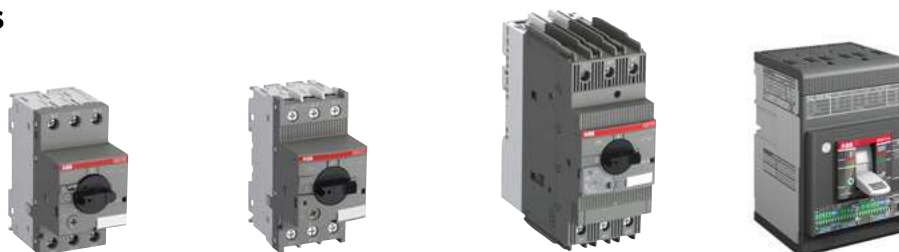


Manual motor starters

Overview



Type	MS116	MS132	MS165	MS5100
Thermal and electromagnetic protection	Yes	Yes	Yes	Yes
Electromagnetic protection	-	-	-	-
Phase loss sensitivity	Yes	Yes	Yes	Yes
Switch position	ON/OFF	ON/OFF/TRIP	ON/OFF/TRIP	ON/OFF/TRIP
Magnetic trip indication	-	Yes	Yes	Yes
Lockable handle without accessories	-	Yes	Yes	Yes
Disconnecting feature	Yes	Yes	Yes	Yes
Width	45 mm	45 mm	55 mm	90 mm
Rated operational current I_e	0.16 ... 32 A	0.16 ... 32 A	16 ... 65 A	100 A
Setting range	0.1 ... 32 A	0.1 ... 32 A	10 ... 65 A	40 ... 100 A ²⁾
Ambient air temperature	-25 ... +55 °C ¹⁾	-25 ... +60 °C ¹⁾	-20 ... +60 °C ¹⁾	-25 ... +70 °C

1) Compensated

Accessories

Auxiliary contact	HKF1, HK1
Signalling contact	for tripped alarm SK1
	for short-circuit alarm - CK1
Shunt trip	AA1
Undervoltage release	UA1

Table for short-circuit ratings for 400/415 V

		Standard range	Performance range				
		MS116	MS132, MS165, MS5100				
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	50 kA	50 kA	MS132-0.16	100 kA	100 kA
0.06 kW	0.16 ... 0.25 A	MS116-0.25	50 kA	50 kA	MS132-0.25	100 kA	100 kA
0.09 kW	0.25 ... 0.4 A	MS116-0.4	50 kA	50 kA	MS132-0.4	100 kA	100 kA
0.18 kW	0.4 ... 0.63 A	MS116-0.63	50 kA	50 kA	MS132-0.63	100 kA	100 kA
0.25 kW	0.63 ... 1.0 A	MS116-1.0	50 kA	50 kA	MS132-1.0	100 kA	100 kA
0.55 kW	1.0...1.6 A	MS116-1.6	50 kA	50 kA	MS132-1.6	100 kA	100 kA
0.75 kW	1.6...2.5 A	MS116-2.5	50 kA	50 kA	MS132-2.5	100 kA	100 kA
1.5 kW	2.5...4.0 A	MS116-4.0	50 kA	50 kA	MS132-4.0	100 kA	100 kA
2.2 kW	4.0...6.3 A	MS116-6.3	50 kA	50 kA	MS132-6.3	100 kA	100 kA
4.0 kW	6.3...10 A	MS116-10	50 kA	50 kA	MS132-10	100 kA	100 kA
5.5 kW	8...12 A	MS116-12	25 kA	25 kA	MS132-12	100 kA	100 kA
7.5 kW	10...16 A	MS116-16	16 kA	16 kA	MS132-16 / 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	15 kA	10 kA	MS132-20	100 kA	100 kA
11 kW	18 ... 25 A				MS165-25	100 kA	100 kA
11 kW	20...25 A	MS116-25	15 kA	10 kA	MS132-25	50 kA	50 kA
15 kW	25...32 A	MS116-32	10 kA	10 kA	MS132-32	50 kA	25 kA
15 kW	23 ... 32 A				MS165-32	100 kA	75 kA
22 kW	30 ... 42 A				MS165-42	50 kA	25 kA
22 kW	40 ... 54 A				MS165-54	50 kA	25 kA
30 kW	52 ... 65 A				MS165-65	50 kA	25 kA

1) 690 V

2) Ordering and technical details can be found in 1SBC100192C0206.



