Data sheet

Manual motor starter magnetic only MO132

Manual motor starters magnetic only are electromechanical protection devices for the main circuit. They are used mainly to switch motors manually ON/OFF and protect them fuse less against short-circuit.
Fuse less protection with a manual motor starter saves costs, space and ensures a quick reaction under short-circuit condition, by switching off the motor within milliseconds. Fuse less starter combinations are setup together with contactors and overload relays.



Description

- Short-circuit protection
- Disconnect function
- Suitable for three- and single-phase application
- Trip-free mechanism
- Clear switch position indication ON/OFF/TRIP
- Lockable handle

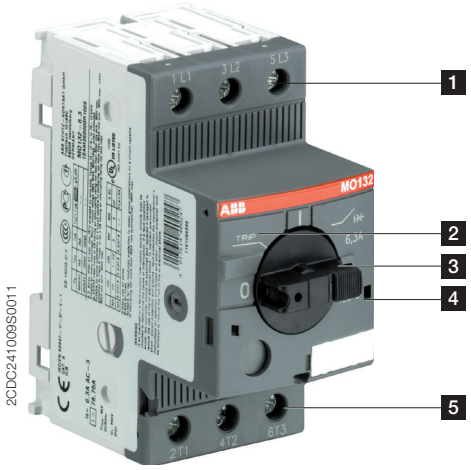
Order data

MO132 screw terminal



Rated operational current A	Type	Trip class	Order code	Packing unit PCE	Weight per PCE kg
0.16	MO132-0.16	-	1SAM360000R1001	1	0.215
0.25	MO132-0.25	-	1SAM360000R1002	1	0.215
0.40	MO132-0.4	-	1SAM360000R1003	1	0.215
0.63	MO132-0.63	-	1SAM360000R1004	1	0.215
1.00	MO132-1.0	-	1SAM360000R1005	1	0.215
1.60	MO132-1.6	-	1SAM360000R1006	1	0.265
2.50	MO132-2.5	-	1SAM360000R1007	1	0.265
4.00	MO132-4.0	-	1SAM360000R1008	1	0.265
6.30	MO132-6.3	-	1SAM360000R1009	1	0.265
10.0	MO132-10	-	1SAM360000R1010	1	0.265
12.0	MO132-12	-	1SAM360000R1012	1	0.310
16.0	MO132-16	-	1SAM360000R1011	1	0.310
20.0	MO132-20	-	1SAM360000R1013	1	0.310
25.0	MO132-25	-	1SAM360000R1014	1	0.310
32.0	MO132-32	-	1SAM360000R1015	1	0.310

Functional description



1 Terminals 1L1, 3L2, 5L3

2 Switch position TRIP

3 Lockable handle

4 Test function

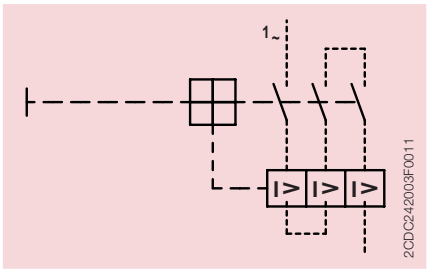
5 Terminals 2T1, 4T2, 6T3

Application

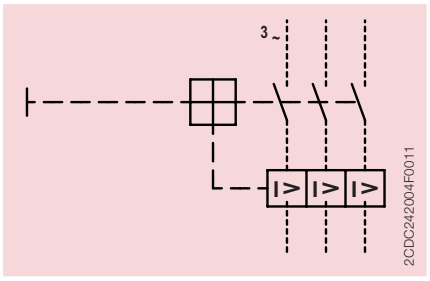
The manual motor starters magnetic only protect the load and the installation against short-circuit. They are three pole protection devices with electromagnetic tripping elements for short-circuit protection. Furthermore, they provide a disconnect function for safely isolation of the installation and the supply and can be used for the manual switching of loads.

For overload protection of the motors, an appropriate thermal or electronic overload relays must be used.

