disconnects

Mini-Vario and Vario Manual Motor Control Switches



VBD0

- 3-pole rotary manual motor control switches: 10–115 A (UL), 12–175 A (IEC).
- Marking on operator.
- Padlockable operating handle (padlocks not supplied).
- Degree of protection IP65, NEMA/UL Type 1 and 12.

Table 12: Main Manual Motor Control Switches for Door Mounting

Operator Handle	Front Plate in. (mm)	Mounting in. (mm)	Rating (A)		Catalog Number	Weight lbs (kg)
			UL	IEC		
Black, padlockable with up to 3 padlocks	Black 2.38 x 2.38 (60 x 60)	Ø 0.88 (22.5)	10	12	VBD02	0.474 (0.215)
			16	20	VBD01	0.474 (0.215)
			20	25	VBD0	0.474 (0.215)
			20	32	VBD1	0.474 (0.215)
			25	40	VBD2	0.474 (0.215)
		4 screws	10	12	VBF02	0.55 (0.250)
			16	20	VBF01	0.55 (0.250)
			20	25	VBF0	0.55 (0.250)
			20	32	VBF1	0.55 (0.250)
			25	40	VBF2	0.55 (0.250)
Black, long, padlockable with up to 3 padlocks	Black 3.5 x 3.5 (90 x 90)	4 screws	45	63	VBF3	1.234 (0.560)
			63	80	VBF4	1.234 (0.560)
			100	125	VBF5	2.644 (1.200)
			115	175	VBF6	2.644 (1.200)



VBF5

Table 13: Main Manual Motor Control Switches

For Mounting in an Enclosure or for Modular Distribution Boards					
Operator Handle	Front Plate in. (mm)	Rating (A)		Catalog Number	Weight lbs (kg)
		UL	IEC		
Red, padlockable with 1 padlock	Yellow 1.75 x 1.75 (45 x 45)	20	25	VVE0	0.55 (0.250)
		20	32	VVE1	0.55 (0.250)
		25	40	VVE2	0.55 (0.250)
		45	63	VVE3	1.168 (0.530)
		63	80	VVE4	1.168 (0.530)



VVE1

Table 14: Main Manual Motor Control Switches

For Mounting in an Enclosure or for Modular Distribution Boards					
Operator Handle	Front Plate in. (mm)	Rating (A)		Catalog Number	Weight lbs (kg)
		UL	IEC		
Black, not padlockable	Black 1.75 x 1.75 (45 x 45)	20	25	VVD0	0.55 (0.250)
		20	32	VVD1	0.55 (0.250)
		25	40	VVD2	0.55 (0.250)
		45	63	VVD3	1.234 (0.560)
		63	80	VVD4	1.234 (0.560)

Manual Motor Control Switches and Disconnects Mini-Vario and Vario Manual Motor Control Switches



Non-Metallic Enclosure

- 3-pole rotary manual motor control switches, 12 to 175 A.
- Marking on operator.
- Degree of protection IP55, NEMA Type, as noted.
- Handles are padlockable.

Non-Metallic Enclosures

The Vario manual motor control switch is also offered as an enclosed switch. The 3-pole version makes the Vario manual motor control switch ideal for manual motor control applications. They are compact, easy to wire and connect, and come undrilled to allow variable cable entry positions.



Metallic Enclosure

Table 15: Enclosure Rated NEMA/UL Type 1 and 12

Rating (A)		Horsepower Ratings Hp (kW)				IP55-PVC 3-Pole
UL	IEC	208 V	240 V	480 V	600 V	Catalog Number
20	32	5 (4)	5 (4)	10 (7)	10 (7)	VC1GUN
25	40	7.5 (6)	7.5 (6)	15 (11)	20 (15)	VC2GUN
45	63	15 (11)	15 (11)	30 (2.2)	40 (30)	VC3GUN
63	80	15 (11)	20 (15)	40 (30)	50 (37)	VC4GUN
100	125	20 (15)	25 (19)	50 (37)	60 (45)	VC5GUN
115	175	25 (19)	30 (22)	60 (45)	75 (56)	VC6GUN



VCF0GE

Metallic Enclosures

The V1 and V2 come in metallic enclosures (NEMA/UL Type 1, 4, 4X, and 12). The NEMA/UL Type 1 is supplied with conduit knockouts top and bottom. A VZ7 auxiliary contact can be factory installed in these metallic enclosures by adding Form X11 to the catalog number. A VZ20 auxiliary contact can be factory installed in these enclosures by adding Form X20 to the catalog number.



VCF3GE

Table 16: Enclosure Rated NEMA/UL Type 1, 12, and 4/4X

Rating (A)		Horsepower Ratings Hp (kW)			NEMA/UL Type 1	NEMA/UL Type 12	NEMA/UL Type 4/4X ¹
UL	IEC	240 V	480 V	600 V	Catalog Number	Catalog Number	Catalog Number
20	32	5 (4)	10 (7)	10 (7)	9421V1G30	9421V1A30	9421V1W30
25	40	7.5 (6)	15 (11)	20 (15)	9421V2G30	9421V2A30	9421V2W30

¹ For indoor use only. The NEMA/UL Type 4/4X enclosure is made of #304 stainless steel with 3/4 in. T&B stainless steel hubs on the top and bottom.



VBF0GE

Table 17: Enclosed 3-Pole Main Manual Motor Control Switches

Operator Handle	Front Plate Dimensions in. (mm)	Rating (A) IEC	Power in AC 23 at 400 V kW	No. Add-on Modules Possible ¹	Catalog Number ²	Weight lbs (kg)
Red, padlockable with up to 3 padlocks	Yellow 2.38 x 2.38 (60 x 60)	10	4	2	VCF02GE	1.102 (0.500)
		16	5.5	2	VCF01GE	1.102 (0.500)
		20	7.5	2	VCF0GE	1.102 (0.500)
		25	11	2	VCF1GE	1.102 (0.500)
		32	15	2	VCF2GE	1.102 (0.500)
		50	22	3	VCF3GE	2.049 (0.930)
		63	30	3	VCF4GE	2.049 (0.930)

Continued on next page

Manual Motor Control Switches and Disconnects

Mini-Vario and Vario Manual Motor Control Switches

Table 17: Enclosed 3-Pole Main Manual Motor Control Switches *(continued)*

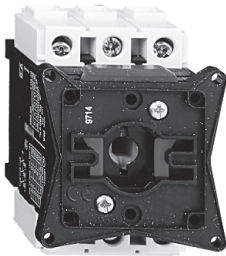
Operator Handle	Front Plate Dimensions in. (mm)	Rating (A) IEC	Power in AC 23 at 400 V kW	No. Add-on Modules Possible ¹	Catalog Number ²	Weight lbs (kg)
Black, padlockable with up to 3 padlocks	Yellow 2.38 x 2.38 (60 x 60)	10	4	2	VBF02GE	1.102 (0.500)
		16	5.5	2	VBF01GE	1.102 (0.500)
		20	7.5	2	VBF0GE	1.102 (0.500)
		25	11	2	VBF1GE	1.102 (0.500)
		32	15	2	VBF2GE	1.102 (0.500)
		50	22	3	VBF3GE	2.049 (0.930)
		63	30	3	VBF4GE	2.049 (0.930)
Black, long, padlockable with up to 3 padlocks	Yellow 3.5 x 3.5 (90 x 90)	100	37	4	VBF5GE	4.827 (2.190)
		140	45	4	VBF6GE	4.827 (2.190)

¹ Refer to the chart on page 15.

² Enclosures are not UL or CSA listed.

Manual Motor Control Switches and Disconnects Mini-Vario and Vario Manual Motor Control Switches

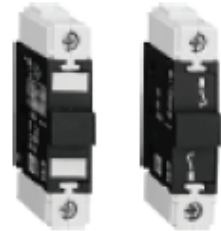
Table 18: Switch Bodies and Add-on Modules



V0



V5



VZ0

VZ11



VZ15

VZ20

Switch Bodies				
Description	Rating (A)		Catalog Number	Weight lbs (kg)
	UL	IEC		
3-pole manual motor control switches ¹	10	12	V02	0.44 (0.200)
	16	20	V01	0.44 (0.200)
	20	25	V0	0.44 (0.200)
	20	32	V1	0.44 (0.200)
	25	40	V2	0.44 (0.200)
	45	63	V3	1.102 (0.500)
	63	80	V4	1.102 (0.500)
	100	125	V5	1.983 (0.900)
	115	175	V6	1.983 (0.900)
Add-on modules				
Main pole module	10	12	VZ02	0.11 (0.050)
	16	20	VZ01	0.11 (0.050)
	20	25	VZ0	0.11 (0.050)
	20	32	VZ1	0.11 (0.050)
	25	40	VZ2	0.11 (0.050)
	45	63	VZ3	0.22 (0.100)
	63	80	VZ4	0.22 (0.100)
Neutral pole module with early make and late break contacts ¹	N/A	12 to 40	VZ11	0.11 (0.050)
		63 and 80	VZ12	0.22 (0.100)
		125 and 175	VZ13	0.55 (0.250)
Grounding module	N/A	12 to 40	VZ14	0.11 (0.050)
		63 and 80	VZ15	0.22 (0.100)
		125 and 175	VZ16	0.55 (0.250)
		N.O. + N.C. ²	VZ7	0.11 (0.050)
Auxiliary contact block module with 2 auxiliary contacts	—	N.C. + N.O.	VZ20	0.11 (0.050)

¹ Protection shrouds are available if required. See Table 21 on page 19.

² Late make N.O., early break N.C. contacts.

Maximum Number of Add-on Modules that can be attached to a Switch Body

One (1) add-on module on each side of the switch body:

VZ7 or VZ20	+	V0*	+	VZ7 or VZ20	+	VZ7	+	V5	+	VZ7
or				or						or
VZ11 or VZ12	+	V0	+	VZ11 or VZ12	+	VZ20	+	V5	+	VZ20
or				or				or		or
VZ14 or VZ15	+	to	+	VZ14 or VZ15	+	VZ13	+	or	+	VZ13
or				or				V6		or
VZ0*/VZ0 to VZ4	+	V4	+	VZ0*/VZ0 to VZ4	+	VZ16	+	V6	+	VZ16

Two (2) add-on modules on each side of the switch body:

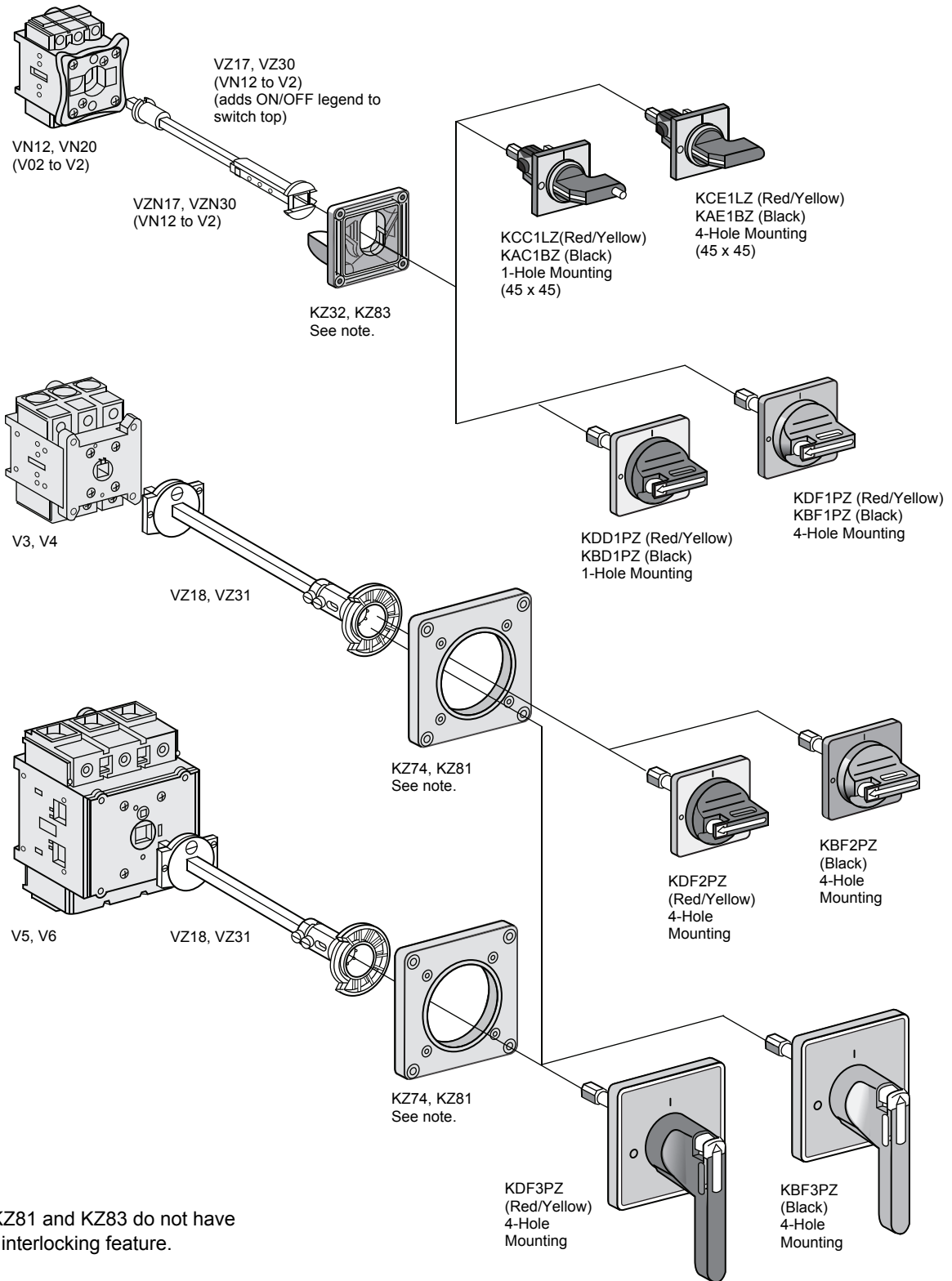
VZ0*	+	VZ0*	+	V0*	+	VZ0*	+	VZ7	or	VZ20	or	VZ11	or	VZ14
VZ0	+	VZ0	+	V0	+	VZ0	+	VZ7	or	VZ20	or	VZ11	or	VZ14
VZ1	+	VZ1	+	V1	+	VZ1	+	VZ7	or	VZ20	or	VZ11	or	VZ14
VZ2	+	VZ2	+	V2	+	VZ2	+	VZ7	or	VZ20	or	VZ11	or	VZ14
VZ3	+	VZ3	+	V3	+	VZ3	+	VZ7	or	VZ20	or	VZ12	or	VZ15
VZ4	+	VZ4	+	V4	+	VZ4	+	VZ7	or	VZ20	or	VZ12	or	VZ15

NOTE: The add-on modules mounted next to the switch body are main poles. Maximum of 3 main poles per switch body.

Manual Motor Control Switches and Disconnects

Mini-Vario and Vario Manual Motor Control Switches

Non-Padlockable Handles



NOTE: KZ81 and KZ83 do not have the door interlocking feature.

