

Manual motor starter magnetic only MO132



Manual motor starters magnetic only are electromechanical protection devices for the main circuit mainly used to switch motors manually ON/OFF and protect them fuseless against short-circuits.

Fuseless 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. Fuseless 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

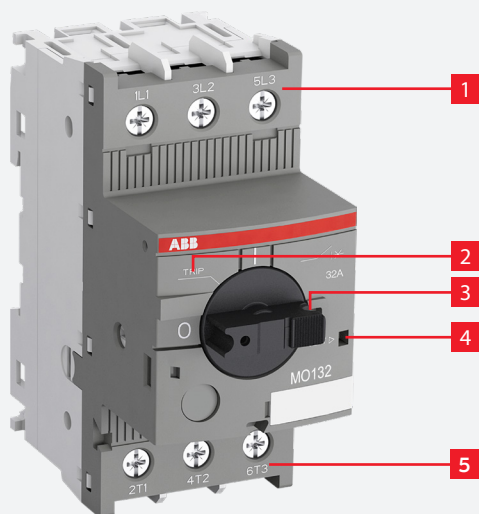


Order data

MO132 screw terminal

Setting range	Rated operational power 400 V AC-3, AC-3e kW	Type	Order code	Weight Pkg (1 pce) kg
A				
0.16	0.03 (1)	MO132-0.16	1SAM360000R1001	0.215
0.25	0.06	MO132-0.25	1SAM360000R1002	0.215
0.40	0.09	MO132-0.4	1SAM360000R1003	0.215
0.63	0.12	MO132-0.63	1SAM360000R1004	0.215
1.00	0.25	MO132-1.0	1SAM360000R1005	0.215
1.60	0.55	MO132-1.6	1SAM360000R1006	0.265
2.50	0.75	MO132-2.5	1SAM360000R1007	0.265
4.00	1.5	MO132-4.0	1SAM360000R1008	0.265
6.30	2.2	MO132-6.3	1SAM360000R1009	0.265
10.0	4.0	MO132-10	1SAM360000R1010	0.265
12.0	5.5	MO132-12	1SAM360000R1012	0.310
16.0	7.5	MO132-16	1SAM360000R1011	0.310
20.0	7.5	MO132-20	1SAM360000R1013	0.310
25.0	11	MO132-25	1SAM360000R1014	0.310
32.0	15	MO132-32	1SAM360000R1015	0.310

Note: For overload protection of motors, an appropriate thermal or electronic overload relay must be used.
(1) 690 V



Functional description

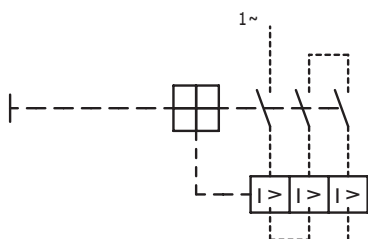
1. Terminals 1L1, 3L2, 5L3
2. Switch position TRIP
3. Lockable handle
4. Test function
5. Terminals 2T1, 4T2, 6T3

Application

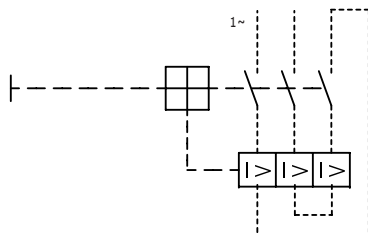
The manual motor starters magnetic only protect the load and the installation against short-circuit. They are three pole protection devices with electromagnetic tripping elements for short-circuit protection. Furthermore, they provide a disconnect function for safely isolation of the installation and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

