

Manual motor starter MS132

Manual motor starters 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, overload and phase failures. 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.



Description

- Overload protection – trip class 10
- Phase unbalance and phase loss sensitivity
- Disconnect function
- Temperature compensation from -25 ... +60 °C
- Adjustable current setting for overload protection
- Suitable for three- and single-phase application
- Trip-free mechanism
- Lockable handle

Ordering details

MS132 screw terminal



Setting range [A]	Type	Trip class	Order code	Packaging unit [Pcs]	Weight [g]
0.10 ... 0.16	MS132-0.16	10A	1SAM350000R1001	1	215
0.16 ... 0.25	MS132-0.25	10	1SAM350000R1002	1	215
0.25 ... 0.40	MS132-0.4	10	1SAM350000R1003	1	215
0.40 ... 0.63	MS132-0.63	10	1SAM350000R1004	1	215
0.63 ... 1.00	MS132-1.0	10	1SAM350000R1005	1	215
1.00 ... 1.60	MS132-1.6	10	1SAM350000R1006	1	265
1.60 ... 2.50	MS132-2.5	10	1SAM350000R1007	1	265
2.50 ... 4.00	MS132-4.0	10	1SAM350000R1008	1	265
4.00 ... 6.30	MS132-6.3	10	1SAM350000R1009	1	265
6.30 ... 10.00	MS132-10	10	1SAM350000R1010	1	265
10.00 ... 16.00	MS132-16	10	1SAM350000R1011	1	310
16.00 ... 20.00	MS132-20	10	1SAM350000R1013	1	310
20.00 ... 25.00	MS132-25	10	1SAM350000R1014	1	310
25.00 ... 32.00	MS132-32	10	1SAM350000R1015	1	310

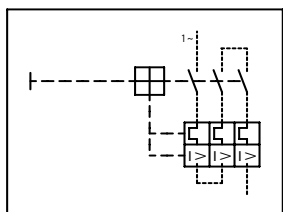
Application

The manual motor starters protect the load and the installation against short-circuit and overload. They are three pole protection devices with thermal tripping elements for overload protection and electro-magnetic 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.

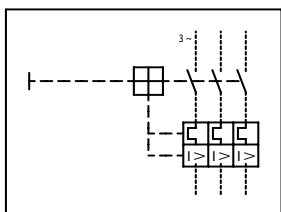
The manual motor starters have a setting scale in Amperes, which allows the direct adjusting of the device without any additional calculation. In compliance with international and national standards, the setting current is the rated current of the motor and not the tripping current (no tripping at $1.05 \times I$, tripping at $1.2 \times I$; I = setting current).