MO132 ²⁾	MO165 ²⁾	MO5100	MS132-T ²⁾
-	-	-	Yes
Yes	Yes	Yes	-
-	-	-	Yes
ON/OFF/TRIP	ON/OFF/TRIP	ON/OFF/TRIP	ON/OFF/TRIP
-	-	-	Yes
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
45 mm	55 mm	76.2	45 mm
0.16 ... 32 A	16 ... 65 A	7.0 ... 100 A	0.16 ... 32 A
-	-	-	0.1 ... 25 A
-25 ... +60 °C	-25 ... +60 °C	-25 ... +70 °C	-25 ... +60 °C ¹⁾

HKF1, HK1	HKF1
SK1	SK1
-	CK1
AA1	AA1
UA1	UA1

Standard range MO132 ²⁾	Performance range MO132, MO165 ²⁾ , MO5100	Transformer protection MS132-T ²⁾
---------------------------------------	--	---

Type	Short-circuit breaking capacity		Type	Short-circuit breaking capacity		Type	Short-circuit breaking capacity
	I _{CU}	I _{CS}		I _{CU}	I _{CS}		
MO132-0.16	100 kA	100 kA	MO132-0.16	100 kA	100 kA	MS132-0.16T	100 kA
MO132-0.25	100 kA	100 kA	MO132-0.25	100 kA	100 kA	MS132-0.25T	100 kA
MO132-0.4	100 kA	100 kA	MO132-0.4	100 kA	100 kA	MS132-0.4T	100 kA
MO132-0.63	100 kA	100 kA	MO132-0.63	100 kA	100 kA	MS132-0.63T	100 kA
MO132-1.0	100 kA	100 kA	MO132-1.0	100 kA	100 kA	MS132-1.0T	100 kA
MO132-1.6	100 kA	100 kA	MO132-1.6	100 kA	100 kA	MS132-1.6T	100 kA
MO132-2.5	100 kA	100 kA	MO132-2.5	100 kA	100 kA	MS132-2.5T	100 kA
MO132-4.0	100 kA	100 kA	MO132-4.0	100 kA	100 kA	MS132-4.0T	100 kA
MO132-6.3	100 kA	100 kA	MO132-6.3	100 kA	100 kA	MS132-6.3T	100 kA
MO132-10	100 kA	100 kA	MO132-10	100 kA	100 kA	MS132-10T	100 kA
MO132-12	100 kA	100 kA	MO132-12	100 kA	100 kA	MS132-12T	100 kA
MO132-16	100 kA	100 kA	MO132-16 / MO165-16	100 kA	100 kA	MS132-16T	100 kA
			MO165-20	100 kA	100 kA		
MO132-20	100 kA	100 kA	MO132-20	100 kA	100 kA	MS132-20T	100 kA
MO132-25	50 kA	50 kA	MO132-25 / MO165-25	50 kA / 100 kA	50 kA / 100 kA	MS132-25T	50 kA
MO132-32	50 kA	25 kA	MO132-32	50 kA	25 kA	Transformer protection: The instantaneous short-circuit current setting is 20 times the rated operational current.	
			MO165-32	100 kA	50 kA		
			MO165-42	50 kA	25 kA		
			MO165-54	50 kA	25 kA		
			MO165-65	50 kA	25 kA		

MS116 manual motor starters

0.10 to 32 A – with thermal and electromagnetic protection



MS116-16



MS116-25

Manual motor starters (MMS) are protection devices for the main circuit. They combine motor control and protection in a single device. MMS are used mainly to switch motors manually ON/OFF and protect them and the installation fuse-less against short-circuit, overload and phase failures. Fuse-less protection with a manual motor starter saves costs, space and ensures a quick reaction under short-circuit condition, by switching off the motor within milliseconds.