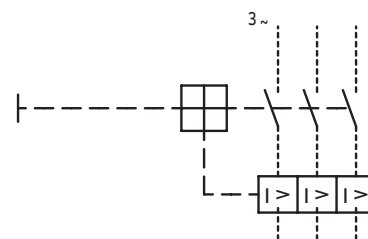
Operation mode



Single-phase operation

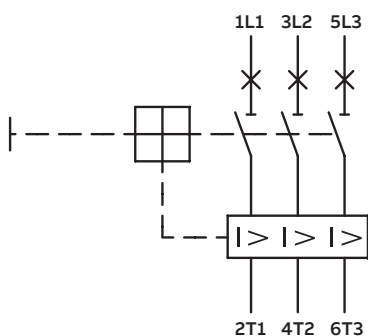


Single-phase operation



Three-phase operation

Wiring diagram

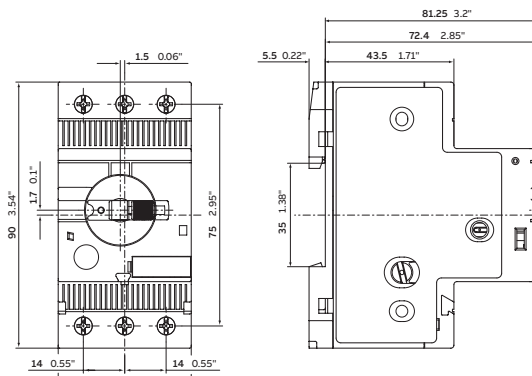


Power loss per pole

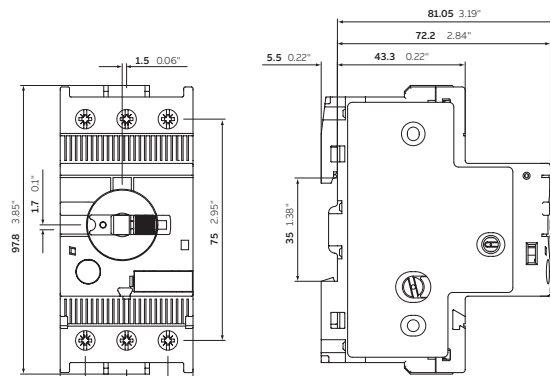
Type	Power loss per pole W
MO132-0.16	1.7
MO132-0.25	1.6
MO132-0.4	1.5
MO132-0.63	1.5
MO132-1.0	1.6
MO132-1.6	1.7
MO132-2.5	1.8
MO132-4.0	0.7
MO132-6.3	1.1
MO132-10	2.2
MO132-12	1.6
MO132-16	1.9
MO132-20	2.1
MO132-25	2.2
MO132-32	3.1

Main dimension

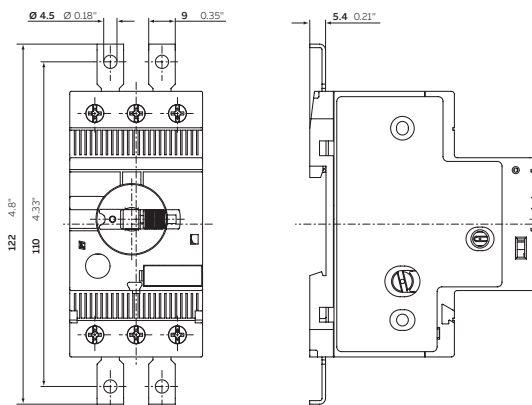
in mm / inches



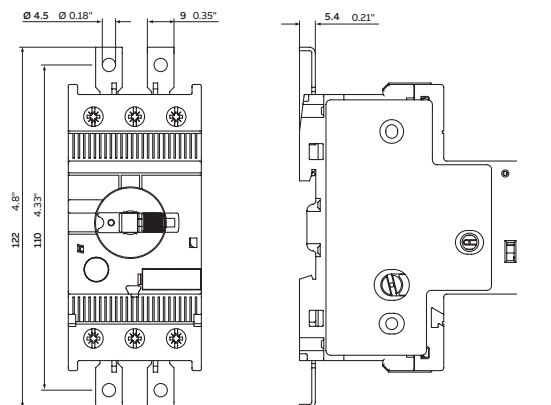
MO132 ≤ 10 A



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






Main circuit

Terminal marking	1L1-3L2-5L3 2T1-4T2-6T3
Rated operational voltage Ue	690 V AC
Rated operational current Ie	see table below
Rated operational current DC-5 3 conducting paths in series up to 250 V	-
Rated instantaneous short-circuit current setting Ii	see table below
Rated service short-circuit breaking capacity Ics	see table "Short-circuit breaking capacity and back-up fuses" on page 6
Rated ultimate short-circuit breaking capacity Icu	
Rated frequency	50/60 Hz
Frequency range	0 ... 400 Hz
Number of poles	3
Power loss per pole	see table "Power loss per pole" on page 3

Isolation data

Rated impulse withstand voltage Uimp	6 kV
Rated insulation voltage Ui	690 V
Pollution degree	3

