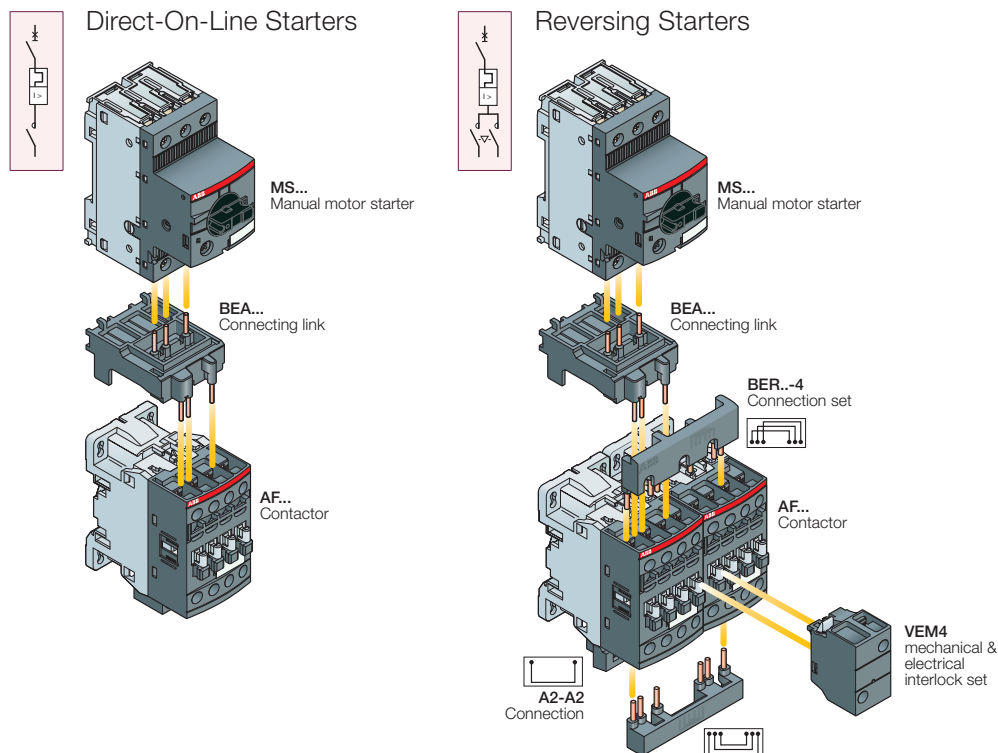


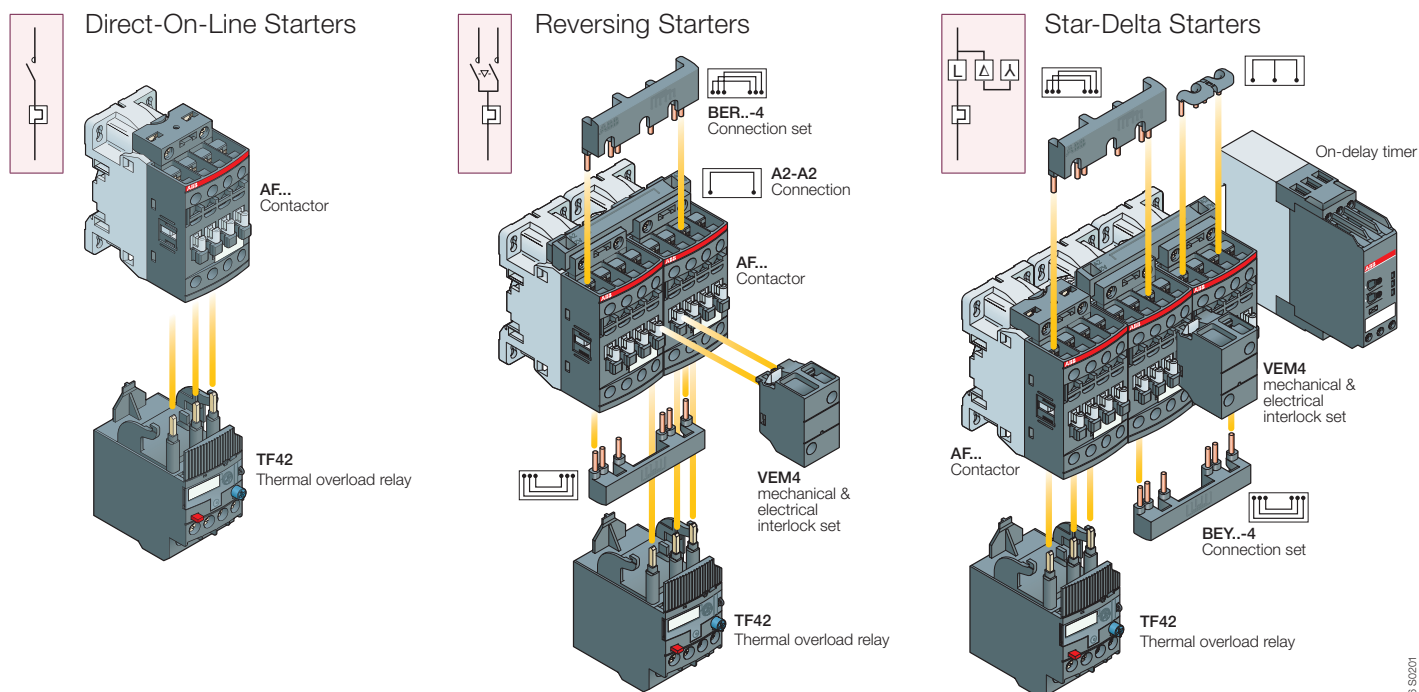
Motor Starting Solutions

Open Type Version, in Kit Form

Starters Protected by Manual Motor Starters



Starters Protected by Thermal Overload Relays



VEM4 mechanical and electrical interlock set including: VM4 mechanical interlock unit including 2 fixing clips and VE4 electrical interlock block with A2-A2 connection

Starters Protected by Manual Motor Starters

Switching of 3-phase Cage Motors

Rated power - AC-3, 400 V	
Short-circuit current I _{sc}	
Coordination type	
Manual motor starters	
Contactor	AC / DC Operated

Direct-On-Line Starters

0.06 ... 15 kW
16 kA - 50 kA
Type 1 & type 2
MS116 ... MS132
AF09 ... AF30

Reversing Starters

0.06 ... 15 kW
16 kA - 50 kA
Type 1 & type 2
MS116 ... MS132
AF09 ... AF30

Starters Protected by Thermal Overload Relays

Switching of 3-phase Cage Motors

Rated power - AC-3, 400 V	
Contactor	AC / DC Operated
Thermal overload relays	

Direct-On-Line Starters

4 ... 18.5 kW
AF09 ... AF38
TF42

Reversing Starters

4 ... 18.5 kW
AF09 ... AF38
TF42

Switching of 3-phase Cage Motors

Rated power - AC-3, 400 V	
Contactor	AC / DC Operated
Thermal overload relays	

Star-Delta Starters

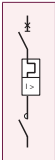
7.5 ... 25 kW