Description

MS116 is a compact and economic range for motor protection up to 15.5 kW (400 V) / 32 A in width of 45 mm. Further features are the build-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, three-phase bus bars, power in-feed blocks and locking devices for protection against unauthorised changes are available as accessory.

Ordering details

Rated operational power 400 V AC-3	Setting range	Short-circuit breaking capacity I_{cs} at 400 V AC	Rated instantaneous short-circuit current setting I_i	Factory code	Order code
kW	A	kA	A		
0.03	0.10 ... 0.16	50	1.56	1SAM250000R1001	MS116-0.16
0.06	0.16 ... 0.25	50	2.44	1SAM250000R1002	MS116-0.25
0.09	0.25 ... 0.40	50	3.90	1SAM250000R1003	MS116-0.4
0.12	0.40 ... 0.63	50	6.14	1SAM250000R1004	MS116-0.63
0.25	0.63 ... 1.00	50	11.50	1SAM250000R1005	MS116-1.0
0.55	1.00 ... 1.60	50	18.40	1SAM250000R1006	MS116-1.6
0.75	1.60 ... 2.50	50	28.75	1SAM250000R1007	MS116-2.5
1.5	2.50 ... 4.00	50	50.00	1SAM250000R1008	MS116-4.0
2.2	4.00 ... 6.30	50	78.75	1SAM250000R1009	MS116-6.3
4.0	6.30 ... 10.0	50	150	1SAM250000R1010	MS116-10
5.5	8.00 ... 12.0	25	180	1SAM250000R1012	MS116-12
7.5	10.0 ... 16.0	16	240	1SAM250000R1011	MS116-16
9.0	16.0 ... 20.0	10	300	1SAM250000R1013	MS116-20
12.5	20.0 ... 25.0	10	375	1SAM250000R1014	MS116-25
15.5	25.0 ... 32.0	10	480	1SAM250000R1015	MS116-32

Note:

For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0206. Manual motor starters should always be selected so that the actual motor current is within the setting range.

MS132 manual motor starters

0.10 to 32 A – with thermal and electromagnetic protection



MS132-10



MS132-32

Description

MS132 is a compact and powerful range for motor protection up to 15.5 kW (400 V) / 32 A in width of 45 mm. 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 manual motor starter is suitable for three- and single-phase applications. The handle is lockable to protect against unauthorised changes. Auxiliary contacts, signaling contacts, undervoltage releases, shunt trips, three-phase bus bars, power in-feed blocks.

Ordering details

Rated operational power 400 V AC-3	Setting range	Short-circuit breaking capacity I_{cs} at 400 V AC	Rated instantaneous short-circuit current setting I_i	Factory code	Order code
kW	A	kA	A		
0.03	0.10 ... 0.16	100	1.56	1SAM350000R1001	MS132-0.16
0.06	0.16 ... 0.25	100	2.44	1SAM350000R1002	MS132-0.25
0.09	0.25 ... 0.40	100	3.90	1SAM350000R1003	MS132-0.4
0.12	0.40 ... 0.63	100	6.14	1SAM350000R1004	MS132-0.63
0.25	0.63 ... 1.00	100	11.50	1SAM350000R1005	MS132-1.0
0.55	1.00 ... 1.60	100	18.40	1SAM350000R1006	MS132-1.6
0.75	1.60 ... 2.50	100	28.75	1SAM350000R1007	MS132-2.5
1.5	2.50 ... 4.00	100	50.00	1SAM350000R1008	MS132-4.0
2.2	4.00 ... 6.30	100	78.75	1SAM350000R1009	MS132-6.3
4.0	6.30 ... 10.0	100	150	1SAM350000R1010	MS132-10
5.5	8.00 ... 12.0	100	180	1SAM350000R1012	MS132-12
7.5	10.0 ... 16.0	100	240	1SAM350000R1011	MS132-16
9.0	16.0 ... 20.0	100	300	1SAM350000R1013	MS132-20
12.5	20.0 ... 25.0	50	375	1SAM350000R1014	MS132-25
15.5	25.0 ... 32.0	25	480	1SAM350000R1015	MS132-32

Note:

For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0206. Manual motor starters should always be selected so that the actual motor current is within the setting range.