Operation mode

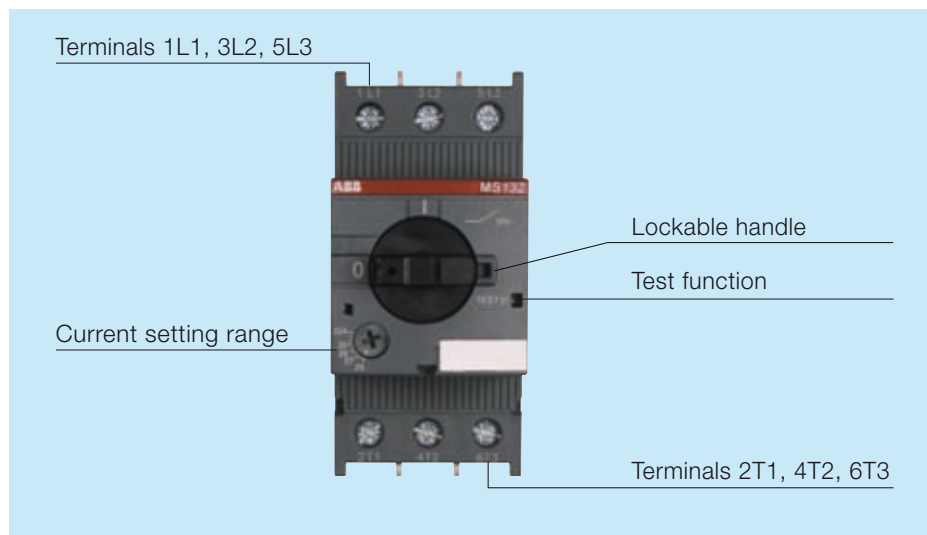
Single-phase operation



Three-phase operation



Connections

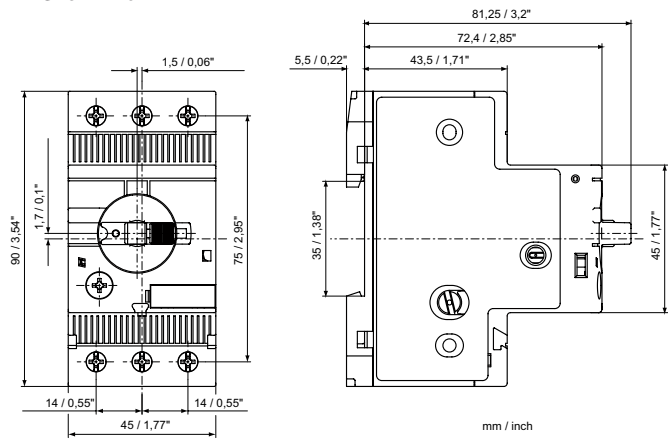


Resistance and power losses per phase

Type	Lower value setting range [A]	Upper value setting range [A]	Resistance per phase [Ω]	Power dissipation per Phase [W] at	
				Lower value of setting range	Upper value of setting range
MS132-0.16	0.10	0.16	66.00	0.7	1.7
MS132-0.25	0.16	0.25	25.50	0.7	1.6
MS132-0.4	0.25	0.40	10.38	0.6	1.7
MS132-0.63	0.40	0.63	4.36	0.7	1.7
MS132-1.0	0.63	1.00	1.605	0.6	1.6
MS132-1.6	1.00	1.60	0.648	0.6	1.7
MS132-2.5	1.60	2.50	0.272	0.7	1.7
MS132-4.0	2.50	4.00	0.106	0.7	1.7
MS132-6.3	4.00	6.30	0.046	0.7	1.8
MS132-10	6.30	10.0	0.024	0.9	2.4
MS132-16	10.0	16.0	0.011	1.1	2.8
MS132-20	16.0	20.0	0.0057	1.5	2.3
MS132-25	20.0	25.0	0.0045	1.8	2.8
MS132-32	25.0	32.0	0.0030	1.9	3.1

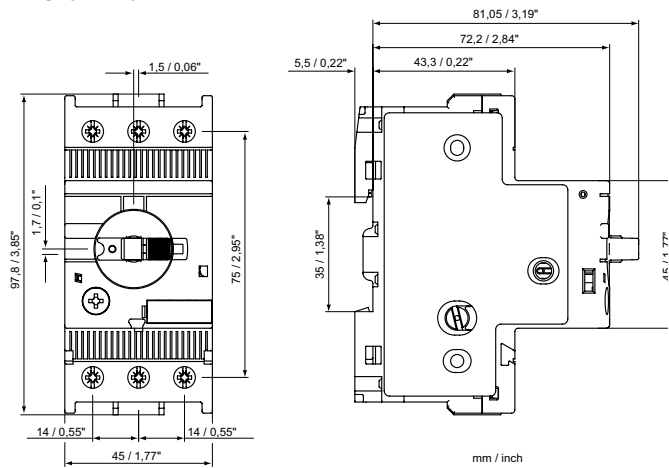
Dimensions

MS132 ≤ 10 A



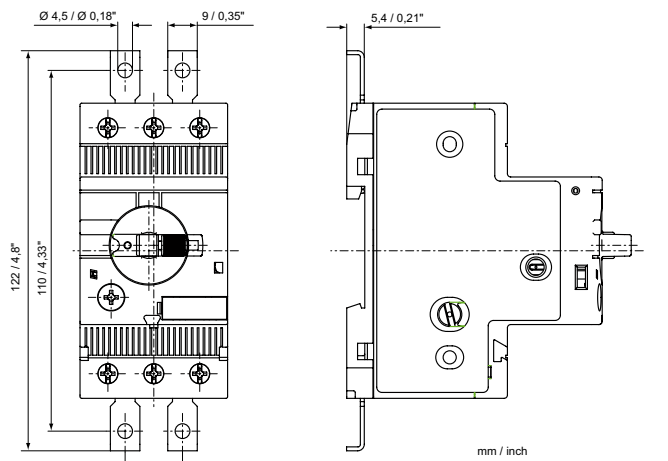
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MS132 > 10 A