AF09 ... AF38
TF42

Direct-On-Line Starters Protected by Manual Motor Starters With AF Contactors - Open Type Version in Kit Form

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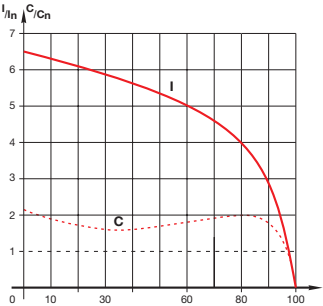


MS132-10 + BEA16-4 + AF16-30-10



Application

Full voltage direct-on-line starting for controlling three-phase asynchronous motors is a simple and economic solution characterised by a high starting torque (1.9 to 2.1 times full-speed torque) and a starting current 5.5 to 7 times nominal current.



I = current
C = torque
In = nominal current
Cn = nominal torque

Coordination Types

The contactor and the manual motor starter control and protect motors against overload and short-circuits according to coordination types 1 and 2 (IEC 60947-4-1 / EN 60947-4-1) defining the anticipated level of service continuity as follow:

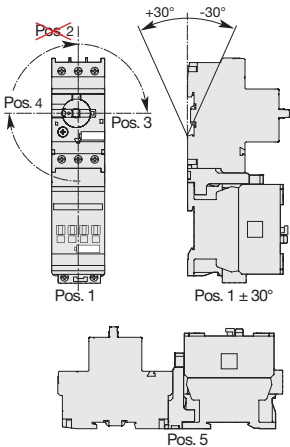
Type 1: In short-circuit conditions, the contactor or starter does not endanger persons or installations and will not be able to then operate without being repaired or having parts replaced.

Type 2: In short-circuit conditions, the contactor or starter does not endanger persons or installations and will be able to operate afterwards. The risk of contacts light welding is acceptable.