MS165 manual motor starters

10 to 65 A – with thermal and electromagnetic protection



MS165-65

Description

MS165 is a compact and powerful range for motor protection up to 30 kW (400 V) / 65 A in width of 55 mm. 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 build-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 unauthorised 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.

Ordering details

Rated operational power 400 V AC-3	Setting range	Short-circuit breaking capacity I_{cs} at 400 V AC	Rated instantaneous short-circuit current setting I_i	Factory code	Order code
kW	A	kA	A		
7.5	10 ... 16	100	240	1SAM451000R1011	MS165-16
7.5	14 ... 20	100	300	1SAM451000R1012	MS165-20
11	18 ... 25	100	375	1SAM451000R1013	MS165-25
15	23 ... 32	75	480	1SAM451000R1014	MS165-32
22	30 ... 42	25	630	1SAM451000R1015	MS165-42
22	40 ... 54	25	810	1SAM451000R1016	MS165-54
30	52 ... 65	25	975	1SAM451000R1017	MS165-65

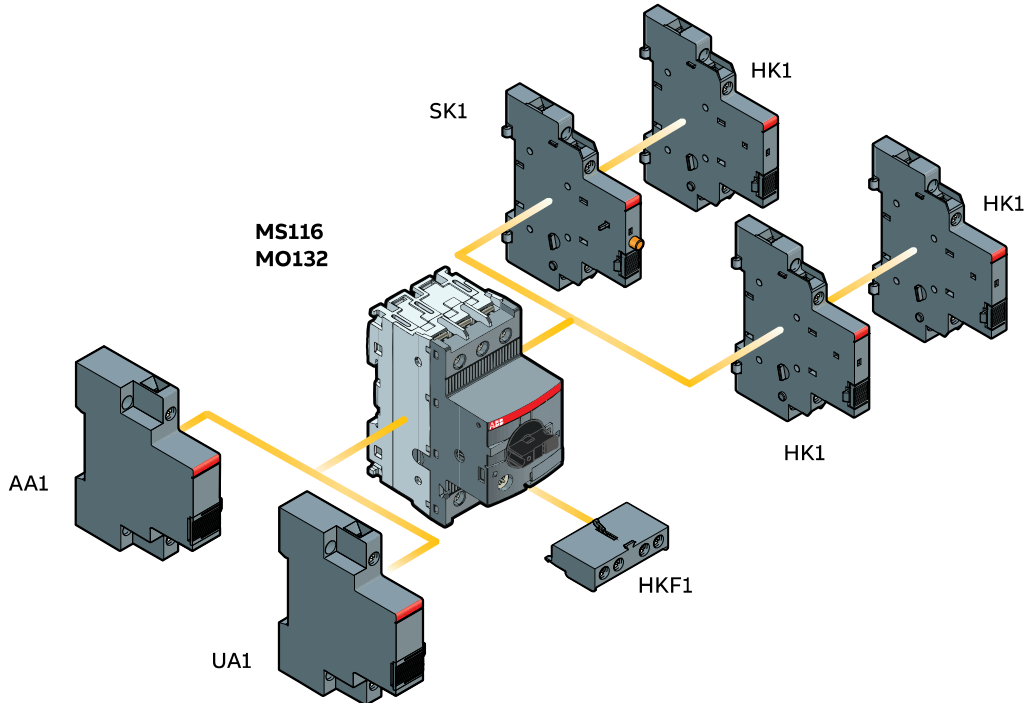
Note:

For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0206. Manual motor starters should always be selected so that the actual motor current is within the setting range.