Electrical connection

Type		MO132 ≤ 10 A	MO132 > 10 A
 solid		1/2 x 1 ... 4 mm ²	1/2 x 1 ... 2.5 mm ² 1/2 x 2.5 ... 6 mm ²
 stranded		1/2 x 1 ... 4 mm ²	1/2 x 1 ... 6 mm ² 1/2 x 2.5 ... 6 mm ²
 flexible with ferrule		1/2 x 0.75 ... 2.5 mm ²	1/2 x 0.75 ... 6 mm ²
 flexible with insulated ferrule		1/2 x 0.75 ... 2.5 mm ²	1/2 x 0.75 ... 6 mm ²
 flexible without ferrule		1/2 x 0.75 ... 2.5 mm ²	1/2 x 1 ... 2.5 mm ² 1/2 x 2.5 ... 6 mm ²
Stripping length		9 mm	10 mm
Tightening torque		0.8 ... 1.2 Nm	2 Nm
Recommended screwdriver		Pozidriv 2	Pozidriv 2

Type	Rated instantaneous short-circuit current setting Ii	Rated operational current Ie
	A	A
MO132-0.16	2.00	0.16
MO132-0.25	3.13	0.25
MO132-0.4	5.00	0.40
MO132-0.63	7.88	0.63
MO132-1.0	12.50	1.00
MO132-1.6	20.00	1.60
MO132-2.5	31.25	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		100 000
Electrical durability		50 000
Duty time		100 %
Dimensions (W x H x D)		see drawing "Dimensions" on page 3
Weight		see table "Order data" on page 1
Mounting		TH35-15 (35 x 15 mm Mounting Rail) acc. to IEC 60715 TH35-7.5 (35 x 7.5 mm Mounting Rail) acc. to IEC 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	IP20
	main circuit terminals	IP10
Utilization category		A
Maximum operating altitude		2000 m
Maximum operating frequency		170 cycles/h

Environmental data

Ambient air temperature		
Operation	open - compensated	-
	open	-25 ... +60 °C
	enclosed (IB132)	0 ... +40 °C
Storage		-50 ... +80 °C
Resistance to vibrations acc. to IEC 60068-2-6		5g / 3 ... 150 Hz
Resistance to shock acc. to IEC 60068-2-27		25g / 11 ms

Standards / directives

Standards	IEC/EN 60947-1 IEC/EN 60947-2 IEC/EN 60947-4-1 UL 60947-1 UL 60947-4-1 CSA-C22.2 No. 60947-1 CSA-C22.2 No. 60947-4-1
Low Voltage Directive	2014/35/EU
RoHS Directive	2011/65/EU

Short-circuit breaking capacity and back-up fuses

Ics Rated service short-circuit breaking capacity

Icu 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		
	Ics kA	Icu kA	gG A	Ics kA	Icu kA	gG A	Ics kA	Icu kA	gG A	Ics kA	Icu kA	gG A	Ics kA	Icu 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	-	30	30	35*	20	20	35*	3	3	32*
MO132-6.3	100	100	-	100	100	-	30	30	63*	20	20	63*	3	3	50*
MO132-10	100	100	-	100	100	-	30	30	100*	20	20	100*	3	3	50*
MO132-12	100	100	-	100	100	-	30	30	100*	20	20	100*	3	3	63*
MO132-16	100	100	-	100	100	-	30	30	125*	20	20	125*	3	3	63*
MO132-20	100	100	-	100	100	-	30	30	125*	20	20	125*	3	3	80*
MO132-25	50	50	125*	50	50	125*	30	30	125*	10	10	125*	3	3	100*
MO132-32	30	50	125*	30	50	125*	30	30	125*	10	10	125*	3	3	100*



* Rated back-up fuse for short-circuit up to 100 kA

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

Type		MO132 ≤ 10A	MO132 > 12 A
	stranded	1/2 x AWG 16 ... 12	1/2 x AWG 16 ... 8
	flexible without ferrule	1/2 x AWG 16 ... 12	1/2 x AWG 16 ... 8
Stripping length		9 mm	10 mm
Tightening torque		10 ... 12 lb-in	18 lb-in
Recommended screw driver		Pozidriv 2	