Main Technical Data

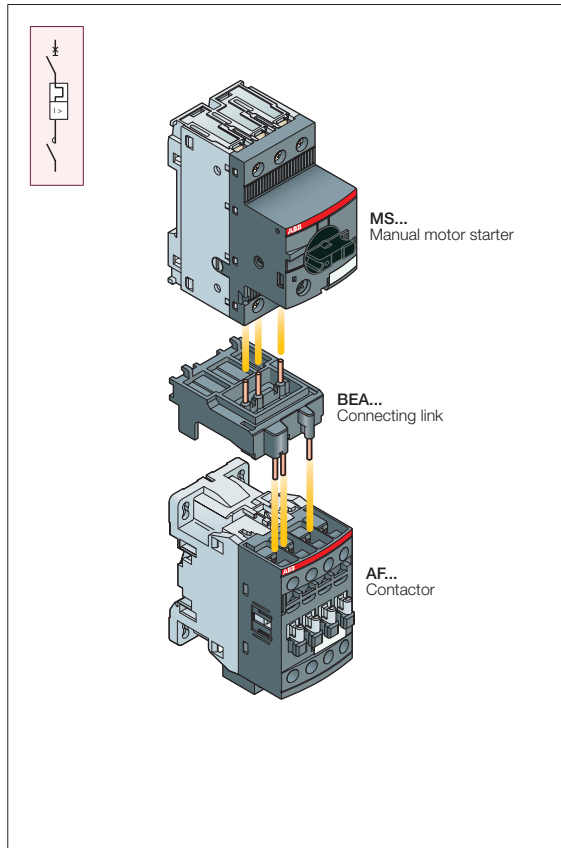
Standards	IEC 60947-4-1 / EN 60947-4-1
Rated operational voltage U_o max.	690 V - 50/60 Hz
Rated insulation voltage U_i according to IEC 60947-4-1	690 V
Switching frequency	≤ 15 starts/hour - 80 % max. load factor - with max. 1.5 s starting time ≤ 30 starts/hour - 50 % max. load factor - with max. 1.5 s starting time
Ambient air temperature close to the device	use with MS116 ≤ 55 °C use with MS132 ≤ 60 °C
Degree of protection	IP 20

Mounting positions



Direct-On-Line Starters Protected by Manual Motor Starters With AF Contactors - Open Type Version in Kit Form

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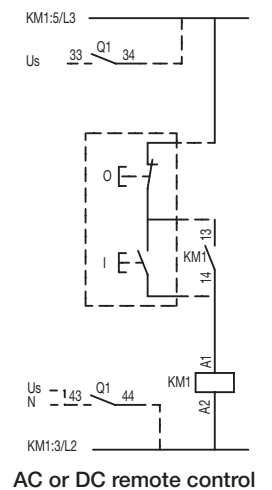
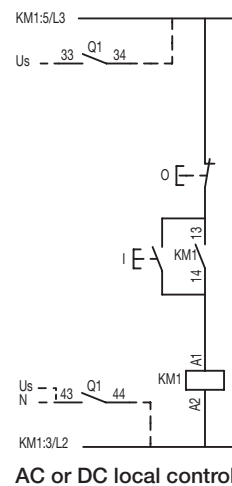
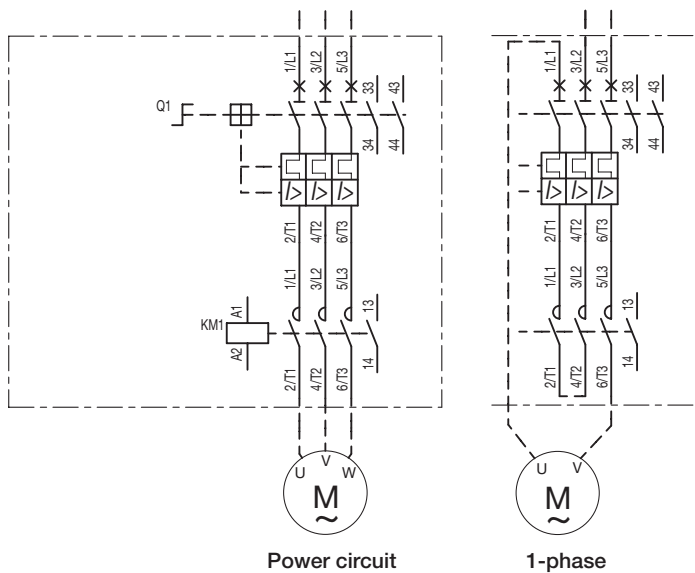
Description

You can easily assemble a direct-on-line starter by using the BEA...-4 connecting link 3-pole insulated. It is used to electrically and mechanically connect MS... manual motor starter and AF... contactor, AC or DC operated.

Select now easily and quickly your starter in the following pages for coordination type 1 or 2 at 400 V, 50 / 60 Hz, $I_a = 16 \text{ kA}$ or $I_a = 50 \text{ kA}$ up to 15 kW.

For complete coordination tables, please contact your ABB local sales organization.