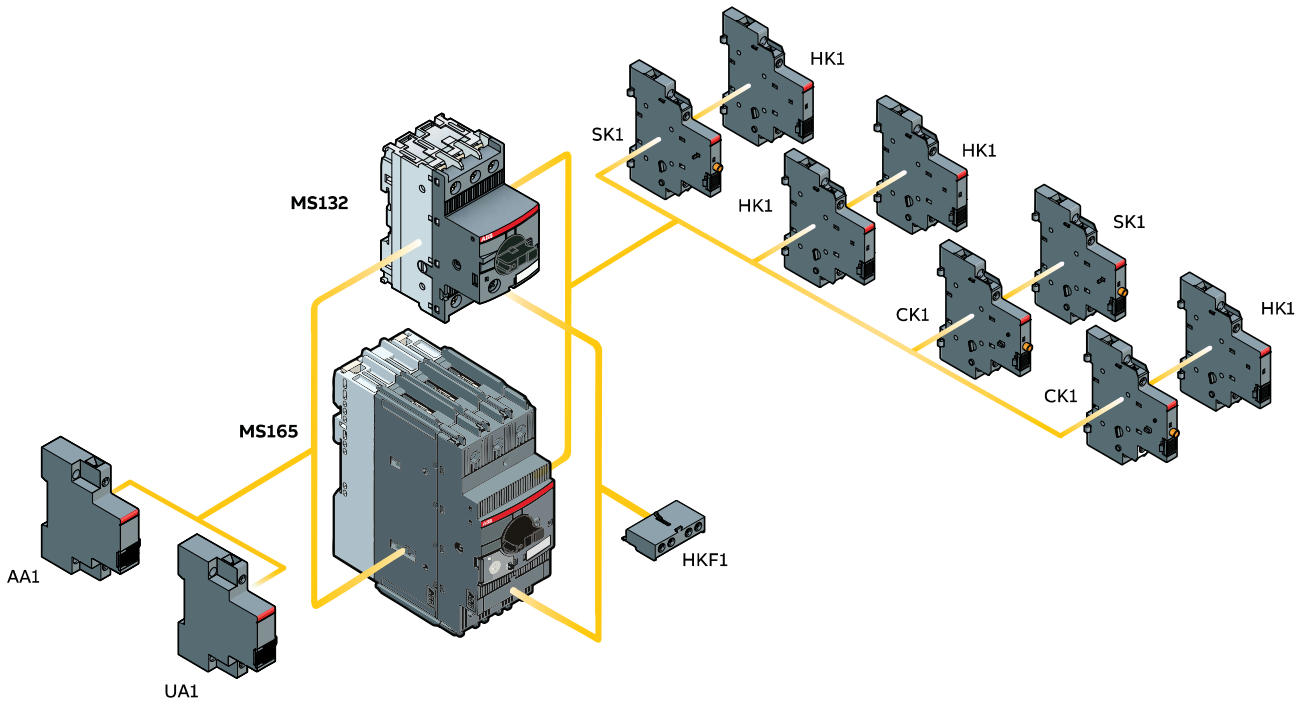
Main accessories

MS116, MS132, MS165

Manual motor starter with accessories (MS116)



Manual motor starter with accessories (MS132, MS165)



Main accessories

Auxiliary and signalling contacts



HKF1-11



HK1-11



SK1-11



CK1-11

Description

MMS and MS132-T can be equipped with auxiliary contacts for lateral/front mounting, signaling contact for lateral mounting, undervoltage release and shunt trips. Two different signaling contacts are available. The accessories can be fitted wiring free and without tools. A variety of combinations is possible as required for the application. The auxiliary contacts change position with the main contacts. The signaling contact SK signals tripping regardless if it was caused by short-circuit or overload. The signaling contact CK signals tripping in case it was caused by short-circuit. Undervoltage release are used for remote tripping of the manual motor starter especially for emergency stop circuits. Shunt trips release the MMS used for remote tripping.