Manual Motor Control Switches and Disconnects Mini-Vario and Vario Manual Motor Control Switches

- Marking on operator.
- Degree of protection IP65, NEMA/UL Type 1 and 12.

Table 19: Handles and Front Plates for Main Manual Motor Control Switches (not padlockable)

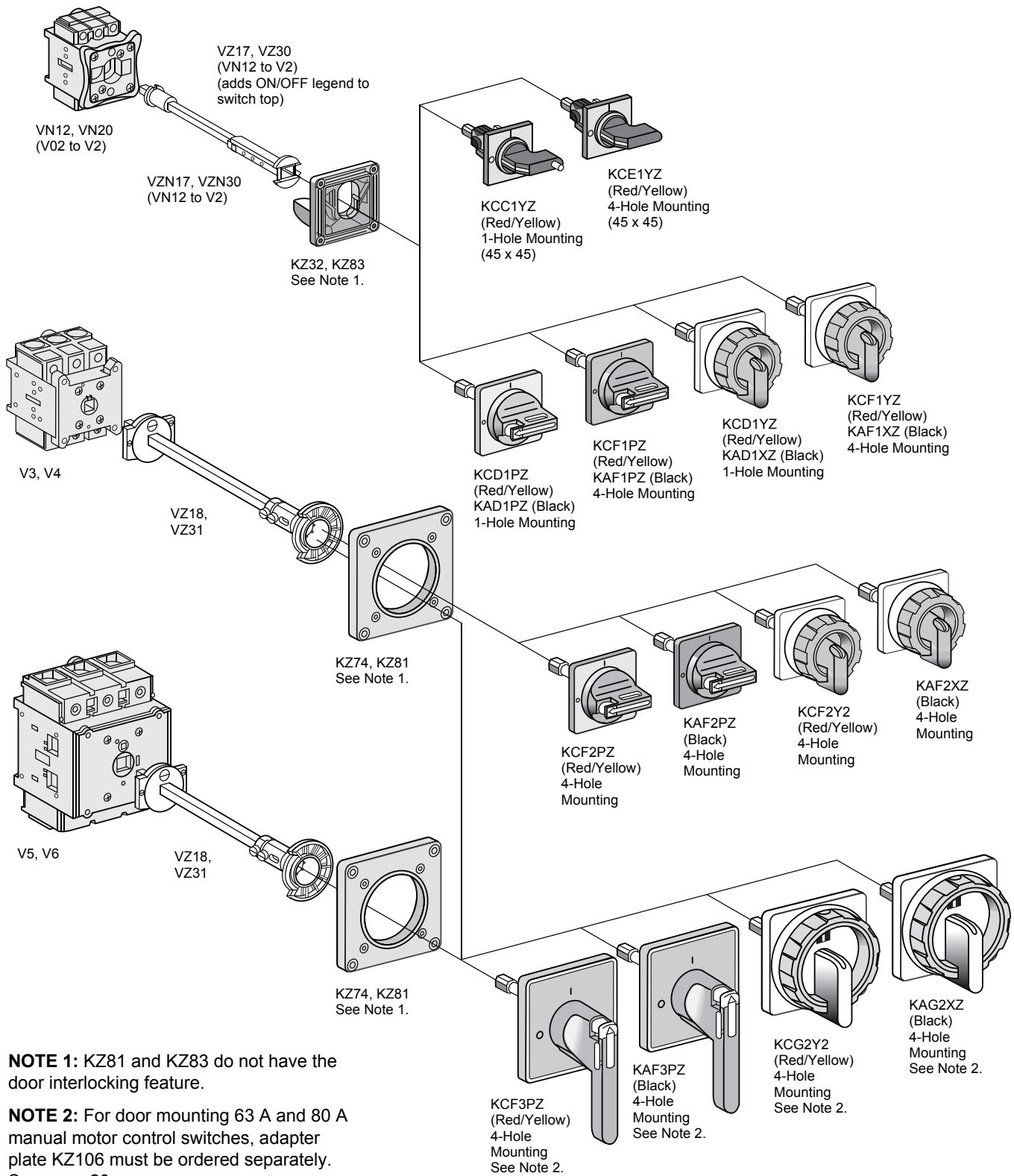
For Switch Body	Operator Handle	Front Plate Dimensions in. (mm)	Mounting in. (mm)	Catalog Number	Weight lbs (kg)
VN12, VN20 V02 to V2	Red not padlockable	Yellow 1.75 x 1.75 (45 x 45)	∅ 0.88 (22.5)	KCC1LZ	0.11 (0.050)
			4 screws	KCE1LZ	0.088 (0.040)
	Black not padlockable	Yellow 2.38 x 2.38 (60 x 60)	∅ 0.88 (22.5)	KDD1PZ	0.181 (0.082)
			4 screws	KDF1PZ	0.165 (0.075)
		Black 1.75 x 1.75 (45 x 45)	∅ 0.88 (22.5)	KAC1BZ	0.11 (0.050)
			4 screws	KAE1BZ	0.088 (0.040)
V3 and V4	Red, long not padlockable	Yellow 2.38 x 2.38 (60 x 60)	4 screws	KDF2PZ	0.154 (0.070)
	Black not padlockable	Black 2.38 x 2.38 (60 x 60)		KBF2PZ	
V5 and V6	Red, long not padlockable	Yellow 3.5 x 3.5 (90 x 90)	4 screws	KDF3PZ ¹	0.353 (0.160)
	Black not padlockable	Black 3.5 x 3.5 (90 x 90)		KBF3PZ ¹	

¹ For door mounting 63 A and 80 A manual motor control switches, adapter plate KZ106 must be ordered separately. See page 20.

Manual Motor Control Switches and Disconnects

Mini-Vario and Vario Manual Motor Control Switches

Padlockable Handles



NOTE 1: KZ81 and KZ83 do not have the door interlocking feature.

NOTE 2: For door mounting 63 A and 80 A manual motor control switches, adapter plate KZ106 must be ordered separately. See page 20.

Manual Motor Control Switches and Disconnects Mini-Vario and Vario Manual Motor Control Switches

- Marking on operator.
- Padlockable operating handle (padlocks not supplied).
- Degree of protection IP65, NEMA/UL Type 1 and 12.

Table 20: Handles and Front Plates for Main Manual Motor Control Switches



KCF2YZ



KCF2PZ

For Switch Body	Operator Handle	Front Plate Dimensions in. (mm)	Mounting in. (mm)	Catalog Number	Weight lbs (kg)
VN12, VN20 V02 to V2	Red padlockable with 1 padlock	Yellow 1.75 x 1.75 (45 x 45)	∅ 0.88 (22.5)	KCC1YZ	0.11 (0.050)
			4 screws	KCE1YZ	0.088 (0.040)
	Red padlockable with up to 3 padlocks	Yellow 2.38 x 2.38 (60 x 60)	∅ 0.88 (22.5)	KCD1PZ KCD1YZ	0.181 (0.082)
			4 screws	KCF1PZ KCF1YZ 1	0.165 (0.075)
	Black padlockable with up to 3 padlocks	Black 2.38 x 2.38 (60 x 60)	∅ 0.88 (22.5)	KAD1PZ KAD1XZ 1	0.181 (0.082)
			4 screws	KAF1PZ KAF1XZ 1	0.165 (0.075)
V3 and V4	Red padlockable with up to 3 padlocks	Yellow 2.38 x 2.38 (60 x 60)	4 screws	KCF2PZ KCF2YZ 1	0.154 (0.070)
	Black padlockable with up to 3 padlocks	Black 2.38 x 2.38 (60 x 60)		KAF2PZ KAF2XZ 1	
V5 and V6	Red, long padlockable with up to 3 padlocks	Yellow 3.5 x 3.5 (90 x 90)	4 screws	KCF3PZ 2 KCG2YZ 1	0.353 (0.160)
	Black, long padlockable with up to 3 padlocks	Black 3.5 x 3.5 (90 x 90)		KAF3PZ 2 KAG2XZ 1	

¹ Similar in style to KCF2YZ.

² For door mounting 63 A and 80 A manual motor control switches, adapter plate KZ106 must be ordered separately. See page 20.



VZ8



VZ26

Table 21: Input Terminal Protection Shrouds

Description	For Use With	Catalog Number	Weight lbs (kg)
For switch bodies (3-pole shroud)	V02 to V2	VZ8	0.033 (0.015)
	V3 and V4	VZ9	0.044 (0.020)
	V5 and V6	VZ10	0.132 (0.060)
For add-on pole modules (single-pole shroud)	VZ02 to VZ2, VZ11, VZ14	VZ26	0.011 (0.005)
	VZ3, VZ4, VZ12, VZ15	VZ27	0.015 (0.007)
	VZ13, VZ16	VZ28	0.044 (0.020)
For contact blocks with 2 auxiliary contacts	—	VZ29	0.011 (0.005)

Manual Motor Control Switches and Disconnects

Mini-Vario and Vario Manual Motor Control Switches

Table 22: Components for Door Interlocking









For Mounting at the Back of an Enclosure, in Addition to a Direct Operator					
Description	For Use With	Front Plate Dimensions in. (mm)	Standard Package Quantity	Catalog Number	Weight lbs (kg)
 VZ18  KZ32  KZ81  KZ106	VN12, VN20 V02 to V2	11.81 x 12.99 (300 to 330)	1	VZN17	0.22 (0.100)
		15.75 x 16.93 (400 to 430)	1	VZN30	0.286 (0.130)
	V02 to V2	11.81 x 12.99 (300 to 330)	1	VZ17	0.165 (0.075)
		15.75 x 16.93 (400 to 430)	1	VZ30	0.275 (0.125)
	V3 and V4	11.81 x 12.60 (300 to 320)	1	VZ18	0.375 (0.170)
		15.75 x 16.54 (400 to 420)	1	VZ31	0.474 (0.215)
	V5 and V6	11.81 x 13.78 (300 to 350)	1	VZ18	0.375 (0.170)
		16.93 x 17.72 (430 to 450)	1	VZ31	0.474 (0.215)
Door interlock plate	VN12, VN20 V02 to V2	—	5	KZ32	0.390 (0.177)
	V3 to V6	—	5	KZ74	0.044 (0.020)
Plates for door mounting handles with 4 screw mounting (do not interlock with door)	VN12, VN20 V02 to V2	1.75 x 1.75 (45 x 45) or 2.38 x 2.38 (60 x 60)	5	KZ83	0.452 (0.205)
	V3 and V4	2.38 x 2.38 (60 x 60)	5	KZ81	0.022 (0.010)
	V3 to V6	3.5 x 3.5 (90 x 90)	5	KZ81	0.022 (0.010)
Adaptor plate for manual motor control switches	V3 and V4	3.5 x 3.5 (90 x 90)	5	KZ106	0.165 (0.075)

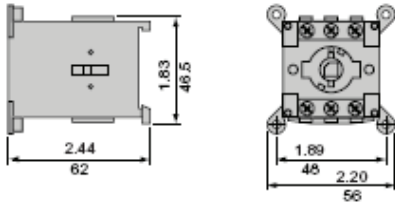
Table 23: Accessories for Operators

Description	For Use With	Front Plate Dimensions in. (mm)	Standard Package Quantity	Catalog Number	Weight lbs (kg)
 KZ15	front plate	1.75 x 1.75 (45 x 45)	5	KZ13	0.132 (0.060)
		2.38 x 2.38 (60 x 60)	5	KZ15	0.143 (0.065)
		3.5 x 3.5 (90 x 90)	5	KZ103	0.154 (0.070)
 KZ67	front plate	1.75 x 1.75 (45 x 45)	20	KZ14	0.132 (0.060)
		2.38 x 2.38 (60 x 60)	10	KZ16	0.143 (0.065)
		3.5 x 3.5 (90 x 90)	5	KZ101	0.154 (0.070)
 KZ100	KZ14	—	20	KZ76	0.044 (0.020)
	KZ16	—	10	KZ77	0.022 (0.010)
	KZ101	—	5	KZ100	0.011 (0.005)
 Z01	VN12, VN20 V02 to V2	1.75 x 1.75 (45 x 45)	5	KZ65	0.081 (0.037)
		2.38 x 2.38 (60 x 60)	5	KZ66	0.073 (0.033)
	V3 and V4	2.38 x 2.38 (60 x 60)	5	KZ62	0.073 (0.033)
Tightening tool	V3 to V6	3.5 x 3.5 (90 x 90)	5	KZ67	0.140 (0.064)
	operators with Ø 7/8 in. (22.5 mm) mounting	—	5	Z01	0.110 (0.050)

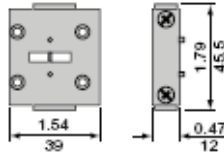
Manual Motor Control Switches and Disconnects Mini-Vario and Vario Manual Motor Control Switches

Manual Motor Control Switch Bodies

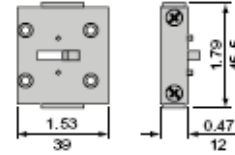
VN12 and VN20



Add-on modules VZN12 and VZN20

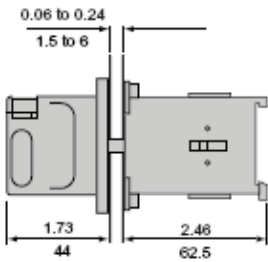


VZN11, VZN14 VZN05, and VZN06

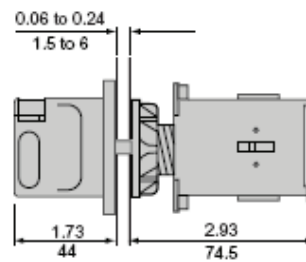


Manual Motor Control Switch Mounted on Enclosure Door VN12 and VN20

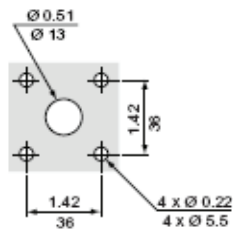
Four-hole mounting



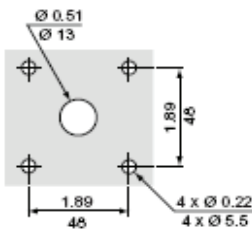
Single-hole mounting



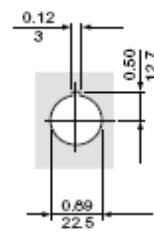
1.75 in. x 1.75 in. front plate (45 mm x 45 mm)



2.38 in. x 2.38 in. front plate (60 mm x 60 mm)



Single-hole mounting



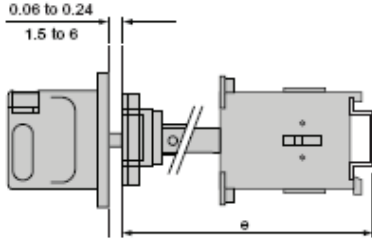
Dimensions: $\frac{\text{in.}}{\text{mm}}$

Manual Motor Control Switches and Disconnects

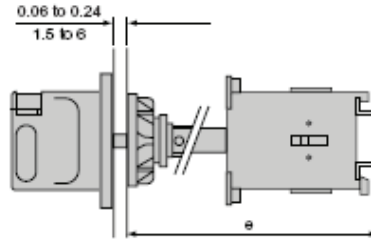
Mini-Vario and Vario Manual Motor Control Switches

