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new.abb.com/products/1SAM250000R1001

Manual motor starters & circuit breakers for transformer protection

Manual motor starters

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With thermal and electromagnetic protection

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With electromagnetic protection

Ordering details - 0.16 to 80 A

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With thermal and electromagnetic protection

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MS and MO manual motor starters

A complete motor protection concept



Fuseless protection saves costs, space and ensures a quick reaction under overload and short-circuit condition by switching off the motor within milliseconds. The full range of motor starters offers protection from 0.1 A to up to 100 A. The new family range has a harmonized range of accessories and offers the same features up to 80 A.



Protection and control

Protect equipment and installations

ABB offers a broad range of manual motor starters, for protection and control in almost every situation including hazardous areas, protecting installations from short-circuits, overloads and phase failures while also controlling the current flow through a simple ON/OFF switch.



Continuous operation

Secure uptime

Fuseless motor protection reduces maintenance costs and downtimes by avoiding fuse replacement after faults. Furthermore, MS132 and MS165 feature a magnetic trip indicator making trouble-shooting easier.



Speed up your projects

Simplified design

Manual motor starters can be connected easily with ABB contactors or soft starters using the respective accessory. Additionally, the main range of accessories is shared across multiple starters (both with screw and Push-in Spring terminals available), making logistics and planning simpler.

MS and MO manual motor starters

A complete motor protection concept

Right solution for your application

MS116 offers protection up to 32 A and a breaking capacity up to 100 kA – all in a 45 mm wide housing. They are designed to meet requirements of most standard applications.

All-in-one

ABB offers fuseless protection against short-circuits, phase failures and overloads including disconnect function – all in one single compact product.

Troubleshooting made easy

MS132 and MS165 feature a magnetic trip indicator. This way, every tripping event will be distinguished, making troubleshooting a lot easier and faster.

High performance in compact size

MS132 and MS165 manual motor starters cover short-circuit breaking capacities up to 100 kA. In addition, every manual motor starter is temperature compensated up to 60 °C.



Protection wherever you are

Manual motor starters are suitable for worldwide use. The wide range of certifications covers standards like IEC (CB), cULus, CCC and various ship approvals. MS132 and MS165 also apply to ATEX standards for hazardous areas.



Ready for IE3 and IE4 motors

MS116/MS132/MO132/MS165/MO165 comply with the latest IE3 and IE4 N/H and NE/HE motors. NE/HE requires utilization category AC-3e.



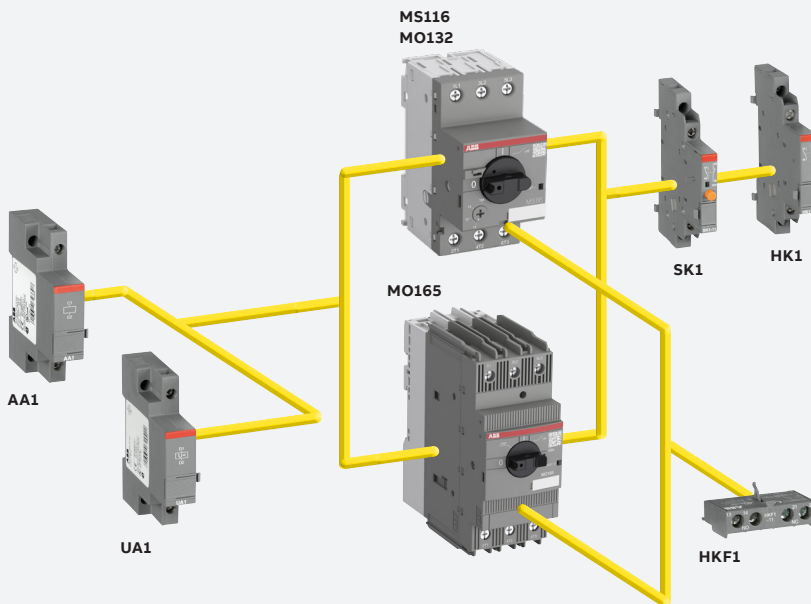
Just push it

With the new Push-in Spring terminals, one push is all you need for a faster than ever installation, an easier than ever wiring and a reliable as ever connection which eliminates routine re-tightening.



Protection and control

The right accessories for your applications



Harmonized range of accessories

All types up to 80 A share the same main accessories like auxiliary contacts, signaling contacts, shunt trips and undervoltage releases. This significantly reduces the part list and makes selection of the right accessories easy.

Compatible with Unifix AD new distribution system

Unifix AD allows an easy, safe and fast mounting of various components (manual motor starters, Tmax XT, circuit breakers, contactors etc.) without drilling the busbars, it's sufficient to clip them on the busbar system.



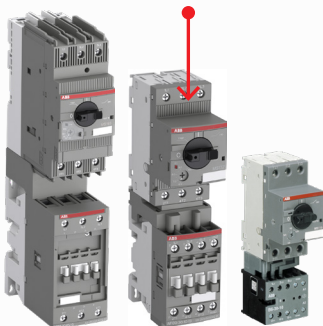
Save wiring time
and avoid mistakes by
using a connecting link



**Up to 5 manual
motor starters**
can be fitted next
to each other

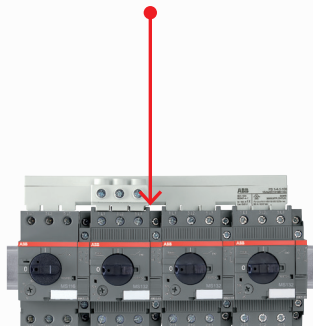


With a lockable handle
maintenance will be safe
for every technician



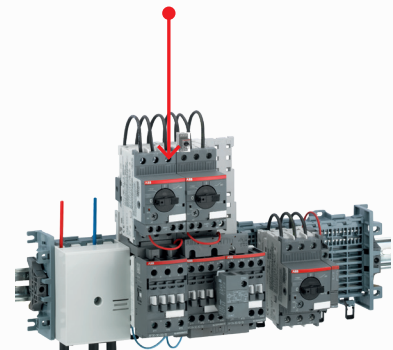
Easy to connect

Save wiring time and avoid mistakes by using a connecting link between ABB manual motor starters and soft starters or contactors. This creates harmonious and compact starter combinations that are easy to mount.



Busbar connectors and enclosures

With busbar connectors, up to 5 manual motor starters can be fitted next to each other with optional spacing for auxiliary contacts. Enclosures or door handle kits are available as well.



Compatible with SMISSLINE TP plug-in distribution system

SMISSLINE TP allows to snap on and off load-free devices and components under voltage. When working under load please follow the applicable regulations and laws according to the country.

Application examples



MOTOR PROTECTION

No matter what type of starter is required by the application (direct-on-line, star-delta, soft starter or variable frequency drive), MS and MO manual motor starters (also known as motor protection circuit breakers or manual motor protectors) are the right protection devices for electric motors from 100 mA up to 100 A.



STARTER PROTECTION

MO (magnetic-only) manual motor starters are typically used, when motor overload protection is provided by a separate overload protection device. This setup is specially beneficial for applications that require auto- or remote-reset of the starter in case of an overload tripping event (e.g. windmills or HVAC fans).



CIRCUIT PROTECTION AND CONTROL

ABB's manual motor starters are fuseless circuit breakers (approved acc. to IEC60947-2) that can be used to control circuits and protect cables / lines in industrial and commercial applications from overloads and short-circuits. The built-in disconnect function allows the usage as main On-/Off-switch, typically for de-centralized applications (e.g. small machinery or laboratory systems).



RESISTIVE LOADS

Manual motor starters are not only for motors! They are also an efficient solution for AC-1 applications, where it is required to protect and switch resistive loads (for example resistive furnaces or heaters).



DC LOADS

Manual motor starters are not only for AC applications! MS132 and MS165 manual motor starters are also rated for direct current loads (e.g. for motors used in solar panel tracking systems).



EXTREME CONDITIONS

Regardless if high-altitudes, shock and vibration environments or hazardous areas, ABB's manual motor starters are designed and certified to withstand harsh conditions. Specific versions for rolling stock applications are part of our offer.

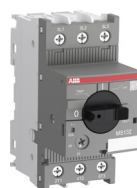


Manual motor starters

Overview



MS116



MS132



MS165

Type	MS116	MS132	MS165
Thermal and electromagnetic protection	Yes	Yes	Yes
Electromagnetic protection	-	-	-
Phase loss sensitivity	Yes	Yes	Yes
Switch position	ON/OFF	ON/OFF/TRIP	ON/OFF/TRIP
Magnetic trip indication	-	Yes	Yes
Lockable handle without accessories	-	Yes	Yes
Disconnecting feature	Yes	Yes	Yes
Width	45 mm	45 mm	55 mm
Rated operational current I _e	0.10 ... 32 A	0.10 ... 32 A	10 ... 80 A
Setting range	0.10 ... 32 A	0.10 ... 32 A	10 ... 80 A
Ambient air temperature	-25 ... +55 °C (1)	-25 ... +60 °C (1)	-25 ... +60 °C (1)

(1) Compensated

Accessories

Auxiliary contact		HKF1, HK1 (2)	
Signaling contact	for tripped alarm	SK1 (2)	
contact	for short-circuit alarm	-	CK1
Shunt trip		AA1	
Undervoltage release		UA1	

Table for short-circuit ratings for 400 V AC

	Standard range	Performance range
	MS116	MS132, MS165

Selection parameters

Rated operational power	Setting range for thermal release	Type	Short-circuit breaking capacity		Type	Short-circuit breaking capacity	
			I _{cu}	I _{cs}		I _{cu}	I _{cs}
0.03 kW (1)	0.1 ... 0.16 A	MS116-0.16	100 kA	50 kA	MS132-0.16 (2)	100 kA	100 kA
0.06 kW	0.16 ... 0.25 A	MS116-0.25	100 kA	50 kA	MS132-0.25 (2)	100 kA	100 kA
0.09 kW	0.25 ... 0.4 A	MS116-0.4	100 kA	50 kA	MS132-0.4 (2)	100 kA	100 kA
0.18 kW	0.4 ... 0.63 A	MS116-0.63	100 kA	50 kA	MS132-0.63 (2)	100 kA	100 kA
0.25 kW	0.63 ... 1.0 A	MS116-1.0	100 kA	50 kA	MS132-1.0 (2)	100 kA	100 kA
0.55 kW	1.0...1.6 A	MS116-1.6	100 kA	50 kA	MS132-1.6 (2)	100 kA	100 kA
0.75 kW	1.6...2.5 A	MS116-2.5	75 kA	50 kA	MS132-2.5 (2)	100 kA	100 kA
1.5 kW	2.5...4.0 A	MS116-4.0	75 kA	50 kA	MS132-4.0 (2)	100 kA	100 kA
2.2 kW	4.0...6.3 A	MS116-6.3	75 kA	50 kA	MS132-6.3 (2)	100 kA	100 kA
4.0 kW	6.3...10 A	MS116-10	75 kA	50 kA	MS132-10 (2)	100 kA	100 kA
5.5 kW	8...12 A	MS116-12	50 kA	25 kA	MS132-12	100 kA	100 kA
7.5 kW	10...16 A	MS116-16	16 kA	16 kA	MS132-16 (2) / MS165-16	100 kA	100 kA
7.5 kW	14 ... 20 A				MS165-20	100 kA	100 kA
7.5 kW	16...20 A	MS116-20	16 kA	10 kA	MS132-20 (2)	100 kA	100 kA
11 kW	18 ... 25 A				MS165-25	100 kA	100 kA
11 kW	20...25 A	MS116-25	16 kA	10 kA	MS132-25 (2)	50 kA	50 kA
15 kW	25...32 A	MS116-32	16 kA	10 kA	MS132-32 (2)	50 kA	30 kA
15 kW	23 ... 32 A				MS165-32	100 kA	100 kA
22 kW	30 ... 42 A				MS165-42	50 kA	50 kA
22 kW	40 ... 54 A				MS165-54	50 kA	30 kA
30 kW	52 ... 65 A				MS165-65	50 kA	30 kA
37 kW	62 ... 73 A				MS165-73	30 kA	30 kA
45 kW	70 ... 80 A				MS165-80	30 kA	30 kA

(1) 690 V AC

(2) Available with Push-in Spring terminals.

**MO132****MO165****MS132-T****Type**

Thermal and electromagnetic protection	-	-	Yes
Electromagnetic protection	Yes	Yes	-
Phase loss sensitivity	-	-	Yes
Switch position	ON/OFF/TRIP	ON/OFF/TRIP	ON/OFF/TRIP
Magnetic trip indication	-	-	Yes
Lockable handle without accessories	Yes	Yes	Yes
Disconnecting feature	Yes	Yes	Yes
Width	45 mm	55 mm	45 mm
Rated operational current I _e	0.16 ... 32 A	16 ... 80 A	0.16 ... 25 A
Setting range	-	-	0.10 ... 25 A
Ambient air temperature	-25 ... +60 °C	-25 ... +60 °C	-25 ... +60 °C (1)

(1) Compensated

Accessories

Auxiliary contact	HKF1, HK1 (2)	HKF1, HK1 (2)
Signaling contact for tripped alarm	SK1 (2)	SK1 (2)
Signaling contact for short-circuit alarm	-	CK1
Shunt trip	AA1	AA1
Undervoltage release	UA1	UA1

Table for short-circuit ratings for 400 V AC

Performance range MO132, MO165				Transformer protection MS132-T	
Rated operational power	Type	Short-circuit breaking capacity		Type	Short-circuit breaking capacity
		I _{cu}	I _{cs}		
0.03 kW (1)	MO132-0.16	100 kA	100 kA	MS132-0.16T (2)	100 kA
0.06 kW	MO132-0.25	100 kA	100 kA	MS132-0.25T (2)	100 kA
0.09 kW	MO132-0.4	100 kA	100 kA	MS132-0.4T (2)	100 kA
0.18 kW	MO132-0.63	100 kA	100 kA	MS132-0.63T (2)	100 kA
0.25 kW	MO132-1.0	100 kA	100 kA	MS132-1.0T (2)	100 kA
0.55 kW	MO132-1.6	100 kA	100 kA	MS132-1.6T (2)	100 kA
0.75 kW	MO132-2.5	100 kA	100 kA	MS132-2.5T (2)	100 kA
1.5 kW	MO132-4.0	100 kA	100 kA	MS132-4.0T (2)	100 kA
2.2 kW	MO132-6.3	100 kA	100 kA	MS132-6.3T (2)	100 kA
4.0 kW	MO132-10	100 kA	100 kA	MS132-10T (2)	100 kA
5.5 kW	MO132-12	100 kA	100 kA	MS132-12T	100 kA
7.5 kW	MO132-16 / MO165-16	100 kA	100 kA	MS132-16T (2)	100 kA
7.5 kW	MO165-20	100 kA	100 kA		
7.5 kW	MO132-20	100 kA	100 kA	MS132-20T (2)	100 kA
11 kW					
11 kW	MO132-25 / MO165-25	50 kA / 100 kA	50 kA / 100 kA	MS132-25T (2)	50 kA
15 kW	MO132-32	50 kA	30 kA	Transformer protection: The instantaneous short-circuit current setting I _i is 20 times the maximum rated operational current.	
15 kW	MO165-32	100 kA	100 kA		
22 kW	MO165-42	50 kA	50 kA		
22 kW	MO165-54	50 kA	30 kA		
30 kW	MO165-65	50 kA	30 kA		
37 kW	MO165-73	30 kA	30 kA		
45 kW	MO165-80	30 kA	30 kA		

(1) 690 V AC

(2) Available with Push-in Spring terminals.

MS116 manual motor starters

0.10 to 32 A – with thermal and electromagnetic protection



MS116-16

2CDC241004V0017



MS116-25

2CDC24101TV0017



MS116-0.16-HKF1-11

2CDC241019V0017



MS116-32-HKF1-11

2CDC241020V0017

MS116 is a compact and economic range for motor protection up to 15 kW (400 V) / 32 A in width of 45 mm. Further features are the built-in disconnect function, temperature compensation, trip-free mechanism and a rotary handle with a clear switch position indication. The manual motor starter is suitable for three- and single-phase applications. Auxiliary contacts, signaling contacts, undervoltage releases, shunt trips, power in-feed blocks and locking devices for protection against unauthorized changes are available as accessory. These are suitable throughout the MS116/MS132/MS165-range.

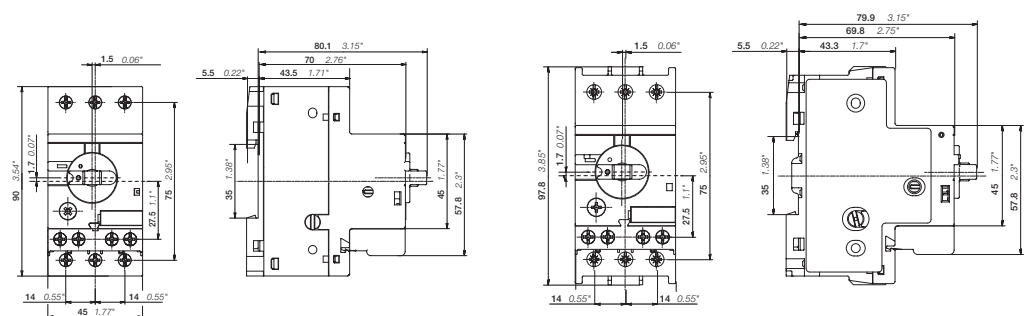
Rated operational power 400 V AC-3, AC-3e kW	Setting range A	Short-circuit breaking capacity Ics at 400 V AC kA	Rated instantaneous short-circuit current setting Ii A	Type	Order code	Weight (1 pce) kg
0.03 (1)	0.10 ... 0.16	50	2.00	MS116-0.16	1SAM250000R1001	0.225
0.06	0.16 ... 0.25	50	3.10	MS116-0.25	1SAM250000R1002	0.225
0.09	0.25 ... 0.40	50	5.00	MS116-0.4	1SAM250000R1003	0.225
0.18	0.40 ... 0.63	50	7.90	MS116-0.63	1SAM250000R1004	0.225
0.25	0.63 ... 1.00	50	12.5	MS116-1.0	1SAM250000R1005	0.225
0.55	1.00 ... 1.60	50	20.0	MS116-1.6	1SAM250000R1006	0.265
0.75	1.60 ... 2.50	50	31.3	MS116-2.5	1SAM250000R1007	0.265
1.50	2.50 ... 4.00	50	50.0	MS116-4.0	1SAM250000R1008	0.265
2.20	4.00 ... 6.30	50	78.8	MS116-6.3	1SAM250000R1009	0.265
4.00	6.30 ... 10.0	50	150	MS116-10	1SAM250000R1010	0.265
5.50	8.00 ... 12.0	25	180	MS116-12	1SAM250000R1012	0.265
7.50	10.0 ... 16.0	16	240	MS116-16	1SAM250000R1011	0.265
7.50	16.0 ... 20.0	10	300	MS116-20	1SAM250000R1013	0.310
11.0	20.0 ... 25.0	10	375	MS116-25	1SAM250000R1014	0.310
15.0	25.0 ... 32.0	10	480	MS116-32	1SAM250000R1015	0.310

Mounted Auxiliary Contacts 1 N.O. + 1 N.C.