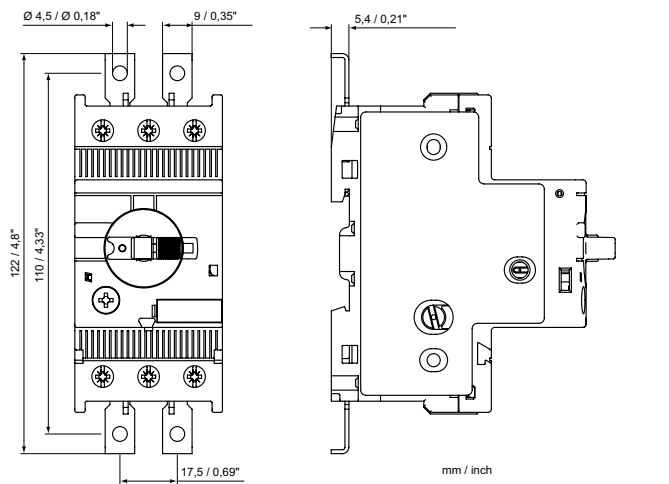
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MS132 ≤ 10 A + screw fixing kit



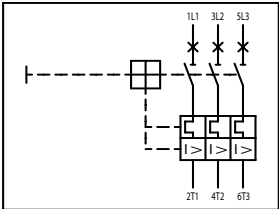
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MS132 > 10 A + screw fixing kit



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Wiring diagram



Data at $T_A = 40\text{ °C}$ and at rated values, if nothing else indicated

Type			MS132
Technical data		Terminals	
Main circuit		1L1-3L3-5L5 2T1-4T2-6T3	
Rated operational voltage U_e acc. to IEC/EN 60947-1	AC DC		690 V -
Rated operational current I_e			see separate table
Rated current I_n /			see „Rated Operational Current“
Conventional free-air thermal current I_{th}			
Setting range - thermal overload protection			see ordering data
Rated instantaneous short-circuit current setting I_{cs}			see separate table
Rated service short-circuit breaking capacity I_{cs}			see separate table
Rated ultimate short-circuit breaking capacity I_{cu}			see separate table
Trip class acc. to IEC/EN 60947-4-1			see ordering data
Rated frequency acc. to IEC/EN 60947-1			50 / 60 Hz
Number of poles			3
Resistance per phase			see separate table
Power dissipation per phase	lower value of setting range upper value of setting range		see separate table see separate table
Isolation data			
Rated impulse withstand voltage U_{imp} acc. to IEC/EN 60947-1			6 kV
Rated insulation voltage U_i acc. to IEC/EN 60947-1			690 V
Pollution category acc. to IEC/EN 60664			3
Electrical connection			
MS132 ≤ 10A			
Wire size, min. / max.	solid flexible with wire end ferrule flexible with wire end ferrule isolated flexible without wire end ferrule		1/2 x 1 ... 4 mm ² 1/2 x 0.75 ... 2.5 mm ² 1/2 x 0.75 ... 2.5 mm ² 1/2 x 0.75 ... 2.5 mm ²
Stripping length			9 mm
Tightening torque			0.8 ... 1.2 Nm
Connection screw			M3.5 (Pozidrive 2)
MS132-16			
Wire size, min. / max.	solid flexible with wire end ferrule flexible with wire end ferrule isolated flexible without wire end ferrule		1/2 x 1 ... 4 mm ² 1/2 x 0.75 ... 2.5 mm ² 1/2 x 0.75 ... 2.5 mm ² 1/2 x 0.75 ... 2.5 mm ²
Stripping length			10 mm
Tightening torque			1.5 Nm
Connection screw			M4 (Pozidrive 2)
MS132-20, -25, -32			
Wire size, min. / max.	solid flexible with wire end ferrule flexible with wire end ferrule isolated flexible without wire end ferrule		1/2 x 2.5 ... 6 mm ² 1/2 x 1 ... 6 mm ² 1/2 x 1 ... 6 mm ² 1/2 x 2.5 ... 6 mm ²
Stripping length			10 mm
Tightening torque			2 Nm
Connection screw			M4 (Pozidrive 2)