Wiring Diagrams



Except for coil U_c 12-20 V DC : A1+, A2-

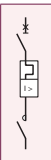
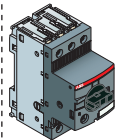
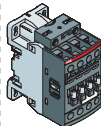
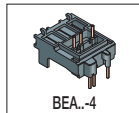
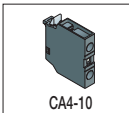
DOL Starters Protected by MS132 Manual Motor Starters

Coordination Type 1

Catalogue Page 1SBC 101 256 S0201



Coordination Type 1, AC-3, 16 kA or 50 kA, 400 V, 50/60 Hz

Manual motor starters										Contactors				Accessories			
 										  							
IEC	Type	Order code		Current setting range	Magnetic tripping current	Control voltage U _c min. ... U _c max. (2)	Type	Order code		Allowed setting current	Type	Order code					
AC-3, 400 V	(1)			A	A	V 50/60 Hz V DC				A							
Rated power kW	Rated current A																
■ I _q = 16 kA																	
■ I _q = 50 kA																	
0.06	0.2	MS132-0.25	1SAM 350 000 R1002	0.16...0.25	2.44	24...60 20...60	AF09Z-30-10-21	1SBL 136 001 R2110		0.25	BEA16-4	1SBN 081 306 T1000					
						100...250 100...250	AF09-30-10-13	1SBL 137 001 R1310									
0.09	0.3	MS132-0.4	1SAM 350 000 R1003	0.25...0.40	3.9	24...60 20...60	AF09Z-30-10-21	1SBL 136 001 R2110		0.4							
						100...250 100...250	AF09-30-10-13	1SBL 137 001 R1310									
0.12	0.44	MS132-0.63	1SAM 350 000 R1004	0.40...0.63	6.14	24...60 20...60	AF09Z-30-10-21	1SBL 136 001 R2110		0.63							
						100...250 100...250	AF09-30-10-13	1SBL 137 001 R1310									
0.18	0.6	MS132-0.63	1SAM 350 000 R1004	0.40...0.63	6.14	24...60 20...60	AF09Z-30-10-21	1SBL 136 001 R2110		0.63							
						100...250 100...250	AF09-30-10-13	1SBL 137 001 R1310									
0.25	0.85	MS132-1.0	1SAM 350 000 R1005	0.63...1.00	11.5	24...60 20...60	AF09Z-30-10-21	1SBL 136 001 R2110		1							
						100...250 100...250	AF09-30-10-13	1SBL 137 001 R1310									
0.37	1.1	MS132-1.6	1SAM 350 000 R1006	1.00...1.60	18.4	24...60 20...60	AF09Z-30-10-21	1SBL 136 001 R2110		1.6							
						100...250 100...250	AF09-30-10-13	1SBL 137 001 R1310									
0.55	1.5	MS132-1.6	1SAM 350 000 R1006	1.00...1.60	18.4	24...60 20...60	AF09Z-30-10-21	1SBL 136 001 R2110		1.6							
						100...250 100...250	AF09-30-10-13	1SBL 137 001 R1310									
0.75	1.9	MS132-2.5	1SAM 350 000 R1007	1.60...2.50	28.75	24...60 20...60	AF09Z-30-10-21	1SBL 136 001 R2110		2.5							
						100...250 100...250	AF09-30-10-13	1SBL 137 001 R1310									
1.1	2.7	MS132-4.0	1SAM 350 000 R1008	2.50...4.00	50	24...60 20...60	AF09Z-30-10-21	1SBL 136 001 R2110		4							
						100...250 100...250	AF09-30-10-13	1SBL 137 001 R1310									
1.5	3.6	MS132-4.0	1SAM 350 000 R1008	2.50...4.00	50	24...60 20...60	AF09Z-30-10-21	1SBL 136 001 R2110		4							
						100...250 100...250	AF09-30-10-13	1SBL 137 001 R1310									
2.2	4.9	MS132-6.3	1SAM 350 000 R1009	4.00...6.30	78.75	24...60 20...60	AF09Z-30-10-21	1SBL 136 001 R2110		6.3							
						100...250 100...250	AF09-30-10-13	1SBL 137 001 R1310									
3	6.5	MS132-10	1SAM 350 000 R1010	6.30...10.0	150	24...60 20...60	AF09Z-30-10-21	1SBL 136 001 R2110		9							
						100...250 100...250	AF09-30-10-13	1SBL 137 001 R1310									
4	8.5	MS132-10	1SAM 350 000 R1010	6.30...10.0	150	24...60 20...60	AF09Z-30-10-21	1SBL 136 001 R2110		9							
						100...250 100...250	AF09-30-10-13	1SBL 137 001 R1310									
5.5	11.5	MS132-12	1SAM 350 000 R1012	8.00...12.0	180	24...60 20...60	AF12Z-30-10-21	1SBL 156 001 R2110		12							
						100...250 100...250	AF12-30-10-13	1SBL 157 001 R1310									
7.5	15.5	MS132-16	1SAM 350 000 R1011	10.0...16.0	240	24...60 20...60	AF16Z-30-10-21	1SBL 176 001 R2110		16							
						100...250 100...250	AF16-30-10-13	1SBL 177 001 R1310									
11	22	MS132-25	1SAM 350 000 R1014	20.0...25.0	375	24...60 20...60	AF26Z-30-00-21	1SBL 236 001 R2100		25	BEA38-4	1SBN 082 306 T2000					
						100...250 100...250	AF26-30-00-13	1SBL 237 001 R1300			+ CA4-10	+ 1SBN 010 110 R1010					
15	29	MS132-32	1SAM 350 000 R1015	25.0...32.0	480	24...60 20...60	AF30Z-30-00-21	1SBL 276 001 R2100		32							
						100...250 100...250	AF30-30-00-13	1SBL 277 001 R1300									