Manual Motor Control Switch Mounted at Back of Enclosure with Shaft Extension VZN17 or VZN30 (clip-on mounting on DIN rail) VN12, VN20

Four-hole mounting

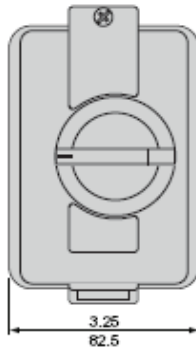
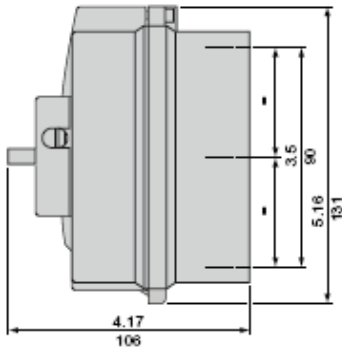


Single-hole mounting



	Shaft Extension	Distance (e) Enclosure Depth in. (mm)
VN12, VN20	VZN17	11.81 to 12.99 (300 to 330)
	VZN30	15.75 to 16.93 (400 to 430)

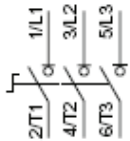
V•FN12GE and V•FN20GE (Enclosures not UL or CSA Listed)



Dimensions: $\frac{\text{in.}}{\text{mm}}$

Wiring Diagrams

Switch body
VN12 and VN20



Main pole module
VZN12 and VZN20



Neutral pole module
VZN11



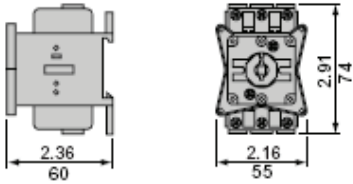
Auxiliary contact blocks
VZN05 VZN06



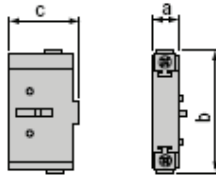
Manual Motor Control Switches and Disconnects Mini-Vario and Vario Manual Motor Control Switches

Switch Bodies

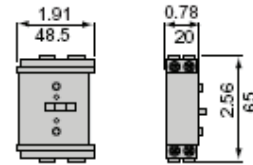
V01, V0 to V2



VZ02 to VZ4, VZ11 to VZ16

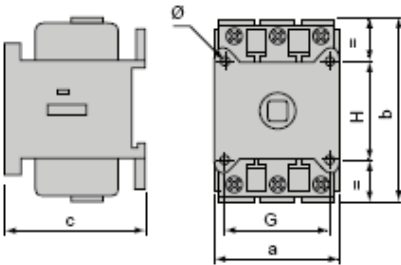


VZ7, VZ20



	in. (mm)	in. (mm)	in. (mm)
	a	b	c
VZ02 and VZ01, VZ0 to VZ2, VZ11, VZ14	0.63 (16)	2.9 (74)	1.38 (35)
VZ3, VZ4, VZ12, VZ15	0.79 (20)	3.27 (83)	1.81 (46)
VZ13, VZ16	1.18 (30)	4.92 (125)	2.48 (63)

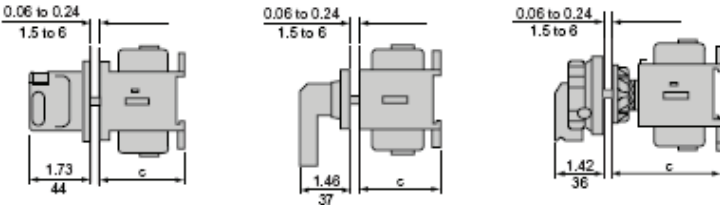
V3 to V6



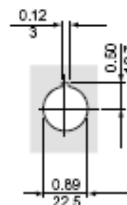
	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)
	a	b	c	G	H	Ø
V3, V4	2.36 (60)	3.27 (83)	2.56 (65)	1.89 (48)	1.89 (48)	0.22 (5.5)
V5, V6	3.54 (90)	4.92 (125)	3.54 (90)	2.68 (68)	2.68 (68)	0.22 (5.5)

Manual Motor Control Switch Mounted on Enclosure Door

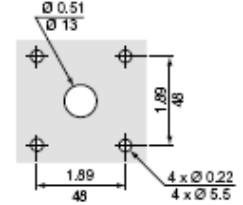
V0+, V0 to V4



Single-hole mounting

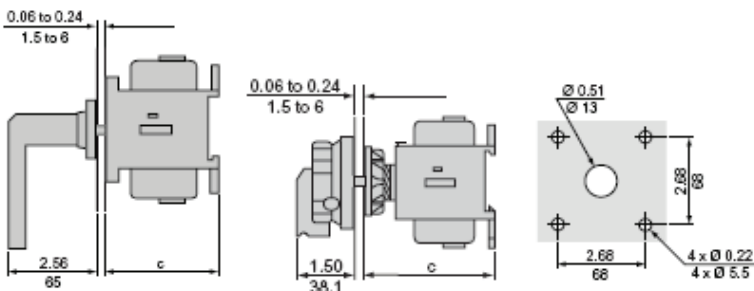


Four-hole mounting



V5 and V6

Four-hole mounting



	4-Hole in. (mm)	Single Hole in. (mm)
	c	c
V0+, V0 to V2	2.36 (60)	3.07 (78)
V3, V4	2.56 (65)	3.27 (83)
V5, V6	3.54 (90)	4.25 (108)

Dimensions: $\frac{\text{in.}}{\text{mm}}$

Manual Motor Control Switches and Disconnects

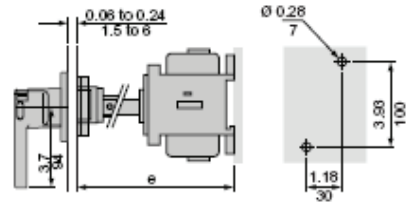
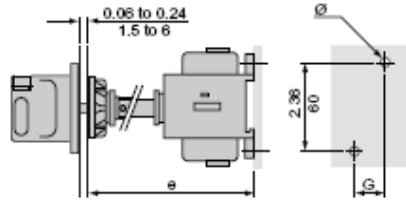
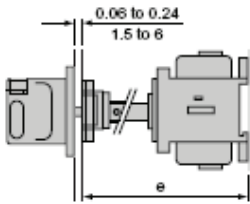
Mini-Vario and Vario Manual Motor Control Switches

Manual Motor Control Switch Mounted at back of Enclosure V0*, V0 to V2 with Shaft Extension VZ17 or VZ30 (Clip-on mounting on DIN rail possible for V0* to V2)

V0*, V0 to V2

V3 to V4 with shaft extension VZ18 or VZ31

V5 and V6 with shaft extension VZ18 or VZ31



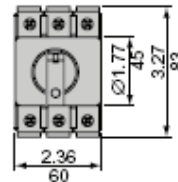
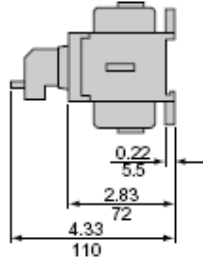
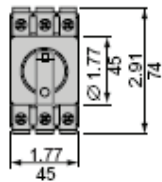
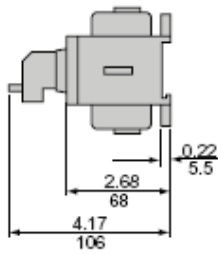
	Shaft Extension	Distance (e) Enclosure Back/Door in. (mm)	Ø in. (mm)	G in. (mm)
V02 and V01 V0 to V2	VZ17	11.81 to 12.99 (300 to 330)	2 x 0.17 (4.2)	0.59 (15)
	VZ30	15.75 to 16.93 (400 to 430)	2 x 0.17 (4.2)	0.59 (15)
V3 and V4	VZ18	11.81 to 12.99 (300 to 330)	2 x 0.20 (5)	0.79 (20)
	VZ31	15.75 to 16.93 (400 to 430)	2 x 0.20 (5)	0.79 (20)

	Shaft Extension	Distance (e) Enclosure Back/Door in. (mm)
V5 and V6	VZ18	11.81 to 12.99 (300 to 330)
	VZ31	15.75 to 16.93 (400 to 430)

Manual Motor Control Switches for Modular Distribution Boards

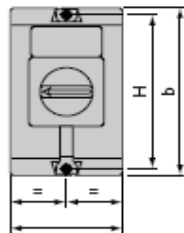
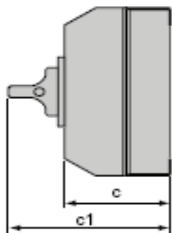
VV-0 to VV-2

VV-3 and VV-4



Enclosures

V-F02GE to V-F4GE, V-FXGE1 to V-FXGE4



	a	b	c	c1	H
V-F02GE to V-F2GE, V-FXGE1	3.54 (90)	5.75 (146)	3.35 (85)	5.16 (131)	5.12 (130)
V-F3GE and V-F4GE	5.91 (150)	6.69 (170)	4.17 (106)	5.98 (152)	6.46 (164)

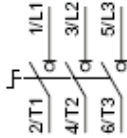
Dimensions: $\frac{\text{in.}}{\text{mm}}$

Manual Motor Control Switches and Disconnects

Mini-Vario and Vario Manual Motor Control Switches

Switch Body

V02 and V01, V0 to V6



Main Pole Module

VZ02 and VZ01, VZ0 to VZ4



Neutral Pole Module

VZ11 to VZ13



Auxiliary Contact Blocks

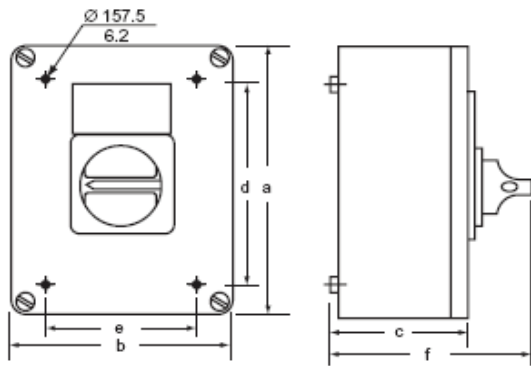
VZ7



VZ20



Non-Metallic Enclosed Switch Dimensions



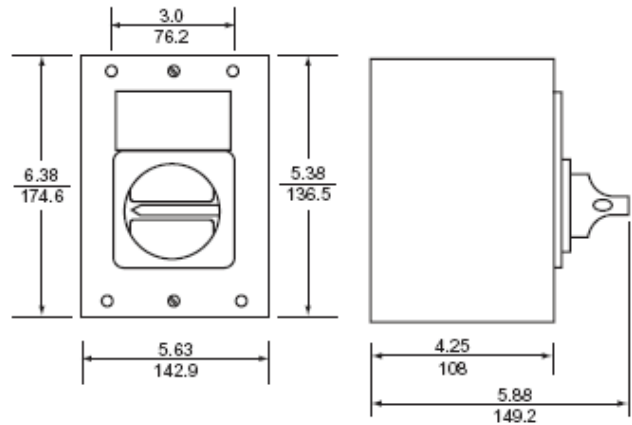
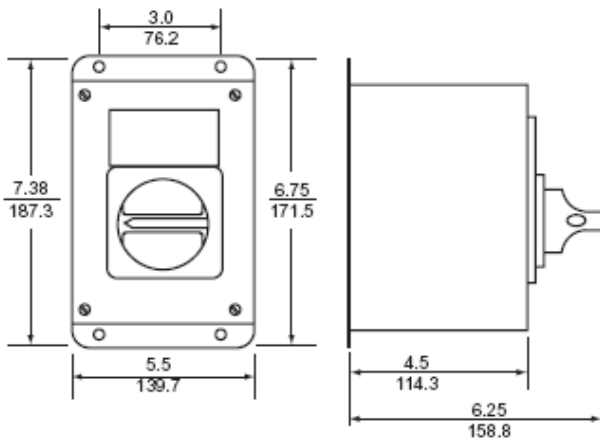
Type	No. of Poles	a	b	c	d	e	f
VC1GUN VC2GUN	3	6.5 (164)	4.8 (121)	3.4 (87)	5.6 (141)	3.9 (98)	5.2 (132)
VC3GUN VC4GUN	3	7.6 (193)	6.5 (164)	3.4 (87)	6.7 (170)	5.6 (141)	5.2 (132)
VC5GUN VC6GUN	3	11.5 (291)	9.5 (241)	5.0 (128)	10.6 (268.5)	8.6 (218.5)	7.5 (190.5)

Dimensions: $\frac{\text{in.}}{\text{mm}}$

Metallic Enclosed Switch Dimensions

NEMA/UL Type 4, 4x, and 12: V1W30, V2W30, V1A30, and V2A30

NEMA/UL Type 1: V1G30 and V2G30



Dimensions: $\frac{\text{in.}}{\text{mm}}$

Manual Motor Control Switches and Disconnects
GS1 and GS2 Fusible and LK4 Nonfusible Disconnect Switches

GS1 and GS2 Fusible and LK4 Nonfusible Disconnect Switches

Table 24: Fusible GS1 30 A and GS2 60–800 A Disconnect Switches

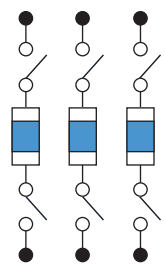
Definition and Function	Specifications	Conformity to Standards
<p>The GS1 and GS2 multipolar manually operated fusible disconnect switches are based on the most up-to-date disconnect switch technology.</p> <p>Suitable as service entrance equipment only when installed with a properly rated enclosure.</p>	<ul style="list-style-type: none"> • Seven ratings from 30–800 A, using Class CC, J, and L fuses. • ON and OFF switch operation • Through the door operator • Flange-mounted, cable-operated 60–200 A • NFPA 79 handle kits 30–400 A 	<ul style="list-style-type: none"> • WHTY.E195721 (UL Listing) • WHTY.E195722 (UL Listing) • WHTY2.E195722 (UL Component Recognition) • CSA – Class: 4652-02 File: 703149 • CSA – Class: 4652-04 File: 703149 • IEC 60947-3 • CE
Product Features		
<p>Practical Safeguard</p> <p>Double Break</p> <p>This modern designed mechanism disconnects on both sides of the fuse using two double breaking contacts per pole. This provides complete isolation of the fuses in the OFF position.</p> <p>Touch Safe</p> <p>Our design reduces the danger of accidental contact with live, energized parts. All products are supplied standard with fuse cover.</p>		<p>Exceptional 200 KA Short Circuit Protection</p> <p>The GS2 Series with the use of Class CC or J fuses provides exceptional high short circuit protection, up to 200 kA.</p> <p>Panel Space Savings</p> <p>This proven switch technology has the fuses incorporated on the top of the switch mechanism to reduce the foot print of the product and saves 50% of panel space compared to other switch designs using other fuse classes.</p>

Table 25: Nonfusible LK4 30–1200 A Disconnect Switches

Definition and Function	Specifications	Conformity to Standards
<p>The LK4*** is a multipolar manually operated switch. It is based on the most up-to-date disconnect switch technology available.</p> <p>Suitable as service entrance equipment only when installed with a properly rated enclosure.</p>	<ul style="list-style-type: none"> • Ten ratings from 30–1200 A <ul style="list-style-type: none"> – LK4 compact three ratings 30–100 A – LK4 standard 60–1200 A • ON and OFF switch operation <ul style="list-style-type: none"> – LK4 compact <ul style="list-style-type: none"> – Through the door operator – Side access operator – LK4 standard <ul style="list-style-type: none"> – Through the door operator 	<ul style="list-style-type: none"> • UL98 File E19572 • CCN WHTY/WHTY2 • CSA 22.2 No. 4 File LR 703150 • Class 4651-02 • IEC 60947-3 • CE
Product Features		
<p>Welded Contact Protection</p> <p>In case of welded contacts due to an overload or short circuit, the switch will not reach the OFF position unless the contacts are actually open.</p>		<p>Clear Position Indication</p> <p>All switches and handles have clear ON and OFF designation.</p>

Manual Motor Control Switches and Disconnects

GS1 and GS2 Fusible and LK4 Nonfusible Disconnect Switches

Common Features for GS1, GS2, and LK4 Disconnect Switches

A Complete Range of Handles



The GS1, GS2, and LK4 disconnect switch series offers a full line of NEMA/UL/IP rated handles.