Type			MS132
General Data			
Mechanical durability			10 ⁵
Electrical durability			5 x 10 ⁴
Duty time			100%
Dimensions (W x H x D)			see dimension drawing
Weight			see ordering data
Mounting			DIN-rail (EN 60715)
Mounting position			optional for single mounting (position 1-6)
Group Mounting			on request
Minimum distance to other units same type	horizontal		none
	vertical		75 mm
Minimum distance to electrical conductive wall (earthed)	horizontal		none
	vertical		150 mm
Degree of protection acc. to IEC/EN 60947-1	enclosure / terminals		IP20
Utilization Category acc. to IEC/EN 60947-2			A
Altitude			up to 2000 m
Environmental data			
Ambient air temperature range			
Operation	open - compensated		-25 °C ... +60 °C
	open		-25 °C ... +60 °C
Storage			-50 °C ... +80 °C
Temperature compensation			continuous
Vibration (sinusoidal) acc. to IEC/EN 60068-2-6 (Fc)			5 g / 3 - 150 Hz
Shock (half-sine) acc. to IEC/EN 60068-2-27 (Ea)			25 g / 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
Electromagnetic compatibility			
			not applicable
Approvals, markings			
Approvals			cULus,
Markings			CE
UL/CSA			
Max. operational voltage			600 V
General purpose rating at max. 600 VAC			see separate table
Motor ratings			
Horse power			see separate table
Full load amps (FLA)			see separate table
Locked rotor amps (LRA)			see separate table
Short circuit rating RMS at 480 VAC			30 kA
Short circuit rating RMS at 600 VAC			18 kA
Short-Circuit Protective devices			see separate table

Type			MS132
Technical data			
Electrical connection			
MS132 ≤ 10A			
Wire size, min. / max.	solid		1/2 x AWG16 ... AWG12
	stranded		1/2 x AWG16 ... AWG12
	flexible without wire end ferrule		1/2 x AWG16 ... AWG12
Stripping length			9 mm
Tightening torque			10 - 12 lb-in
Connection screw			M3.5 (Pozidrive 2)
MS132-16			
Wire size, min. / max.	solid		1/2 x AWG16 ... AWG12
	stranded		1/2 x AWG16 ... AWG12
	flexible without wire end ferrule		1/2 x AWG16 ... AWG12
Stripping length			10 mm
Tightening torque			14 lb-in
Connection screw			M4 (Pozidrive 2 / 6.5 mm)
MS132-20, -25, -32			
Wire size, min. / max.	stranded		1/2 x AWG12 ... AWG8
	flexible without wire end ferrule		1/2 x AWG12 ... AWG8
Stripping length			10 mm
Tightening torque			18 lb-In
Connection screw			M4 (Pozidrive 2)

Type	Rated instantaneous short-circuit current setting I_i [A]	Rated current I_n / Conventional free-air thermal current I_{th} [A]
MS132-0.16	1.25 ... 1.87	0.16
MS132-0.25	1.95 ... 2.92	0.25
MS132-0.4	3.12 ... 4.68	0.40
MS132-0.63	4.91 ... 7.37	0.63
MS132-1.0	9.20 ... 13.8	1.00
MS132-1.6	14.7 ... 22.1	1.60
MS132-2.5	23.0 ... 34.5	2.50
MS132-4.0	40.0 ... 60.0	4.00
MS132-6.3	63.0 ... 94.5	6.30
MS132-10	120 ... 180	10.0
MS132-16	192 ... 288	16.0
MS132-20	240 ... 360	20.0
MS132-25	300 ... 450	25.0
MS132-32	384 ... 576	32.0