Ordering details

Suitable for	Auxiliary contacts fitted	Description	Factory code	Order code
Auxiliary contacts – mountable on the front				
MS116, MS132, MS165	1 1		1SAM201901R1001	HKF1-11
	2 0		1SAM201901R1002	HKF1-20
Auxiliary contacts – mountable on the right				
MS116, MS132, MS165	1 1	max. 2 pieces	1SAM201902R1001	HK1-11
	2 0	max. 2 pieces	1SAM201902R1002	HK1-20
	0 2	max. 2 pieces	1SAM201902R1003	HK1-02
	2 0	with lead contacts	1SAM201902R1004	HK1-20L
Signaling contacts – mountable on the right				
MS116, MS132, MS165	1 1	for tripped alarm, max. 2 pieces	1SAM201903R1001	SK1-11
	2 0	for tripped alarm, max. 2 pieces	1SAM201903R1002	SK1-20
	0 2	for tripped alarm, max. 2 pieces	1SAM201903R1003	SK1-02
MS132, MS165	1 1	for short-circuit alarm, max. 2 pieces	1SAM301901R1001	CK1-11
	2 0	for short-circuit alarm, max. 2 pieces	1SAM301901R1002	CK1-20
	0 2	for short-circuit alarm, max. 2 pieces	1SAM301901R1003	CK1-02

Note:

For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0206.

Main accessories

Shunt trips and undervoltage releases



AA1-24



UA1-24

Ordering details

Suitable for	Rated control supply voltage		Factory code	Order code
	50 Hz V AC	60 Hz V AC		
Shunt trips – mountable on the left				
MS116, MS132, MS165	20 ... 24	20 ... 24	1SAM201910R1001	AA1-24
	110	110	1SAM201910R1002	AA1-110
	200 ... 240	200 ... 240	1SAM201910R1003	AA1-230
	350 ... 415	350 ... 415	1SAM201910R1004	AA1-400
Undervoltage releases – mountable on the left				
MS116, MS132, MS165	20	24	1SAM201904R1010	UA1-20
	24	–	1SAM201904R1001	UA1-24
	48	–	1SAM201904R1002	UA1-48
	60	–	1SAM201904R1003	UA1-60
	110	120	1SAM201904R1004	UA1-110
	–	208	1SAM201904R1008	UA1-208
	230	240	1SAM201904R1005	UA1-230
	400	–	1SAM201904R1006	UA1-400
	415	480	1SAM201904R1007	UA1-415
	–	575	1SAM201904R1009	UA1-575

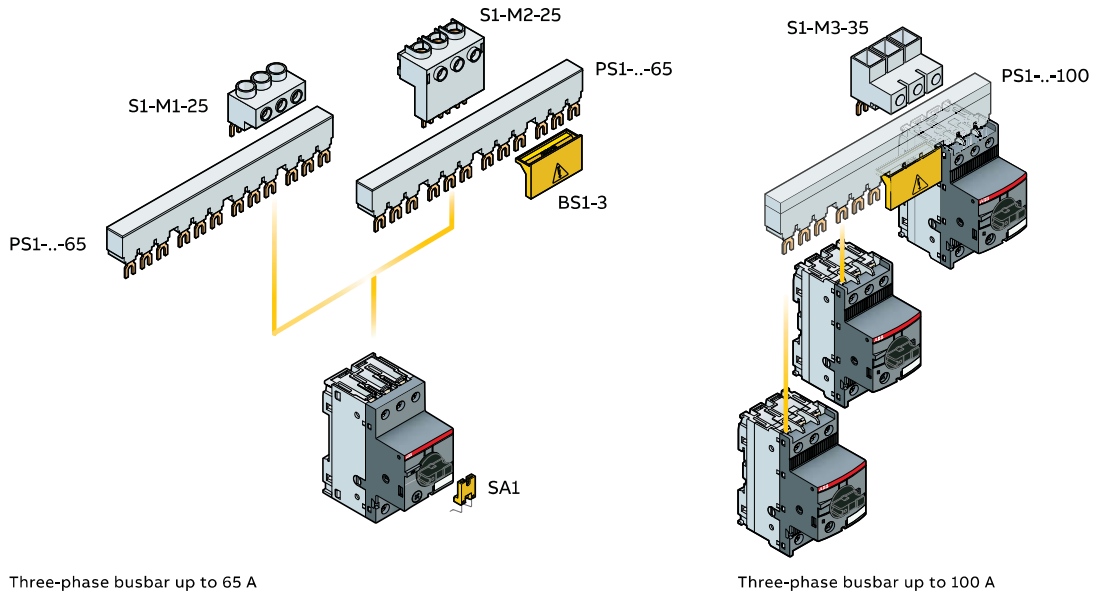
Note:

For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0206.