- Rated Type 1, 3R, 4, 4X, and 12
- IP54 and IP65

Handles offer the user the largest selection of options in operating the switch.

- Standard configuration: ON/OFF (two positions)
- All external handles are available in two colors, black or red/yellow.



Padlocking

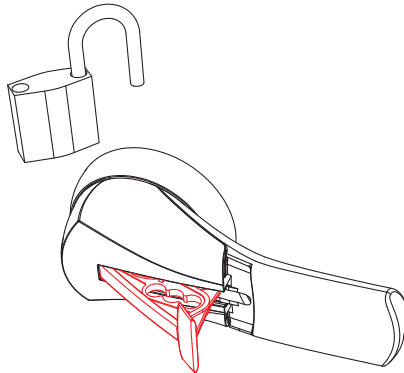
Handles can be padlocked in the OFF position with up to three padlocks. Meets OSHA requirements for lockout/tagout procedures. For safety reasons, the door can not be opened when the handle is padlocked.

Door Interlock in ON Position

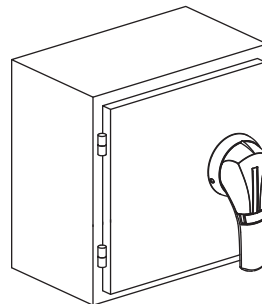
The handles allow opening of the door in OFF position only. In the ON position the door can not be opened. This interlocking can however be bypassed by authorized personnel.

Defeater

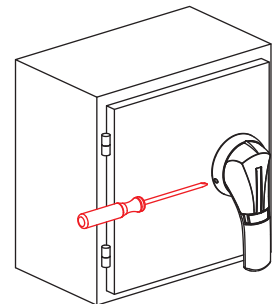
The defeat function allows qualified personnel to by-pass the door interlock when the switch is in the ON position by means of a tool. This exclusive design is also available in Type 4 and 4X ratings. The defeater cannot be actuated if the handle is padlocked.



Padlocking



Door Interlock in ON Position



Defeater

Manual Motor Control Switches and Disconnects

GS1 and GS2 Fusible and LK4 Nonfusible Disconnect Switches

Table 26: GS1 and GS2 Fusible Disconnect Switches

UL and CSA

Catalog Number	GS1DDU3 (compact)	GS1DU3 (compact)	GS2EEU3	GS2EU3N	GS2GU3N	GS2JU3N	GS2MU3N	GS2QU3N	GS2SU3	GS2TU3
Rating (A)	30	30	30	30	60	100	200	400	600	800
Operating Voltage (V)	600	600	600	600	600	600	600	600	600	600
Max hp/Max Motor FLA Current Three Phase (hp/A)										
240 V	7.5/22	7.5/22	7.5/22	7.5/22	15/42	30/80	60/154	125/312	200	200
480 V	15/21	15/21	15/21	15/21	30/40	60/77	125/156	250/302	400	500
600 V	20/22	20/22	20/22	20/22	50/52	75/77	150/144	350/336	500	500
125 Vdc	3/25	3/25	3/25	3/25	5/40	—	—	—	—	—
250 Vdc	5/20	5/20	5/20	5/20	10/38	20/72	40/140 ¹	50/173 ¹	—	—
Short Circuit Rating w/Fuses (kA)	100	100	100	100	100	200	200	200	200	200
Fuse Class	CC	J	CC	J	J	J	J	J	J	L
Fuse Rating (A)	30	30	30	30	60	100	200	400	600	800
Endurance (no. of operations)										
Electrical Endurance	6000	6000	6000	6000	6000	6000	6000	1000	1000	1000
Mechanical Endurance	10000	10000	10000	10000	10000	10000	8000	6000	5000	5000
Dimensions 3 Pole										
H in. (mm)	4.56 (116)	4.56 (116)	5.31 (135)	5.35 (136)	5.35 (136)	11.46 (291)	7.67 (195)	15.34 (390)	11.18 (284)	11.18 (284)
W in. (mm)	3.8 (97)	4.15 (105)	4.92 (125)	5.87 (149)	5.87 (149)	5.87 (149)	7.72 (196)	10.19 (259)	11.81 (300)	11.81 (300)
D in. (mm)	3.3 (84)	3.9 (99)	3.9 (99)	4.84 (123)	4.84 (123)	4.81 (122)	5.11 (130)	7.08 (180)	9.84 (250)	9.84 (250)
Shaft Size Square, in.	0.2 x 0.2	0.2 x 0.2	0.4 x 0.4	0.4 x 0.4	0.4 x 0.4	0.4 x 0.4	0.4 x 0.4	0.4 x 0.4	0.59 x 0.59	0.59 x 0.59
Shaft Size Square, mm.	5 x 5	5 x 5	10 x 10	10 x 10	10 x 10	10 x 10	10 x 10	10 x 10	15 x 15	15 x 15
Switch Operating Torque, lb. in.	21	21	53	88	88	88	106	132	350	350
Terminal Lug Kits	Integrated	Integrated	Standard	Standard	Integrated	Integrated	GS1AW403	GS1AW603 350 MCM-#6	GS1AW503	GS1AW503
Wire Range AWG										
min (mm ²)	#14 (2)	#14 (2)	#14 (2)	#14 (2)	#10 (6)	#12 (34)	#6 (16)	GS1AW606	2 x 2 (34)	2 x 2 (34)
max (mm ²)	#10 (6)	#10 (6)	#10 (6)	#6 (13)	#6 (16)	#1 (42)	#300 (152)	600 MCM-#4	2 x 600 (304)	2 x 600 (304)
Wire Tightening, lb. in. (N•m)	27 (3)	27 (3)	48 (5.4)	58 (6.6)	31 (3.5)	35.4 (4)	275 (8.5)	or	500 (56.5)	500 (56.5)
Lug Mounting, lb. in. (N•m)	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated	160 (18.1)	250 MCM-#10	310 (35.0)	310 (35.0)
Auxiliary Contacts										
NEMA/UL Rating, AC	A600	A600	A600	A600	A600	A600	A600	A600	A600	A600
NEMA/UL Rating, DC	N600	N600	N600	N600	N600	N600	N600	N600	N600	N600

IEC

Catalog Number	GS1DDU3	GS1DU3	GS2EEU3	GS2EU3N	GS2GU3N	GS2JU3N	GS2MU3N	GS2QU3N	GS2SU3	GS2TU3
Rating (A)	32	32	32	32	63	100	200	400	630	800
Rated Insulation Voltage Ui (V)	690	690	750	750	750	750	750	800	1000	1000
Rated Impulse Voltage (Uimp)	8 kV	8 kV	8 kV	8 kV	8 kV	8 kV	8 kV	8 kV	12 kV	12 kV
Operation Current Ie										
400 V AC	A									
AC 22A	32	32	32	32	63	100	200	400	630	800
AC 23A	32	32	32	32	63	100	200	400	630	800
690 V AC										
AC 22A	32	32	32	32	63	100	200	400	630	800
AC 23A	32	32	32	32	63	100	200	250	630	630
Motor Power (kW)										
400 Vac	AC 23A	15	15	15	30	51	100	220	355	450
500 Vac	AC 23A	18.5	18.5	18.5	40	63	140	220	450	560
690 Vac	AC 23A	25	25	25	55	90	185	220	600	600
Maximum Peak let through Current, kA peak	5.5	5.5	7.6	17.6	17.6	22	32	36	77	77
Connection										
Min. Cu Cable Section (mm ²)	2	2	2	2	6	34	16	2 x 16	2 x 34	2 x 40 x 5
Min. Cu Busbar Section (mm ²)	—	—	—	—	—	—	—	—	—	—

¹ 3 poles in series in one of the following conditions: 3 poles on +, 2 poles on + and 1 on -, 1 pole on + and 2 on -, 3 poles on -.

Ambient air temperature

Operating temperature: -20 to +70 °C

Storage temperature: -40 to +80 °C

Manual Motor Control Switches and Disconnects

GS1 and GS2 Fusible and LK4 Nonfusible Disconnect Switches

Table 27: LK4 Nonfusible Disconnect Switches

UL and CSA

Catalog Number	LK4DU3CN	LK4GU3CN	LK4JU3CN	LK4JU3N	LK4MU3N	LK4QU3N	LK4SU3N	LK4TU3N	LK4UU3N	LK4WU3N
Rating (A)	30	60	100	100	200	400	600	800	1000	1200
Operating Voltage (V)	600	600	600	600	600	600	600	600	600	600
Max hp/Max Motor FLA Current Three Phase (hp/A)										
240 V	10/30	20/56	20/53	30/80	75/92	125/312	200/480	200/480	200/480	200/480
480 V	20/28	40/53	50/64	75/96	150/187	250/302	400/477	500/590	500/590	500/590
600 V	25/28	50/52	50/51	100/100	200/192	350/336	350/336	500/472	500/472	500/472
125 Vdc	—	—	—	10/77	15/112 ¹	20/148 ¹	20/148 ¹	—	—	—
250 Vdc	—	—	—	15/54	15/56 ²	50/173 ²	50/173 ²	—	—	—
Short Circuit Rating w/Fuses (kA)	100	100	100	200	200	200	200	100	100	100
Fuse Class	J	J	J	J	J	J	J	L	L	L
Fuse Rating (A)	30	60	100	100	200	400	600	800	1000	1200
Endurance (no. of operations)										
Electrical Endurance	6000	6000	6000	6000	6000	1000	1000	500	500	500
Mechanical Endurance	10000	10000	10000	8000	8000	6000	6000	3500	3500	3500
Dimensions 3 Pole										
H in. (mm)	4.92 (125)	4.92 (125)	4.92 (125)	6.30 (160)	6.30 (160)	10.23 (260)	12.6 (320)	13 (320)	13 (320)	13 (320)
W in. (mm)	3.13 (79.5)	3.13 (79.5)	3.13 (79.5)	7.08 (180)	7.08 (180)	9.05 (230)	11 (279)	14.65 (370)	14.65 (370)	14.65 (370)
D in. (mm)	2.52 (64)	2.52 (64)	2.52 (64)	3.74 (95)	3.74 (95)	4.92 (128)	5.51 (140)	5.51 (140)	5.51 (140)	5.51 (140)
Shaft Size Square, in.	0.2 x 0.2	0.2 x 0.2	0.2 x 0.2	0.4 x 0.4	0.4 x 0.4	0.4 x 0.4	0.59 x 0.59	0.59 x 0.59	0.59 x 0.59	0.59 x 0.59
Shaft Size Square, mm.	5 x 5	5 x 5	5 x 5	10 x 10	10 x 10	10 x 10	15 x 15	15 x 15	15 x 15	15 x 15
Switch Operating Torque, lb. in.	21	88	88	106	106	320	320	1320	320	320
Terminal Lug Kits	Standard	Standard	Standard	GS1AW403	GS1AW403	GS1AW603 350 MCM-#6	GS1AW503	GS1AW903	GS1AW903	GS1AW903
Wire Range AWG min (mm ²) max (mm ²)	#12 (4) #2/0 (50)	#12 (4) #2/0 (50)	#12 (4) #2/0 (50)	#6 (16) #300 (152) kcmil	#6 (16) #300 (152) kcmil	GS1AW606 600 MCM-#4 or 250 MCM-#10	2 x 2 (34) 2 x 600 (304) kcmil	2 x 2 (34) 2 x 600 (304) kcmil	2 x 2 (34) 2 x 600 (304) kcmil	2 x 2 (34) 2 x 600 (304) kcmil
Wire Tightening, lb. in. (N·m) Lug Mounting, lb. in. (N·m)	35.4 (4) Integrated	35.4 (4) Integrated	35.4 (4) Integrated	160 (18.1) 200 (22.6)	160 (18.1) 200 (22.6)		500 (56.5) 310 (35)	500 (56.5) 310 (35)	500 (56.5) 310 (35)	500 (56.5) 310 (35)
Auxiliary Contacts NEMA/UL Rating, AC NEMA/UL Rating, DC	A600 N600	A600 N600	A600 N600	A600 N600	A600 N600	A600 N600	A600 N600	A600 N600	A600 N600	A600 N600

IEC

Catalog Number	LK4DU3CN	LK4GU3CN	LK4JU3CN	LK4JU3N	LK4MU3N	LK4QU3N	LK4SU3N	LK4TU3N	LK4UU3N	LK4WU3N
Rating (A)	32	63	100	100	200	400	600	800	1000	1200
Rated Insulation Voltage Ui (V)	690	750	750	750	750	1000	1000	1000	1000	1000
Rated Impulse Voltage (Uimp)	8 kV	8 kV	8 kV	8 kV	8 kV	12 kV	12 kV	12 kV	12 kV	12 kV
Operation Current Ie										
400 Vac	A AC 22A AC 23A	32 63	100 100	100 100	200 200	400 400	630 630	800 800	1000 1000	1200 1000
690 Vac	AC 22A AC 23A	32 63	100 100	100 100	200 200	400 200	500 200	630 400	630 400	630 400
Motor Power (kW)										
400 V AC	AC 23A	15	30	51	51	100	220	355	450	560
500 V AC	AC 23A	18.5	40	63	63	140	280	450	560	560
690 V AC	AC 23A	25	55	90	90	185	185	185	400	400
Maximum Peak let through Current, kA peak	5.5	17.6	17.6	17.6	32	48	48	75	75	75
Connection										
Min. Cu Cable Section (mm ²)	4	4	4	4	16	16	2 x 34	2 x 34	2 x 34	—
Min. Cu Busbar Section (mm ²)	—	—	—	—	—	—	2 x 30 x 5	2 x 40 x 5	2 x 50 x 5	2 x 60 x 5

¹ 2 poles in series.

² 3 poles in series in one of the following conditions: 3 poles on +, 2 poles on + and 1 on -, 1 pole on + and 2 on -, 3 poles on -.