0.03 (1)	0.10 ... 0.16	50	2.00	MS116-0.16-HKF1-11	1SAM250005R1001	0.240
0.06	0.16 ... 0.25	50	3.10	MS116-0.25-HKF1-11	1SAM250005R1002	0.240
0.09	0.25 ... 0.40	50	5.00	MS116-0.4-HKF1-11	1SAM250005R1003	0.240
0.18	0.40 ... 0.63	50	7.90	MS116-0.63-HKF1-11	1SAM250005R1004	0.240
0.25	0.63 ... 1.00	50	12.5	MS116-1.0-HKF1-11	1SAM250005R1005	0.240
0.55	1.00 ... 1.60	50	20.0	MS116-1.6-HKF1-11	1SAM250005R1006	0.280
0.75	1.60 ... 2.50	50	31.3	MS116-2.5-HKF1-11	1SAM250005R1007	0.280
1.50	2.50 ... 4.00	50	50.0	MS116-4.0-HKF1-11	1SAM250005R1008	0.280
2.20	4.00 ... 6.30	50	78.8	MS116-6.3-HKF1-11	1SAM250005R1009	0.280
4.00	6.30 ... 10.0	50	150	MS116-10.0-HKF1-11	1SAM250005R1010	0.280
5.50	8.00 ... 12.0	25	180	MS116-12.0-HKF1-11	1SAM250005R1012	0.280
7.50	10.0 ... 16.0	16	240	MS116-16.0-HKF1-11	1SAM250005R1011	0.280
7.50	16.0 ... 20.0	10	300	MS116-20-HKF1-11	1SAM250005R1013	0.326
11.0	20.0 ... 25.0	10	375	MS116-25-HKF1-11	1SAM250005R1014	0.326
15.0	25.0 ... 32.0	10	480	MS116-32-HKF1-11	1SAM250005R1015	0.326

Note: Manual motor starters should always be selected so that the actual motor current is within the setting range.

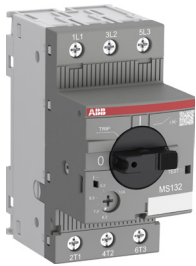
(1) 690 V



Main dimensions mm, inches

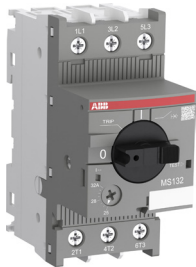
MS132 manual motor starters

0.10 to 32 A – with thermal and electromagnetic protection



MS132-10

2CDC241002V0013



MS132-32

2CDC241006V0017



MS132-0.16-HKF1-11

2CDC241021V0017



MS132-32-HKF1-11

2CDC241022V0017

MS132 is a compact and powerful range for motor protection up to 15 kW (400 V) / 32 A in width of 45 mm. This type has a clear and reliable indication of fault in a separate window in the event of short-circuit tripping. Further features are the built-in disconnect function, temperature compensation, trip-free mechanism and a rotary handle with a clear switch position indication. The manual motor starter is suitable for three- and single-phase applications. The handle is lockable to protect against unauthorized changes. Auxiliary contacts, signaling contacts, undervoltage releases, shunt trips, power in-feed blocks are available as accessory. MS132 is ATEX and IECEx certified.

Rated operational power 400 V AC-3, AC-3e kW	Setting range A	Short-circuit breaking capacity Ics at 400 V AC kA	Rated instantaneous short-circuit current setting Ii A	Type	Order code	Weight (1 pce) kg
0.03 (1)	0.10 ... 0.16	100	2.00	MS132-0.16	1SAM350000R1001	0.215
0.06	0.16 ... 0.25	100	3.10	MS132-0.25	1SAM350000R1002	0.215
0.09	0.25 ... 0.40	100	5.00	MS132-0.4	1SAM350000R1003	0.215
0.18	0.40 ... 0.63	100	7.90	MS132-0.63	1SAM350000R1004	0.215
0.25	0.63 ... 1.00	100	12.5	MS132-1.0	1SAM350000R1005	0.215
0.55	1.00 ... 1.60	100	20.0	MS132-1.6	1SAM350000R1006	0.265
0.75	1.60 ... 2.50	100	31.3	MS132-2.5	1SAM350000R1007	0.265
1.50	2.50 ... 4.00	100	50.0	MS132-4.0	1SAM350000R1008	0.265
2.20	4.00 ... 6.30	100	78.8	MS132-6.3	1SAM350000R1009	0.265
4.00	6.30 ... 10.0	100	150	MS132-10	1SAM350000R1010	0.265
5.50	8.00 ... 12.0	100	180	MS132-12	1SAM350000R1012	0.310
7.50	10.0 ... 16.0	100	240	MS132-16	1SAM350000R1011	0.310
7.50	16.0 ... 20.0	100	300	MS132-20	1SAM350000R1013	0.310
11.0	20.0 ... 25.0	50	375	MS132-25	1SAM350000R1014	0.310
15.0	25.0 ... 32.0	30	480	MS132-32	1SAM350000R1015	0.310

Mounted Auxiliary Contacts 1 N.O. + 1 N.C.

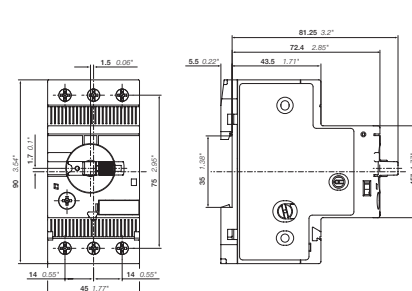
0.03 (1)	0.10 ... 0.16	100	2.00	MS132-0.16-HKF1-11	1SAM350005R1001	0.231
0.06	0.16 ... 0.25	100	3.10	MS132-0.25-HKF1-11	1SAM350005R1002	0.231
0.09	0.25 ... 0.40	100	5.0	MS132-0.4-HKF1-11	1SAM350005R1003	0.231
0.18	0.40 ... 0.63	100	7.90	MS132-0.63-HKF1-11	1SAM350005R1004	0.231
0.25	0.63 ... 1.00	100	12.5	MS132-1.0-HKF1-11	1SAM350005R1005	0.231
0.55	1.00 ... 1.60	100	20.0	MS132-1.6-HKF1-11	1SAM350005R1006	0.281
0.75	1.60 ... 2.50	100	31.3	MS132-2.5-HKF1-11	1SAM350005R1007	0.281
1.50	2.50 ... 4.00	100	50.0	MS132-4.0-HKF1-11	1SAM350005R1008	0.281
2.20	4.00 ... 6.30	100	78.8	MS132-6.3-HKF1-11	1SAM350005R1009	0.281
4.00	6.30 ... 10.0	100	150	MS132-10.0-HKF1-11	1SAM350005R1010	0.281
5.50	8.00 ... 12.0	100	180	MS132-12.0-HKF1-11	1SAM350005R1012	0.326
7.50	10.0 ... 16.0	100	240	MS132-16.0-HKF1-11	1SAM350005R1011	0.326
7.50	16.0 ... 20.0	100	300	MS132-20-HKF1-11	1SAM350005R1013	0.326
11.0	20.0 ... 25.0	50	375	MS132-25-HKF1-11	1SAM350005R1014	0.326
15.0	25.0 ... 32.0	30	480	MS132-32-HKF1-11	1SAM350005R1015	0.326

Mounted Auxiliary Contacts 2 N.O. + 0 N.C.

7.50	10 ... 16	100	240	MS132-16-HKF1-20	1SAM350006R1011	0.326
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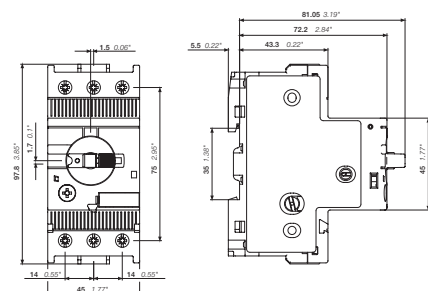
Note: Manual motor starters should always be selected so that the actual motor current is within the setting range.

(1) 690 V



MS132 ≤ 10 A

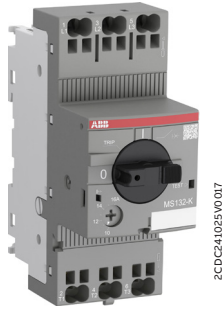
Main dimensions mm, inches



MS132 ≥ 12 A

MS132-K manual motor starters with Push-in Spring terminals

0.10 to 32 A – with thermal and electromagnetic protection



MS132-32K

The MS132-K series is a compact and powerful range for motor protection up to 15 kW (400 V) / 32 A with a width of only 45 mm. The innovative Push-in Spring terminals enable tool-free wiring and eliminate the need for routine re-tightening.

The MS132-K also has a clear and reliable indication of fault in a separate window in the event of short-circuit tripping. Further features are the built-in disconnect function, temperature compensation, trip-free mechanism and a rotary handle with a clear switch position indication.

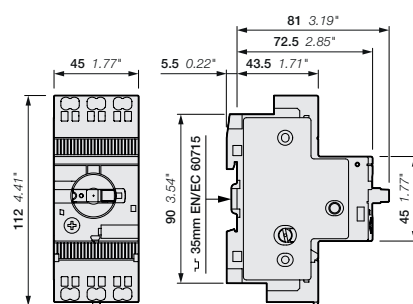
The manual motor starter is suitable for three- and single-phase applications. The handle is lockable to protect against unauthorized changes. Auxiliary contacts, signaling contacts, undervoltage releases, shunt trips, power in-feed blocks are available as accessory. These are suitable throughout the MS116/MS132/MS165-range.

MS132-K is ATEX and IECEx certified.

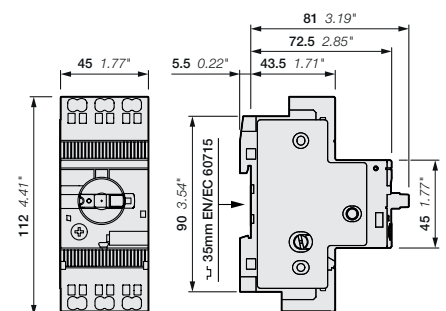
Rated operational power 400 V AC-3, AC-3e kW	Setting range A	Short-circuit breaking capacity Ics at 400 V AC kA	Rated instantaneous short-circuit current setting Ii A	Type	Order code	Weight (1 pce) kg
0.03(1)	0.10 ... 0.16	100	2.00	MS132-0.16K	1SAM350010R1001	0.256
0.06	0.16 ... 0.25	100	3.10	MS132-0.25K	1SAM350010R1002	0.256
0.09	0.25 ... 0.40	100	5.00	MS132-0.4K	1SAM350010R1003	0.256
0.18	0.40 ... 0.63	100	7.90	MS132-0.63K	1SAM350010R1004	0.256
0.25	0.63 ... 1.00	100	12.5	MS132-1.0K	1SAM350010R1005	0.256
0.55	1.00 ... 1.60	100	20.0	MS132-1.6K	1SAM350010R1006	0.298
0.75	1.60 ... 2.50	100	31.3	MS132-2.5K	1SAM350010R1007	0.280
1.50	2.50 ... 4.00	100	50.0	MS132-4.0K	1SAM350010R1008	0.286
2.20	4.00 ... 6.30	100	78.8	MS132-6.3K	1SAM350010R1009	0.289
4.00	6.30 ... 10.0	100	150	MS132-10K	1SAM350010R1010	0.296
7.50	10.0 ... 16.0	100	240	MS132-16K	1SAM350010R1011	0.316
7.50	16.0 ... 20.0	100	300	MS132-20K	1SAM350010R1013	0.317
11.0	20.0 ... 25.0	50	375	MS132-25K	1SAM350010R1014	0.316
15.0	25.0 ... 32.0	25	480	MS132-32K	1SAM350010R1015	0.316

Note: Manual motor starters should always be selected so that the actual motor current is within the setting range.

(1) 690 V



MS132-K > 10 A



MS132-K ≤ 10 A

Main dimensions mm, inches

MS165 manual motor starters

10 to 80 A – with thermal and electromagnetic protection

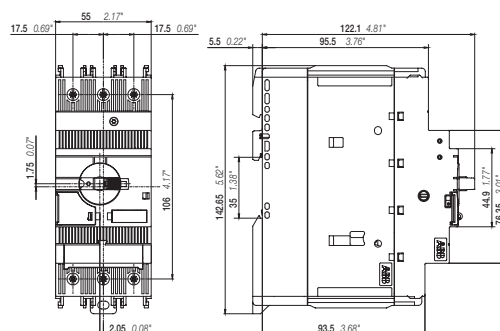


MS165-65

MS165 is a compact and powerful range for motor protection up to 45 kW (400 V) / 80 A in width of 55 mm. This type also has a clear and reliable indication of fault in a separate window in the event of short-circuit tripping. Further features are the built-in disconnect function, temperature compensation, trip-free mechanism and a rotary handle with a clear switch position indication. The manual motor starter is suitable for three- and single-phase applications. The handle is lockable to protect against unauthorized changes. Auxiliary contacts, signaling contacts, undervoltage releases, shunt trips, power in-feed blocks are available as accessory. These are suitable throughout the MS116/MS132/MS165-range. MS165 is ATEX and IECEx certified.

Rated operational power 400 V AC-3, AC-3e kW	Setting range A	Short-circuit breaking capacity Ics at 400 V AC kA	Rated instantaneous short-circuit current setting Ii A	Type	Order code	Weight (1 pce) kg
7.5	10 ... 16	100	240	MS165-16	1SAM451000R1011	0.950
7.5	14 ... 20	100	300	MS165-20	1SAM451000R1012	0.950
11	18 ... 25	100	375	MS165-25	1SAM451000R1013	0.960
15	23 ... 32	100	480	MS165-32	1SAM451000R1014	0.970
22	30 ... 42	50	630	MS165-42	1SAM451000R1015	0.970
22	40 ... 54	30	810	MS165-54	1SAM451000R1016	0.970
30	52 ... 65	30	975	MS165-65	1SAM451000R1017	0.980
37	62 ... 73	30	1022	MS165-73	1SAM451000R1018	1.000
45	70 ... 80	30	1120	MS165-80	1SAM451000R1019	1.000

Note: Manual motor starters should always be selected so that the actual motor current is within the setting range.



MS165

Main dimensions mm, inches

MO132 manual motor starters magnetic only

0.16 to 32 A – with electromagnetic protection



MO132-6.3

2CDC241.01.BV0017



MO132-32

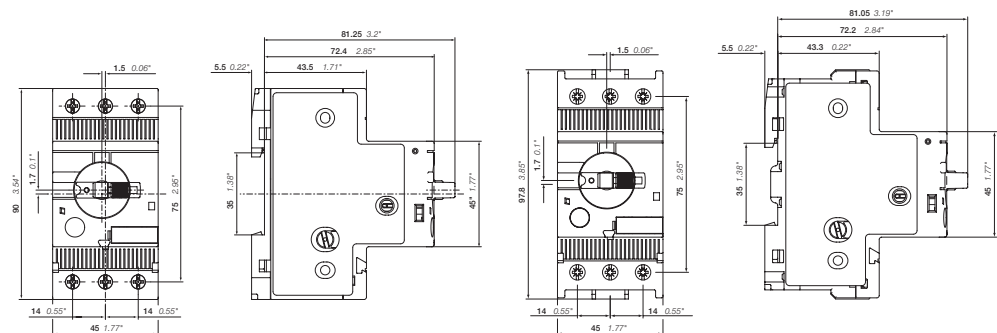
2CDC241.015.V0017

The MO132 manual motor starter magnetic only is a compact and powerful range for motor protection up to 15 kW (400 V AC) in width of 45 mm. The devices are used to manually switch on and off loads/motors and to protect them reliably and without the need for a fuse from short-circuits.

The manual motor starter offers a rated service short-circuit breaking capacity up to 100 kA at 400 V AC. A combination together with overload relays or motor controllers allows the protection of motors. Further features are the built-in disconnect function, trip-free mechanism and a rotary handle with a clear switch position indication. The manual motor starters magnetic only are suitable for three- and single-phase applications. The handle is lockable to protect against unauthorized changes. Auxiliary contacts, signaling contacts, undervoltage releases, shunt trips, 3-phase busbars and power in-feed blocks are available as accessory.

Rated operational power 400 V AC-3, AC-3e kW	Rated operational current A	Short-circuit breaking capacity Ics at 400 V AC kA	Rated instantaneous short-circuit current setting Ii A	Type	Order code	Weight (1 pce) kg
0.03 (1)	0.16	100	2.00	MO132-0.16	1SAM360000R1001	0.215
0.06	0.25	100	3.10	MO132-0.25	1SAM360000R1002	0.215
0.09	0.40	100	5.00	MO132-0.4	1SAM360000R1003	0.215
0.12	0.63	100	7.90	MO132-0.63	1SAM360000R1004	0.215
0.25	1.0	100	12.5	MO132-1.0	1SAM360000R1005	0.215
0.55	1.6	100	20.0	MO132-1.6	1SAM360000R1006	0.265
0.75	2.5	100	31.3	MO132-2.5	1SAM360000R1007	0.265
1.5	4.0	100	50.0	MO132-4.0	1SAM360000R1008	0.265
2.2	6.3	100	78.8	MO132-6.3	1SAM360000R1009	0.265
4.0	10	100	125	MO132-10	1SAM360000R1010	0.265
5.5	12	100	150	MO132-12	1SAM360000R1012	0.310
7.5	16	100	200	MO132-16	1SAM360000R1011	0.310
7.5	20	100	250	MO132-20	1SAM360000R1013	0.310
11	25	50	313	MO132-25	1SAM360000R1014	0.310
15	32	30	400	MO132-32	1SAM360000R1015	0.310

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



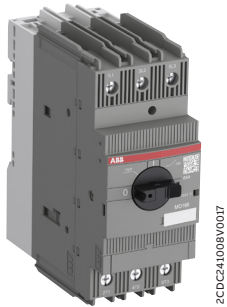
MO132 ≤ 10 A

MO132 ≥ 12 A

Main dimensions mm, inches

MO165 manual motor starters magnetic only

16 to 80 A – with electromagnetic protection



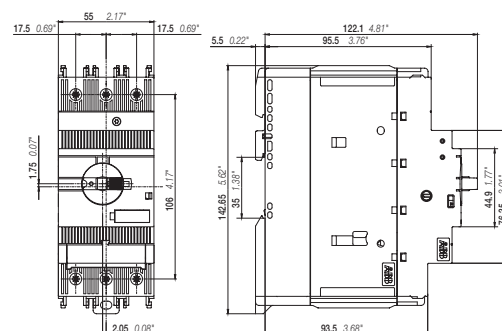
MO165-65

The MO165 manual motor starter magnetic only is a compact and powerful range for motor protection up to 45 kW (400 V AC) in width of 55 mm. The devices are used to manually switch on and off loads/motors and to protect them reliably and without the need for a fuse from short-circuits. The manual motor starter offers a rated service short-circuit breaking capacity up to 100 kA at 400 V AC. A combination together with overload relays or motor controllers allows the protection of motors. Further features are the built-in disconnect function, trip-free mechanism and a rotary handle with a clear switch position indication.

The manual motor starters magnetic only are suitable for three- and single-phase applications. The handle is lockable to protect against unauthorized changes. Auxiliary contacts, signaling contacts, undervoltage releases, shunt trips, 3-phase bus bars and power in-feed blocks are available as accessory.

Rated operational power 400 V AC-3, AC-3e kW	Rated operational current A	Short-circuit breaking capacity Ics at 400 V AC kA	Rated instantaneous short-circuit current setting Ii A	Type	Order code	Weight (1 pce) kg
7.5	16	100	240	MO165-16	1SAM461000R1011	0.950
7.5	20	100	300	MO165-20	1SAM461000R1012	0.950
11	25	100	375	MO165-25	1SAM461000R1013	0.960
15	32	100	480	MO165-32	1SAM461000R1014	0.970
22	42	50	630	MO165-42	1SAM461000R1015	0.970
22	54	30	810	MO165-54	1SAM461000R1016	0.970
30	65	30	975	MO165-65	1SAM461000R1017	0.980
37	73	30	1022	MO165-73	1SAM461000R1018	1.000
45	80	30	1120	MO165-80	1SAM461000R1019	1.000

Note: For overload protection of motors, an appropriate thermal or electronic overload relay must be used.