Operation mode

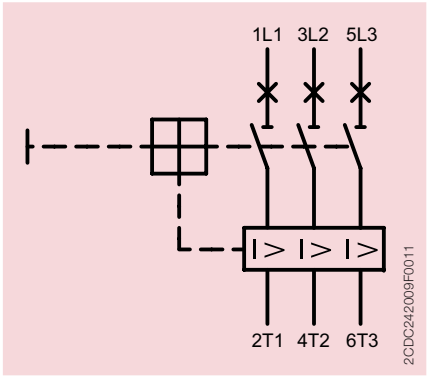


Single-phase operation



Three-phase operation

Wiring diagram

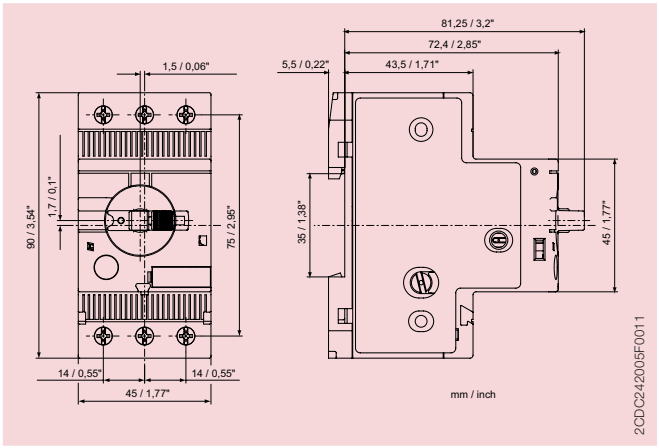


Power loss per pole

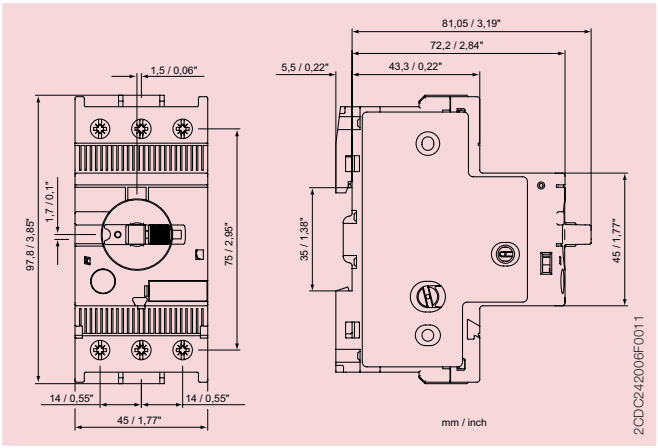
Type	Power loss per pole W
MO132-0.16	1.7
MO132-0.25	1.7
MO132-0.4	1.7
MO132-0.63	1.7
MO132-1.0	1.7
MO132-1.6	1.7
MO132-2.5	1.7
MO132-4.0	0.7
MO132-6.3	1.1
MO132-10	2.2
MO132-12	1.7
MO132-16	1.9
MO132-20	2.1
MO132-25	2.2
MO132-32	3.1