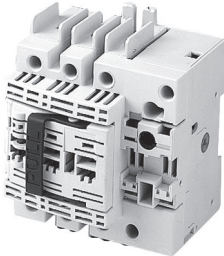
Manual Motor Control Switches and Disconnects

GS1 and GS2 Fusible and LK4 Nonfusible Disconnect Switches

Fusible Disconnect Switches

Select one of each:

1 Switch
(see below)



Compact 30 A Switch
GS1DDU3

1 Shaft
(see page 32)



Shaft 320 mm
GS2AE2

1 Handle
(see page 32)



Black Handle
GS2AH110

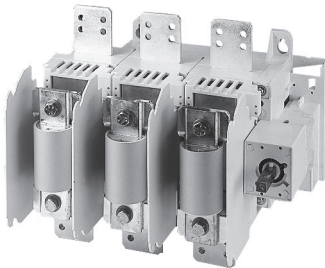
1 Lug Kit (if required)
(see page 34)



Lug Kit
GS1AW403



100 A Switch
GS2JU3N



800 A Switch
GS2TU3

Table 28: Compact GS1 30 A

Type	Fuses	Amps	Nb	Maximum Horse Power Rating			Catalog Number	Shaft Style ¹
				Three Phase				
Compact			Poles	240 V	480 V	600 V		
Fused	CC	30	3	7.5	15	20	GS1DDU3	AG
Fused	J	30	3	7.5	15	20	GS1DU3	AG

Table 29: GS2 30–400 A

Type	Fuses	Amps	Nb	Maximum Horse Power Rating			Catalog Number	Shaft Style ¹
				Three Phase				
Compact			Poles	240 V	480 V	600 V		
Fused	CC	30	3	7.5	15	20	GS2EEU3	B
Fused	J	30	3	7.5	15	20	GS2EU3N	B
Fused	J	60	3	15	30	50	GS2GU3N	B
Fused	J	100	3	30	60	75	GS2JU3N	B
Fused	J	200	3	60	125	150	GS2MU3N ²	B
Fused	J	400	3	125	250	350	GS2QU3N ²	B

Table 30: GS2 600–800 A

Type	Fuses	Amps	Nb	Maximum Horse Power Rating			Catalog Number	Shaft Style ¹
				Three Phase				
Compact			Poles	240 V	480 V	600 V		
Fused	J	600	3	200	400	500	GS2SU3 ²	C
Fused	L	800	3	200	500	500	GS2TU3 ²	C

¹ Match the switch with the shaft. For example, match the "AG" designation on the switch with the "AG" designation on the shaft.

² Terminal lugs must be ordered separately.

Table 31: Cable Operator Kits for GS2 Switches

Catalog Number	Description
GSAH36F	36 in. Cable Operator Kit
GSAH60F	60 in. Cable Operator Kit
GSAH120F	120 in. Cable Operator Kit
GSAH144F	144 in. Cable Operator Kit
GSAH180F	180 in. Cable Operator Kit

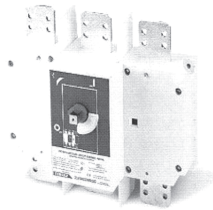
Manual Motor Control Switches and Disconnects

GS1 and GS2 Fusible and LK4 Nonfusible Disconnect Switches

Nonfusible Disconnect Switches

Select one of each:

1 Switch
(see below)



100–400 A Switch

1 Shaft
(see page 32)



Shaft 32 mm
GS2AE6

1 Handle
(see page 32)

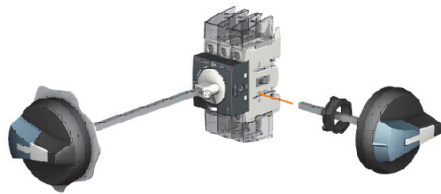


Black Handle
GS2AH150

1 Lug Kit (if required)
(see page 34)



GS1AW503



30 A Compact
LK4DU3CN

Table 32: Compact LK4 30–100 A

Type	Amps	Nb	Maximum Horse Power Rating			Catalog Number	Shaft Style ¹
			Three Phase				
Compact		Poles	240 V	480 V	600 V		
Nonfused	30	3	10	20	28	LK4DU3CN	AL
Nonfused	60	3	20	40	50	LK4GU3CN	AL
Nonfused	100	3	20	50	50	LK4JU3CN	AL

Table 33: LK4 100–200 A

Type	Amps	Nb	Maximum Horse Power Rating			Catalog Number	Shaft Style ¹
			Three Phase				
		Poles	240 V	480 V	600 V		
Nonfused	100	3	30	75	100	LK4JU3N ²	B
Nonfused	200	3	75	150	200	LK4MU3N ²	B

Table 34: LK4 400–1200 A

Type	Amps	Nb	Maximum Horse Power Rating			Catalog Number	Shaft Style ¹
			Three Phase				
		Poles	240 V	480 V	600 V		
Nonfused	400	3	125	250	350	LK4QU3N ²	B
Nonfused	600	3	200	400	350	LK4SU3N ²	D
Nonfused	800	3	250	500	500	LK4TU3N ²	D
Nonfused	1000	3	200	500	500	LK4UU3N ²	D
Nonfused	1200	3	200	500	500	LK4WU3N ²	D

¹ Match the switch with the shaft. For example, match the "AL" designation on the switch with the "AL" designation on the shaft.

² Terminal lugs must be ordered separately.

Manual Motor Control Switches and Disconnects

GS1 and GS2 Fusible and LK4 Nonfusible Disconnect Switches



LK4AH110CN
Handle Style L1



GS2AH110
Handle Style H1



GS2AH130
Handle Style H2



GS2AH150
Handle Style H3



GS2AH170
Handle Style H4



Auxiliary Contacts
GS1AD10 + GS2AM110

Table 35: Handles and Shafts for GS Switches

Rating (A)	Handle				Shaft: 12.6 in. (320 mm) Catalog No.	Shaft: 15.7 in. (400 mm) Catalog No.	Shaft Style ¹
	Catalog No.	Style	Type	Color			
30–60	GS2AH110	H1	1, 3R, 12	Black	GS2AE8 (GS1DDU3 or DU3 only) GS2AE2	GS2AE81 (GS1DDU3 or DU3 only) GS2AE21	AG
30–60	GS2AH120	H1	1, 3R, 12	Red/Yellow			B
30–60	GS2AH410	H1	4, 4X	Black			
30–60	GS2AH420	H1	4, 4X	Red/Yellow			
30–400	GS2AH130	H2	1, 3R, 12	Black	GS2AE2	GS2AE21	B
30–400	GS2AH140	H2	1, 3R, 12	Red/Yellow			
30–400	GS2AH430	H2	4, 4X	Black			
30–400	GS2AH440	H2	4, 4X	Red/Yellow			
600–800	GS2AH150	H3	4, 4X	Black	GS2AE5	GS2AE51	C
600–800	GS2AH160	H3	4, 4X	Red/Yellow			

¹ Match the switch with the shaft. For example, match the “AG” designation on the switch with the “AG” designation on the shaft.

Table 36: Handles and Shafts for LK Switches

Rating (A)	Handle				Shaft: 12.6/320 in./mm Catalog No.	Shaft: 15.7/400 in./mm Catalog No.	Shaft Guide ¹ Catalog No.	Shaft Style ²
	Catalog No.	Style	Type	Color				
30–100 Compact	LK4AH110CN	L1	1, 3R, 12	Black	LK4AE12CN	—	LK4AEAH12CN	AL
30–100 Compact	LK4AH120CN	L1	1, 3R, 12	Red/Yellow				
30–100 Compact	LK4AH410CN	L1	4, 4X	Black				
30–100 Compact	LK4AH420CN	L1	4, 4X	Red/Yellow				
100–400	GS2AH130	H2	1, 3R, 12	Black	GS2AE2	GS2AE21	—	B
100–400	GS2AH140	H2	1, 3R, 12	Red/Yellow				
100–400	GS2AH430	H2	4, 4X	Black				
100–400	GS2AH440	H2	4, 4X	Red/Yellow				
600	GS2AH150	H3	4, 4X	Black	GS2AE6	GS2AE61	—	D
600	GS2AH160	H3	4, 4X	Red/Yellow				
800–1200	GS2AH170	H4	4, 4X	Black				
800–1200	GS2AH180	H4	4, 4X	Red/Yellow				

¹ Required on shafts for LK4DU3CN and LK4GU3CN switches.

² Match the switch with the shaft. For example, match the “AG” designation on the switch with the “AG” designation on the shaft.

The handle kits listed in Table 37 are new—released in 2015.

Table 37: *New!* Complete Kits

Rating	Kit Catalog Number	Pieces Included ¹				
		Compact Switch	400 mm Shaft	Handle Color / Rating	Handle	Guide Cone
30 A	LK4DUKB1	LK4DU3CN	LK4AE41CN	Black / NEMA 1,12,3R	LK4AH0110CN	GS2AEH12
30 A	LK4DUKB4	LK4DU3CN	LK4AE41CN	Black / NEMA 4, 4X	LK4AH0410CN	GS2AEH12
30 A	LK4DUKR1	LK4DU3CN	LK4AE41CN	Red / NEMA 1,12,3R	LK4AH0120CN	GS2AEH12
30 A	LK4DUKR4	LK4DU3CN	LK4AE41CN	Red / NEMA 4, 4X	LK4AH0420CN	GS2AEH12
60 A	LK4GUKB1	LK4GU3CN	LK4AE41CN	Black / NEMA 1,12,3R	LK4AH0110CN	GS2AEH12
60 A	LK4GUKB4	LK4GU3CN	LK4AE41CN	Black / NEMA 4, 4X	LK4AH0410CN	GS2AEH12
60 A	LK4GUKR1	LK4GU3CN	LK4AE41CN	Red / NEMA 1,12,3R	LK4AH0120CN	GS2AEH12
60 A	LK4GUKR4	LK4GU3CN	LK4AE41CN	Red / NEMA 4, 4X	LK4AH0420CN	GS2AEH12
100 A	LK4JUKB1	LK4JU3CN	LK4AE41CN	Black / NEMA 1,12,3R	LK4AH0110CN	GS2AEH12
100 A	LK4JUKB4	LK4JU3CN	LK4AE41CN	Black / NEMA 4, 4X	LK4AH0410CN	GS2AEH12
100 A	LK4JUKR1	LK4JU3CN	LK4AE41CN	Red / NEMA 1,12,3R	LK4AH0120CN	GS2AEH12
100 A	LK4JUKR4	LK4JU3CN	LK4AE41CN	Red / NEMA 4, 4X	LK4AH0420CN	GS2AEH12

¹ Components are NOT sold separately. Only 400 mm shaft can be purchased separately.

Manual Motor Control Switches and Disconnects

GS1 and GS2 Fusible and LK4 Nonfusible Disconnect Switches

Table 38: Auxiliary Contacts for GS Switches ¹

Switch Amperes	Catalog Number	Description
30–800	GS2AM110	Auxiliary contact 1 N.O.
30–800	GS2AM101	Auxiliary contact 1 N.C.
30 Compact	GS1AD10	Auxiliary contact holder

¹ GS1DU3 and GS1DDU3 switches allow up to four auxiliary contacts without adding contact holder GS1AD10. For more than four contacts, GS1AD10 is required.

Table 39: Terminal Shrouds for GS Switches, Line or Load ¹

Switch Amperes	Catalog Number	Description
30–100	GS1AP33	Standard on product
200	GS2AP43	GS2, 3-pole, 200 A
400	GS2AP53	GS2, 3-pole, 400 A
600–800	GS2AP73	GS2, 3-pole, 600–800 A

¹ Order one terminal shroud per side. For example, order one terminal shroud for *either* the line side *or* the load side; order two terminal shrouds for *both* the line side *and* the load side.

Table 40: Shorting Links

For use on	Shorting Links per Kit	Catalog No.
GS2, 60 A	3	GS1AU203
GS2, 100 A	3	GS1AU303
GS2, 200 A	3	GS1AU403
GS2, 400 A	3	GS1AU503
GS2, 600–800 A	3	GS1AU803

Manual Motor Control Switches and Disconnects

GS1 and GS2 Fusible and LK4 Nonfusible Disconnect Switches

Accessories

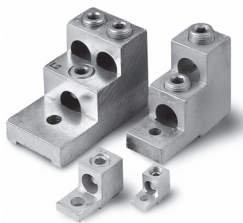
Table 41: Auxiliary Contacts for LK Switches

Switch Amperes	Catalog Number	Description
30–100 Compact	MDSAN11	Aux Contact 1 N.O. and 1 N.C.
30–100 Compact	MDSAN20	Aux Contact 2 N.O. and 2 N.C.
100–400	LK4AD10N	Aux Contact 1 N.O. and 1 N.C.
100–400	LK4AD20N	Aux Contact 2 N.O. and 2 N.C.
600–1200	LK4AD30N	Aux Contact Holder
600–1200	GS2AM110	Aux Contact 1 N.O.
600–1200	GS2AM101	Aux Contact 1 N.C.

Table 42: Terminal Shrouds for LK Switches

Switch Amperes	Catalog Number	Description
30–60	LK4AP3CN	Shroud Top and Bottom, 3-Pole
100–200	LK4AP33TN	Shroud Top LK4, 3-Pole, 100/200 A
100–200	LK4AP33BN	Shroud Bottom LK4, 3-Pole, 100/200 A
400	LK4AP53TN	Shroud Top LK4, 3-Pole, 400 A
400	LK4AP53BN	Shroud Bottom LK4, 3-Pole, 400 A
600 ¹	LK4AP63N	Shroud Bottom LK4, 3-Pole, 600 A
800–1200 ¹	LK4AP83N	Shroud Bottom LK4, 3-Pole, 800–1200 A

¹ 600–1200 A standard with top shroud.