Short-Circuit protection

Type	400 V AC			690 V AC		
	I_{CS} [kA]	I_{CU} [kA]	gG [A]	I_{CS} [kA]	I_{CU} [kA]	gG [A]
MS132-0.16	100	100	°	100	100	°
MS132-0.25	100	100	°	100	100	°
MS132-0.4	100	100	°	100	100	°
MS132-0.63	100	100	°	100	100	°
MS132-1.0	100	100	°	100	100	°
MS132-1.6	100	100	°	100	100	°
MS132-2.5	100	100	°	100	100	°
MS132-4.0	100	100	°	3	3	on request
MS132-6.3	100	100	°	3	3	on request
MS132-10	100	100	°	3	3	on request
MS132-16	50	50	on request	3	3	on request
MS132-20	50	50	on request	3	3	on request
MS132-25	50	50	on request	3	3	on request
MS132-32	25	25	on request	3	3	on request

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

UL / CSA ratings

Type	Motor rating, single phase								
	120 VAC			240 VAC			480 VAC		
	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA
MS132-0.16	-	0.16	0.96	-	0.16	0.96	-	0.16	0.96
MS132-0.25	-	0.25	1.5	-	0.25	1.5	-	0.25	1.5
MS132-0.4	-	0.4	2.4	-	0.4	2.4	-	0.4	2.4
MS132-0.63	-	0.63	3.78	-	0.63	3.78	-	0.63	3.78
MS132-1.0	-	1	6	-	1	6	-	1	6
MS132-1.6	-	1.6	9.6	1/10	1.6	9.6	-	1.6	9.6
MS132-2.5	-	2.5	15	1/6	2.5	15	1/2	2.5	15
MS132-4.0	1/8	4	24	1/3	4	24	1/2	4	24
MS132-6.3	1/4	6.3	37.8	1/2	6.3	37.8	1	6.3	37.8
MS132-10	1/2	9.8	58.8	1-1/2	10	60	3	-	-
MS132-16	1	16	96	2	12	72	5	-	-
MS132-20	1-1/2	20	120	3	-	-	5	-	-
MS132-25	2	24	144	3	-	-	7-1/2	-	-
MS132-32	2	24	144	5	-	-	10	-	-

Type	Motor rating, three phase											
	120 VAC			240 VAC			480 VAC			600 VAC		
	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA
MS132-0.16	-	0.16	0.96	-	0.16	0.96	-	0.16	0.96	-	0.16	0.96
MS132-0.25	-	0.25	1.5	-	0.25	1.5	-	0.25	1.5	-	0.25	1.5
MS132-0.4	-	0.4	2.4	-	0.4	2.4	-	0.4	2.4	-	0.4	2.4
MS132-0.63	-	0.63	3.78	-	0.63	3.78	-	0.63	3.78	-	0.63	3.78
MS132-1.0	-	1	6	-	1	6	-	1	6	1/2	1	6
MS132-1.6	-	1.6	9.6	-	1.6	9.6	3/4	1.6	9.6	3/4	1.6	9.6
MS132-2.5	-	2.5	15	1/2	2.5	15	1	2.5	15	1-1/2	2.5	15
MS132-4.0	-	4	24	1	4	24	2	4	24	3	-	-
MS132-6.3	1/2	6.3	37.8	1-1/2	6.3	37.8	3	-	-	5	-	-
MS132-10	3/4	10	60	3	-	-	5	-	-	7-1/2	-	-
MS132-16	2	16	84	5	-	-	10	-	-	10	-	-
MS132-20	3	-	-	5	-	-	10	-	-	15	-	-
MS132-25	3	-	-	7-1/2	-	-	15	-	-	20	-	-
MS132-32	5	-	-	10	-	-	20	-	-	25	-	-

Type	General purpose rating at max. 600 VAC [A]	Protective devices	
		Fuse K5 / RK5 [A]	Circuit breaker [A]
MS132-0.16	0.16	250	250
MS132-0.25	0.25	250	250
MS132-0.4	0.40	250	250
MS132-0.63	0.63	250	250
MS132-1.0	1.00	250	250
MS132-1.6	1.60	250	250
MS132-2.5	2.50	250	250
MS132-4.0	4.00	250	250
MS132-6.3	6.30	250	250
MS132-10	10.0	250	250
MS132-16	16.0	250	250
MS132-20	20.0	250	250
MS132-25	25.0	250	250
MS132-32	32.0	250	250

Contact

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