MO165

Main dimensions mm, inches

MS116, MS132, MS165, MO132, MO165

Technical data

Main circuit – Utilization characteristics according to IEC/EN

Type	MS116	MS132	MS165	MO132	MO165
Standards	IEC/EN 60947-2, IEC/EN 60947-4-1, IEC/EN 60947-1				
Rated operational voltage U _e	690 V AC	690 V AC / 250 V DC	690 V AC / 250 V DC	690 V AC	690 V AC / 250 V DC
Rated frequency	50/60 Hz	DC, 50/60 Hz	DC, 50/60 Hz	50/60 Hz	DC, 50/60 Hz
Operational frequency	50/60 Hz	0 ... 400 Hz	0 ... 400 Hz	0 ... 400 Hz	0 ... 400 Hz
Trip class	10A	10	10	–	–
Number of poles	3				
Duty time	100%				
Mechanical durability	100000 cycles	100000 cycles	50000 cycles	100000 cycles	50000 cycles
Electrical durability	up to 10 A	up to 100000 cycles	up to 100000 cycles	up to 100000 cycles	up to 50000 cycles
	up to 16 A	100000 cycles	50000 cycles	50000 cycles	25000 cycles
	20 ... 65 A	50000 cycles	50000 cycles	50000 cycles	25000 cycles
	65 ... 80 A	–	20000 cycles	–	20000 cycles
Rated impulse withstand voltage U _{imp}	6 kV	6 kV	8 kV	6 kV	8 kV
Rated insulation voltage U _i	690 V	690 V	1000 V	690 V	1000 V
Rated operational current I _e	See ordering details				
Rated operational current DC-5 I _e 3 conducting paths in series up to 250 V	–	See "Rated operational current I _e "	See "Rated operational current I _e "	–	See "Rated operational current I _e "
Rated instantaneous short-circuit current setting I _i	See ordering details				
Rated service short-circuit breaking capacity I _{cs}	See table "Short-circuit breaking capacity and back-up fuses"				
Rated ultimate short-circuit breaking capacity I _{cu}	See table "Short-circuit breaking capacity and back-up fuses"				
Rated service short-circuit breaking capacity DC I _{cs} 3 conducting paths in series up to 250 V	–	10 kA	100 kA	–	100 kA
Suitable for use in IT networks	Yes				

Short-circuit breaking capacity and back-up fuses – MS116

I_{cs} Rated service short-circuit breaking capacity

I_{cu} Rated ultimate short-circuit breaking capacity

I_q (I_{cc}) Rated conditional short-circuit current

– No back-up fuse required, because short-circuit proof up to I_{cu} (for I_{cu} see table below)

Short-circuit breaking capacity and back-up fuses – MS116

Type	230 V AC			400 V AC			440 V AC			500 V AC			690 V AC		
	I _{cs} kA	I _{cu} kA	gG, aM A	I _{cs} kA	I _{cu} kA	gG, aM A	I _{cs} kA	I _{cu} kA	gG, aM A	I _{cs} kA	I _{cu} kA	gG, aM A	I _{cs} kA	I _{cu} kA	gG, aM A
MS116-0.16	50	100	–	50	100	–	50	100	–	30	100	–	30	100	–
MS116-0.25	50	100	–	50	100	–	50	100	–	30	100	–	30	100	–
MS116-0.4	50	100	–	50	100	–	50	100	–	30	100	–	30	100	–
MS116-0.63	50	100	–	50	100	–	50	100	–	30	100	–	30	100	–
MS116-1.0	50	100	–	50	100	–	50	100	–	30	100	–	30	100	–
MS116-1.6	50	100	–	50	100	–	50	100	–	30	100	–	30	100	–
MS116-2.5	50	75	–	50	75	–	10	30	25 (1)	10	20	25 (1)	5	10	25 (1)
MS116-4.0	50	75	–	50	75	–	6	18	25 (1)	6	15	25 (1)	2	3	25 (1)
MS116-6.3	50	75	–	50	75	–	6	18	63 (1)	6	15	63 (1)	2	3	40 (1)
MS116-10	50	75	–	50	75	–	6	18	63 (1)	6	15	63 (1)	2	3	50 (1)
MS116-12	25	50	80 (1)	25	50	80 (1)	6	15	63 (1)	6	15	63 (1)	2	3	50 (1)
MS116-16	16	16	80 (1)	16	16	80 (1)	6	15	63 (1)	4	10	63 (1)	2	3	63 (1)
MS116-20	10	16	125 (1)	10	16	125 (1)	3	15	125 (1)	3	10	125 (1)	2	3	80 (1)
MS116-25	10	16	125 (1)	10	16	125 (1)	3	15	125 (1)	3	10	125 (1)	2	3	100 (1)
MS116-32	10	16	125 (1)	10	16	125 (1)	3	15	125 (1)	3	10	125 (1)	2	3	100 (1)

(1) Maximum rated current of the back-up fuse for short circuit up to 50 kA if I_{cc} > I_{cs}

MS116, MS132, MS165, MO132, MO165

Technical data

Ics Rated service short-circuit breaking capacity

Icu Rated ultimate short-circuit breaking capacity

Iq (Icc) Rated conditional short-circuit current

- No back-up fuse required, because short-circuit proof up to Icu (for Icu see table below)

Short-circuit breaking capacity and back-up fuses – MS132

Type	230 V AC			400 V AC			440 V AC			500 V AC			690 V AC			250 V DC(2)		
	Ics kA	Icu kA	gG, aM A	Ics kA	Icu kA	gG, aM A	Ics kA	Icu kA	gG, aM A	Ics kA	Icu kA	gG, aM A	Ics kA	Icu kA	gG, aM A	Ics kA	Icu kA	gG, aM A
MS132-0.16	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-	10	10	-
MS132-0.25	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-	10	10	-
MS132-0.4	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-	10	10	-
MS132-0.63	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-	10	10	-
MS132-1.0	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-	10	10	-
MS132-1.6	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-	10	10	-
MS132-2.5	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-	10	10	-
MS132-4.0	100	100	-	100	100	-	30	30	35(1)	20	20	35(1)	3	3	32(1)	10	10	-
MS132-6.3	100	100	-	100	100	-	30	30	63(1)	20	20	63(1)	3	3	50(1)	10	10	-
MS132-10	100	100	-	100	100	-	30	30	100(1)	20	20	100(1)	3	3	50(1)	10	10	-
MS132-12	100	100	-	100	100	-	30	30	100(1)	20	20	100(1)	3	3	63(1)	10	10	-
MS132-16	100	100	-	100	100	-	30	30	125(1)	20	20	125(1)	3	3	63(1)	10	10	-
MS132-20	100	100	-	100	100	-	30	30	125(1)	20	20	125(1)	3	3	80(1)	10	10	-
MS132-25	50	50	125(1)	50	50	125(1)	30	30	125(1)	10	10	125(1)	3	3	100(1)	10	10	-
MS132-32	30	50	125(1)	30	50	125(1)	30	30	125(1)	10	10	125(1)	3	3	100(1)	10	10	-

(1) Maximum rated current of the back-up fuse for short circuit up to 100kA if Icc > Ics

(2) 3 poles in series

Short-circuit breaking capacity and back-up fuses – MS165

Type	230 V AC			400 V AC			415 V AC			440 V AC			500 V AC			690 V AC			250 V DC (2)		
	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	Ics kA	Icu kA	gG A	Ics kA	Icu kA	gG A
MS165-16	100	100	-	100	100	-	100	100	-	75	75	125(1)	40	40	125(1)	10	10	63(1)	100	100	-
MS165-20	100	100	-	100	100	-	100	100	-	75	75	125(1)	40	40	125(1)	10	10	63(1)	100	100	-
MS165-25	100	100	-	100	100	-	100	100	-	50	50	125(1)	30	30	125(1)	10	10	80(1)	100	100	-
MS165-32	100	100	-	100	100	-	100	100	-	50	50	125(1)	30	30	125(1)	10	10	100(1)	100	100	-
MS165-42	50	50	125(1)	50	50	125(1)	50	50	125	50	50	125(1)	30	30	125(1)	10	10	100(1)	100	100	-
MS165-54	30	50	125(1)	30	50	125(1)	30	45	125	30	45	125(1)	20	20	125(1)	6	8	100(1)	100	100	-
MS165-65	30	50	125(1)	30	50	125(1)	30	45	125	30	45	125(1)	20	20	125(1)	6	8	100(1)	100	100	-
MS165-73	30	30	200(1)	30	30	200(1)	18	18	200(1)	18	18	200(1)	10	10	200(1)	6	8	160(1)	100	100	-
MS165-80	30	30	200(1)	30	30	200(1)	18	18	200(1)	18	18	200(1)	10	10	200(1)	6	8	160(1)	100	100	-

(1) Maximum rated current of the back-up fuse for short circuit up to 100kA if Icc > Ics

(2) 3 poles in series

Short-circuit breaking capacity and back-up fuses - MO132

Type	230 V AC			400 V AC			440 V AC			500 V AC			690 V AC		
	Ics kA	Icu kA	gG, aM A	Ics kA	Icu kA	gG, aM A	Ics kA	Icu kA	gG, aM A	Ics kA	Icu kA	gG, aM A	Ics kA	Icu kA	gG, aM 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(1)	20	20	35(1)	3	3	32(1)
MO132-6.3	100	100	-	100	100	-	30	30	63(1)	20	20	63(1)	3	3	50(1)
MO132-10	100	100	-	100	100	-	30	30	100(1)	20	20	100(1)	3	3	50(1)
MO132-12	100	100	-	100	100	-	30	30	100(1)	20	20	100(1)	3	3	63(1)
MO132-16	100	100	-	100	100	-	30	30	125(1)	20	20	125(1)	3	3	63(1)
MO132-20	100	100	-	100	100	-	30	30	125(1)	20	20	125(1)	3	3	80(1)
MO132-25	50	50	125(1)	50	50	125(1)	30	30	125(1)	10	10	125(1)	3	3	100(1)
MO132-32	30	50	125(1)	30	50	125(1)	30	30	125(1)	10	10	125(1)	3	3	100(1)

(1) Maximum rated current of the back-up fuse for short circuit up to 100kA if Icc > Ics

MS116, MS132, MS165, MO132, MO165

Technical data

Ics Rated service short-circuit breaking capacity

Icu Rated ultimate short-circuit breaking capacity

Iq (Icc) Rated conditional short-circuit current

- No back-up fuse required, because short-circuit proof up to Icu (for Icu see table below)

Short-circuit breaking capacity and back-up fuses – MO165

Type	230 V AC			400 V AC			415 V AC			440 V AC			500 V AC			690 V AC			250 V DC (2)		
	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	Ics kA	Icu kA	gG A	Ics kA	Icu kA	gG A
MO165-16	100	100	-	100	100	-	100	100	-	75	75	125 (1)	40	40	125 (1)	10	10	63 (1)	100	100	-
MO165-20	100	100	-	100	100	-	100	100	-	75	75	125 (1)	40	40	125 (1)	10	10	63 (1)	100	100	-
MO165-25	100	100	-	100	100	-	100	100	-	50	50	125 (1)	30	30	125 (1)	10	10	80 (1)	100	100	-
MO165-32	100	100	-	100	100	-	100	100	-	50	50	125 (1)	30	30	125 (1)	10	10	100 (1)	100	100	-
MO165-42	50	50	125 (1)	50	50	125 (1)	50	50	125	50	50	125 (1)	30	30	125 (1)	10	10	100 (1)	100	100	-
MO165-54	30	50	125 (1)	30	50	125 (1)	30	45	125	30	45	125 (1)	20	20	125 (1)	6	8	100 (1)	100	100	-
MO165-65	30	50	125 (1)	30	50	125 (1)	30	45	125	30	45	125 (1)	20	20	125 (1)	6	8	100 (1)	100	100	-
MO165-73	30	30	200 (1)	30	30	200 (1)	18	18	200 (1)	18	18	200 (1)	10	10	200 (1)	6	8	160 (1)	100	100	-
MO165-80	30	30	200 (1)	30	30	200 (1)	18	18	200 (1)	18	18	200 (1)	10	10	200 (1)	6	8	160 (1)	100	100	-

(1) Maximum rated current of the back-up fuse for short circuit up to 100kA if Icc > Ics

(2) 3 poles in series

Main circuit – Utilization characteristics according to UL/CSA

Type	MS116	MS132	MS165	MO132	MO165
Standards	UL 60947-1, UL 60947-4-1 (UL 508), CSA C22.2 No.60947-4-1 (CSA C22.2 No.14)				
Rated operational voltage Ue acc. to UL/CSA	600 V AC	600 V AC	600 V AC	600 V AC	600 V AC
Trip class	10A	10		-	
Motor ratings (1)	See table "Motor ratings, three phase"				
Horsepower					
Full Load Amps (FLA)	See table "Motor ratings, three phase"				
Locked Rotor Amps (LRA)	See table "Motor ratings, three phase"				

(1) See product data sheets for UL/CSA single phase motor and general use ratings.

UL/CSA ratings overview

Type	MS116	MS132	MS165	MO132	MO165
Manual Motor Controller	x	x	x	x	x
Manual Motor Controller, Suitable as Motor Disconnect	x	x	x	x	x
Manual Motor Controller, Suitable for use in Group Installations	x	x	x	x	x
Manual Motor Controller, Suitable for Tap Conductor Protection in Group Installations	-	x	x	x	x
Manual self-protected Combination Motor Controller (Type E)	-	x	x	-	-
Combination Motor Controller (Type F)	-	with AF contactor	with AF contactor (up to 80 A)	with AF contactor and EOL	with AF contactor and EOL or TOL (up to 80 A)

MS116, MS132, MS165, MO132, MO165

Technical data

UL/CSA Motor ratings, three phase – MS116

Type	110-120 V AC			200 V AC			208 V AC			220 ... 240 V AC			440 ... 480 V AC			550 ... 600 V AC		
	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA
MS116-0.16	-	0.16	0.96	-	0.16	0.96	-	0.16	0.96	-	0.16	0.96	-	0.16	0.96	-	0.16	0.96
MS116-0.25	-	0.25	1.5	-	0.25	1.5	-	0.25	1.5	-	0.25	1.5	-	0.25	1.5	-	0.25	1.5
MS116-0.40	-	0.4	2.4	-	0.4	2.4	-	0.4	2.4	-	0.4	2.4	-	0.4	2.4	-	0.4	2.4
MS116-0.63	-	0.63	3.78	-	0.63	3.78	-	0.63	3.78	-	0.63	3.78	-	0.63	3.78	-	0.63	3.78
MS116-1.0	-	1.0	6.0	-	1	6	-	1	6	-	1	6	-	1	6	1/2	1	6
MS116-1.6	-	1.6	9.6	-	1.6	9.6	-	1.6	9.6	-	1.6	9.6	3/4	1.6	9.6	3/4	1.6	9.6
MS116-2.5	-	2.5	15.0	1/2	2.5	15	1/2	2.5	15	1/2	2.5	15	1	2.5	15	1 1/2	2.5	15
MS116-4.0	-	4.0	24	3/4	4	24	3/4	4	24	3/4	4	24	2	4	24	3	3.9	25.6
MS116-6.3	1/2	6.3	37.8	1	6.3	37.8	1	6.3	37.8	1 1/2	6.3	37.8	3	4.8	32	5	6.1	36.8
MS116-10	1	10	60	2	7.8	57.5	2	7.5	55	3	9.6	64	5	7.6	46	7 1/2	9	50.8
MS116-12	1 1/2	12	72	3	11	73.6	3	10.6	71	3	9.6	64	7 1/2	11	63.5	10	11	64.8
MS116-16	2	16	84	3	11	73.6	3	10.6	71	5	15.2	92	10	14	81	10	11	64.8
MS116-20	3	19.2	128	5	17.5	105.8	5	16.7	102	5	15.2	92	10	14	81	15	17	93
MS116-25	3	19.2	128	5	17.5	105.8	7 1/2	24.2	140	7 1/2	22	127	15	21	116	20	22	116
MS116-32	5	30.4	184	7 1/2	25.3	146	10	30.8	179	10	28	162	20	27	145	25	27	146

UL/CSA Motor ratings, three phase – MS132

Type	110-120 V AC			200 V AC			208 V AC			220 ... 240 V AC			440 ... 480 V AC			550 ... 600 V AC		
	hp	FLA	LRA	hp	FLA	LRA	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	-	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	-	0.25	1.5	-	0.25	1.5
MS132-0.40	-	0.4	2.4	-	0.4	2.4	-	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	-	0.63	3.78	-	0.63	3.78
MS132-1.0	-	1	6	-	1	6	-	1	6	-	1	6	-	1	6	1/2	1	6
MS132-1.6	-	1.6	9.6	-	1.6	9.6	-	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	2.5	15	1/2	2.5	15	1	2.5	15	1-1/2	2.5	15
MS132-4.0	-	4	24	3/4	4	24	3/4	4	24	3/4	4	24	2	4	24	3	3.9	25.6
MS132-6.3	1/2	6.3	37.8	1	6.3	37.8	1	6.3	37.8	1 1/2	6.3	37.8	3	4.8	32	5	6.1	36.8
MS132-10	1	10	60	2	7.8	57.5	2	7.5	55	3	9.6	64	5	7.6	46	7 1/2	9	50.8
MS132-12	1 1/2	12	72	3	11	73.6	3	10.6	71	3	9.6	64	7 1/2	11	63.5	10	11	64.8
MS132-16	2	16	84	3	11	73.6	3	10.6	71	5	15.2	92	10	14	81	10	11	64.8
MS132-20	3	19.2	128	5	17.5	105.8	5	16.7	102	5	15.2	92	10	14	81	15	17	93
MS132-25	3	19.2	128	5	17.5	105.8	7 1/2	24.2	140	7 1/2	22	127	15	21	116	20	22	116
MS132-32	5	30.4	184	7 1/2	25.3	146	10	30.8	179	10	28	162	20	27	145	25	27	146

UL/CSA Motor ratings, three phase – MS165

Type	110-120 V AC			200 V AC			208 V AC			220 ... 240 V AC			440 ... 480 V AC			550 ... 600 V AC		
	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA
MS165-16	2	16	96	3	16	96	3	16	96	5	16	96	10	16	96	10	16	96
MS165-20	3	20	120	5	20	120	5	20	120	5	20	120	10	20	120	15	20	120
MS165-25	3	25	150	5	25	150	7 1/2	25	150	7 1/2	25	150	15	25	150	20	25	150
MS165-32	5	32	192	7 1/2	32	192	10	32	192	10	32	192	20	32	192	30	32	192
MS165-42	5	42	252	10	42	252	10	42	252	15	42	252	30	42	252	40	42	252
MS165-54	7 1/2	54	324	15	54	324	15	54	324	20	54	324	40	54	324	50	54	324
MS165-65	10	65	348	20	65	348	20	65	348	20	65	348	50	65	348	60	65	348
MS165-73	10	73	435	20	73	435	20	73	435	25	73	435	50	73	435	60	73	435
MS165-80	10	80	435	25	80	435	25	80	435	30	80	435	60	80	435	75	80	435

hp Horsepower
FLA Full Load Amps
LRA Locked Rotor Amps

Note: Manual motor starters should always be selected so that the actual motor current is within the setting range; see ordering detail pages. Horsepower (hp) ratings are for reference only.