Terminal Lugs

Table 43: Terminal Lugs

For Use On	Rating	No. of Wires per Lug	No. of Lugs per Terminal	Lug Size (AWG)	Wire Type	Lugs per Kit	Lug Kit Catalog No.
LK4DU3CN	30	1	1	#12–2/0	Cu	—	Standard
LK4GU3CN	60	1	1	#12–2/0	Cu	—	Standard
LK4JU3N	100	1	1	6–300 kcmil	Cu/Al	6	GS1AW403
LK4MU3N	200	1	1	6–300 kcmil	Cu/Al	6	GS1AW403
LK4QU3N	400	2	1	350 MCM–6	Cu/Al	—	GS1AW603
		1	1	600 MCM–4	Cu/Al	6	GS1AW606
		2	1	250 MCM–1/0	Cu/Al	6	GS1AW606
LK4SU3N	600	2	1	2 x 2–600 kcmil	Cu/Al	6	GS1AW503
LK4TU3N	800	2	2	2 x 2–600 kcmil	Cu/Al	12	GS1AW903
LK4UU3N	1000	2	2	2 x 2–600 kcmil	Cu/Al	12	GS1AW903
LK4WU3N	1200	2	2	2 x 2–600 kcmil	Cu/Al	12	GS1AW903
GS1DDU3	30	1	1	#14–#10	Cu	—	Standard
GS1DU3	30	1	1	#14–#10	Cu	—	Standard
GS2GU3N	60	1	1	#10–#6	Cu	—	Standard
GS2JU3N	100	1	1	#12–#1	Cu	—	Standard
GS2MU3N	200	1	1	6–300 kcmil	Cu/Al	6	GS1AW403
GS2QU3N	400	2	1	350 MCM–6	Cu/Al	—	GS1AW603
		1	1	600 MCM–4	Cu/Al	6	GS1AW606
		2	1	250 MCM–1/0	Cu/Al	6	GS1AW606
GS2SU3	600	2	1	2 x 2–600 kcmil	Cu/Al	6	GS1AW503
GS2TU3	800	2	1	2 x 2–600 kcmil	Cu/Al	6	GS1AW503

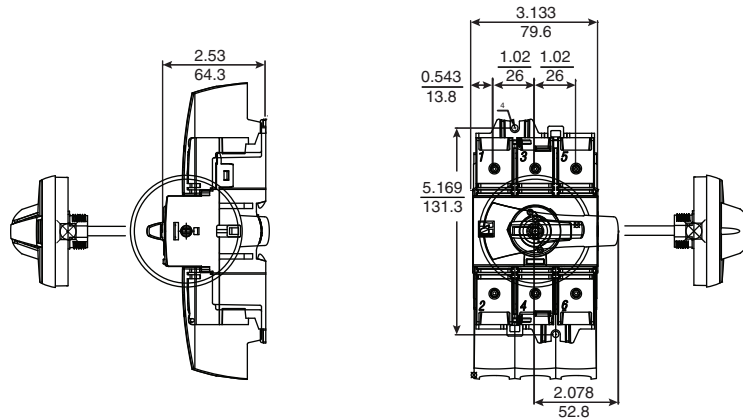
Table 44: Power Distribution Lugs

For Use On	Rating	No. of Wires per Lug	Lug Size (AWG)	Wire Type	Lugs per Kit	Lug Kit Catalog Number
GS1JU3	100	6	#14–#6	Cu	3	GS1AW306 ¹
GS2MU3N GS2QU3N	200 400	12	#14–#4	Cu	3	GS1AW406
GS2MU3N GS2QU3N	200 400	6	#12–2/0	Cu	3	GS1AW506

¹ Cannot be used on GS2JU3N.

Manual Motor Control Switches and Disconnects GS1 and GS2 Fusible and LK4 Nonfusible Disconnect Switches

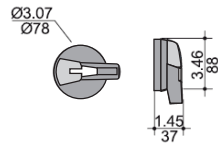
LK4DU3CN / LK4GU3CN / LK4JU3CN, 30–100 A Compact Nonfusible Disconnect Switches



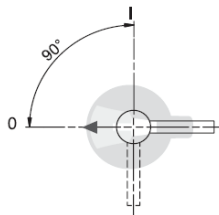
Handle for 30–100 A Compact Nonfusible Disconnect Switches

Handle part no.

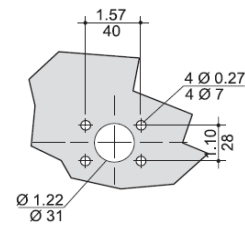
- LK4AH110CN
- LK4AH120CN
- LK4AH410CN
- LK4AH420CN



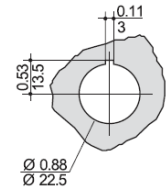
Right-side or front operation



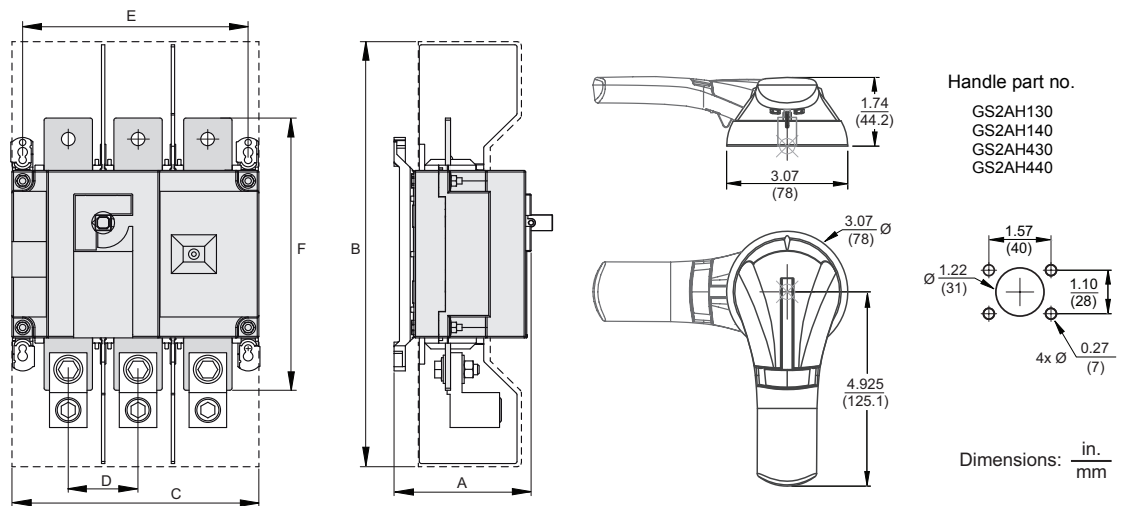
Door drilling with 4 fixing screws



Door drilling with fixing nut



LK4JU3N / LK4MU3N / LK4QU3N, 100–400 A Nonfusible Disconnect Switches—Dimensions



Handle part no.

- GS2AH130
- GS2AH140
- GS2AH430
- GS2AH440

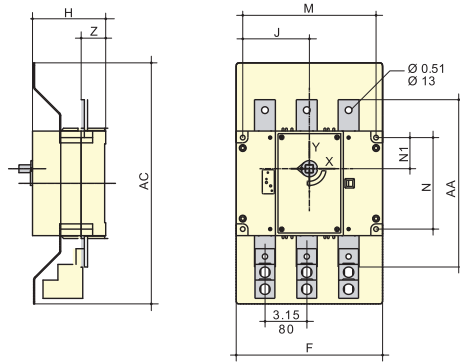
Dimensions: $\frac{\text{in.}}{\text{mm}}$

Rating (A)	Dimensions = in. (mm)					
	A	B	C	D	E	F
100–200	3.72 (94.6)	10.1 (256)	7.09 (180)	1.97 (50)	6.3 (160)	6.3 (160)
400	4.92 (128)	16 (406)	9.05 (230)	2.56 (65)	8.26 (210)	10.2 (260)

Manual Motor Control Switches and Disconnects

GS1 and GS2 Fusible and LK4 Nonfusible Disconnect Switches

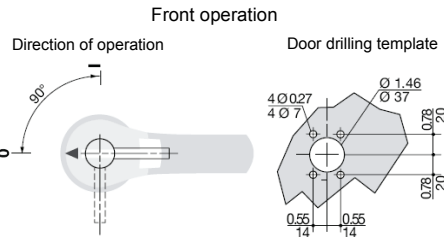
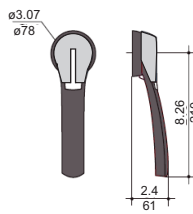
LK4SU3N, 600 A Nonfusible Disconnect Switches—Dimensions



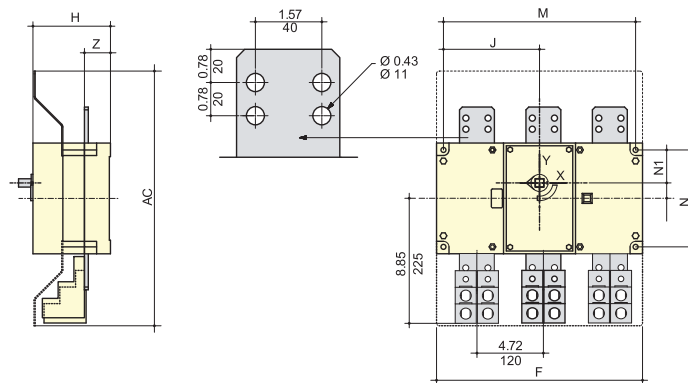
Rating (A)	Dimensions = in. (mm)								
	AC	F	H	J	M	N	N1	AA	Z
600	18.12 (460)	11 (280)	5.5 (140)	5.0 (127.5)	10.03 (255)	6.88 (175)	2.34 (59.5)	12.6 (320)	1.85 (47)

Handle for 600 A and 800 A Fusible Disconnect Switches

Handle part no.
GS2AH150
GS2AH160



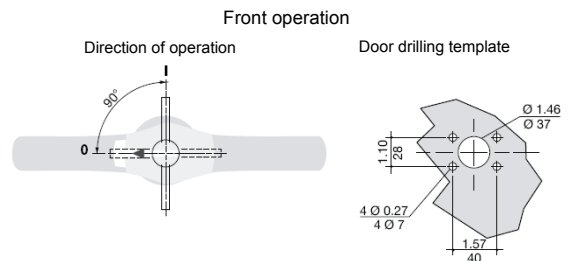
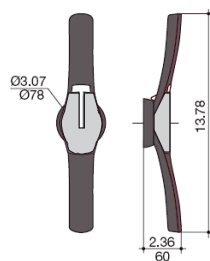
LK4TU3N / LK4UU3N / LK4WU3N, 800–1200 A Nonfusible Disconnect Switches—Dimensions



Rating (A)	Dimensions = in. (mm)								
	AC	F	H	J	M	N	N1	Z	
800–1200	18.12 (460)	14.64 (372)	5.5 (140)	6.83 (173.5)	13.66 (347)	6.88 (175)	2.34 (59.5)	1.85 (47)	

Handle for 800–1200 A Fusible Disconnect Switches

Handle part no.
GS2AH170
GS2AH180

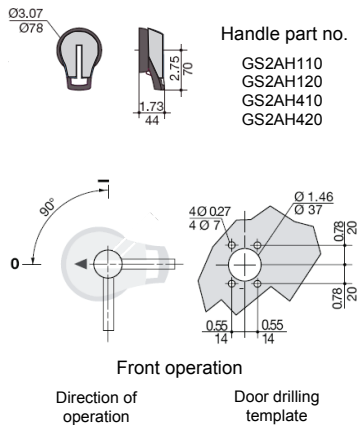


Dimensions: $\frac{\text{in.}}{\text{mm}}$

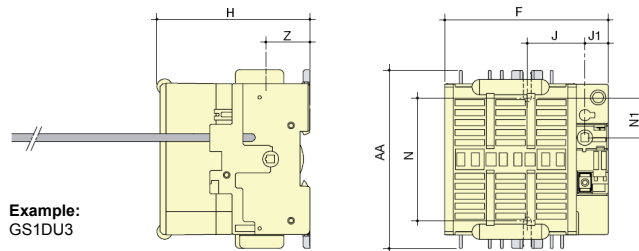
Manual Motor Control Switches and Disconnects

GS1 and GS2 Fusible and LK4 Nonfusible Disconnect Switches

Handle for 30 A and 60 A Fusible Disconnect Switches

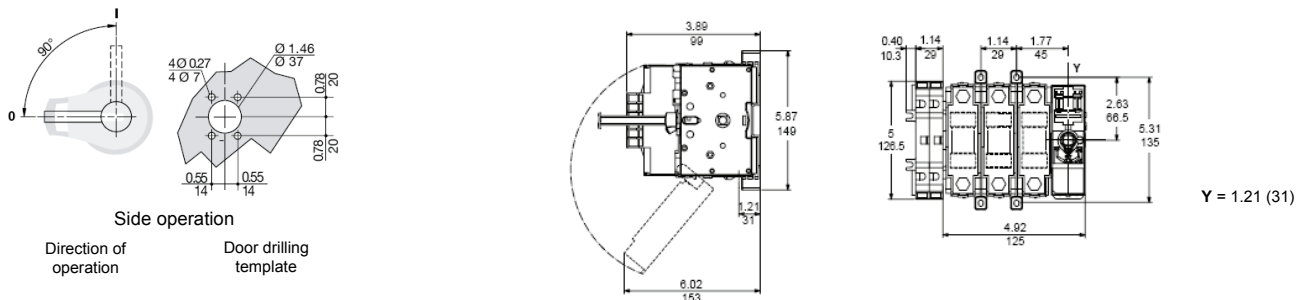


GS1DDU3, 30 A Fusible Disconnect Switches, Class CC Fuses and GS1DU3, 30 A Fusible Disconnect Switches, Class J Fuses—Dimensions

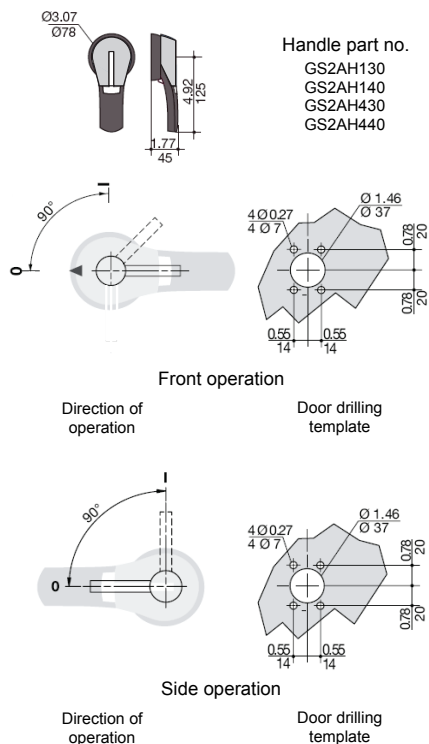


Rating (A)	Dimensions = in. (mm)							
	F	H	J	J1	N	N1	AA	Z
30 / CC	3.78 (96)	3.28 (83.5)	1.47 (37.5)	0.59 (15)	3.13 (79.5)	1 (25.5)	4.56 (116)	1.12 (28.5)
30 / J	4.13 (105)	3.89 (99)	1.47 (37.5)	0.59 (15)	3.13 (79.5)	1 (25.5)	4.56 (116)	1.12 (28.5)

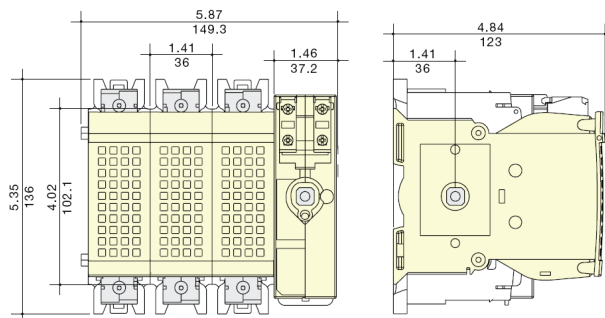
GS2EUE3, 30 A Fusible Disconnect Switches, Class CC Fuses



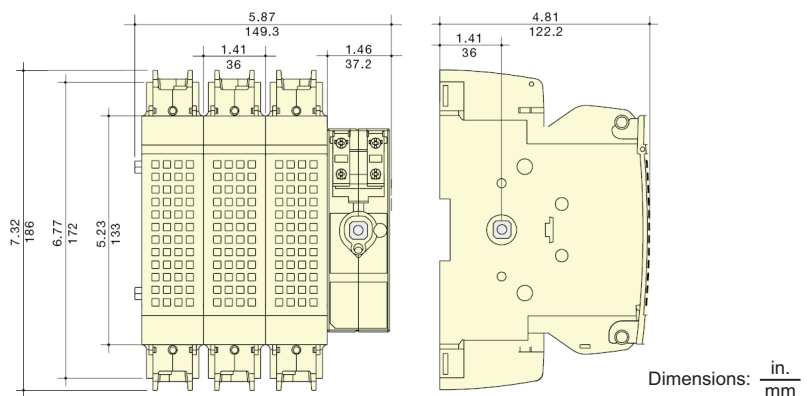
Handle for 100 A, 200 A, and 400 A Fusible Disconnect Switches