Dimensions

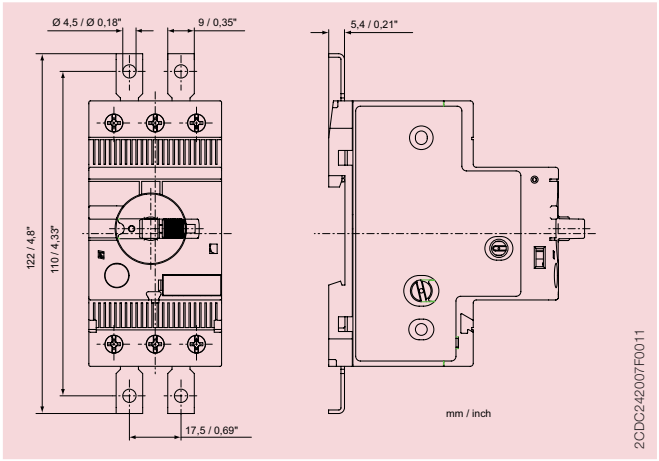
in **mm** / *inches*



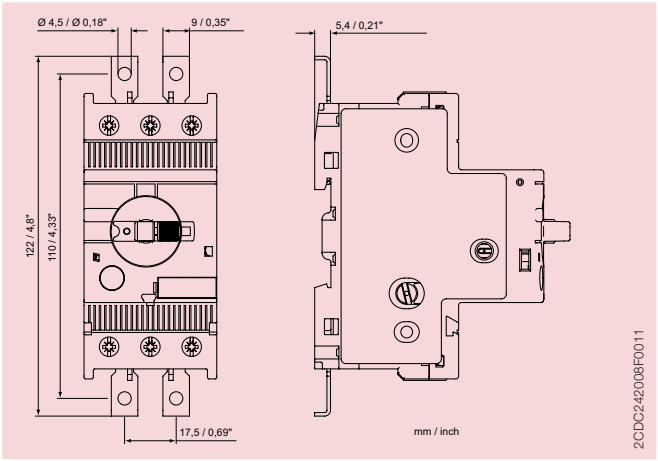
MO132 ≤ 10 A



MO132 > 10 A



MO132 ≤ 10 A with screw fixing kit FS116 (accessory)



MO132 > 10 A + with screw fixing kit FS116 (accessory)

Technical data IEC/EN

Data at T_A = 40 °C and at rated values, if nothing else indicated

Main circuit

	1L1-3L2-5L3 2T1-4T2-6T3
Rated operational voltage U_e	690 V AC -
Rated operational current I_e	see table below
Rated operational current DC-5 3 conducting paths in series up to 250 V	-
Rated instantaneous short-circuit current setting I_i	see table below
Rated service short-circuit breaking capacity I_{cs}	see table “Short-circuit breaking capacity and back-up fuses” on page 6
Rated ultimate short-circuit breaking capacity I_{cu}	
Rated frequency	50/60 Hz
Number of poles	3
Power loss per pole	see table “Power loss per pole” on page 3

Isolation data	
Rated impulse withstand voltage U_{imp}	6 kV
Rated insulation voltage U_i	690 V
Pollution degree	3

Electrical connection		**MO132 ≤ 10 A**	**MO132-12, -16**	**MO132-20, -25, -32**
Connecting capacity	solid	1/2 x 1 ... 4 mm²		1/2 x 2.5 ... 6 mm²
	stranded	1/2 x 1 ... 4 mm²		1/2 x 2.5 ... 6 mm²
	flexible with ferrule	1/2 x 0.75 ... 2.5 mm²		1/2 x 1 ... 6 mm²
	flexible with insulated ferrule	1/2 x 0.75 ... 2.5 mm²		1/2 x 1 ... 6 mm²
	flexible without ferrule	1/2 x 0.75 ... 2.5 mm²		1/2 x 2.5 ... 6 mm²
Stripping length		9 mm	10 mm	10 mm
Tightening torques		0.8 ... 1.2 Nm	1.5 Nm	2 Nm
Connection screw		M3.5 (Pozidriv 2)	M4 (Pozidriv 2)	M4 (Pozidriv 2)

Type	**Rated instantaneous short-circuit current setting I_i** A	**Rated operational current I_e** A
MO132-0.16	1.56	0.16
MO132-0.25	2.44	0.25
MO132-0.4	3.90	0.40
MO132-0.63	6.14	0.63
MO132-1.0	11.50	1.00
MO132-1.6	18.40	1.60
MO132-2.5	28.75	2.50
MO132-4.0	50.00	4.00
MO132-6.3	78.75	6.30
MO132-10	125	10.0
MO132-12	150	12.0
MO132-16	200	16.0
MO132-20	250	20.0
MO132-25	313	25.0
MO132-32	400	32.0