MS116, MS132, MS165, MO132, MO165

Technical data

UL/CSA Motor ratings, three phase – MO132

Type	110-120 V AC			200 V AC			208 V AC			220 ... 240 V AC			440 ... 480 V AC			550 ... 600 V AC		
	hp	FLA	LRA	hp	FLA	LRA	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	-	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	-	0.25	1.5	-	0.25	1.5
MO132-0.40	-	0.4	2.4	-	0.4	2.4	-	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	-	0.63	3.78	-	0.63	3.78
MO132-1.0	-	1	6	-	1	6	-	1	6	-	1	6	-	1	6	1/2	1	6
MO132-1.6	-	1.6	9.6	-	1.6	9.6	-	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	2.5	15	1/2	2.5	15	1	2.5	15	1 1/2	2.5	15
MO132-4.0	-	4	24	3/4	4	24	3/4	4	24	1	4	24	2	4	24	3	3.9	25.6
MO132-6.3	1/2	6.3	37.8	1	6.3	37.8	1	6.3	37.8	1 1/2	6.3	37.8	3	4.8	32	5	6.1	36.8
MO132-10	1	10	60	2	7.8	57.5	2	7.5	55	3	9.6	64	5	7.6	46	7 1/2	9	50.8
MO132-12	1 1/2	12	72	3	11	73.6	3	10.6	71	3	9.6	64	7 1/2	11	63.5	10	11	64.8
MO132-16	2	16	84	3	11	73.6	3	10.6	71	5	15.2	92	10	14	81	10	11	64.8
MO132-20	3	19.2	128	5	17.5	105.8	5	16.7	102	5	15.2	92	10	14	81	15	17	93
MO132-25	3	19.2	128	5	17.5	105.8	7 1/2	24.2	140	7 1/2	22	127	15	21	116	20	22	116
MO132-32	5	30.4	184	7 1/2	25.3	146	10	30.8	179	10	28	162	20	27	145	25	27	146

UL/CSA Motor ratings, three phase – MO165

Type	110-120 V AC			200 V AC			208 V AC			220 ... 240 V AC			440 ... 480 V AC			550 ... 600 V AC		
	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA
MO165-16	2	16	96	3	16	96	3	16	96	5	16	96	10	16	96	10	16	96
MO165-20	3	20	120	5	20	120	5	20	120	5	20	120	10	20	120	15	20	120
MO165-25	3	25	150	5	25	150	7 1/2	25	150	7 1/2	25	150	15	25	150	20	25	150
MO165-32	5	32	192	7 1/2	32	192	10	32	192	10	32	192	20	32	192	30	32	192
MO165-42	5	42	252	10	42	252	10	42	252	15	42	252	30	42	252	40	42	252
MO165-54	7 1/2	54	324	15	54	324	15	54	324	20	54	324	40	54	324	50	54	324
MO165-65	10	65	348	20	65	348	20	65	348	20	65	348	50	65	348	60	65	348
MO165-73	10	73	435	20	73	435	20	73	435	25	73	435	50	73	435	60	73	435
MO165-80	10	80	435	25	80	435	25	80	435	30	80	435	60	80	435	75	80	435

hp Horsepower

FLA Full Load Amps

LRA Locked Rotor Amps

Note: Manual motor starters should always be selected so that the actual motor current is within the setting range; see ordering detail pages. Horsepower (hp) ratings are for reference only.

MS116, MS132, MS165, MO132, MO165

Technical data

UL/CSA Motor ratings, single phase – MS116

Type	110-120 V AC			200 V AC			208 V AC			220 ... 240 V AC		
	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA
MS116-0.16	-	0.16	0.96	-	0.16	0.96	-	0.16	0.96	-	0.16	0.96
MS116-0.25	-	0.25	1.5	-	0.25	1.5	-	0.25	1.5	-	0.25	1.5
MS116-0.4	-	0.4	2.4	-	0.4	2.4	-	0.4	2.4	-	0.4	2.4
MS116-0.63	-	0.63	3.78	-	0.63	3.78	-	0.63	3.78	-	0.63	3.78
MS116-1.0	-	1	6	-	1	6	-	1	6	-	1.0	6.0
MS116-1.6	-	1.6	9.6	-	1.6	9.6	-	1.6	9.6	1/10	1.6	9.6
MS116-2.5	-	2.5	15	1/6	2.5	15	1/6	2.5	15	1/6	2.5	15
MS116-4.0	1/8	4	24	1/4	4	24	1/3	4	24	1/3	4	24
MS116-6.3	1/4	6.3	37.8	1/2	6.3	37.8	1/2	6.3	37.8	1/2	6.3	37.8
MS116-10	1/2	9.8	58.8	1	10	60	1	10	60	1 1/2	10	60
MS116-12	1/2	9.8	58.8	1 1/2	12	72	1 1/2	12	72	2	12	72
MS116-16	1	16	96	2	12	72	2	12	72	2	12	72
MS116-20	1 1/2	20	120	3	19.6	73.6	3	18.7	71	3	17	64
MS116-25	2	24	144	3	19.6	73.6	3	18.7	71	3	17	64
MS116-32	2	24	144	3	19.6	73.6	5	30.8	102	5	28	92

UL/CSA Motor ratings, single phase – MS132

Type	110-120 V AC			200 V AC			208 V AC			220 ... 240 V AC			440 ... 480 V AC		
	hp	FLA	LRA	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	-	0.16	0.96
MS132-0.25	-	0.25	1.5	-	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	-	0.4	2.4
MS132-0.63	-	0.63	3.78	-	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	6	-	1	6
MS132-1.6	-	1.6	9.6	-	1.6	9.6	-	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	1/6	2.5	15	1/6	2.5	15	1/2	2.5	15
MS132-4.0	1/8	4	24	1/4	4.0	24	1/3	4	24	1/3	4	24	1	4	24
MS132-6.3	1/4	6.3	37.8	1/2	6.3	37.8	1/2	6.3	37.8	1/2	6.3	37.8	2	6	36
MS132-10	1/2	9.8	58.8	1	10	60	1	8.8	52.8	1 1/2	10	60	3	8.5	51
MS132-12	1/2	9.8	58.8	1 1/2	12	72	1 1/2	12	72	2	12	72	3	8.5	51
MS132-16	1	16	96	2	13.8	82.8	2	13.2	79.2	2	12	72	5	14	84
MS132-20	1 1/2	20	120	3	19.6	118	3	18.7	112	3	17	102	5	14	84
MS132-25	2	24	144	3	19.6	118	3	18.7	112	3	17	102	7 1/2	21	126
MS132-32	2	24	144	3	19.6	118	5	30.8	185	5	28	168	10	26	156

UL/CSA Motor ratings, single phase – MS165

Type	110-120 V AC			200 V AC			208 V AC			220 ... 240 V AC		
	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA
MS165-16	1	16	96	2	16	96	2	16	96	2	16	96
MS165-20	1 1/2	20	120	3	20	120	3	20	120	3	20	120
MS165-25	2	25	150	3	25	150	3	25	150	3	25	150
MS165-32	2	32	192	3	32	192	5	32	192	5	32	192
MS165-42	3	42	252	5	42	252	5	42	252	7 1/2	42	252
MS165-54	3	54	324	7 1/2	54	324	7 1/2	54	324	10	54	324
MS165-65	5	65	348	10	65	348	10	65	348	10	65	348
MS165-73	5	73	435	10	73	435	10	73	435	15	73	435
MS165-80	5	80	435	10	80	435	10	80	435	15	80	435

hp Horsepower
FLA Full Load Amps
LRA Locked Rotor Amps

Note: Manual motor starters should always be selected so that the actual motor current is within the setting range; see ordering detail pages. Horsepower (hp) ratings are for reference only.

MS116, MS132, MS165, MO132, MO165

Technical data

UL/CSA Motor ratings, single phase – MO132

Type	110-120 V AC			200 V AC			208 V AC			220 ... 240 V AC			440 ... 480 V AC		
	hp	FLA	LRA	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	-	0.16	0.96
MO132-0.25	-	0.25	1.5	-	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	-	0.4	2.4
MO132-0.63	-	0.63	3.78	-	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	6	-	1	6
MO132-1.6	-	1.6	9.6	-	1.6	9.6	-	1.6	9.6	1/10	1.6	9.6	-	1.6	9.6
MO132-2.5	-	2.5	15	1/6	2.5	15	1/6	2.5	15	1/6	2.5	15	1/2	2.5	15
MO132-4.0	1/8	4	24	1/4	4.0	24	1/3	4	24	1/3	4	24	1	4	24
MO132-6.3	1/4	6.3	37.8	1/2	6.3	37.8	1/2	6.3	37.8	1/2	6.3	37.8	2	6	36
MO132-10	1/2	9.8	58.8	1	10	60	1	8.8	52.8	1 1/2	10	60	3	8.5	51
MO132-12	1/2	9.8	58.8	1 1/2	12	72	1 1/2	12	72	2	12	72	3	8.5	51
MO132-16	1	16	96	2	13.8	82.8	2	13.2	79.2	2	12	72	5	14	84
MO132-20	1 1/2	20	120	3	19.6	118	3	18.7	112	3	17	102	5	14	84
MO132-25	2	24	144	3	19.6	118	3	18.7	112	3	17	102	7 1/2	21	126
MO132-32	2	24	144	3	19.6	118	5	30.8	185	5	28	168	10	26	156

UL/CSA Motor ratings, single phase – MO165

Type	110-120 V AC			200 V AC			208 V AC			220 ... 240 V AC		
	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA	hp	FLA	LRA
MO165-16	1	16	96	2	16	96	2	16	96	2	16	96
MO165-20	1 1/2	20	120	3	20	120	3	20	120	3	20	120
MO165-25	2	25	150	3	25	150	3	25	150	3	25	150
MO165-32	2	32	192	3	32	192	5	32	192	5	32	192
MO165-42	3	42	252	5	42	252	5	42	252	7 1/2	42	252
MO165-54	3	54	324	7 1/2	54	324	7 1/2	54	324	10	54	324
MO165-65	5	65	348	10	65	348	10	65	348	10	65	348
MO165-73	5	73	435	10	73	435	10	73	435	15	73	435
MO165-80	5	80	435	10	80	435	10	80	435	15	80	435

hp Horsepower
FLA Full Load Amps
LRA Locked Rotor Amps

Note: Manual motor starters should always be selected so that the actual motor current is within the setting range; see ordering detail pages. Horsepower (hp) ratings are for reference only.

MS116, MS132, MS165, MO132, MO165

Technical data

UL/CSA Maximum short-circuit current ratings – MS116

Type	Manual Motor Controllers		Maximum short-circuit current for motor disconnect (2)		for group installations	
	Branch circuit protection, max. size per NEC/CEC (1)		480 V	600 V	480 V	600 V
	Fuses	Circuit breaker	480 V	600 V	480 V	600 V
	A	A	kA	kA	kA	kA
MS116-0.16	Any listed fuses. Size per NEC/CEC	Any listed UL489 / CSA C22.2 N° 5 circuit breaker. Size per NEC/CEC	30	5	30	5
MS116-0.25			30	5	30	5
MS116-0.40			30	5	30	5
MS116-0.63			30	5	30	5
MS116-1.0			30	5	30	5
MS116-1.6			30	5	30	5
MS116-2.5			30	5	30	5
MS116-4.0			18	5	18	5
MS116-6.3			18	5	18	5
MS116-10			18	5	18	5
MS116-12			18	5	18	5
MS116-16			18	5	18	5
MS116-20			18	5	18	5
MS116-25			18	5	18	5
MS116-32			18	5	18	5

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

(2) Suitable as motor disconnect with padlock adaptor SA1 or SA3.

UL/CSA Maximum short-circuit current ratings – MS132

Type	Manual Motor Controllers		for motor disconnect		for group installations		for tap conductor protection in group installations		Manual self-protected Combination Motor Controllers (Type E) (2)	
	Branch circuit protection, max. size per NEC/CEC (1)		480 V	600 V	480 V	600 V	480Y / 277 V	600Y / 347 V	480Y / 277 V	600Y / 347 V
	Fuses	Circuit breaker	kA	kA	kA	kA	kA	kA	kA	kA
	A	A								
MS132-0.16	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	65	47
MS132-0.25			65	47	65	47	65	47	65	47
MS132-0.40			65	47	65	47	65	47	65	47
MS132-0.63			65	47	65	47	65	47	65	47
MS132-1.0			65	47	65	47	65	47	65	47
MS132-1.6			65	47	65	47	65	47	65	47
MS132-2.5			65	47	65	47	65	47	65	47
MS132-4.0			65	47	65	47	65	47	65	47
MS132-6.3			65	18	65	18	65	18	65	18
MS132-10			65	18	65	18	65	18	65	18
MS132-12			30	18	30	18	30	18	30	-
MS132-16			30	18	30	18	30	18	30	-
MS132-20			30	18	30	18	30	18	30	-
MS132-25			30	18	30	18	30	18	30	-
MS132-32			30	18	30	18	30	18	30	-

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

(2) 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).

MS116, MS132, MS165, MO132, MO165

Technical data

UL/CSA Maximum short-circuit current ratings – MS116 with AF contactors

Type	Motor Disconnect, Group Installations, Coordination Type 2			
	480 V		600 V	
	Minimum contactor size	kA	Minimum contactor size	kA
MS116-0.16	AF09-AF16	30	AF09-AF16	5
MS116-0.25	AF09-AF16	30	AF09-AF16	5
MS116-0.4	AF09-AF16	30	AF09-AF16	5
MS116-0.63	AF09-AF16	30	AF09-AF16	5
MS116-1.0	AF09-AF16	30	AF09-AF16	5
MS116-1.6	AF09-AF16	30	AF09-AF16	5
MS116-2.5	AF26-AF38	30	AF16	5
MS116-4.0	AF26-AF38	18	AF16	5
MS116-6.3	AF26-AF38	18	AF26-AF38	5
MS116-10	AF26-AF38	18	AF30-AF38	5
MS116-12	AF26-AF38	18	AF30-AF38	5
MS116-16	AF26-AF38	18	AF40	5
MS116-20	AF26-AF38	18	AF40	5
MS116-25	AF30-AF38	18	AF40	5
MS116-32	AF38	18	AF40	5

UL/CSA Maximum short-circuit current ratings – MS132 with AF contactors

Type	Combination Motor Controllers (Type F) (1)					
	Coordination type 1			Coordination type 2		
	Minimum contactor size	480Y / 277 V	600Y / 347 V	Minimum contactor size	480Y / 277 V	600Y / 347 V
		kA	kA		kA	kA
MS132-0.16	AF09 ... AF38	100	50	AF26 ... AF38	65	47
MS132-0.25	AF09 ... AF38	100	50	AF26 ... AF38	65	47
MS132-0.40	AF09 ... AF38	100	50	AF26 ... AF38	65	47
MS132-0.63	AF09 ... AF38	100	50	AF26 ... AF38	65	47
MS132-1.0	AF09 ... AF38	100	50	AF26 ... AF38	65	47
MS132-1.6	AF09 ... AF38	100	50	AF26 ... AF38	65	47
MS132-2.5	AF09 ... AF38	100	50	AF26 ... AF38	65	47
MS132-4.0	AF09 ... AF38	100	50	AF26 ... AF38	65	47
MS132-6.3	AF09 ... AF38	100	47	AF26 ... AF38	65	47
MS132-10	AF09 ... AF38	100	30	AF26 ... AF38	65	47
MS132-12	AF09 ... AF38	65	30	AF26 ... AF38	30	-
MS132-16	AF26 ... AF38	65	30	AF26 ... AF38	30	-
MS132-20	AF26 ... AF38	65	-	AF26 ... AF38	30	-
MS132-25	AF26 ... AF38	50	-	AF26 ... AF38	30	-
MS132-32	AF38	50	-	AF26 ... AF38	30	-

(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).

MS116, MS132, MS165, MO132, MO165

Technical data

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	480Y / 277 V		600Y / 347 V
		Minimum contactor size	kA		kA
MO132-0.16	EF19	AF09 ... AF38	100		50
MO132-0.25	EF19	AF09 ... AF38	100		50
MO132-0.40	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	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).

UL/CSA Maximum short-circuit current ratings – MS165

Type	Manual Motor Controllers						Manual self-protected Combination Motor Controllers (Type E)			
	Branch circuit protection, max. size per NEC/CEC (1)		for motor disconnect		for group installations		for tap conductor protection in group installations			
	Fuses A	Circuit breaker A	480 V kA	600 V kA	480 V kA	600 V kA	480Y / 277 V kA	600Y / 347 V kA	480Y / 277 V kA	600Y / 347 V kA
MS165-16	Any Listed fuses. Size per NEC/CEC	Any Listed UL489 / CSA C22.2 No.5 circuit breaker. Size per NEC/CEC	65	30	65	30	65	30	65	30
MS165-20			65	30	65	30	65	30	65	30
MS165-25			65	30	65	30	65	30	65	30
MS165-32			65	30	65	30	65	30	65	30
MS165-42			65	30	65	30	65	30	65	30
MS165-54			65	30	65	30	65	30	65	30
MS165-65			65	30	65	30	65	30	65	30
MS165-73			50	10	50	10	50	10	50	–
MS165-80			50	10	50	10	50	10	50	–

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

UL/CSA Maximum short-circuit current ratings – MS165 with AF contactors

Type	Manual self-protected Combination Motor Controllers (Type F)				Manual self-protected Combination Motor Controllers (Type F)			
	Coordination type 1		Coordination type 2		Coordination type 2		Coordination type 2	
	Minimum contactor size	480Y / 277 V kA	Minimum contactor size	600Y / 347 V kA	Minimum contactor size	480Y / 277 V kA	Minimum contactor size	600Y / 347 V kA
MS165-16	AF09...AF38	65	AF09...AF38	50	AF26...AF38	65	AF09...AF38	30
MS165-20	AF26...AF38	65	AF26...AF38	50	AF26...AF38	65	AF09...AF38	30
MS165-25	AF26...AF38	65	AF26...AF38	50	AF26...AF38	65	AF40...AF65	30
MS165-32	AF26...AF38	65	AF26...AF38	50	AF26...AF38	65	AF40...AF65	30
MS165-42	AF40...AF65	65	AF40...AF65	30	AF40...AF65	65	AF40...AF65	30
MS165-54	AF40...AF65	65	AF40...AF65	30	AF40...AF65	65	AF40...AF65	30
MS165-65	AF40...AF65	65	AF40...AF65	30	AF40...AF65	65	AF40...AF65	30
MS165-73	AF80...AF96	50	–	–	AF80...AF96	50	–	–
MS165-80	AF80...AF96	50	–	–	AF80...AF96	50	–	–

MS116, MS132, MS165, MO132, MO165

Technical data

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

UL/CSA Maximum short-circuit current ratings – MO132

Type	Manual Motor Controllers							
	Branch circuit protection, max. size per NEC/CEC (1)		for motor disconnect		for group installations		for tap conductor protection in group installations	
	Fuses A	Circuit breaker A	480 V kA	600 V kA	480 V kA	600 V kA	480 Y / 277 V kA	600 Y / 347 V 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
MO132-0.40			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 – MO165

Type	Manual Motor Controllers									
	Branch circuit protection, max. size per NEC/CEC (1)				for motor disconnect		for group installations		for tap conductor protection in group installations	
	Fuses	Circuit breaker	480 V	600 V	480 V	600 V	480Y / 277 V	600Y / 347 V		
	A	A	kA	kA	kA	kA	kA	kA		
MO165-16	Any Listed fuses. Size per NEC/CEC	Any Listed UL489 / CSA C22.2 No.5 circuit breaker. Size per NEC/CEC	65	30	65	30	65	30		
MO165-20			65	30	65	30	65	30		
MO165-25			65	30	65	30	65	30		
MO165-32			65	30	65	30	65	30		
MO165-42			65	30	65	30	65	30		
MO165-54			65	30	65	30	65	30		
MO165-65			65	30	65	30	65	30		
MO165-73			50	10	50	10	50	10		
MO165-80			50	10	50	10	50	10		

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

MS116, MS132, MS165, MO132, MO165

Technical data

UL/CSA Maximum short-circuit current ratings – MO165 with AF contactors and electronic overload relays

Type	Combination Motor Controllers (Type F)					
	Coordination type 1					
	480Y / 277 V kA	OL Relay	Contactor	600Y / 347 V kA	OL Relay	Contactor
MO165-16	65	EF19-18.9	AF09...AF38	50	EF19-18.9	AF09...AF38
MO165-20	65	EF45-30	AF26...AF38	50	EF45-30	AF26...AF38
MO165-25	65	EF45-30	AF26...AF38	50	EF45-30	AF26...AF38
MO165-32	65	EF45-45	AF26...AF38	50	EF45-45	AF26...AF38
MO165-42	65	EF65	AF40...AF65	30	EF65	AF40...AF65
MO165-54	65	EF65	AF40...AF65	30	EF65	AF40...AF65
MO165-65	65	EF65	AF40...AF65	30	EF65	AF40...AF65
MO165-73	50	EF96	AF80 ... AF96	–	–	–
MO165-80	50	EF96	AF80 ... AF96	–	–	–

UL/CSA Maximum short-circuit current ratings – MO165 with AF contactors and thermal overload relays