GS2EU3N, 30 A and GS2GU3N, 60 A Fusible Disconnect Switches, Class J Fuses



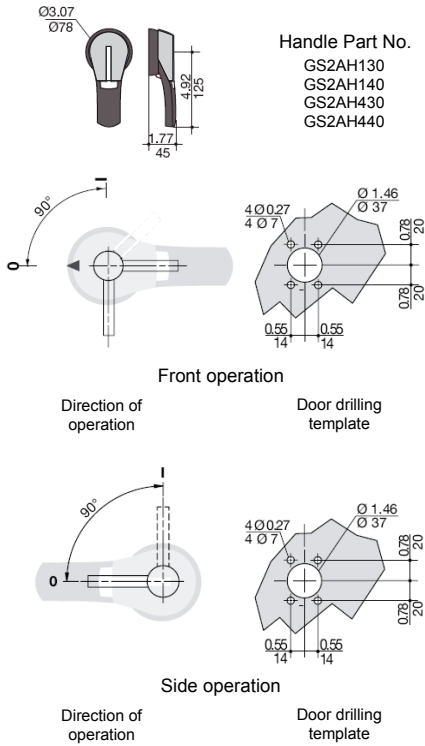
GS2JU3N, 100 A Fusible Disconnect Switches, Class J Fuses



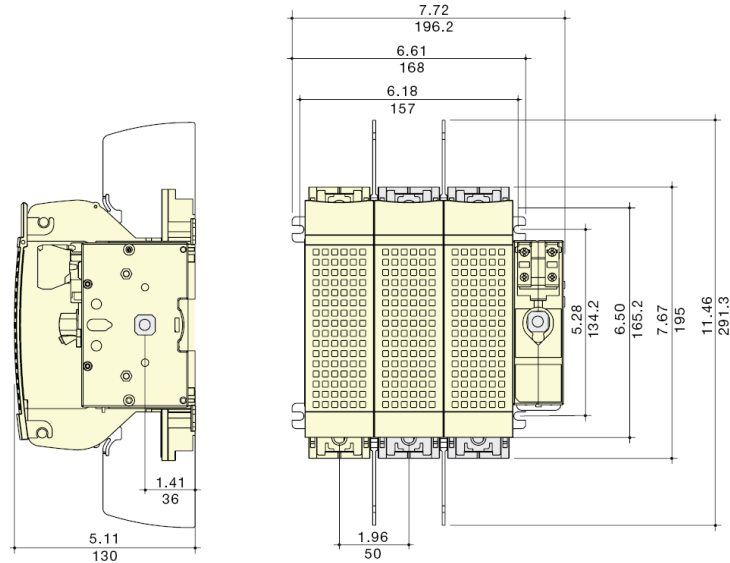
Manual Motor Control Switches and Disconnects

GS1 and GS2 Fusible and LK4 Nonfusible Disconnect Switches

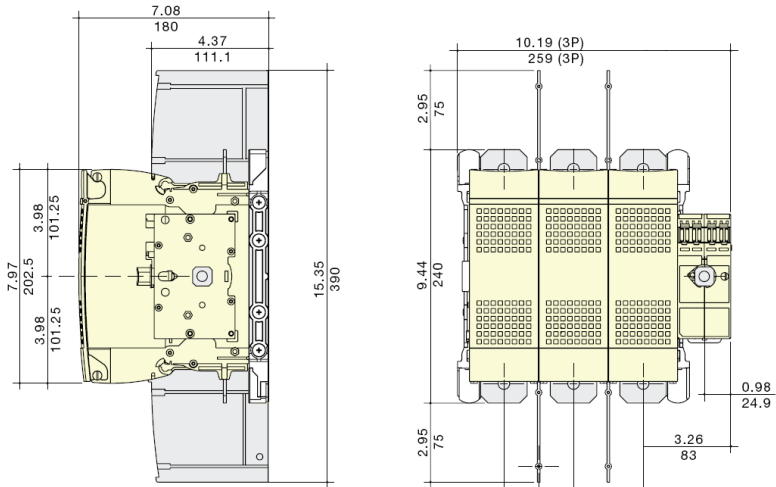
Handle for 100 A, 200 A, and 400 A
Fusible Disconnect Switches



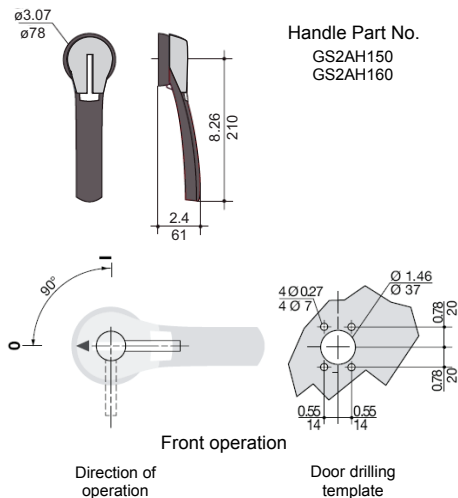
GS2MU3N, 200 A Fusible Disconnect Switches, Class J Fuses



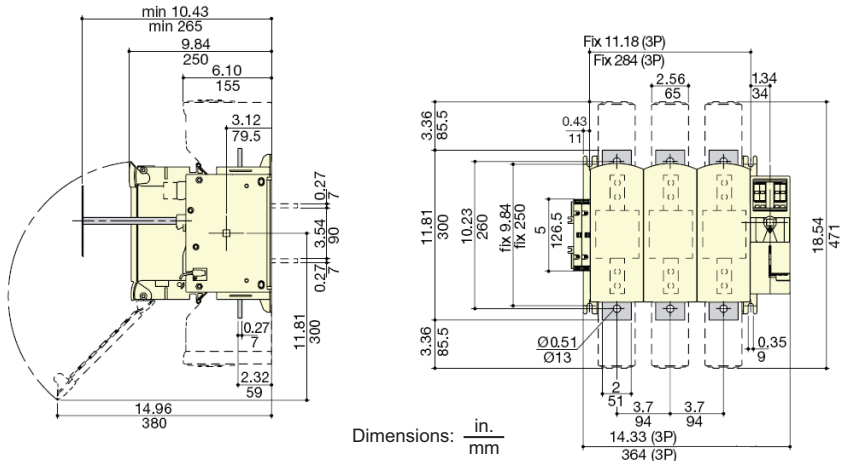
GS2QU3N, 400 A Fusible Disconnect Switches, Class J Fuses



Handle for 600 A and 800 A
Fusible Disconnect Switches



GS2SU3, 600 A Fusible Disconnect Switches, Class J Fuses
 GS2TU3, 800 A Fusible Disconnect Switches, Class J Fuses



Manual Motor Control Switches and Disconnects

Square D™ MD Enclosed Motor Disconnect Switch

Square D™ MD Enclosed Motor Disconnect Switch



Schneider Electric's Square D brand has been an industry leader in safety switches for over 100 years and is recognized as the market leader in product quality, durability, and reliability. The latest addition to the MD motor disconnect family is a non-receptacle switch for UL 508 listed applications.

This MD motor disconnect switch serves as a local on/off switch for a motor when the motor branch circuit protection is in a central enclosure. It is in a compact NEMA 4X enclosure and is available in 30 A and 60 A versions.

Key Benefits

- Lowers costs—significantly less expensive than stainless steel motor disconnect switches.
- Enhances safety—handle interlock prevents cover from being removed while in the On position.
- Maximizes space—one of smallest footprints on the market.

Key Features

- Water-tight NEMA 4X polycarbonate enclosure—ideal for use in wash down or rugged industrial applications. Covers additional enclosure types, such as NEMA 1, 12, 3R, and 4.
- Standard 3-pole design—optional additional power pole
- Available in 30 A and 60 A sizes
- Horsepower rated
- Clear On/Off indication
- Front padlockable handle complies with OSHA lockout/tagout requirements—accepts up to three 8 mm padlocks
- cULus certified—UL File E164864

Table 45: NEMA 4X Enclosed Switches

Approvals	Maximum Horsepower Rating			Catalog Number
	Three Phase			
	220–240 Vac	440–480 Vac	600 Vac	
UL 508	7.5	20	25	MD3304X
UL 508	20	40	40	MD3604X

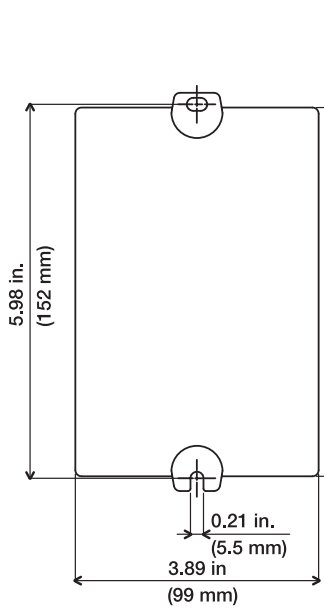
Table 46: Accessories

Description	Catalog Number
2 normally open auxiliary contact module	MDSAN20
1 normally open + 1 normally closed auxiliary contact module	MDSAN11
Additional 30 A power pole	MDS30P

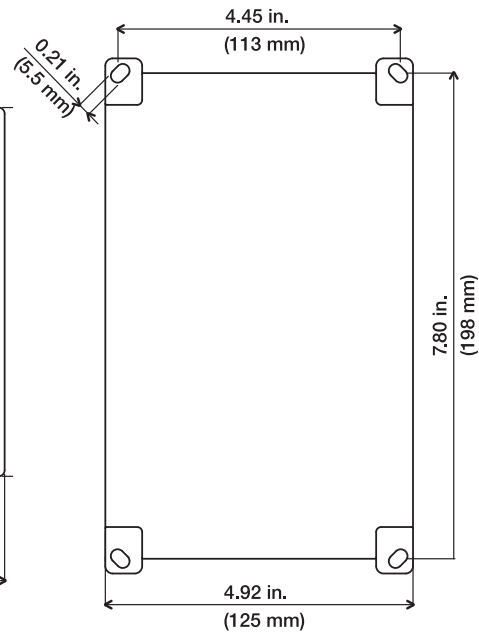
Manual Motor Control Switches and Disconnects

Square D™ MD Enclosed Motor Disconnect Switch

**30 A Enclosed Switch
Mounting Diagram**





**60 A Enclosed Switch
Mounting Diagram**



TeSys™ DF IEC-Type Fuseholders

Table 47: Specifications

Fuse Holder Type		DF8	DF10	DF14	DF22	DFCC				
Environmental Characteristics										
Conforming to standards		IEC 60947-3, UL 512, CSA 22-2 n° 39								
Protective treatment		"TH," treatment for hot and humid environments								
Degree of protection	Conforming to IEC 60529	IP20								
Ambient air temperature	Storage	°F (°C)	- 40 to +80 (- 40 to +176)							
	Operation, with derating ¹	°F (°C)	- 20 to +60 (- 4 to +140)							
Flame resistance	Conforming to IEC 60695-2-1	°F (°C)	960 (1760)							
Pole Characteristics										
Fuse size		mm (in.)	8.5 x 31.5 (0.3 x 1.2)	10 x 38 (0.4 x 1.5)	14 x 51 (0.6 x 51)	22 x 58 (0.9 x 2.3)	10 x 38 (0.4 x 1.5) CC fuse			
Use category		AC20B								
Rated insulation voltage (Ui) with tubular links, AC supply		V	500	690	690	690	600			
Rated operational		Hz	50/60							
Rated impulse withstand (Uimp)		kV	6	6	8	8	6			
Conventional thermal current (Ith) for ambient air temperature ≤ 40 °C¹										
	With tubular links	A	25	32	50	125	30			
	With aM cartridge fuses	A	25	32	50	125	30			
	With gG cartridge fuses	A	25	32	50	100	30			
Short circuit characteristics (with tubular links)										
	Permissible short-time rating (low) (rms value Cos φ = 0.35) Conforming to IEC 60947-3	A	300	385	800	1200	300			
	Maximum permissible peak value (dynamic stress) Conforming to IEC 60269-1	kA	11	15	15	19	11			
Certifications		—	 File E310269 CCN IZLT2 File E310269 CCN IZLT8				 E310269 CCN IZLT			
Wire sizes (number of conductors x c.s.a.)										
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
	Solid wire	mm ² (AWG)	1 x 1.5 (1 x 16)	1 x 6 (1 x 16) 2 x 6 (2 x 10)	1 x 1.5 (1 x 16)	1 x 6 (1 x 16) 2 x 6 (2 x 10)	1 x 2.5 (1 x 14) 2 x 10 (2 x 8)	1 x 2.5 (1 x 14) 2 x 10 (2 x 8)	1 x 35 (1 x 2) 2 x 25 (2 x 4)	1 x 1.5 (1 x 16) 2 x 6 (2 x 10)
	Flexible wire without cable end	mm ² (AWG)	1 x 1.5 (1 x 16)	1 x 6 (1 x 16) 2 x 6 (2 x 10)	1 x 1.5 (1 x 16)	1 x 6 (1 x 16) 2 x 6 (2 x 10)	1 x 2.5 (1 x 14) 2 x 10 (2 x 8)	1 x 2.5 (1 x 14) 2 x 10 (2 x 8)	1 x 35 (1 x 2) 2 x 25 (2 x 4)	1 x 1.5 (1 x 16) 2 x 6 (2 x 10)
	Flexible wire with cable end	mm ² (AWG)	1 x 1.5 (1 x 16)	1 x 6 (1 x 16) 2 x 6 (2 x 10)	1 x 1.5 (1 x 16)	1 x 6 (1 x 16) 2 x 6 (2 x 10)	1 x 2.5 (1 x 14) 2 x 10 (2 x 8)	1 x 2.5 (1 x 14) 2 x 10 (2 x 8)	1 x 35 (1 x 2) 2 x 25 (2 x 4)	1 x 1.5 (1 x 16) 2 x 6 (2 x 10)
Tightening torque		N·m (lb-in)	2.2 (19)		3.5 (31)		4 (35)		2.2 (19)	

¹ For use in an installation with ambient temp. > 20 °C (68 °F), apply the derating coefficient from Table 49 on page 42.

Manual Motor Control Switches and Disconnects

TeSys™ DF IEC-Type Fuseholders

Table 48: Characteristics of early break and signaling contacts DF14AM and DF22AM

Rated insulation voltage (Ui) a.c. supply		V	250			
Conventional thermal current (Ith) for ambient air temperature ≤ 40 °C ¹		A	5			
Rated operational current			24 V	48 V	127 V	240 V
	Category AC-15	A	4	4	3	2.5
	Category DC-13	A	3	1	0.2	0.1
Definition of rated characteristics	Conforming to IEC 60947-5-1		B300			
Low load operating characteristics	Minimum voltage	V	10			
	Minimum current	mA	30			
Cabling			Faston connectors			

¹ For use in an installation with ambient temp. > 20 °C (68 °F), apply the derating coefficient from Table 49.