(1) MS116 manual motor starter can be selected according to the current setting range indicated on the coordination line, up to:

- 7.5 kW, 400 V - AC-3 at 16 kA
- 4 kW, 400 V - AC-3 at 50 kA.

(2) For other control voltages, see "3-pole contactors - Ordering details" pages.

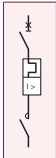
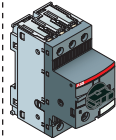
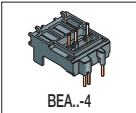
DOL Starters Protected by MS132 Manual Motor Starters

Coordination Type 2

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Coordination Type 2, AC-3, 16 kA or 50 kA, 400 V, 50/60 Hz

Manual motor starters										Accessories			
 										 			
IEC	Type (1)	Order code		Current setting range	Magnetic tripping current	Control voltage U _c min. ... U _c max. (2)	Type (3)	Order code	Allowed setting current	Type (4)	Order code		
AC-3, 400 V													
Rated power kW	Rated current A			A	A	V 50/60 Hz, V DC			A				
I_q = 16 kA													
0.06	0.2	MS132-0.25	1SAM 350 000 R1002	0.16...0.25	2.44	24...60 100...250	20...60 100...250	AF09Z-30-10-21 AF09-30-10-13	1SBL 136 001 R2110 1SBL 137 001 R1310	0.25	BEA16-4	1SBN 081 306 T1000	
0.09	0.3	MS132-0.4	1SAM 350 000 R1003	0.25...0.40	3.9	24...60 100...250	20...60 100...250	AF09Z-30-10-21 AF09-30-10-13	1SBL 136 001 R2110 1SBL 137 001 R1310	0.4			
0.12	0.44	MS132-0.63	1SAM 350 000 R1004	0.40...0.63	6.14	24...60 100...250	20...60 100...250	AF09Z-30-10-21 AF09-30-10-13	1SBL 136 001 R2110 1SBL 137 001 R1310	0.63			
0.18	0.6	MS132-0.63	1SAM 350 000 R1004	0.40...0.63	6.14	24...60 100...250	20...60 100...250	AF09Z-30-10-21 AF09-30-10-13	1SBL 136 001 R2110 1SBL 137 001 R1310	0.63			
0.25	0.85	MS132-1.0	1SAM 350 000 R1005	0.63...1.00	11.5	24...60 100...250	20...60 100...250	AF09Z-30-10-21 AF09-30-10-13	1SBL 136 001 R2110 1SBL 137 001 R1310	1			
0.37	1.1	MS132-1.6	1SAM 350 000 R1006	1.00...1.60	18.4	24...60 100...250	20...60 100...250	AF09Z-30-10-21 AF09-30-10-13	1SBL 136 001 R2110 1SBL 137 001 R1310	1.6			
0.55	1.5	MS132-1.6	1SAM 350 000 R1006	1.00...1.60	18.4	24...60 100...250	20...60 100...250	AF09Z-30-10-21 AF09-30-10-13	1SBL 136 001 R2110 1SBL 137 001 R1310	1.6			
0.75	1.9	MS132-2.5	1SAM 350 000 R1007	1.60...2.50	28.75	24...60 100...250	20...60 100...250	AF09Z-30-10-21 AF09-30-10-13	1SBL 136 001 R2110 1SBL 137 001 R1310	2.5			
1.1	2.7	MS132-4.0	1SAM 350 000 R1008	2.50...4.00	50	24...60 100...250	20...60 100...250	AF26Z-30-00-21 AF26-30-00-13	1SBL 236 001 R2100 1SBL 237 001 R1300	4	BEA26-4 + CA4-10	1SBN 082 306 T1000 + 1SBN 010 110 R1010	
1.5	3.6	MS132-4.0	1SAM 350 000 R1008	2.50...4.00	50	24...60 100...250	20...60 100...250	AF26Z-30-00-21 AF26-30-00-13	1SBL 236 001 R2100 1SBL 237 001 R1300	4			
2.2	4.9	MS132-6.3	1SAM 350 000 R1009	4.00...6.30	78.75	24...60 100...250	20...60 100...250	AF26Z-30-00-21 AF26-30-00-13	1SBL 236 001 R2100 1SBL 237 001 R1300	6.3			
3	6.5	MS132-10	1SAM 350 000 R1010	6.30...10.0	150	24...60 100...250	20...60 100...250	AF26Z-30-00-21 AF26-30-00-13	1SBL 236 001 R2100 1SBL 237 001 R1300	10			
4	8.5	MS132-10	1SAM 350 000 R1010	6.30...10.0	150	24...60 100...250	20...60 100...250	AF26Z-30-00-21 AF26-30-00-13	1SBL 236 001 R2100 1SBL 237 001 R1300	10			
5.5	11.5	MS132-12	1SAM 350 000 R1012	8.00...12.0	180	24...60 100...250	20...60 100...250	AF26Z-30-00-21 AF26-30-00-13	1SBL 236 001 R2100 1SBL 237 001 R1300	12	BEA38-4 + CA4-10	1SBN 082 306 T2000 + 1SBN 010 110 R1010	
7.5	15.5	MS132-16	1SAM 350 000 R1011	10.0...16.0	240	24...60 100...250	20...60 100...250	AF30Z-30-00-21 AF30-30-00-13	1SBL 276 001 R2100 1SBL 277 001 R1300	16			
11	22	MS132-25	1SAM 350 000 R1014	20.0...25.0	375	24...60 100...250	20...60 100...250	AF30Z-30-00-21 AF30-30-00-13	1SBL 276 001 R2100 1SBL 277 001 R1300	25			
15	29	MS132-32	1SAM 350 000 R1015	25.0...32.0	480	24...60 100...250	20...60 100...250	AF30Z-30-00-21 AF30-30-00-13	1SBL 276 001 R2100 1SBL 277 001 R1300	32			