Type	Combination Motor Controllers (Type F)					
	Coordination type 1					
	480Y / 277 V kA	OL Relay	Contactor	600Y / 347 V kA	OL Relay	Contactor
MO165-16	65	TF42	AF09...AF38	30	TF42	AF09...AF38
MO165-20	65	TF42	AF26...AF38	30	TF42	AF09...AF38
MO165-25	65	TF42	AF26...AF38	50	TF42	AF26...AF38
MO165-32	65	TF42	AF26...AF38	50	TF42	AF26...AF38
MO165-42	65	TF65	AF40...AF65	30	TF65	AF40...AF65
MO165-54	65	TF65	AF40...AF65	30	TF65	AF40...AF65
MO165-65	65	TF65	AF40...AF65	30	TF65	AF40...AF65
MO165-73	50	TF96	AF80 ... AF96	–	–	–
MO165-80	50	TF96	AF80 ... AF96	–	–	–

MS116, MS132, MS165, MO132, MO165

Technical data

General technical data

Type	MS116	MS132	MS165	MO132	MO165
Pollution degree	3	3	3	3	3
Phase loss sensitivity	Yes	Yes	Yes	No	No
Disconnect function acc. to IEC/EN 60947-2	Yes	Yes	Yes	Yes	Yes
Ambient air temperature					
Operation					
Open - compensated	-25 ... +55 °C	-25 ... +60 °C	-25 ... +60 °C	-	-
Open	-25 ... +70 °C	-25 ... +70 °C	-25 ... +60 °C	-25 ... +60 °C	-25 ... +60 °C
Enclosed (IB132)	0 ... +40 °C	0 ... +40 °C	-	-	-
Storage	-50 ... +80 °C	-50 ... +80 °C	-50 ... +80 °C	-50 ... +80 °C	-50 ... +80 °C
Ambient air temperature compensation	Acc. to IEC/EN60947-4-1	Acc. to IEC/EN60947-4-1	Acc. to IEC/EN60947-4-1	-	-
Maximum operating altitude permissible	2000 m	2000 m	2000 m	2000 m	2000 m
Resistance to shock acc. to IEC 60068-2-27	25g / 11 ms	25g / 11 ms	25g / 11 ms	25g / 11 ms	25g / 11 ms
Resistance to vibrations acc. to IEC 60068-2-6	5g / 3 ... 150 Hz	5g / 3 ... 150 Hz	4g / 3 ... 150 Hz	5g / 3 ... 150 Hz	4g / 3 ... 150 Hz
mounted on DIN-rail	5g / 3 ... 150 Hz	5g / 3 ... 150 Hz	5g / 3 ... 150 Hz	5g / 3 ... 150 Hz	5g / 3 ... 150 Hz
mounted on mounting plate	5g / 3 ... 150 Hz	5g / 3 ... 150 Hz	5g / 3 ... 150 Hz	5g / 3 ... 150 Hz	5g / 3 ... 150 Hz
Mounting position	Position 1-6 (optional for single mounting)	Position 1-6 (optional for single mounting)	Position 1-6 (optional for single mounting)	Position 1-6 (optional for single mounting)	Position 1-6 (optional for single mounting)
Mounting	DIN-rail (EN 60715)	DIN-rail (EN 60715)	DIN-rail (EN 60715)	DIN-rail (EN 60715)	DIN-rail (EN 60715)
Group mounting	On request (2)	On request (2)	On request (2)	On request (2)	On request (2)
Recommended screw for mounting plate	-	-	M4	-	M4
Screw torque for mounting plate	-	-	2 Nm	-	2 Nm
Minimum distance to other units same type					
Horizontal	0 mm	0 mm	0 mm	0 mm	0 mm
Vertical	150 mm	150 mm	150 mm	150 mm	150 mm
Minimum distance to electrical conductive board					
Horizontal, up to 400 V	0 mm	0 mm	0 mm	0 mm	0 mm
Horizontal, up to 690 V	> 1.5 mm	> 1.5 mm	> 1.5 mm	> 1.5 mm	> 1.5 mm
Vertical	75 mm	75 mm	75 mm	75 mm	75 mm
Degree of protection					
Housing	IP20	IP20	IP20	IP20	IP20
Main circuit terminals	IP10	IP10 (1)	IP10	IP10	IP10

(1) Push-in Spring terminals : IP20

(2) Please refer to application note: **2CDC131183M0201**

Connecting characteristics - Main circuit

Type	MS116 ≤ 16 A	MS116 ≥ 20 A
Connecting capacity		
 Rigid	1 or 2 x 1 ... 4 mm ²	2.5 ... 6 mm ²
 Flexible with ferrule	1 or 2 x 0.75 ... 2.5 mm ²	1 ... 6 mm ²
 Flexible with insulated ferrule	1 or 2 x 0.75 ... 2.5 mm ²	1 ... 6 mm ²
 Flexible	1 or 2 x 0.75 ... 2.5 mm ²	1 ... 6 mm ²
Stranded acc. to UL/CSA	1 or 2 x AWG 16 ... 12	AWG 16 ... 8
Stripping length	9 mm	10 mm
Tightening torque	0.8 ... 1.2 Nm / 10 ... 12 lb.in	2.0 Nm / 18 lb.in
Recommended screwdriver	Pozidriv 2	Pozidriv 2

Type	MS132 ≤ 10 A	MS132 ≥ 12 A
Connecting capacity		
 Rigid	1 or 2 x 1 ... 4 mm ²	1 ... 2.5 mm ² 2.5 ... 6 mm ²
 Flexible with ferrule	1 or 2 x 0.75 ... 2.5 mm ²	0.75 ... 6 mm ²
 Flexible with insulated ferrule	1 or 2 x 0.75 ... 2.5 mm ²	0.75 ... 6 mm ²
 Flexible	1 or 2 x 0.75 ... 2.5 mm ²	1 ... 2.5 mm ² 2.5 ... 6 mm ²
Stranded acc. to UL/CSA	1 or 2 x AWG 16 ... 12	AWG 16 ... 8
Stripping length	9 mm	10 mm
Tightening torque	0.8 ... 1.2 Nm / 10 ... 12 lb.in	2.0 Nm / 18 lb.in
Recommended screwdriver	Pozidriv 2	Pozidriv 2

Type	MS132-K with Push-in Spring terminals
Connecting capacity	
 Rigid solid	1 or 2 x 1 ... 2.5 mm ²
 Rigid stranded	1 or 2 x 1 ... 6 mm ²
 Flexible with ferrule	1 or 2 x 1 (push-in) / 0.5 (spring) ... 4 mm ²
 Flexible with insulated ferrule	1 x 1 (push-in) / 0.5 (spring) ... 4 mm ²
Flexible	1/2 x 1 (push-in) / 0.5 (spring) ... 2.5 mm ²
Flexible	1 or 2 x 0.5 (spring) ... 4 mm ²
Stranded acc. to UL/CSA	1/2 x AWG 18 ... 10 (push-in) / AWG 18 ... 8 (spring)
Flexible	1 x AWG 8
Wire stripping length	12 mm
Screwdriver	Flat Ø 3 mm x 0.5 mm

Connecting characteristics - Main circuit

Type	MS165	
Connecting capacity		
 Rigid stranded	1 or 2 x	1 ... 50 mm ²
 Flexible with ferrule	1 or 2 x	1 ... 35 mm ²
 Flexible with insulated ferrule	1 or 2 x	1 ... 35 mm ²
 Flexible	1 or 2 x	1 ... 35 mm ²
Stranded acc. to UL/CSA	1 or 2 x	AWG 16 ... 0
Stripping length	16 mm	
Tightening torque	4.0 Nm / 35 lb.in	
Recommended screw driver	Pozidriv 2	

Type	M0132 ≤ 10 A	M0132 ≥ 12 A
Connecting capacity		
 Rigid	1 or 2 x	1 ... 4 mm ²
 Flexible with ferrule	1 or 2 x	1 ... 2.5 mm ² 2.5 ... 6 mm ²
 Flexible with insulated ferrule	1 or 2 x	0.75 ... 2.5 mm ² 0.75 ... 6 mm ²
 Flexible	1 or 2 x	0.75 ... 2.5 mm ² 1 ... 2.5 mm ² 2.5 ... 6 mm ²
Stranded acc. to UL/CSA	1 or 2 x	AWG 16 ... 12 AWG 16 ... 8
Stripping length	9 mm	
Tightening torque	0.8 ... 1.2 Nm / 10 ... 12 lb.in	
Recommended screw driver	Pozidriv 2	

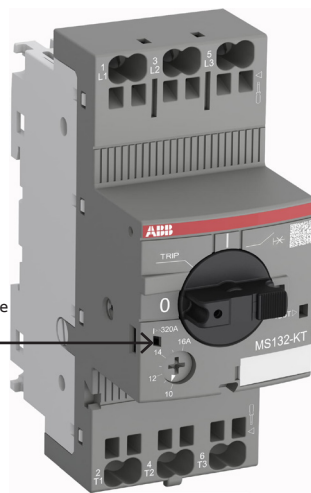
Type	M0165	
Connecting capacity		
 Rigid stranded	1 or 2 x	1 ... 50 mm ²
 Flexible with ferrule	1 or 2 x	1 ... 35 mm ²
 Flexible with insulated ferrule	1 or 2 x	1 ... 35 mm ²
 Flexible	1 or 2 x	1 ... 35 mm ²
Stranded acc. to UL/CSA	1 or 2 x	AWG 16 ... 0
Stripping length	16 mm	
Tightening torque	4.0 Nm / 35 lb.in	
Recommended screw driver	Pozidriv 2	

MS132-T circuit breakers for transformer protection

Low voltage transformers are used to supply power to control and auxiliary circuits in distribution and automation boards and to provide galvanic isolation. These transformers may be damaged by an electrical failure (short-circuit or overload on the primary side), therefore a proper protection should be provided.

Troubleshooting made easy

MS132-T feature a magnetic trip indicator. This way, every tripping event will be distinguished, making troubleshooting a lot easier and faster.



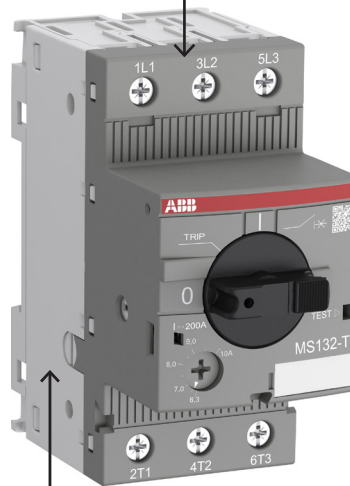
Complete portfolio

Manual motor starter accessories are suitable throughout the complete range. Moreover ABB offers special accessories for fast single-phase setup.



Transformer protection

MS132-T is an inrush compensated circuit breaker for control transformer protection. With the right selection, it provides overcurrent protection on the primary side of the transformer. This avoids expensive protection on the secondary side.



Circuit breakers for transformers protection are specially designed for fuseless protection of control transformers on the primary side against overloads and short-circuits.

Selection table MS132-T with ABB control transformers:

Please refer to document no. 2CDC131111D0201



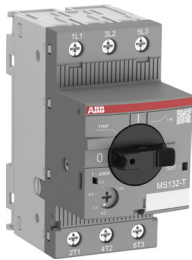
Application example

Protection of transformers for power supply of control and auxiliary circuits, both in distribution and automation boards (checking, signaling, interlock, etc).



MS132-T circuit breakers for transformer protection

0.10 to 25 A – with thermal and electromagnetic protection



MS132-10T

2CDC24009V0017



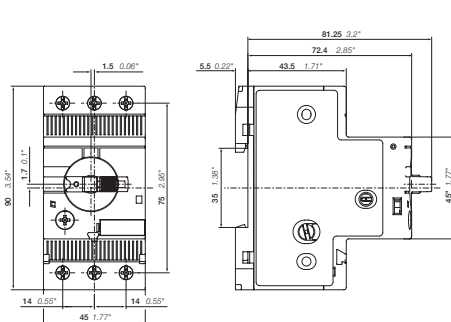
MS132-25T

2CDC241002FD014

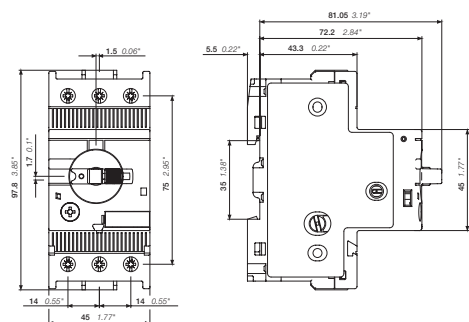
Circuit breakers for transformer protection are electro-mechanical protection devices specially designed to protect control transformers on the primary side. They allow fuseless protection against overload and short-circuit, saving space and cost and ensuring a quick reaction under short-circuit condition by switching off the transformer within milliseconds. The short-circuit current setting is fixed to 20 times the operating current to handle the high inrush current generated by transformers. The device allows manual connection and disconnection of the transformer from the mains.

MS132-T is a 45 mm (width) compact and powerful range for transformer protection up to 12.5 kW (400 V) / 25 A. This type has also a clear and reliable indication of fault in a separate window in the event of short-circuit tripping. Further features are the built-in disconnect function, temperature compensation, trip-free mechanism and a rotary handle with a clear switch position indication. The handle is lockable to protect against unauthorized changes. Auxiliary contacts, signaling contacts, undervoltage releases, shunt trips, power in-feed blocks are available as accessory. These are suitable throughout the MS116/MS132/MS165-range. Moreover ABB offers special accessories for fast single phase setup.

Setting range	Short-circuit breaking capacity I _{cs} at 400 V AC kA	Rated instantaneous short-circuit current setting I _i A	Type	Order code	Weight (1 pce)
A					kg
0.10 ... 0.16	100	3.2	MS132-0.16T	1SAM340000R1001	0.215
0.16 ... 0.25	100	5	MS132-0.25T	1SAM340000R1002	0.215
0.25 ... 0.40	100	8	MS132-0.4T	1SAM340000R1003	0.215
0.40 ... 0.63	100	12.6	MS132-0.63T	1SAM340000R1004	0.215
0.63 ... 1.00	100	20	MS132-1.0T	1SAM340000R1005	0.215
1.00 ... 1.60	100	32	MS132-1.6T	1SAM340000R1006	0.265
1.60 ... 2.50	100	50	MS132-2.5T	1SAM340000R1007	0.265
2.50 ... 4.00	100	80	MS132-4.0T	1SAM340000R1008	0.265
4.00 ... 6.30	100	126	MS132-6.3T	1SAM340000R1009	0.265
6.30 ... 10.0	100	200	MS132-10T	1SAM340000R1010	0.265
8.00 ... 12.0	100	240	MS132-12T	1SAM340000R1012	0.310
10.0 ... 16.0	100	320	MS132-16T	1SAM340000R1011	0.310
16.0 ... 20.0	100	400	MS132-20T	1SAM340000R1013	0.310
20.0 ... 25.0	50	500	MS132-25T	1SAM340000R1014	0.310



MS132T ≤ 10 A



MS132T ≥ 12 A

Main dimensions mm, inches

MS132-KT circuit breakers for transformer protection with Push-in Spring terminals

0.10 to 25 A – with thermal and electromagnetic protection

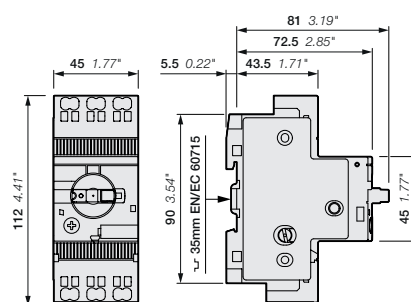


MS132-KT

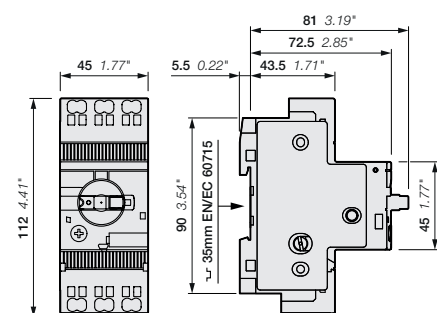
Circuit breakers for transformer protection with Push-in Spring terminals are electro-mechanical protection devices specially designed to protect control transformers on the primary side. They allow fuseless protection against overload and short-circuit, saving space and cost and ensuring a quick reaction under short-circuit condition by switching off the transformer within milliseconds. The short-circuit current setting is fixed to 20 times the operating current to handle the high inrush current generated by transformers. The device allows manual connection and disconnection of the transformer from the mains.

MS132-KT is a 45 mm (width) compact and powerful range for transformer protection up to 12.5 kW (400 V) / 25 A. This type has also a clear and reliable indication of fault in a separate window in the event of short-circuit tripping. Further features are the built-in disconnect function, temperature compensation, trip-free mechanism and a rotary handle with a clear switch position indication. The handle is lockable to protect against unauthorized changes. Auxiliary contacts, signaling contacts, undervoltage releases and shunt trips are available as accessory. These are suitable throughout the MS116/MS132/MS165-range.

Setting range	Short-circuit breaking capacity I _{cs} at 400 V AC kA	Rated instantaneous short-circuit current setting I _i A	Type	Order code	Weight (1 pce)
A					kg
0.10 ... 0.16	100	3.2	MS132-0.16KT	1SAM340010R1001	0.256
0.16 ... 0.25	100	5	MS132-0.25KT	1SAM340010R1002	0.256
0.25 ... 0.40	100	8	MS132-0.4KT	1SAM340010R1003	0.256
0.40 ... 0.63	100	12.6	MS132-0.63KT	1SAM340010R1004	0.256
0.63 ... 1.00	100	20	MS132-1.0KT	1SAM340010R1005	0.256
1.00 ... 1.60	100	32	MS132-1.6KT	1SAM340010R1006	0.298
1.60 ... 2.50	100	50	MS132-2.5KT	1SAM340010R1007	0.280
2.50 ... 4.00	100	80	MS132-4.0KT	1SAM340010R1008	0.286
4.00 ... 6.30	100	126	MS132-6.3KT	1SAM340010R1009	0.289
6.30 ... 10.0	100	200	MS132-10KT	1SAM340010R1010	0.296
10.0 ... 16.0	100	320	MS132-16KT	1SAM340010R1011	0.316
16.0 ... 20.0	100	400	MS132-20KT	1SAM340010R1013	0.317
20.0 ... 25.0	50	500	MS132-25KT	1SAM340010R1014	0.316



MS132-KT > 10 A



MS132-KT < 10 A

Main dimensions mm, inches

MS132-T, MS132-KT

Technical data

Main circuit – Utilization characteristics according to IEC/EN

Type	MS132-T / -KT
Standards	IEC/EN 60947-2, IEC/EN 60947-4-1, IEC/EN 60947-1
Rated operational voltage U _e	690 V AC
Rated frequency	50/60 Hz
Operational frequency	0 ... 400 Hz
Trip class	10
Number of poles	3
Duty time	100%
Mechanical durability	100000 cycles
Electrical durability	50000 cycles
Rated impulse withstand voltage U _{imp}	6 kV
Rated insulation voltage U _i	690 V
Rated operational current I _e	See ordering details
Rated instantaneous short-circuit current setting I _i	See ordering details
Rated service short-circuit breaking capacity I _{cs}	See table "Short-circuit breaking capacity and back-up fuses"
Rated ultimate short-circuit breaking capacity I _{cu}	See table "Short-circuit breaking capacity and back-up fuses"
Suitable for use in IT networks	Yes

Short-circuit breaking capacity and back-up fuses

I_{cs} Rated service short-circuit breaking capacity

I_{cu} Rated ultimate short-circuit breaking capacity

I_q (I_{cc}) Rated conditional short-circuit current

- No back-up fuse required, because short-circuit proof up to I_{cu} (for I_{cu} see table below)

Type	230 V AC			400 V AC			440 V AC			500 V AC			690 V AC		
	I _{cs} kA	I _{cu} kA	gG, aM A	I _{cs} kA	I _{cu} kA	gG, aM A	I _{cs} kA	I _{cu} kA	gG, aM A	I _{cs} kA	I _{cu} kA	gG, aM A	I _{cs} kA	I _{cu} kA	gG, aM A
MS132-0.16(K)T	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
MS132-0.25(K)T	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
MS132-0.4(K)T	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
MS132-0.63(K)T	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
MS132-1.0(K)T	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
MS132-1.6(K)T	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
MS132-2.5(K)T	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
MS132-4.0(K)T	100	100	-	100	100	-	30	30	35 (1)	20	20	35 (1)	3	3	35 (1)
MS132-6.3(K)T	100	100	-	100	100	-	30	30	63 (1)	20	20	63 (1)	3	3	50 (1)
MS132-10(K)T	100	100	-	100	100	-	30	30	100 (1)	20	20	100 (1)	3	3	50 (1)
MS132-12T	100	100	-	100	100	-	30	30	100 (1)	20	20	100 (1)	3	3	63 (1)
MS132-16(K)T	100	100	-	100	100	-	30	30	125 (1)	20	20	125 (1)	3	3	63 (1)
MS132-20(K)T	100	100	-	100	100	-	30	30	125 (1)	20	20	125 (1)	3	3	80 (1)
MS132-25(K)T	50	50	125 (1)	50	50	125 (1)	30	30	125 (1)	10	10	125 (1)	3	3	100 (1)

(1) Maximum rated current of the back-up fuse for short circuit up to 100kA if I_{cc} > I_{cs}

MS132-T, MS132-KT

Technical data

Main circuit – Utilization characteristics according to UL

Type	MS132-T / -KT	
Standards	UL 60947-1, UL 60947-4-1	
Rated operational voltage U _e acc. to UL/CSA	600 V AC	
Trip class	10	
Motor ratings (1)	Full Load Amps (FLA)	see table UL current ratings

(1) See product data sheets for UL/CSA single phase motor and general use (AC-1) ratings.