Table 49: Derating Coefficients

Max temperature °C (°F)	20 (68)	30 (86)	40 (104)	50 (122)	60 (140)
Max. relative humidity	95%	90%	80%	50%	50%
Current derating coefficient	1	0.95	0.9	0.8	0.7

Manual Motor Control Switches and Disconnects

TeSys™ DF IEC-Type Fuseholders

Table 50: Fuseholders¹



DF101



DF103N



DF141



DF141NC



DF221



DF223NC



DF101NV



DF103V



DF141NV



DF143VC



DF221NV



DF223VC

Conventional thermal current (Ith) A	Size of cartridge fuse or link mm (in.)	Composition P = Poles N = Neutral	Sold in lots of	Catalog number	Weight kg (oz)
25	8.5 x 31.5 (0.3 x 1.2)	1 P	12	DF81	0.061 (2.15)
		N	12	DF10N	0.071 (2.50)
		1 P + N ²	6	DF81N	0.132 (4.66)
		2 P	6	DF82	0.122 (4.30)
		3 P	4	DF83	0.183 (6.46)
32	10 x 38 (0.4 x 1.5)	3 P + N ²	3	DF83N	0.254 (8.96)
		1 P	12	DF101	0.061 (2.15)
		N	12	DF10N	0.071 (2.50)
		1 P + N ²	6	DF101N	0.132 (4.66)
		2 P	6	DF102	0.122 (4.30)
50	14 x 51 (0.6 x 2.0)	3 P	4	DF103	0.183 (6.46)
		3 P + N ²	3	DF103N	0.254 (8.96)
		1 P	6	DF141	0.140 (4.94)
		N	6	DF14N	0.150 (5.29)
		1 P + N ²	3	DF141N	0.290 (10.23)
125	22 x 58 (0.9 x 2.3)	2 P	3	DF142	0.280 (9.88)
		3 P	2	DF143C³	0.420 (14.82)
		3 P + N ²	1	DF143NC³	0.570 (20.11)
		1 P	6	DF221	0.218 (7.69)
		N	6	DF22N	0.238 (8.40)
125	22 x 58 (0.9 x 2.3)	1 P + N ²	3	DF221N	0.456 (16.09)
		2 P	3	DF222	0.436 (15.38)
		3 P	2	DF223C³	0.654 (23.07)
		3 P + N ²	1	DF223NC³	0.892 (31.46)

Fuseholders with blown fuse indicators (neon)^{1,4}

25	8.5 x 31.5 (0.3 x 1.2)	1 P	12	DF81V	0.064 (2.26)
		1 P + N ²	6	DF81NV	0.135 (4.76)
		2 P	6	DF82V	0.125 (4.41)
		3 P	4	DF83V	0.186 (6.56)
32	10 x 38 (0.4 x 1.5)	3 P + N ²	3	DF83NV	0.257 (9.07)
		1 P	12	DF101V	0.064 (2.26)
		1 P + N ²	6	DF101NV	0.135 (4.76)
		2 P	6	DF102V	0.125 (4.41)
50	14 x 51 (0.6 x 2.0)	3 P	4	DF103V	0.186 (6.56)
		3 P + N ²	3	DF103NV	0.257 (9.07)
		1 P	6	DF141V	0.143 (5.04)
		1 P + N ²	3	DF141NV	0.293 (10.34)
125	22 x 58 (0.9 x 2.3)	2 P	3	DF142V	0.283 (9.98)
		3 P	2	DF143VC³	0.423 (14.92)
		3 P + N ²	1	DF143NVC³	0.573 (20.21)
		1 P	6	DF221V	0.221 (7.80)
125	22 x 58 (0.9 x 2.3)	1 P + N ²	3	DF221NV	0.459 (16.19)
		2 P	3	DF222V	0.439 (15.49)
		3 P	2	DF223VC³	0.657 (23.18)
		3 P + N ²	1	DF223NVC³	0.895 (31.57)

¹ Each pole can be marked. A clip-in marker holder is provided for this purpose. Clip-in markers type AB1 R• or AB1 G• can also be used.

² N: neutral pole fitted with a locked tubular link as standard.

³ A letter "C" in the catalog number indicates that the fuseholder can be fitted with auxiliary early break, blown fuse signaling, and fuse present signaling contacts.

⁴ Operational voltage of the blown fuse indicator: 110–690 V.

Manual Motor Control Switches and Disconnects

TeSys™ DF IEC-Type Fuseholders



DFCC1V



DFCC3V

Table 51: Fuseholders¹

Conventional thermal current (Ith) A	Size of cartridge fuse or link	Composition P = Poles	Sold in lots of	Catalog number	Weight kg (oz)
30	Class CC	1 P	12	DFCC1	0.061 (2.15)
		2 P	6	DFCC2	0.122 (4.30)
		3 P	4	DFCC3	0.183 (6.46)

Fuseholders with blown fuse indicators (neon)¹

30	Class CC	1 P	12	DFCC1V	0.064 (2.26)
		2 P	6	DFCC2V	0.125 (4.41)
		3 P	4	DFCC3V	0.186 (6.56)

¹ Each pole can be marked. A clip-in marker holder is provided for this purpose. Clip-in markers type AB1 R• or AB1 G• can also be used.

Table 52: Auxiliary early break and blown fuse signaling contacts¹

	Size of cartridge fuse or link mm (in.)	Number of contacts	Sold in lots of	Catalog number	Weight kg (oz)
DF14	14 x 51 (0.6 x 2.0)	1	1	DF14AM1	0.025 (0.88)
		2	1	DF14AM2	0.029 (1.02)
DF22	22 X 58 (0.9 x 2.3)	1	1	DF22AM1	0.032 (1.13)
		2	1	DF22AM2	0.035 (1.23)

¹ These auxiliary contacts provide the following functions: early break, blown fuse signaling (if the Fuseholder is fitted with striker fuses) and fuse present signaling.

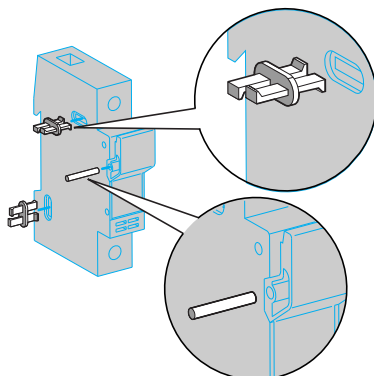


DF14AM•

Table 53: Fuseholder Assembly Kits¹

Fuseholders to be assembled	Size of cartridge fuse or link mm (in.)	Composition	Sold in lots of	Catalog number	Weight kg (oz)
DF8	8.5 x 31.5 (0.3 x 1.2)	12 pins, 24 clips	12	DF10AP	0.007 (0.25)
DF10	10 x 38 (0.4 x 1.5)				
DF14	14 x 51 (0.6 x 2.0)	10 pins, 30 clips	10	DF14AP	0.025 (0.88)
DF22	22 X 58 (0.9 x 2.3)	10 pins, 30 clips	10	DF22AP	0.028 (0.99)

¹ 1 pin and 2 clips are required to assemble two DF8 or DF10 fuseholders together.
1 pin and 3 clips are required to assemble two DF14 or DF22 fuseholders together.



Detail of assembly clip and pin mounting

Table 54: Marking Accessories

Description	Composition	Marking	Sold in lots of	Catalog number	Weight kg (oz)
Clip-in markers	Strip of 10 identical numbers or letters	0–9	25	AB1R• ¹	0.002 (0.07)
		A–Z	25	AB1G• ¹	0.002 (0.07)

¹ When ordering, replace the • in the catalog number with the number or letter required. Example: AB1-R1 or AB1-GA.

DF10 and DFCC fuseholders have been subjected to a current withstand of I_p = 9 kA and 12T = 38 kA2s at 800 Vac maximum, 200 kA.

DF14 fuseholders have been subjected to a current withstand of I_p = 24.2 kA and 12T = 130 kA2s at 750 Vac maximum, 200 kA.

DF22 fuseholders have been subjected to a current withstand of I_p = 20.4 kA and 12T = 141 kA2s at 750 Vac maximum, 200 kA.

DF10, DF14, and DF22 devices accept fuses which provide supplementary protection and have not been evaluated by UL for use where branch circuit protection is needed.

Manual Motor Control Switches and Disconnects TeSys™ DF IEC-Type Fuseholders

Dimensions

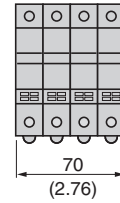
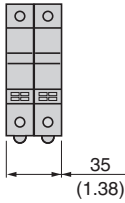
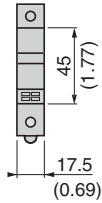
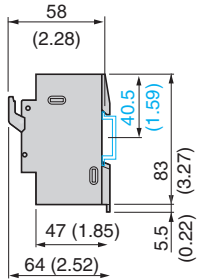
Modular fuseholders 25 A and 32 A
Mounting on 35 mm DIN rail

DF81 and DF81V
DF101 and DF101V
DF10N
DFCC1 and DFCC1V

DF81N and DF81NV
DF82 and DF82V
DF101N and DF101NV
DF102 and DF102V
DFCC2 and DFCC2V

DF83 and DF83V
DF103 and DF103V
DFCC3 and DFCC3V

DF83N and DF83NV
DF103N and DF103NV



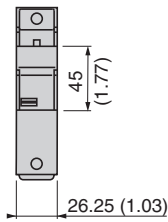
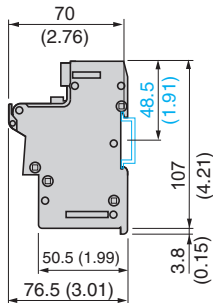
Modular fuseholders 50 A
Mounting on 35 mm DIN rail

DF141 and DF141V
DF14N

DF141N and DF141NV
DF142 and DF142V

DF143C and DF143VC

DF143NC and DF143NV



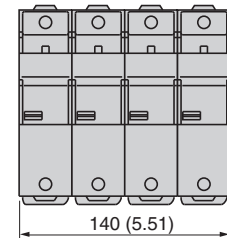
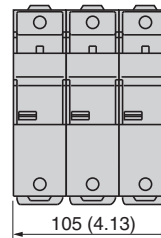
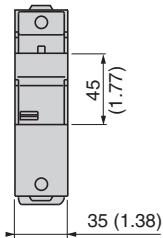
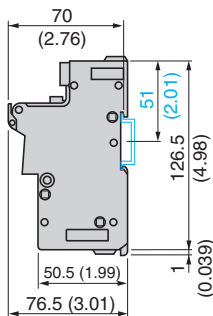
Modular fuseholders 125 A
Mounting on 35 mm DIN rail

DF221 and DF221V
DF22N

DF221N and DF221NV
DF222 and DF222V

DF223C and DF223VC

DF223NC and DF223NV



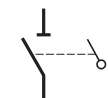
Wiring diagrams

Modular fuseholders

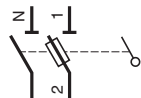
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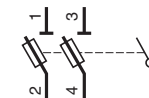
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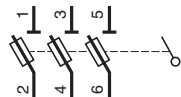
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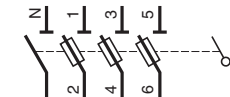
DF•2P



DF•3P




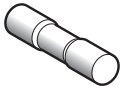
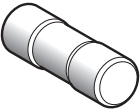
DF•3P + N



Manual Motor Control Switches and Disconnects

TeSys™ DF IEC-Type Fuseholders

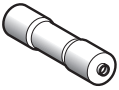
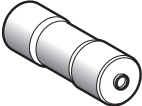
Table 55: Cartridge fuses without striker—Type aM

Cartridge fuse type mm (in.)	Maximum rated voltage Vac	Rating A	Sold in lots of	Catalog Number	Weight g (oz)		
Cylindrical 8.5 x 31.5 (0.3 x 1.2)	400	1	10	DF2BA0100	10 (0.35)		
		2	10	DF2BA0200			
		4	10	DF2BA0400			
		6	10	DF2BA0600			
		8	10	DF2BA0800			
		10	10	DF2BA1000			
 DF2CA*** Cylindrical 10 x 38 (0.4 x 1.5)	500	0.16	10	DF2CA001	0.35 (10)		
		0.25	10	DF2CA002			
		0.50	10	DF2CA005			
		1	10	DF2CA01			
		2	10	DF2CA02			
		4	10	DF2CA04			
		6	10	DF2CA06			
		8	10	DF2CA08			
		10	10	DF2CA10			
		12	10	DF2CA12			
	16	10	DF2CA16				
	400	20	10	DF2CA20			
		25	10	DF2CA25			
	 DF2EA*** Cylindrical 14 x 51 (0.6 x 2.0)	500	0.25	10		DF2EA002	20 (0.71)
			0.50	10		DF2EA005	
			1	10		DF2EA01	
2			10	DF2EA02			
4			10	DF2EA04			
6			10	DF2EA06			
8			10	DF2EA08			
10			10	DF2EA10			
12			10	DF2EA12			
16			10	DF2EA16			
20			10	DF2EA20			
25			10	DF2EA25			
32			10	DF2EA32			
40			10	DF2EA40			
400		50	10	DF2EA50			
 DF2FA*** Cylindrical 22 x 58 (0.9 x 2.3)		690	4	10	DF2FA04	45 (1.59)	
	6		10	DF2FA06			
	8		10	DF2FA08			
	10		10	DF2FA10			
	16		10	DF2FA16			
	20		10	DF2FA20			
	25		10	DF2FA25			
	32		10	DF2FA32			
	40		10	DF2FA40			
	50		10	DF2FA50			
	500	63	10	DF2FA63			
		80	10	DF2FA80			
		100	10	DF2FA100			
	400	125	10	DF2FA125			

Manual Motor Control Switches and Disconnects

TeSys™ DF IEC-Type Fuseholders

Table 56: Cartridge fuses with striker—Type aM

Cartridge fuse type mm (in.)	Maximum rated voltage V~	Rating A	Standard Pack Quantity	Catalog Number	Weight g (oz)
 Cylindrical 14 x 51 (0.6 x 2.0) DF3EA**	500	2	10	DF3EA02	20 (0.71)
		4	10	DF3EA04	
		6	10	DF3EA06	
		8	10	DF3EA08	
		10	10	DF3EA10	
		12	10	DF3EA12	
		16	10	DF3EA16	
		20	10	DF3EA20	
		25	10	DF3EA25	
		32	10	DF3EA32	
		40	10	DF3EA40	
	400	50	10	DF3EA50	20 (0.71)
 Cylindrical 22 x 58 (0.9 x 2.3) DF3FA***	690	4	10	DF3FA04	45 (1.59)
		6	10	DF3FA06	
		8	10	DF3FA08	
		10	10	DF3FA10	
		16	10	DF3FA16	
		20	10	DF3FA20	
		25	10	DF3FA25	
		32	10	DF3FA32	
		40	10	DF3FA40	
		50	10	DF3FA50	
		63	10	DF3FA63	
	500	80	10	DF3FA80	45 (1.59)
		100	10	DF3FA100	
		125	10	DF3FA125	
400	125	10	DF3FA125	45 (1.59)	

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Manual Motor Control Switches and Disconnects

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