(1) MS116 manual motor starter can be selected according to the current setting range indicated on the coordination line, up to:

- 7.5 kW, 400 V - AC-3 at 16 kA
- 4 kW, 400 V - AC-3 at 50 kA.

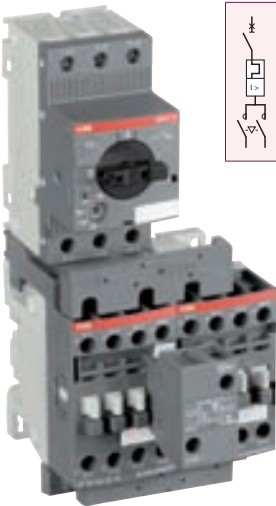
(2) For other control voltages, see "3-pole contactors - Ordering details" pages.

(3) AF26... 3-pole contactor can be selected for coordination type 2, 16 kA, 7.5 kW, 400 V - AC-3.

(4) BEA38-4 cannot be selected with MS116 manual motor starters.

Reversing Starters Protected by Manual Motor Starters With AF Contactors - Open Type Version in Kit Form

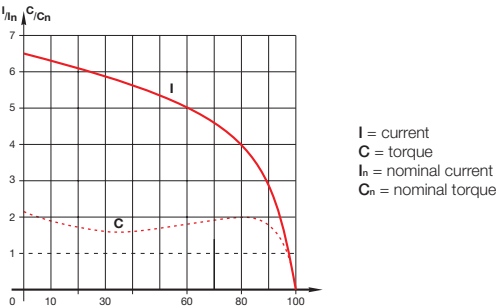
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MS132-10 + BEA16-4 + BER16-4 + VEM4
+ AF16-30-10

Application

Full voltage reversing starting for controlling three-phase asynchronous motors is a simple and economic solution characterised by a high starting torque (1.9 to 2.1 times full-speed torque) and a starting current 5.5 to 7 times nominal current.



Coordination Types

The contactor and the manual motor starter control and protect motors against overload and short-circuits according to coordination types 1 and 2 (IEC 60947-4-1 / EN 60947-4-1) defining the anticipated level of service continuity as follow:

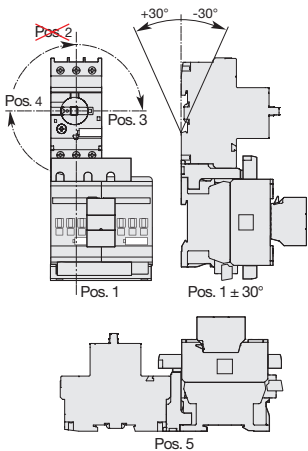
Type 1: In short-circuit conditions, the contactor or starter does not endanger persons or installations and will not be able to then operate without being repaired or having parts replaced.