UL/CSA ratings overview

Type	MS132-T / -KT	
Manual Controller for Control Transformer Protection	x	
Manual Motor Controller	not applicable	
Manual Motor Controller, Suitable as Motor Disconnect	not applicable	
Manual Motor Controller, Suitable for use in Group Installations	not applicable	
Manual Motor Controller, Suitable for Tap Conductor Protection in Group Installations	x	
Manual self-protected Combination Motor Controller (Type E)	not applicable	
Combination Motor Controller (Type F)	not applicable	

UL current ratings, single-phase – MS132-T / -KT

Type	110 ... 120 V AC FLA	220 ... 240 V AC FLA
MS132-0.16(K)T	0.16	0.16
MS132-0.25(K)T	0.25	0.25
MS132-0.4(K)T	0.4	0.4
MS132-0.63(K)T	0.63	0.63
MS132-1.0(K)T	1	1
MS132-1.6(K)T	1.6	1.6
MS132-2.5(K)T	2.5	2.5
MS132-4.0(K)T	4	4
MS132-6.3(K)T	6.3	6.3
MS132-10(K)T	9.8	10
MS132-12T	9.8	12
MS132-16(K)T	16	12
MS132-20(K)T	20	17
MS132-25(K)T	24	17

Manual controller for tap conductor protection and for control transformers – MS132-T / -KT

Type	Max. short-circuit current rating when used with upstream protection device	
	480Y / 277 V	600Y / 347 V
	kA	kA
MS132-0.16(K)T	65	47
MS132-0.25(K)T	65	47
MS132-0.4(K)T	65	47
MS132-0.63(K)T	65	47
MS132-1.0(K)T	65	47
MS132-1.6(K)T	65	47
MS132-2.5(K)T	65	47
MS132-4.0(K)T	65	47
MS132-6.3(K)T	65	18
MS132-10(K)T	65	18
MS132-12T	30	18
MS132-16(K)T	30	18
MS132-20(K)T	30	18
MS132-25(K)T	30	18

MS132-T, MS132-KT

Technical data

General technical data

Type	MS132-T / - KT	
Pollution degree	3	
Phase loss sensitivity	Yes	
Disconnect function acc. to IEC/EN 60947-2	Yes	
Ambient air temperature		
Operation	Open - compensated	-25 ... +60 °C
	Open	-25 ... +70 °C
	Enclosed (IB132)	0 ... +40 °C
Storage		-50 ... +80 °C
Ambient air temperature compensation	Acc. to IEC/EN60947-4-1	
Maximum operating altitude permissible	2000 m	
Resistance to shock acc. to IEC 60068-2-27	25g / 11 ms	
Resistance to vibrations acc. to IEC 60068-2-6	5g / 3 ... 150 Hz	
Mounting position	Position 1-6 (optional for single mounting)	
Mounting	DIN-rail (EN 60715)	
Group mounting	-	
Recommended screw for mounting plate	-	
Screw torque for mounting plate	-	
Minimum distance to other units	Horizontal	0 mm
same type	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 (Push-in Spring terminals: IP20)

Connecting characteristics - main circuit

Type	MS132-T ≤ 10 A		MS132-T ≥ 12 A
Connecting capacity			
 Rigid	1 or 2 x	1 ... 4 mm ²	1 ... 2.5 mm ² 2.5 ... 6 mm ²
 Flexible with ferrule	1 or 2 x	0.75 ... 2.5 mm ²	0.75 ... 6 mm ²
 Flexible with insulated ferrule	1 or 2 x	0.75 ... 2.5 mm ²	0.75 ... 6 mm ²
 Flexible	1 or 2 x	0.75 ... 2.5 mm ²	1 ... 2.5 mm ² 2.5 ... 6 mm ²
Stranded acc. to UL/CSA	1 or 2 x	AWG 16 ... 12	AWG 16 ... 8
Stripping length	9 mm		10 mm
Tightening torque	0.8 ... 1.2 Nm / 10 ... 12 lb.in		2.0 Nm / 18 lb.in
Recommended screwdriver	Pozidriv 2		Pozidriv 2

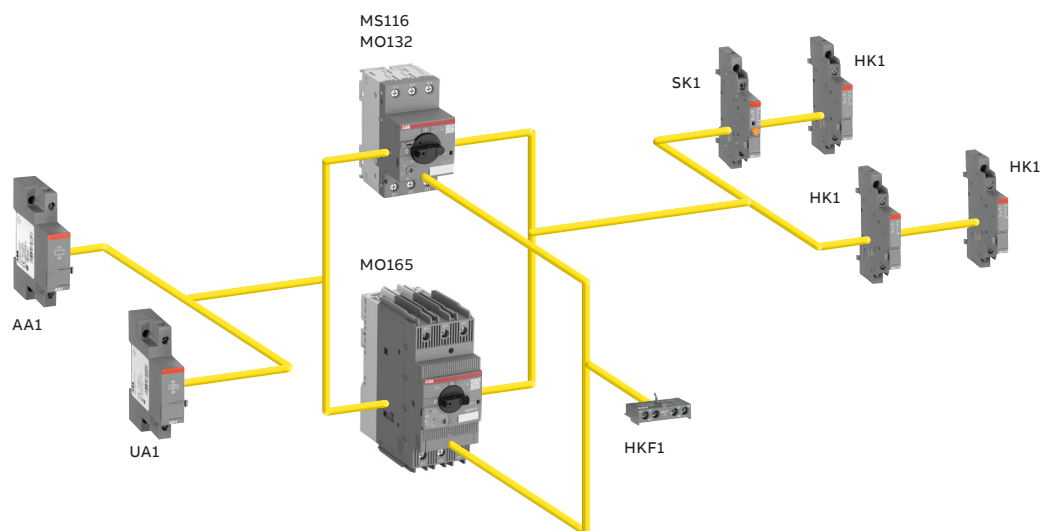
Connecting characteristics - main circuit

Type	MS132-KT with Push-in Spring terminals	
Connecting capacity		
 Rigid solid	1 or 2 x	1 ... 2.5 mm ²
 Rigid stranded	1 or 2 x	1 ... 6 mm ²
 Flexible with ferrule	1 or 2 x	1 (push-in) / 0.5 (spring) ... 4 mm ²
 Flexible with insulated ferrule	1 x	1 (push-in) / 0.5 (spring) ... 4 mm ²
	1/2 x	1 (push-in) / 0.5 (spring) ... 2.5 mm ²
 Flexible	1 or 2 x	0.5 (spring) ... 4 mm ²
Stranded acc. to UL/CSA	1/2 x	AWG 18 ... 10 (push-in) / AWG 18 ... 8 (spring)
	1 x	AWG 8
Wire stripping length	12 mm	
Screwdriver	Flat Ø 3 mm x 0.5 mm	

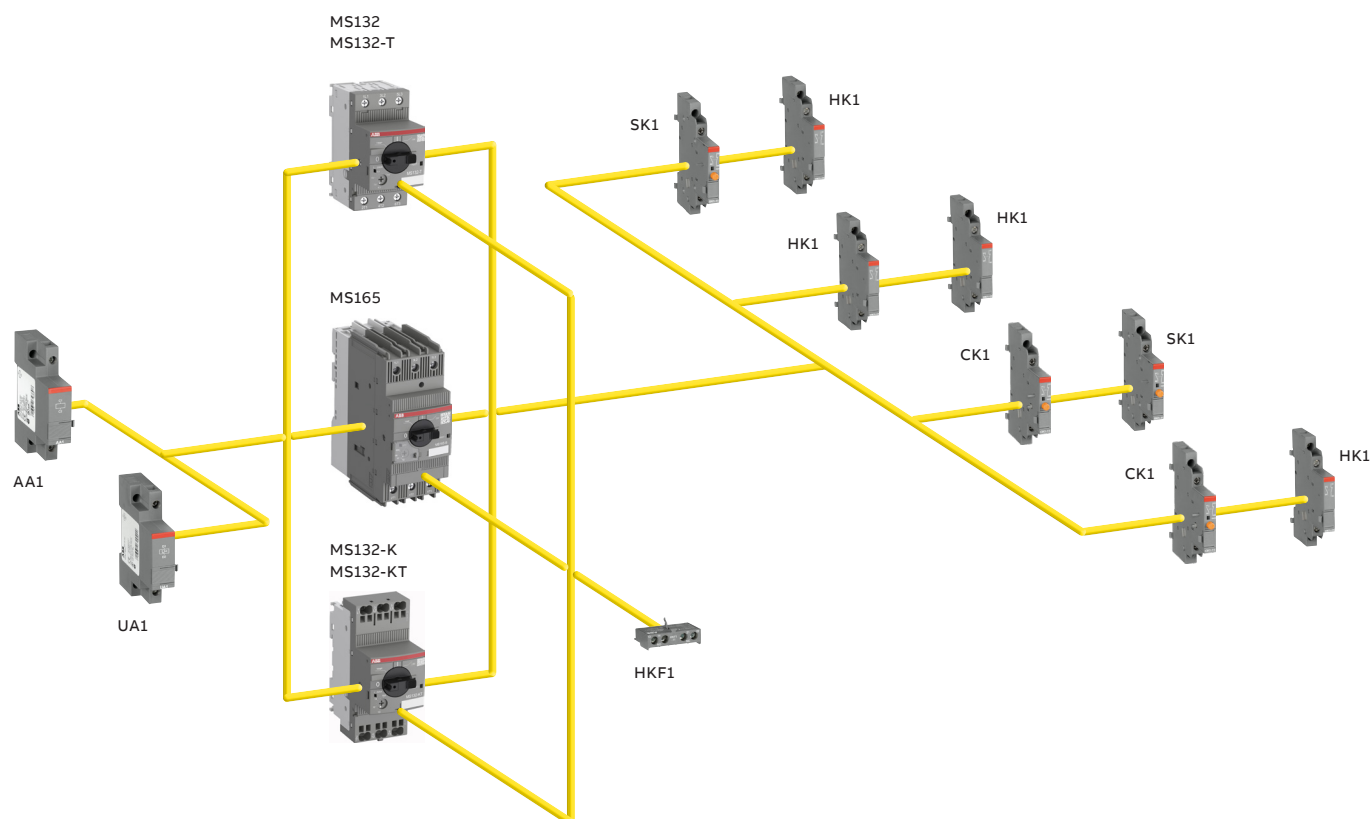
Accessories

MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT

Manual motor starters with accessories (MS116, MO132, MO165)



Manual motor starters (MS132, MS165) and circuit breakers for transformer protection (MS132-T) with accessories



Note: The combination of MS132-K + UA1 + CK1 is not possible

Accessories

MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT



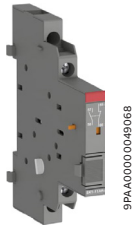
HKF1-11



HK1-11



SK1-11



SK1-11AR



CK1-11

Manual motor starters and MS132-T can be equipped with auxiliary contacts for lateral/front mounting, signaling contacts for lateral mounting, undervoltage releases and shunt trips. Accessories can be fitted wiring free and without tools to the main device. A variety of combinations is possible as required for the specific application.

Auxiliary contacts HK1/HKF1 change position with the main contacts of the main device. Signaling contact CK1 signals tripping in case it was caused by short-circuit. Signaling contacts SK1/SK1-AR signal tripping regardless if it was caused by short-circuit or overload or electrical release (UA1 or AA1). With the SK1-AR, a red flag in a window on the front of the device indicates the tripping event, while for SK1 and CK1 the indication on the device itself is done with a protruding orange button. Another difference between SK1 and SK1-AR is that the contact positions of SK1-AR don't need to be manually reset after a tripping event, while for SK1 and CK1 this is done by pushing the orange button. The contacts of SK1-AR are reset to their original position when the manual motor starter is switched back on.

Undervoltage releases are used for remote tripping of the manual motor starters, especially for emergency stop circuits. Shunt trips release the manual motor starters used for remote tripping.

Suitable for	Auxiliary contacts N.O.	Auxiliary contacts N.C.	Description	Type	Order code	Pkg qty	Weight (1 pce) kg
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Auxiliary contacts – mountable on the front

MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT	1	1		HKF1-11	1SAM201901R1001	10	0.015
	1	0		HKF1-10	1SAM201901R1003	10	0.013
	0	1		HKF1-01	1SAM201901R1004	10	0.013
	2	0		HKF1-20	1SAM201901R1002	10	0.015

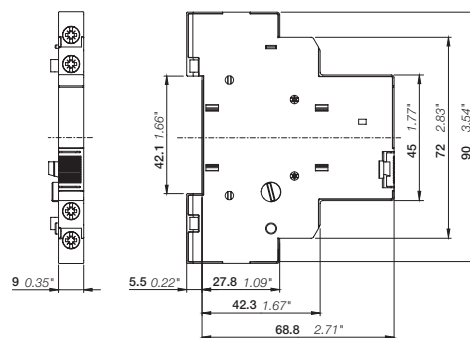
Auxiliary contacts – mountable on the right

MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT	1	1	max. 2 pieces	HK1-11	1SAM201902R1001	2	0.035
	2	0	max. 2 pieces	HK1-20	1SAM201902R1002	2	0.035
	0	2	max. 2 pieces	HK1-02	1SAM201902R1003	2	0.035
MS116, MS132, MO132, MS132-T, MS132-K, MS132-KT	2	0	max. 2 pieces with leading contacts	HK1-20L	1SAM201902R1004	2	0.035
MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT	1	1	max. 2 pieces, terminal marking (13/14, 21/22)	HK1-11A	1SAM201902R1011	2	0.035
	1	1	max. 2 pieces, terminal marking (43/44, 31/32)	HK1-11B	1SAM201902R1021	2	0.035
	2	0	max. 2 pieces, terminal marking (13/14, 23/24)	HK1-20A	1SAM201902R1012	2	0.035

Signaling contacts – mountable on the right

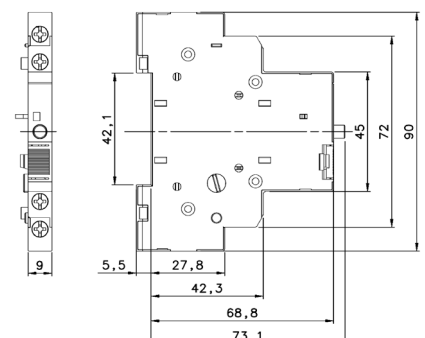
MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT	1	1	for tripped alarm, with manual reset	SK1-11	1SAM201903R1001	2	0.035
	2	0	for tripped alarm, with manual reset	SK1-20	1SAM201903R1002	2	0.035
	0	2	for tripped alarm, with manual reset	SK1-02	1SAM201903R1003	2	0.035
	1	1	for tripped alarm	SK1-11AR	1SAM201903R1004	2	0.036
	2	0	for tripped alarm	SK1-20AR	1SAM201903R1005	2	0.036
	0	2	for tripped alarm	SK1-02AR	1SAM201903R1006	2	0.036
MS132, MS165, MS132-T, MS132-K, MS132-KT	1	1	for short-circuit alarm	CK1-11	1SAM301901R1001	2	0.035
	2	0	for short-circuit alarm	CK1-20	1SAM301901R1002	2	0.035
	0	2	for short-circuit alarm	CK1-02	1SAM301901R1003	2	0.035

Note: For BEA connecting links with AF, AS and B mini and M mini contactors please refer to chapters 3, 4 and 5.



HK1, SK1-AR

Main dimensions mm, inches



SK1, CK1

Main dimensions mm, inches

Accessories

MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT



AA1-24



UA1-24

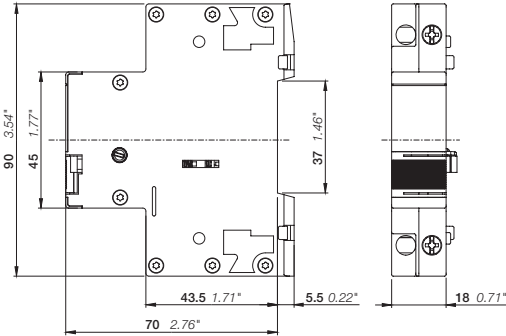
Suitable for	Rated control supply voltage		Type	Order code	Pkg qty	Weight (1 pce) kg
	50 Hz V AC	60 Hz V AC				

Shunt trips – mountable on the left

MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT	20 ... 24	20 ... 24	AA1-24	1SAM201910R1001	1	0.100
	110	110	AA1-110	1SAM201910R1002	1	0.100
	200 ... 240	200 ... 240	AA1-230	1SAM201910R1003	1	0.100
	350 ... 415	350 ... 415	AA1-400	1SAM201910R1004	1	0.100

Undervoltage releases – mountable on the left

MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT	20	24	UA1-20	1SAM201904R1010	1	0.100
	24	-	UA1-24	1SAM201904R1001	1	0.100
	48	-	UA1-48	1SAM201904R1002	1	0.100
	60	-	UA1-60	1SAM201904R1003	1	0.100
	110	120	UA1-110	1SAM201904R1004	1	0.100
	-	208	UA1-208	1SAM201904R1008	1	0.100
	230	240	UA1-230	1SAM201904R1005	1	0.100
	400	-	UA1-400	1SAM201904R1006	1	0.100
	415	480	UA1-415	1SAM201904R1007	1	0.100
	-	575	UA1-575	1SAM201904R1009	1	0.100



AA1, UA1

Main dimensions mm, inches

Accessories with Push-in Spring terminals

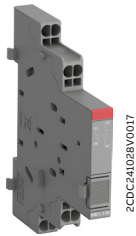
MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT

Manual motor starters and MS132-T can be equipped with auxiliary contacts for lateral/front mounting as well as signaling contacts for lateral mounting. Accessories can be fitted wiring free and without tools to the main device. This goes hand in hand with the Push-in Spring terminals of these accessories. Innovative Push-in Spring terminals enable tool-free wiring and eliminate the need for routine re-tightening. A variety of combinations is possible as required for the specific application. Auxiliary contacts HK1-K/HKF1-K change position with the main contacts of the main device. Signaling contacts SK1-K/SK1-ARK signal tripping regardless if it was caused by short-circuit or overload or electrical release (UA1 or AA1). With the SK1-ARK, a red flag in a window on the front of the device indicates the tripping event, while for SK1-K the indication on the device itself is done with a protruding orange button. Another difference between SK1-K and SK1-ARK is that the contact positions of SK1-ARK don't need to be manually reset after a tripping event, while for SK1-K this is done by pushing the orange button. The contacts of SK1-ARK are reset to their original position when the manual motor starter is switched back on.