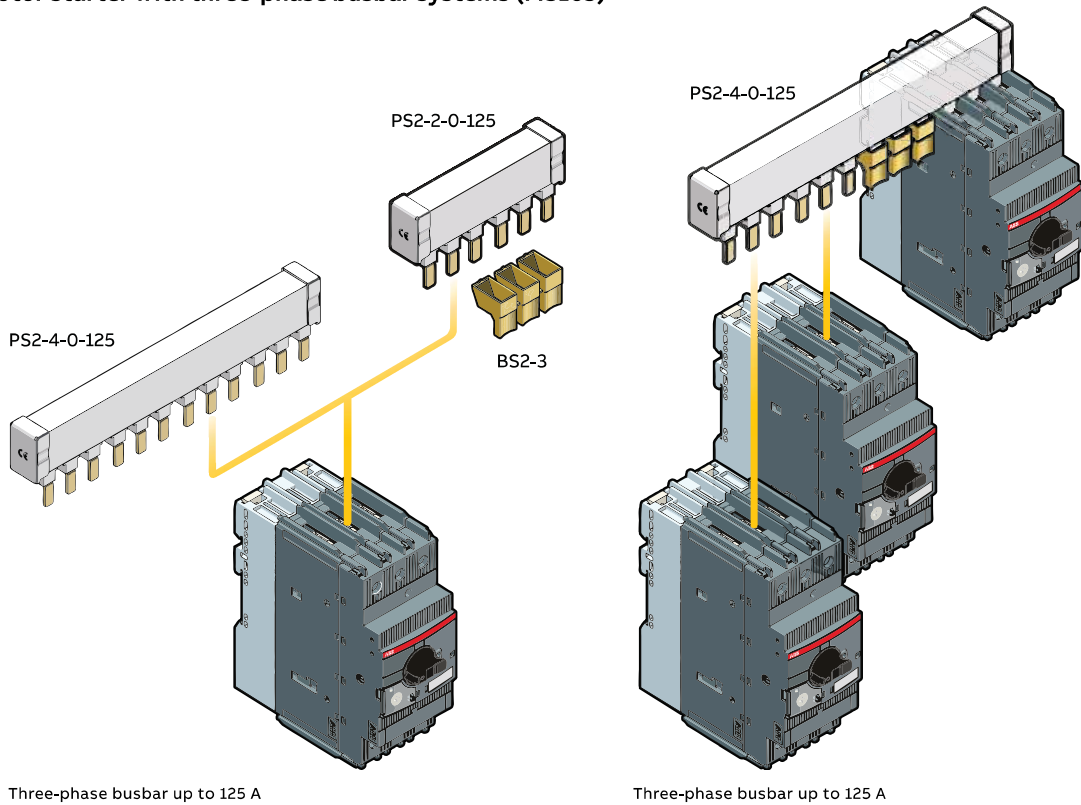
Main accessories

Three-phase busbar systems

Manual motor starter with three-phase busbar systems (MS116, MS132)



Manual motor starter with three-phase busbar systems (MS165)

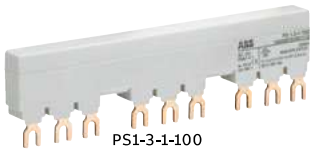


Main accessories

Three-phase busbar systems



PS1-2-0-65



PS1-3-1-100



S1-M1-25



S1-M2-25



SA2



SA1



PB1-1-32



S1-PB1-25

Description

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 in the assortment. Between 2 and 5 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.