Motor ratings, single phase

hp Horse power

FLA Full load amps

LRA Locked rotor amps

Type	120 V AC			220 ... 240 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	-	1.6	9.6	1/10	1.6	9.6
MO132-2.5	-	2.5	15	1/6	2.5	15
MO132-4.0	1/8	4	24	1/3	4	24
MO132-6.3	1/4	6.3	37.8	1/2	6.3	37.8
MO132-10	1/2	9.8	58.8	1-1/2	10	60
MO132-12	1/2	9.8	58.8	2	12	72
MO132-16	1	16	96	2	12	72
MO132-20	1-1/2	20	120	3	17	102
MO132-25	2	24	144	3	17	102
MO132-32	2	24	144	5	28	168

Motor ratings, three phase

Type	220 ... 240 V AC			440 ... 480 V AC			550 ... 600 V AC		
	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA
MO132-0.16	-	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
MO132-0.4	-	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
MO132-1.0	-	1	6	-	1	6	1/2	1	6
MO132-1.6	-	1.6	9.6	3/4	1.6	9.6	3/4	1.6	9.6
MO132-2.5	1/2	2.5	15	1	2.5	15	1-1/2	2.5	15
MO132-4.0	1	4	24	2	4	24	3	3.9	26
MO132-6.3	1-1/2	6.3	37.8	3	4.8	32	5	6.1	37
MO132-10	3	9.6	64	5	7.6	46	7-1/2	9	51
MO132-12	3	9.6	64	7-1/2	11	64	10	11	65
MO132-16	5	15.2	92	10	14	81	10	11	65
MO132-20	5	15.2	92	10	14	81	15	17	93
MO132-25	7-1/2	22	127	15	21	116	20	22	116
MO132-32	10	28	162	20	27	145	25	27	146

UL/CSA Maximum short-circuit current ratings – MO132

Type	Manual Motor Controllers		for motor disconnect		for group installations		for tap conductor protection in group installations	
	Branch circuit protection, max. size per NEC/CEC (1)		480 V	600 V	480 V	600 V	480Y / 277 V	600Y / 347 V
	Fuses A	Circuit breaker A	kA	kA	kA	kA	kA	kA
MO132-0.16	Any Listed fuses. Size per NEC/CEC	Any Listed UL489 / CSA C22.2 No.5 circuit breaker. Size per NEC/CEC	65	47	65	47	65	47
MO132-0.25			65	47	65	47	65	47
MO132-0.4			65	47	65	47	65	47
MO132-0.63			65	47	65	47	65	47
MO132-1.0			65	47	65	47	65	47
MO132-1.6			65	47	65	47	65	47
MO132-2.5			65	47	65	47	65	47
MO132-4.0			65	47	65	47	65	47
MO132-6.3			65	18	65	18	65	18
MO132-10			65	18	65	18	65	18
MO132-12			30	18	30	18	30	18
MO132-16			30	18	30	18	30	18
MO132-20			30	18	30	18	30	18
MO132-25			30	18	30	18	30	18
MO132-32			30	18	30	18	30	18

(1) NEC: NFPA®70 National Electrical Code®; CEC: CSA C22.1 Canadian Electrical Code.

UL/CSA Maximum short-circuit current ratings – MO132 with electronic overload relays and AF contactors

Type	EOL	Combination Motor Controllers (Type F) (1)		
		Coordination type 1 Minimum contactor size	480Y / 277 V kA	600Y / 347 V kA
MO132-0.16	EF19	AF09 ... AF38	100	50
MO132-0.25	EF19	AF09 ... AF38	100	50
MO132-0.4	EF19	AF09 ... AF38	100	50
MO132-0.63	EF19	AF09 ... AF38	100	50
MO132-1.0	EF19	AF09 ... AF38	100	50
MO132-1.6	EF19	AF09 ... AF38	100	50
MO132-2.5	EF19	AF09 ... AF38	100	50
MO132-4.0	EF19	AF09 ... AF38	100	50
MO132-6.3	EF19	AF09 ... AF38	100	50
MO132-10	EF19	AF09 ... AF38	100	30
MO132-12	EF19	AF09 ... AF38	65	30
MO132-16	EF19	AF12 ... AF38	65	30
MO132-20	EF19	AF16 ... AF38	65	-
MO132-25	EF45-30	AF26 ... AF38	50	-
MO132-32	EF45-45	AF38 ... AF38	50	-

NOTE : More coordination tables are available in our SOC (selected optimized coordination) tool: <https://applications.it.abb.com/SOC/Motor>.

(1) In combination with feeder block S1-M3-xx or terminal spacer TS1-M3-S1 (for 0.16 ... 10 A) / TS1-M3-S2 (for 12 ... 32 A).



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