Type 2: In short-circuit conditions, the contactor or starter does not endanger persons or installations and will be able to operate afterwards. The risk of contacts light welding is acceptable.

Main Technical Data

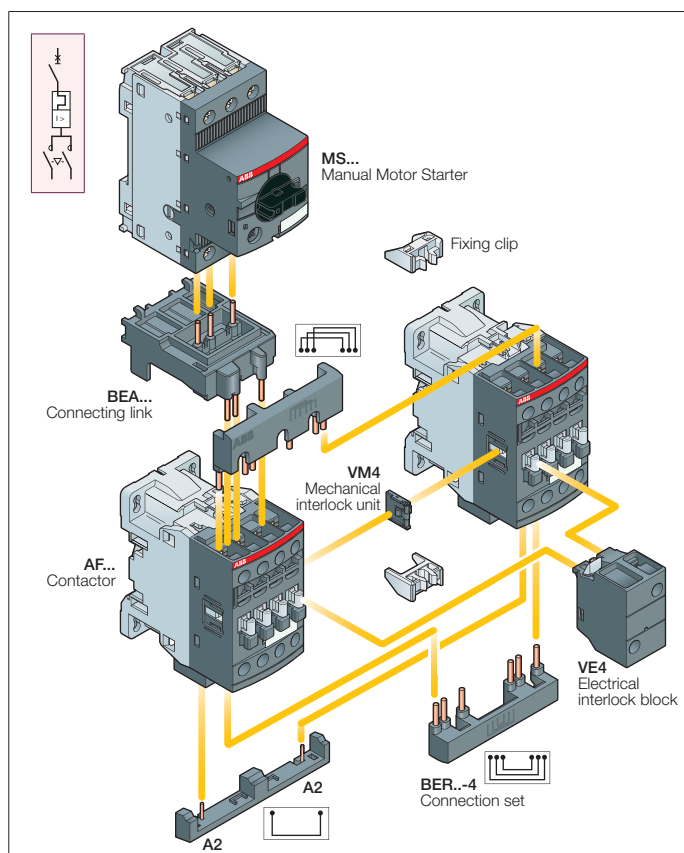
Standards	IEC 60947-4-1 / EN 60947-4-1
Rated operational voltage U_o max.	690 V - 50/60 Hz
Rated insulation voltage U_i according to IEC 60947-4-1	690 V
Switching frequency	≤ 15 starts/hour - 80 % max. load factor - with max. 1.5 s starting time ≤ 30 starts/hour - 50 % max. load factor - with max. 1.5 s starting time
Ambient air temperature close to the device	use with MS116 ≤ 55 °C use with MS132 ≤ 60 °C
Degree of protection	IP 20

Mounting positions



Reversing Starters Protected by Manual Motor Starters With AF Contactors - Open Type Version in Kit Form