General data

Mechanical durability		10^5
Electrical durability		5×10^4
Duty time		100 %
Dimensions (W x H x D)		see drawing “Dimensions” on page 3
Weight		see table “Order data” on page 1
Mounting		DIN-rail (EN 60715)
Mounting position		position 1-6 (optional for single mounting)
Group mounting		on request
Minimum distance to other units same type	horizontal	0 mm
	vertical	150 mm
Minimum distance to electrical conductive board	horizontal, up to 400 V	0 mm
	horizontal, up to 690 V	> 1.5 mm
	vertical	75 mm
Degree of protection	housing / main circuit terminals	IP20
Utilization category		A
Maximum operating altitude		up to 2000 m
Maximum operating frequency		170 cycles/h

Electromagnetic compatibility

Electromagnetic compatibility		not applicable

Environmental data

Ambient air temperature		
Operation	open - compensated	-
	open	-25 ... +60 °C
Storage		-50 ... +80 °C
Ambient air temperature compensation		-
Vibration (sinusoidal) acc. to IEC/EN 60068-2-6 (Fc)		5g / 3 ... 150 Hz
Shock (half-sine) acc. to IEC/EN 60068-2-27 (Ea)		25g / 11 ms

Standards / directives

Product standard	IEC/EN 60947–2 IEC/EN 60947-4-1 IEC/EN 60947-1 UL 508, CSA 22.2 No. 14
Low voltage directive	2006/95/EC
EMC directive	2004/108/EC
RoHS directive	2002/95/EC

Short-circuit breaking capacity and back-up fuses

I_{cs} Rated service short-circuit breaking capacity

I_{cu} Rated ultimate short-circuit breaking capacity

° No back-up fuse required, because short-circuit proof up to 100 kA

Type	230 V AC			400 V AC			440 V AC			500 V AC			690 V AC		
	I_{cs} kA	I_{cu} kA	gG A	I_{cs} kA	I_{cu} kA	gG A	I_{cs} kA	I_{cu} kA	gG A	I_{cs} kA	I_{cu} kA	gG A	I_{cs} kA	I_{cu} kA	gG A
MO132-0.16	100	100	°	100	100	°	100	100	°	100	100	°	100	100	°
MO132-0.25	100	100	°	100	100	°	100	100	°	100	100	°	100	100	°
MO132-0.4	100	100	°	100	100	°	100	100	°	100	100	°	100	100	°
MO132-0.63	100	100	°	100	100	°	100	100	°	100	100	°	100	100	°
MO132-1.0	100	100	°	100	100	°	100	100	°	100	100	°	100	100	°
MO132-1.6	100	100	°	100	100	°	100	100	°	100	100	°	100	100	°
MO132-2.5	100	100	°	100	100	°	100	100	°	100	100	°	100	100	°
MO132-4.0	100	100	°	100	100	°	20	20	35	20	20	35	3	3	32
MO132-6.3	100	100	°	100	100	°	20	20	63	20	20	63	3	3	50
MO132-10	100	100	°	100	100	°	20	20	100	20	20	100	3	3	50
MO132-12	100	100	°	100	100	°	20	20	100	20	20	100	3	3	63
MO132-16	100	100	°	100	100	°	20	20	125	20	20	125	3	3	63
MO132-20	100	100	°	100	100	°	20	20	125	20	20	125	3	3	80
MO132-25	50	50	125	50	50	125	10	10	125	10	10	125	3	3	100
MO132-32	25	50	125	25	50	125	10	10	125	10	10	125	3	3	100

Technical data UL/CSA

Main circuit

Maximum operational voltage		600 V
Manual motor controller ratings		see table “Manual motor controller for motor disconnect” on page 8
Motor ratings	Horse power	see table below
	Full load amps (FLA)	see table below
	Locked rotor amps (LRA)	see table below