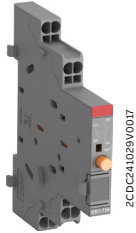
HKF1-11K

2CDC241027V0017



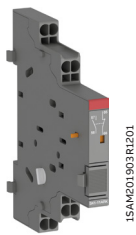
HK1-11K

2CDC241028V0017



SK1-11K

2CDC241029V0017



SK1-11ARK

1SAM201903R1201

Suitable for	Auxiliary contacts N.O.	Auxiliary contacts N.C.	Description	Type	Order code	Pkg qty	Weight (1 pce)
							kg

Auxiliary contacts - mountable on the front

MS116, MS132,	1	1		HKF1-11K	1SAM201901R1201	10	0.016
MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT	2	0		HKF1-20K	1SAM201901R1202	10	0.016

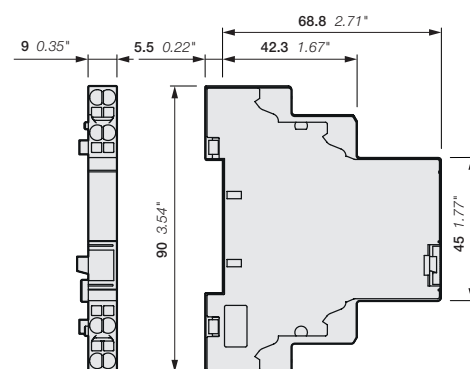
Auxiliary contacts - mountable on the right

MS116, MS132,	1	1	max. 2 pieces	HK1-11K	1SAM201902R1201	2	0.035
MS165, MO132,	2	0	max. 2 pieces	HK1-20K	1SAM201902R1202	2	0.035
MO165,	0	2	max. 2 pieces	HK1-02K	1SAM201902R1203	2	0.035
MS132-T, MS132-K, MS132-KT	2	0	with leading contacts	HK1-20LK	1SAM201902R1204	2	0.035

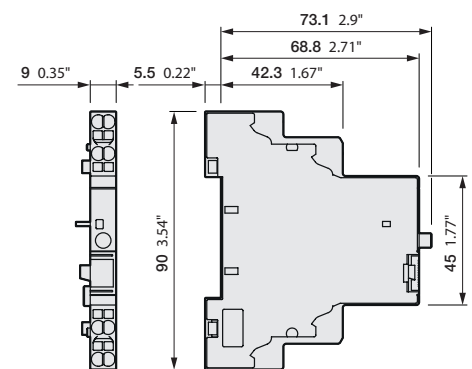
Signaling contacts - mountable on the right

MS116, MS132,	1	1	for tripped alarm, with manual reset	SK1-11K	1SAM201903R1201	2	0.035
MS165, MO132,	2	0	for tripped alarm, with manual reset	SK1-20K	1SAM201903R1202	2	0.035
MO165,	0	2	for tripped alarm, with manual reset	SK1-02K	1SAM201903R1203	2	0.035
MS132-T,	1	1	for tripped alarm	SK1-11ARK	1SAM201903R1204	2	0.035
MS132-K,	2	0	for tripped alarm	SK1-20ARK	1SAM201903R1205	2	0.035
MS132-KT	0	2	for tripped alarm	SK1-02ARK	1SAM201903R1206	2	0.035

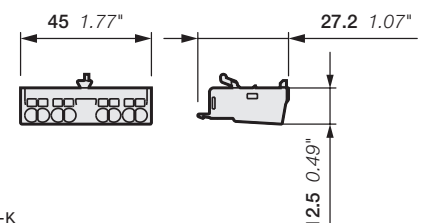
Note : For BEA...-4K Push-in Spring connecting links with AF09...K ... AF38...K please refer to chapter 3 - "Connection accessories for starting solutions with Push-in Spring terminals".



HK1-K, SK1-ARK



SK1-K



HKF1-K

Main dimensions mm, inches

Accessories

MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT

General technical data

Type		HK1, SK1	CK1	HKF1
Standards		IEC/EN 60947-1, IEC/EN 60947-5-1		
Rated operational voltage Ue		690 V AC / 600 V DC		250 V AC / 250 V DC
Conventional free-air thermal current Ith		6 A		5 A
Rated frequency		50/60 Hz		
Rated impulse withstand voltage Uimp		6 kV		
Rated insulation voltage Ui		690 V AC		250 V AC
Pollution degree		3		
Ambient air temperature	Operation	-25 ... +60 °C		
	Storage	-50 ... +80 °C		
Resistance to shock acc. to IEC 60068-2-27		25g / 11 ms		
Resistance to vibrations acc. to IEC 60068-2-6		5g / 3 ... 150 Hz		
Ie / Rated operational current AC-15 acc. to IEC/EN 60947-5-1 for utilization category				
	24 V, 120 V	6 A		3 A
	240 V	4 A		1.5 A
	400 V	3 A		-
	440 V, 690 V	1 A		-
Ie / Rated operational current DC-13 acc. to IEC/EN 60947-5-1 for utilization category				
	24 V	2 A		1 A
	125 V	0.55 A		0.27 A
	250 V	0.27 A		0.11 A
	440 V, 600 V	0.15 A		-
Minimum switching capacity		17 V / 5 mA		
Short-circuit protective device	N.C., 95-96	10 A Type gG		
	N.O., 97-98	10 A Type gG		
Duty time		100 %		
Mounting		Right side of manual motor starters / MS132-T		Front of manual motor starters / MS132-T
Mounting positions		1-6		
Mechanical durability		100000 cycles	10000 cycles	-
Electrical durability		100000 cycles	10000 cycles	-

Contact utilization characteristics according to UL/CSA

Type	HK1, SK1, CK1	HKF1
Standards	UL 60947-1, UL 60947-5-1 (UL 508), CSA C22.2 No.60947-5-1 (CSA C22.2 No.14)	
Rated operational voltage U _e acc. to UL/CSA	600 V AC / 600 V DC	250 V AC / 250 V DC
Pilot duty	B600, Q600	B300, R300
AC thermal rated current	5 A	5 A
AC maximum volt-ampere making	3600 VA	3600 VA
AC maximum volt-ampere breaking	360 VA	360 VA
DC thermal rated current	2.5 A	1 A
DC maximum volt-ampere making-breaking	69 VA	28 VA

Connecting characteristics - Auxiliary circuit

Type	HK1, SK1, CK1	HKF1
Connecting capacity		
 Rigid	1 or 2 x 1 ... 1.5 mm ²	1 ... 2.5 mm ²
	0.5 (spring) / 1 (push-in) ... 2.5 mm ²	
 Flexible with ferrule	1 or 2 x 0.75 ... 1.5 mm ²	
	0.5 (spring) / 1 (push-in) ... 2.5 mm ²	
 Flexible with insulated ferrule	1 or 2 x 0.75 ... 1.5 mm ²	
	0.5 (spring) / 1 (push-in) ... 1.5 mm ²	
 Flexible	1 or 2 x 0.75 ... 1.5 mm ²	0.75 ... 2.5 mm ²
	0.5 ... 2.5 mm ² (with Push-in Spring terminals)	
Stranded acc. to UL/CSA	1 or 2 x AWG 16 ... 14	
	AWG 20 ... 14 (with Push-in Spring terminals)	
	8 mm	
Stripping length	10 mm (with Push-in Spring terminals)	
Tightening torque	0.8 ... 1.2 Nm / 7 lb.in	
Recommended screw driver	Pozidriv 2	
	Flat Ø 3 mm x 0.5 mm (with Push-in Spring terminals)	

Accessories

MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT

General technical data

Type	UA1	AA1
Standards	IEC/EN 60947-1, IEC/EN 60947-5-1, UL 60947-1, UL 60947-5-1 (UL 508), CSA C22.2 No.60947-4-1 (CSA C22.2 No.14)	
Rated control supply voltage	see ordering details	AA1-24: 20-24 V 50/60 Hz; 20-70 V 50/60 Hz ON-Period = 5 s (1), 20-70 V DC ON-Period = 5 s (2) AA1-100: 110 V 50/60 Hz; 110-200 V 50/60 Hz ON-Period = 5 s (1), 110-200 V DC ON-Period = 5 s (2) AA1-230: 200-240 V 50/60 Hz, 200-350 V 50/60 Hz ON-Period = 5 s (1), 200-350 V DC ON-Period = 5 s (2) AA1-400: 350-415 V 50/60 Hz, 350-500 V 50/60 Hz ON-Period = 5 s (1), 350-500 V DC ON-Period = 5 s (2)
Rated frequency	see ordering details	50/60 Hz, DC
Operating voltage	Tripping	0.35 ... 0.7 x Us
	Coil operating voltage	0.85 ... 1.1 x Us
Power consumption	Holding	AC on request
		DC on request
Rated impulse withstand voltage Uimp	6 kV	6 kV
Rated insulation voltage Ui	690 V	690 V
Pollution degree	3	3
Ambient air temperature	Operation	-25 ... +60 °C
	Storage	-50 ... +80 °C
Resistance to shock acc. to IEC 60068-2-27	15g / 11 ms	15g / 11 ms
Resistance to vibrations acc. to IEC 60068-2-6	5g / 3 ... 150 Hz	5g / 3 ... 150 Hz
Mounting	left side of manual motor starters / MS132-T (1)	left side of manual motor starters / MS132-T (1)
Mounting positions	-	-

(1) The mechanical and electrical durability of manual motor starters in combination with UA1/AA1 is reduced. Values are provided on request.

(2) ON-Period: max. 5 s actuation time. Please consider 15 min OFF-period after max. 5 s ON-period, for voltages above the rated values.

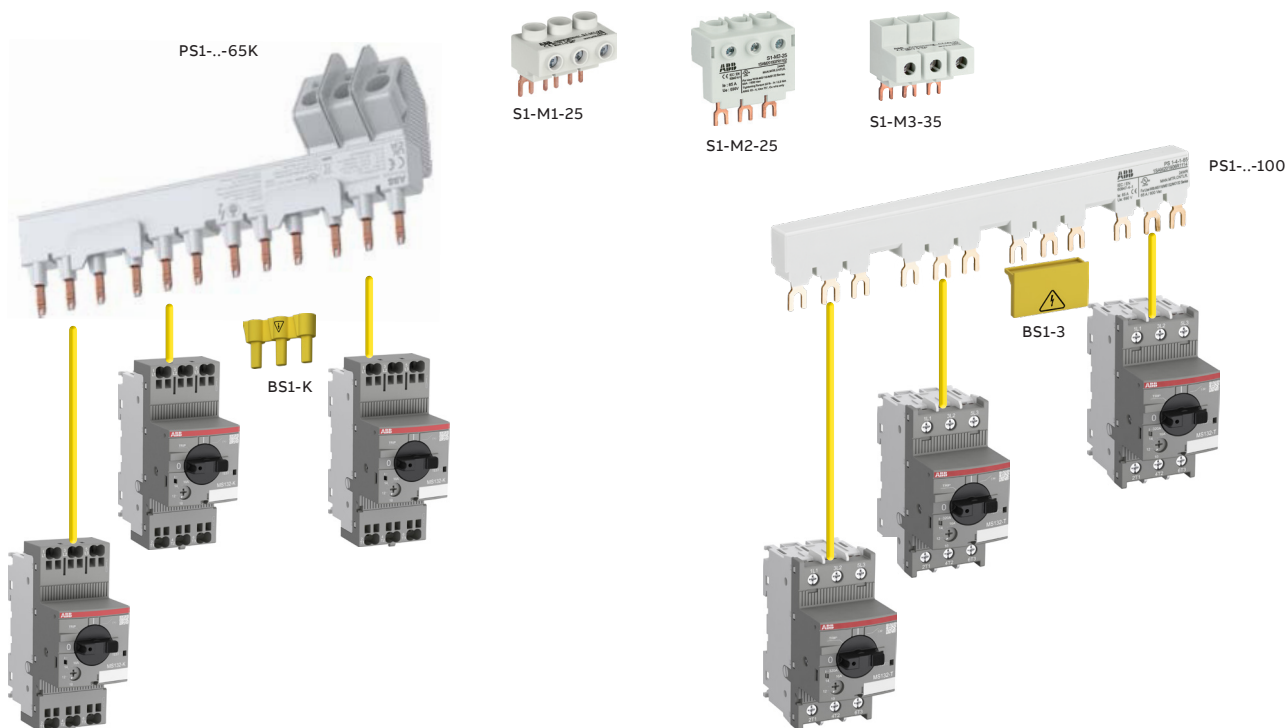
Connecting characteristics - Auxiliary circuit

Type	UA1	AA1
Connecting capacity		
 Rigid	1 or 2 x	1 ... 4 mm ²
 Flexible with ferrule	1 or 2 x	0.75 ... 2.5 mm ²
 Flexible with insulated ferrule	1 x	0.75 ... 2.5 mm ²
	2 x	0.75 ... 1.5 mm ²
 Flexible	1 or 2 x	0.75 ... 2.5 mm ²
Stranded acc. to UL/CSA	1 or 2 x	AWG 16 ... 12
Stripping length	10 mm	
Tightening torque	0.8 ... 1.2 Nm / 7 lb.in	
Recommended screwdriver	Pozidriv 2	

Accessories

MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT

Manual motor starters with three-phase busbar systems (MS116, MS132, MO132, MS132-T, MS132-K, MS132-KT)

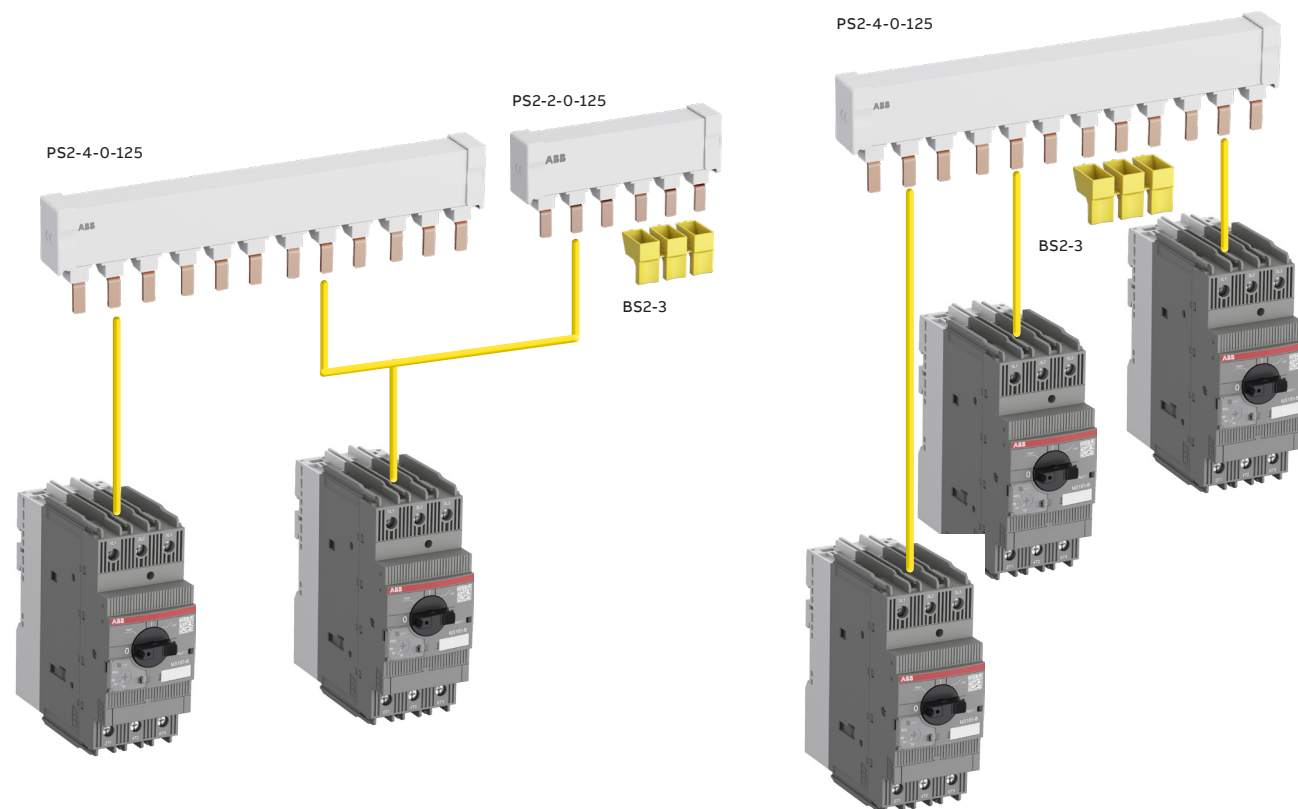


Three phase busbar with Push-in Spring terminals up to 65 A

Three-phase busbar up to 100 A

Note: feeder blocks are only suitable for screw versions.

Manual motor starters with three-phase busbar systems (MS165, MO165)

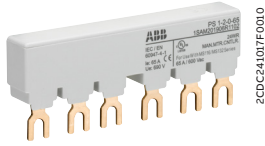


Three-phase busbar up to 125 A

Three-phase busbar up to 125 A

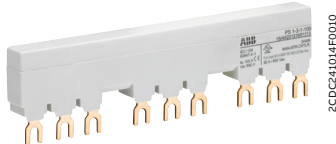
Accessories

MS116, MS132, MO132, MS132-T



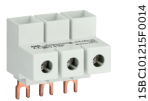
PS1-2-0-65

2CDC24101F0010



PS1-3-1-100

2CDC241014F0010



S1-M3-35

1SBC101215F0014



S1-M2-25

1SBC101266F0014



TS1-M3-S1

2CDC241013V0019



SA2

2CDC241023F0013



SA1

SK0108991



PB1-1-32

2CDC241004F0014



S1-PB1-25

2CDC241005S0014

Three-phase busbars

Three-phase busbars ensure a quick and safe connection and are therefore a cost effective solution. A variety of different three-phase busbars up to 100 A are part of the assortment. Between 2 and 4 manual motor starters with none, one or two lateral auxiliary contacts can be connected. Different three-phase feeder terminals are available according to the application.

Phase connecting links and phase power infeed blocks are also available for single-phase applications.

Suitable for	Rated operational current A	Number of manual motor starters	Number of lateral auxiliary contacts	Type	Order code	Pkg qty	Weight (1 pce) kg
MS116, MS132, MO132, MS132-T	65	2	0	PS1-2-0-65	1SAM201906R1102	10	0.034
	65	3	0	PS1-3-0-65	1SAM201906R1103	10	0.055
	65	4	0	PS1-4-0-65	1SAM201906R1104	10	0.077
	65	5	0	PS1-5-0-65	1SAM201906R1105	10	0.098
	65	2	1	PS1-2-1-65	1SAM201906R1112	10	0.036
	65	3	1	PS1-3-1-65	1SAM201906R1113	10	0.060
	65	4	1	PS1-4-1-65	1SAM201906R1114	10	0.087
	65	5	1	PS1-5-1-65	1SAM201906R1115	10	0.108
	65	2	2	PS1-2-2-65	1SAM201906R1122	10	0.040
	65	3	2	PS1-3-2-65	1SAM201906R1123	10	0.067
	65	4	2	PS1-4-2-65	1SAM201906R1124	10	0.095
	65	5	2	PS1-5-2-65	1SAM201906R1125	10	0.122
	100	3	0	PS1-3-0-100	1SAM201916R1103	10	0.084
	100	4	0	PS1-4-0-100	1SAM201916R1104	10	0.117
	100	5	0	PS1-5-0-100	1SAM201916R1105	10	0.154
	100	3	1	PS1-3-1-100	1SAM201916R1113	10	0.094
	100	4	1	PS1-4-1-100	1SAM201916R1114	10	0.134
	100	5	1	PS1-5-1-100	1SAM201916R1115	10	0.172
	100	3	2	PS1-3-2-100	1SAM201916R1123	10	0.105

Note: Above busbars are only suitable for screw versions. For busbars with Push-in Spring terminals please see next page.