Ordering details

Suitable for	Rated operational current	Number of MMS	Number of lateral aux.	Factory code	Order code	
A						
Three-phase busbars						
MS116, MS132	65	2	0	1SAM201906R1102	PS1-2-0-65	
	65	3	0	1SAM201906R1103	PS1-3-0-65	
	65	4	0	1SAM201906R1104	PS1-4-0-65	
	65	5	0	1SAM201906R1105	PS1-5-0-65	
	65	2	1	1SAM201906R1112	PS1-2-1-65	
	65	3	1	1SAM201906R1113	PS1-3-1-65	
	65	4	1	1SAM201906R1114	PS1-4-1-65	
	65	5	1	1SAM201906R1115	PS1-5-1-65	
	65	2	2	1SAM201906R1122	PS1-2-2-65	
	65	3	2	1SAM201906R1123	PS1-3-2-65	
	65	4	2	1SAM201906R1124	PS1-4-2-65	
	65	5	2	1SAM201906R1125	PS1-5-2-65	
	MS116, MS132	100	3	0	1SAM201916R1103	PS1-3-0-100
		100	4	0	1SAM201916R1104	PS1-4-0-100
		100	5	0	1SAM201916R1105	PS1-5-0-100
100		3	1	1SAM201916R1113	PS1-3-1-100	
100		4	1	1SAM201916R1114	PS1-4-1-100	
100		5	1	1SAM201916R1115	PS1-5-1-100	
100		3	2	1SAM201916R1123	PS1-3-2-100	
100		3	2	1SAM201916R1123	PS1-3-2-100	

Suitable for	Rated operational current	Rated cross section	Mounting form	Factory code	Order code
A					
Three-phase feeder terminals					
MS116, MS132	65	25	Flat	1SAM201907R1101	S1-M1-25
	65	25	High	1SAM201907R1102	S1-M2-25
	65	25	UL type E and IEC	1SAM201907R1103	S1-M3-25
	100	35	UL type E and IEC	1SAM201913R1103	S1-M3-35

Suitable for	Description	Factory code	Order code
MS116, MS132	Protection cover for busbars	1SAM201908R1001	BS1-3
MS116, MS132	Screw fixing kit	1SAM201909R1001	FS116
	Padlock + two keys	GJF1101903R0002	SA2
MS116	Lock handle	GJF1101903R0001	SA1
	Lock handle box SA1/SA2	GJF1101903R0003	SA3

Accessories for single-phase connection			
MS116, MS132	Phase connecting link	1SAM201914R1001	PB1-1-32
	Phase power infeed block	1SAM201914R1002	S1-PB1-25

Main accessories

Three-phase busbar systems



PS2-2-0-125



PS2-3-0-125



KA165



BS2-3



SA2

Description

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 in the assortment. Between 2 and 5 manual motor starters with none, one or two lateral auxiliary contacts can be connected.

Ordering details

Suitable for	Rated operational current	Number of MMS	Number of lateral aux.	Factory code	Order code
A					
Three-phase busbars					
MS165	125	2	0	1SAM401920R1002	PS2-2-0-125
	125	3	0	1SAM401920R1003	PS2-3-0-125
	125	4	0	1SAM401920R1004	PS2-4-0-125
	125	2	2	1SAM401920R1022	PS2-2-2-125
	125	3	2	1SAM401920R1023	PS2-3-2-125
	125	4	2	1SAM401920R1024	PS2-4-2-125

Other busbar types on request.

Suitable for	Description	Factory code	Order code
MS165	Terminal shroud	1SAM401922R1001	KA165
	Protection cover for busbars	1SAM401921R1001	BS2-3
	Padlock + two keys	GJF1101903R0002	SA2

Main accessories

IP65 enclosures and door mounting kits



IB132-Y



IB132-G



DMS132-Y



DMS132-G

Description

IB132 are IP65 enclosures for single MMS 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 door mounting kits for MMS 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.

Ordering details

Suitable for	Description	Colour	Factory code	Order code
IP65 enclosures (UL: Type 12)				
MS116, MS132	Padlockable max. 3 padlocks with bail diameter 4 ... 6.5 mm	Yellow/red	1SAM201911R1011	IB132-Y
		Grey/black	1SAM201911R1010	IB132-G
IP65 door mounting kits (UL: Type 12)				
MS116, MS132	Padlockable max. 3 padlocks with bail diameter 4 ... 6.5 mm	Yellow/red	1SAM201912R1011	DMS132-Y
		Grey/black	1SAM201912R1010	DMS132-G

Note:

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

Please check for further equipment chapter General accessories.

For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0206.