Electrical connection		MO132 ≤ 10 A	MO132-12, -16	MO132-20, -25, -32
Connecting capacity	stranded	1/2 x AWG 16 ... 12		1/2 x AWG 12 ... 8
	flexible without ferrule	1/2 x AWG 16 ... 12		1/2 x AWG 12 ... 8
Stripping length		9 mm	10 mm	10 mm
Tightening torque		10 ... 12 lb-in	14 lb-in	18 lb-In
Connection screw		M3.5 (Pozidriv 2)	M4 (Pozidriv 2)	M4 (Pozidriv 2)

Motor rating, single phase

hp Horse power

FLA Full load amps

LRA Locked rotor amps

Type	220 ... 240 V AC			440 ... 480 V AC		
	hp	FLA	LRA	hp	FLA	LRA
MO132-0.16	-	0.16	0.96	-	0.16	0.96
MO132-0.25	-	0.25	1.5	-	0.25	1.5
MO132-0.4	-	0.4	2.4	-	0.4	2.4
MO132-0.63	-	0.63	3.78	-	0.63	3.78
MO132-1.0	-	1	6	-	1	6
MO132-1.6	1/10	1.6	9.6	-	1.6	9.6
MO132-2.5	1/6	2.5	15	1/2	2.5	15
MO132-4.0	1/3	4	24	1/2	4	24
MO132-6.3	1/2	6.3	37.8	1	6.3	37.8
MO132-10	1-1/2	10	60	3	8.5	46
MO132-12	2	12	72	3	8.5	64
MO132-16	2	12	72	5	14	81
MO132-20	3	17	92	5	14	81
MO132-25	3	17	127	7-1/2	21	116
MO132-32	5	28	162	10	26	145

Motor rating, three phase

hp Horse power

FLA Full load amps

LRA Locked rotor amps

Type	110 ... 120 V AC			220 ... 240 V AC			440 ... 480 V AC			500 ... 600 V AC		
	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA
MO132-0.16	-	0.16	0.96	-	0.16	0.96	-	0.16	0.96	-	0.16	0.96
MO132-0.25	-	0.25	1.5	-	0.25	1.5	-	0.25	1.5	-	0.25	1.5
MO132-0.4	-	0.4	2.4	-	0.4	2.4	-	0.4	2.4	-	0.4	2.4
MO132-0.63	-	0.63	3.78	-	0.63	3.78	-	0.63	3.78	-	0.63	3.78
MO132-1.0	-	1	6	-	1	6	-	1	6	1/2	1	6
MO132-1.6	-	1.6	9.6	-	1.6	9.6	3/4	1.6	9.6	3/4	1.6	9.6
MO132-2.5	-	2.5	15	1/2	2.5	15	1	2.5	15	1-1/2	2.5	15
MO132-4.0	-	4	24	1	4	24	2	4	24	3	3.9	26
MO132-6.3	1/2	6.3	37.8	1-1/2	6.3	37.8	3	4.8	32	5	6.1	37
MO132-10	3/4	10	60	3	9.6	64	5	7.6	46	7-1/2	9	51
MO132-12	1-1/2	12	72	3	9.6	64	7-1/2	11	64	10	11	65
MO132-16	2	16	84	5	15.2	92	10	14	81	10	11	65
MO132-20	3	19.2	128	5	15.2	92	10	14	81	15	17	93
MO132-25	3	19.2	128	7-1/2	22	127	15	21	116	20	22	116
MO132-32	5	30.4	184	10	28	162	20	27	145	25	27	146

Manual motor controller for motor disconnect

Type	Circuit breaker or class R fuse per UL/ NEC 480 V / 600 V	Maximum short-circuit current rating	
		480 V kA	600 V kA
MO132-0.16	with minimum	30	18
MO132-0.25	interrupting rating	30	18
MO132-0.4	of 35,000 rms	30	18
MO132-0.63	symmetrical amperes	30	18
MO132-1.0		30	18
MO132-1.6		30	18
MO132-2.5		30	18
MO132-4.0		30	18
MO132-6.3		30	18
MO132-10		30	18
MO132-12		30	18
MO132-16		30	18
MO132-20		30	18
MO132-25		30	18
MO132-32		30	18

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