Three-phase feeder terminals

Suitable for	Rated operational current A	Rated cross section mm ²	Mounting form	Type	Order code	Pkg qty	Weight (1 pce) kg
MS116, MS132, MO132	65	25	Flat	S1-M1-25	1SAM201907R1101	10	0.038
	65	25	High	S1-M2-25	1SAM201907R1102	10	0.051
	65	25	UL/CSA Type E/F and IEC	S1-M3-25	1SAM201907R1103	10	0.042
	100	35	UL/CSA Type E/F and IEC	S1-M3-35	1SAM201913R1103	10	0.060

Suitable for	Description	Type	Order code	Pkg qty	Weight (1 pce) kg
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Terminal spacers, Type E/F

MS132 <10 A, MO132 <10 A, MS132-T <10 A	UL/CSA Type E/F and IEC	TS1-M3-S1	1SAM301911R1001	2	0.012
MS132 ≥ 12 A, MO132 ≥ 12 A, MS132-T ≥ 12 A	UL/CSA Type E/F and IEC	TS1-M3-S2	1SAM301912R1001	2	0.012

Note: For product availability, please consult your ABB local sales organization

Additional accessories

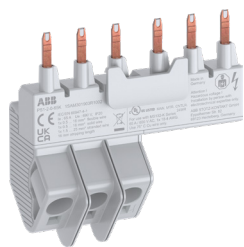
MS116, MS132, MO132, MS132-T	Protection cover for busbars	BS1-3	1SAM201908R1001	50	0.003
	Screw fixing kit	FS116	1SAM201909R1001	1	0.020
	Padlock + two keys	SA2	GJF1101903R0002	10	0.020
MS116	Lock handle	SA1	GJF1101903R0001	10	0.003
	Lock handle box SA1/SA2	SA3	GJF1101903R0003	10	0.050

Accessories for single-phase connection (IEC only)

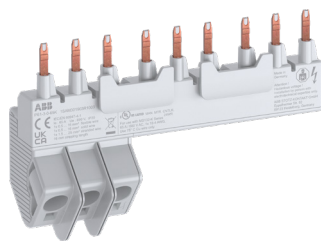
MS116, MS132, MO132, MS132-T	Phase connecting link	PB1-1-32	1SAM201914R1001	1	0.009
	Phase power infeed block	S1-PB1-25	1SAM201914R1002	1	0.013

Accessories with Push-in Spring terminals

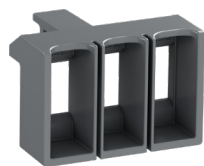
MS132-K, MS132-KT



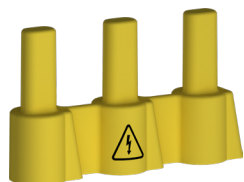
PS1-2-0-65K



PS1-3-1-65K



TS1-M3-K



BS1-K



SA2

Three-phase busbars with Push-in Spring terminals

Three-phase busbars ensure a quick and safe connection and are therefore a cost effective solution. Busbars with Push-in Spring terminals enable tool-free wiring and eliminate the need for routine re-tightening. Between 2 and 5 manual motor starters with none or one lateral auxiliary contact can be connected. There is also a terminal spacer as well as a protection cover available for busbars with Push-in Spring technology.

Suitable for	Rated operational current	Number of Manual motor starters	Number of lateral auxiliary contacts	Type	Order code	Pkg qty	Weight (1 pce)
	A						kg
MS132-K, MS132-KT	65	2	0	PS1-2-0-65K	1SAM301903R1002	1	0.091
	65	3	0	PS1-3-0-65K	1SAM301903R1003	1	0.116
	65	4	0	PS1-4-0-65K	1SAM301903R1004	1	0.140
	65	5	0	PS1-5-0-65K	1SAM301903R1005	1	0.165
	65	2	1	PS1-2-1-65K	1SAM301903R1012	1	0.094
	65	3	1	PS1-3-1-65K	1SAM301903R1013	1	0.123
	65	4	1	PS1-4-1-65K	1SAM301903R1014	1	0.151
	65	4	1	PS1-5-1-65K	1SAM301903R1015	1	0.178

NOTE: For product availability, please consult your ABB local sales organization.

Suitable for	Description	Type	Order code	Pkg qty	Weight (1 pce)
					kg

Terminal spacers, Type E/F

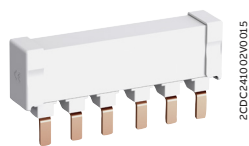
MS132-K, MS132-KT	UL/CSA Type E/F and IEC	TS1-M3-K	1SAM301913R1001	2	0.012
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Additional accessories

MS132-K, MS132-KT	Protection cover for PS1-K busbars	BS1-K	1SAM301904R1001	1	0.002
	Padlock + two keys	SA2	GJF1101903R0002	1	0.020

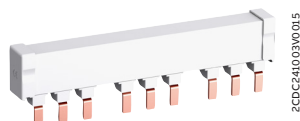
Accessories

MS165, MO165



PS2-2-0-125

2CDC24002V0015



PS2-3-0-125

2CDC24003V0015



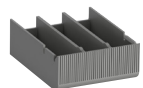
S2-M3-50

2CDC24012V0019



KA165

2CDC24010V0014



BS2-3

2CDC24001V0015



SA2

2CDC24003F0013

Three-phase busbars

Three-phase busbars ensure a quick and safe connection and are therefore a cost effective solution. A variety of different three-phase busbars up to 125 A are part of the assortment. Between 2 and 4 manual motor starters with none, one or two lateral auxiliary contacts can be connected.

Suitable for	Rated operational current A	Number of Manual motor starters	Number of lateral auxiliary contacts	Type	Order code	Pkg qty	Weight (1 pce) kg
MS165, MO165	125	2	0	PS2-2-0-125	1SAM401920R1002	10	0.100
	125	3	0	PS2-3-0-125	1SAM401920R1003	10	0.162
	125	4	0	PS2-4-0-125	1SAM401920R1004	10	0.226
	125	2	2	PS2-2-2-125	1SAM401920R1022	10	0.117
	125	3	2	PS2-3-2-125	1SAM401920R1023	10	0.197
	125	4	2	PS2-4-2-125	1SAM401920R1024	10	0.277

Other busbar types on request.

Feeder block

Suitable for	Rated operational current A	Rated cross section mm ²	Mounting form	Type	Order code	Pkg qty	Weight (1 pce) kg
MS165, MO165	125	50	UL508A and IEC	S2-M3-50	1SAM401923R1003	1	0.172

Additional accessories

Suitable for	Description	Type	Order code	Pkg qty	Weight (1 pce) kg
MS165, MO165	Terminal shroud	KA165	1SAM401922R1001	10	0.025
	Protection cover for busbars	BS2-3	1SAM401921R1001	10	0.005
	Padlock + two keys	SA2	GJF1101903R0002	10	0.020

Accessories

MS116, MS132, MS165, MO132, MO165, MS132-T

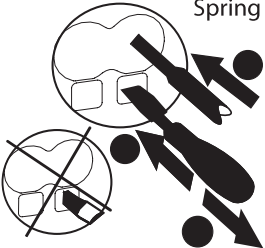
General technical data

Type	PS1-xxx-65(K)		PS1-xxx-100	S1-Mx-25	S1-Mx-35	PS2-xxx-125	S2-M3-50
Standards	IEC/EN 60947-4-1, IEC/EN 60947-1, UL 60947-1, UL 60947-4-1 (UL 508), CSA C22.2 No.60947-4-1 (CSA C22.2 No.14)						
Rated operational voltage Ue	690 V AC / 250 V DC					690 V AC	
Rated operational voltage Ue acc. to UL/CSA	600 V AC						
Rated operational current Ie	65 A	100 A	65 A	100 A	125 A	125 A	
Rated operational current Ie acc. to UL/CSA	65 A	92 A	65 A	92 A	125 A	120 A	
Rated frequency	50/60 Hz						
Rated impulse withstand voltage Uimp	6 kV					8 kV	
Rated insulation voltage Ui	690 V AC						
Pollution degree	3						
Ambient air temperature	Operation	-25 ... +70 °C				-25 ... +40 °C	-25 ... +60 °C (1)
	Storage	-50 ... +80 °C					
Resistance to shock acc. to IEC 60068-2-27	15g / 11 ms					25g / 11 ms	
Resistance to vibrations acc. to IEC 60068-2-6	5g / 3 ... 150 Hz						

(1) Applicable for single mounting. If S2-M3-50 is used with PS2-xxx-125, ambient air temperature for operation is: -25 ... +40 °C

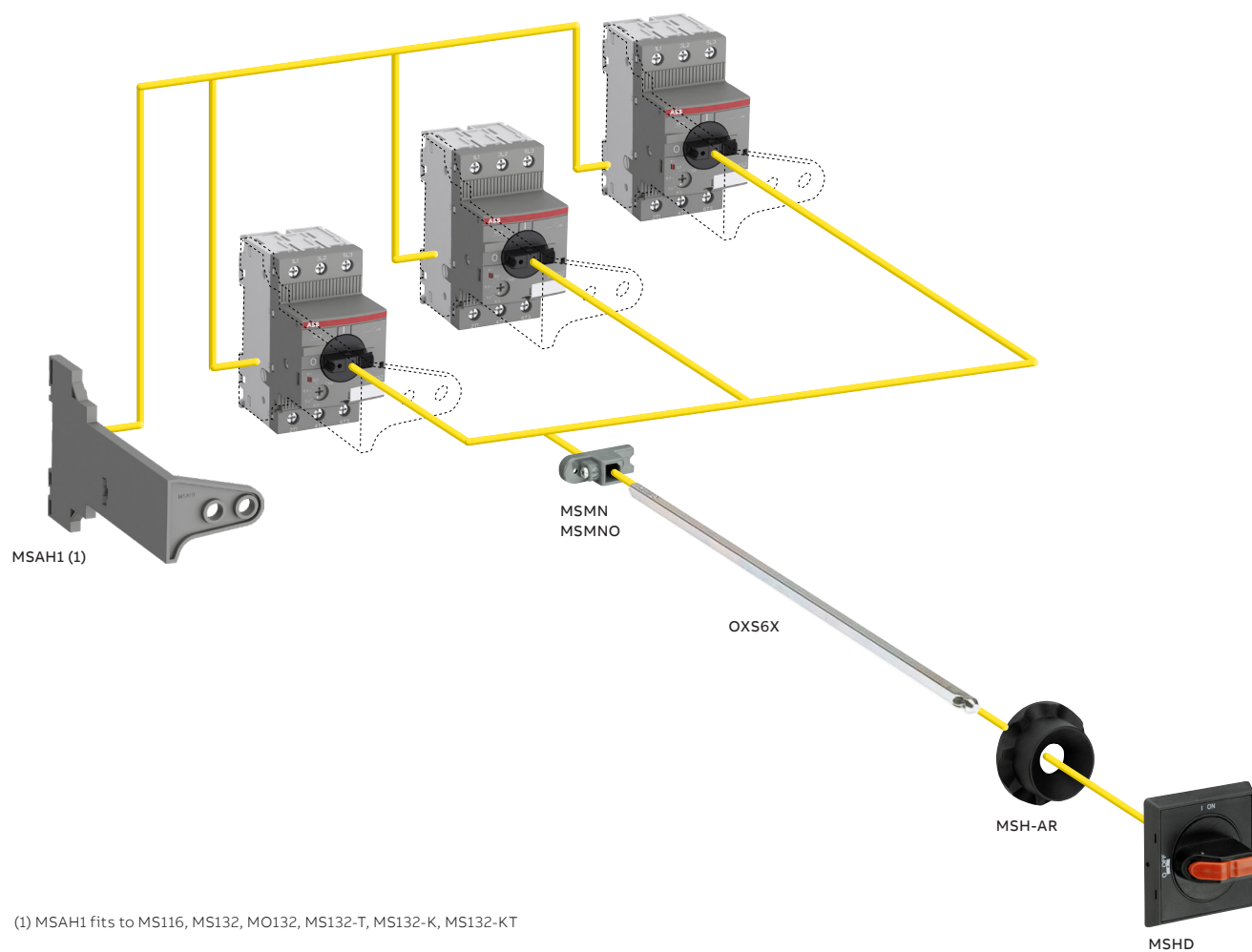
Electrical connection – Main circuit

Type		S1-M1-25	S1-M2-25	S1-M3-25	S1-M3-35	S2-M3-50
Connecting capacity						
 Rigid	1 x	2.5 ... 25 mm ²	4 ... 25 mm ²	2.5 ... 25 mm ²	10 ... 35 mm ²	10 mm ²
 Flexible with ferrule	1 x	–	–	–	–	10 ... 50 mm ²
 Flexible with insulated ferrule	1 x	–	–	–	–	10 ... 50 mm ²
 Flexible	1 x	2.5 ... 16 mm ²	4 ... 16 mm ²	2.5 ... 16 mm ²	10 ... 35 mm ²	10 ... 50 mm ²
Stranded acc. to UL/CSA	1 x	AWG 14 ... 4	AWG 12 ... 4	AWG 14 ... 4	AWG 8 ... 2	AWG 8 ... 0
Flexible acc. to UL/CSA	1 x	AWG 14 ... 6	AWG 12 ... 6	AWG 14 ... 6	AWG 8 ... 2	AWG 8 ... 0
Stripping length		10 mm			12 mm	16 mm
Tightening torque		2.5 Nm / 22 lb.in			4.5 Nm / 40 lb.in	6 Nm / 54 lb.in
Recommended screwdriver		Pozidriv 2			Hexagon SW4	Hexagon SW5

		PS1-xxx-65K with Push-in Spring terminals	
	1 x	6 ... 25 mm ² / AWG 8 ... 4	
	2 x	–	
	1 x	4 ... 16 mm ²	
	2 x	–	
	1 x	4 ... 16 mm ²	
	2 x	–	
	1 x	4 ... 16 mm ²	
	2 x	–	
	1 x	4 ... 6 mm ²	
	2 x	–	
	1 x	1.5 ... 25 mm ² / AWG 18 ... 4	
	2 x	–	
	1 x	0.5 ... 16 mm ²	
	2 x	–	
	1 x	0.5 ... 16 mm ²	
	2 x	–	
	1 x	0.5 ... 16 mm ²	
	2 x	–	
	1 x	0.5 ... 16 mm ²	
	2 x	–	
	1 x	0.5 ... 6 mm ²	
	2 x	–	
		fi 4 mm	
		x 0.5 mm	
		16 mm	

Accessories

MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT



Accessories

MS116, MS132, MO132, MS132-T, MS132-K, MS132-KT



IB132-Y



IB132-G



DMS132-Y



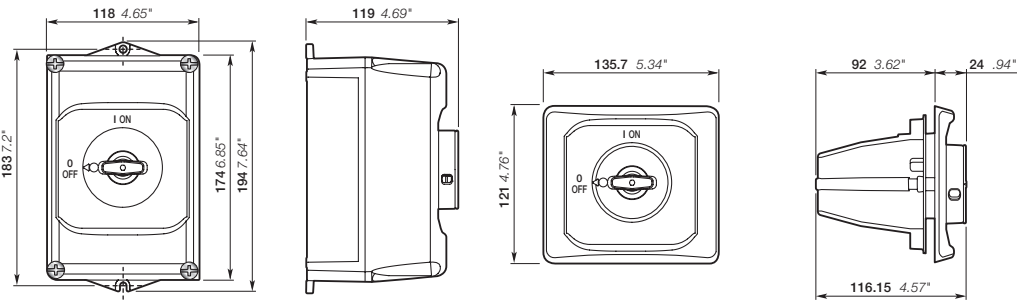
DMS132-G

IB132 are IP65 (NEMA Type 12) enclosures for single manual motor starter installation. Additional mounting of auxiliary and signaling contacts, shunt trips and undervoltage release is possible. The handle is lockable in OFF position. For detailed specification see installation instruction.

DMS132 are IP65 (NEMA Type 12) door mounting kits for manual motor starter installation in any enclosure. Additional mounting of auxiliary, signaling, shunt trips and undervoltage release is possible. The handle is lockable in OFF position. For detailed specification see installation instruction.

Suitable for	Description	Color	Type	Order code	Pkg qty	Weight (1 pce) kg
IP65 enclosures (NEMA Type 12)						
MS116, MS132, MO132	Padlockable max. 3 padlocks with bail diameter 4 ... 6.5 mm	Yellow/red	IB132-Y	1SAM201911R1011	1	0.370
		Grey/black	IB132-G	1SAM201911R1010	1	0.370
IP65 door mounting kits (NEMA Type 12)						
MS116, MS132, MO132	Padlockable max. 3 padlocks with bail diameter 4 ... 6.5 mm	Yellow/red	DMS132-Y	1SAM201912R1011	1	0.170
		Grey/black	DMS132-G	1SAM201912R1010	1	0.170

Indication I-O-T and ON-OFF-T.



Main dimensions mm, inches

Accessories

MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K



MSHD-LB

2CDC241003R0011



MSHD-LY

2CDC241002S0011



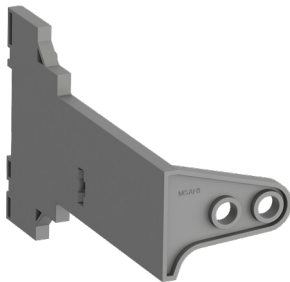
MSMN

2CDC241004F0011



MSH-AR

2CDC241001F0012



MSAH1

2CDC241017V0013

With this solution of door coupling rotary mechanisms it is possible to operate manual motor starters in the back of a switch cabinet from outside. The door coupling mechanism prevents opening of the door of a switch cabinet with the manual motor starter in ON position.

The complete mechanism includes handle, shaft, driver, shaft alignment ring and shaft supporter.

Most accessories fit for 6 mm shafts with a maximum length of 180 mm. The degree of protection for handles MSHD is IP64 (NEMA Type 1, 3R, 12).

Suitable for	Description	Shaft length mm	Color	Type	Order code	Pkg qty pce	Weight (1 pce) kg
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Shafts

MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT	For MSHD handles. Shaft diameter 6 mm. Shaft extension for door coupling driver.	30 32 85 105 130 180		MSOX-30 MSOX-32 OX56X85 OX56X105 OX56X130 OX56X180	1SAM101924R0013 1SAM101924R0003 1SCA101647R1001 1SCA108043R1001 1SCA101655R1001 1SCA101659R1001	1 1 1 1 1 1	0.010 0.010 0.020 0.020 0.030 0.040
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IP64 handles (NEMA Type 1, 3R, 12)

MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT	Padlockable max. 3 padlocks with bail diameter 5 ... 8 mm, door interlock in ON position defeatable, for use with 6 mm OXS6... types up to 180 mm or driver shafts MSOX.		Black Yellow Black Yellow	MSHD-LB (1) MSHD-LY (1) MSHD-LTB (2) MSHD-LTY (2)	1SAM201920R1001 1SAM201920R1002 1SAM201920R1011 1SAM201920R1012	1 1 1 1	0.065 0.065 0.065 0.065
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Driver

MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT	Coupling driver for use with 6 mm OXS6... types up to 180 mm.			MSMN (3) MSMNO (4)	1SAM101923R0002 1SAM101923R0012	1 1	0.002 0.002
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Shaft alignment ring

MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT	The MSH-AR supports the long shafts for alignment to the handle inlet. It makes closing panel doors more easy. Use for OXS6X shafts > 105 mm.			MSH-AR	1SAM201920R1000	1	0.010
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Shaft supporter

MS116, MS132, MO132, MS132-T, MS132-K, MS132-KT	With the MSAH1 it is possible to support the shaft in the extension of handle (MSHD). It is mandatory for the usage of OXS6X shafts >130 mm.			MSAH1	1SAM201909R1021	1	0.035
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(1) Indication I-O and ON-OFF (recommended for MS116)

(2) Indication I-O and ON-OFF + Trip indication

(3) Coded - Positioning of ON indication dependent on mounting orientation of the MMS

(4) Uncoded - Positioning of ON indication independent of mounting orientation of the MMS.



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For direct product details information, use product type or order code, ex:

new.abb.com/products/1SBL137001R1310