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Description

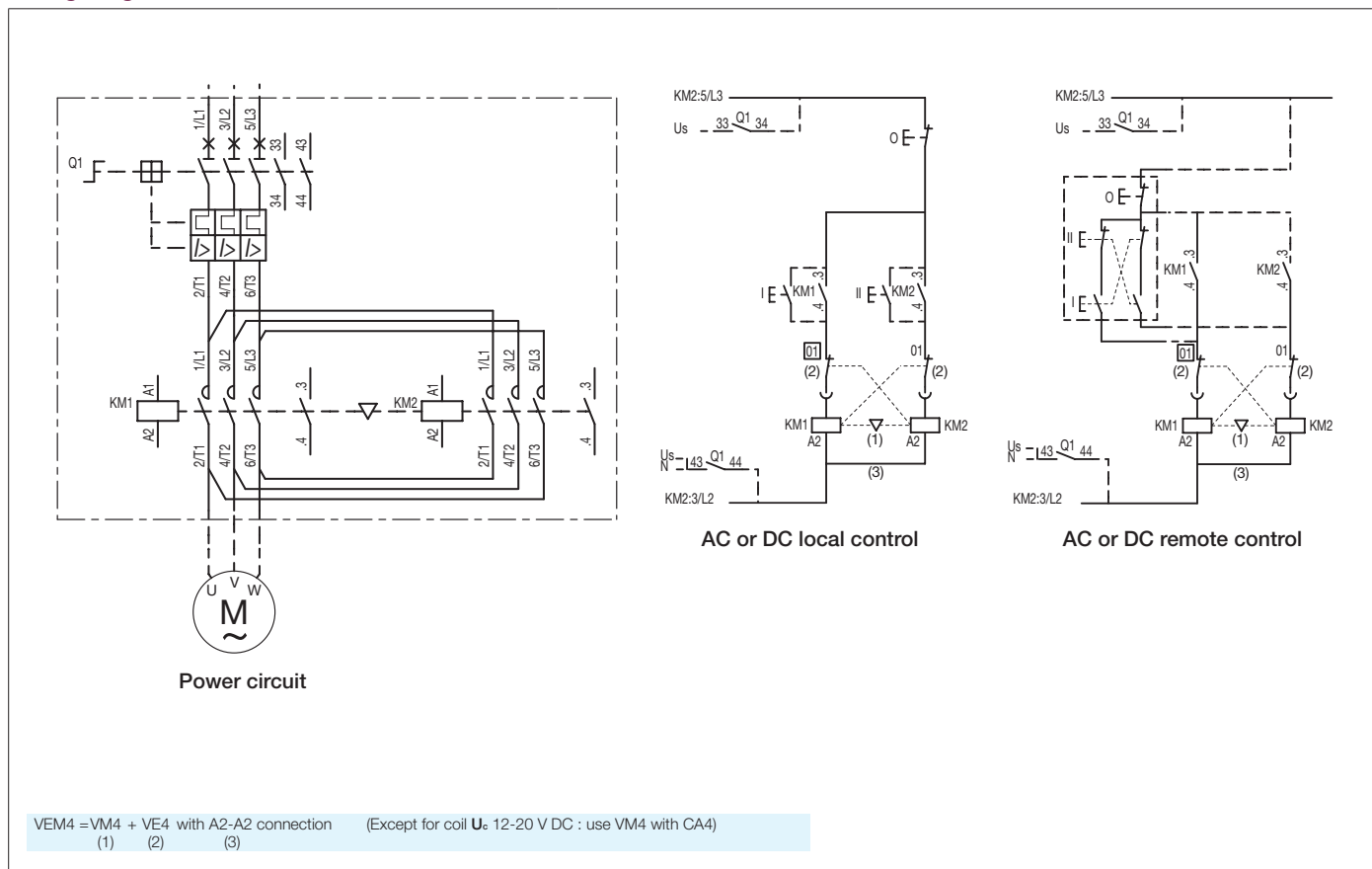
You can easily assemble reversing starter thanks to our complete range of accessories:

- BEA...-4 connecting link 3-pole insulated: it is used to electrically and mechanically connect MS... manual motor starter and AF contactor, AC or DC operated.
- VEM4 mechanical and electrical interlock set for reversing starter in 90 mm width. It includes:
 - VM4 mechanical interlock unit including 2 fixing clips
 - VE4 electrical interlock block with A2-A2 connection.
- BER...-4 connection set: it assures a safe and simple reversing connection between both contactor main terminals.

Select now easily and quickly your starter in the following pages for coordination type 1 or 2 at 400 V, 50 / 60 Hz, $I_n = 16$ kA or $I_n = 50$ kA up to 15 kW.

For complete coordination tables, please contact your ABB local sales organization.

Wiring Diagrams



Reversing Starters Protected by MS132 Manual Motor Starters

Coordination Type 1

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Coordination Type 1, AC-3, 16 kA or 50 kA, 400 V, 50/60 Hz

Manual motor starters										Contactors				Accessories			
IEC		Type	Order code		Current setting range	Magnetic tripping current	Control voltage U _c min. ... U _c max. (2)		Type	Order code		Allowed setting current	Type	Order code			
AC-3, 400 V		(1)			A	A	V 50/60 Hz ¹ V DC ²					A					
Rated power kW	Rated current A																
■ I _q = 16 kA																	
■ I _q = 50 kA																	
0.06	0.2	MS132-0.25	1SAM 350 000 R1002		0.16...0.25	2.44	24...60	20...60	AF09Z-30-10-21	1SBL 136 001 R2110		0.25	BEA16-4	1SBN 081 306 T1000			
							100...250	100...250	AF09-30-10-13	1SBL 137 001 R1310			+	+			
0.09	0.3	MS132-0.4	1SAM 350 000 R1003		0.25...0.40	3.9	24...60	20...60	AF09Z-30-10-21	1SBL 136 001 R2110		0.4	BER16-4	1SBN 081 311 R1000			
							100...250	100...250	AF09-30-10-13	1SBL 137 001 R1310			+	+			
0.12	0.44	MS132-0.63	1SAM 350 000 R1004		0.40...0.63	6.14	24...60	20...60	AF09Z-30-10-21	1SBL 136 001 R2110		0.63		1SBN 030 111 R1000			
							100...250	100...250	AF09-30-10-13	1SBL 137 001 R1310			VEM4				
0.18	0.6	MS132-0.63	1SAM 350 000 R1004		0.40...0.63	6.14	24...60	20...60	AF09Z-30-10-21	1SBL 136 001 R2110		0.63					
							100...250	100...250	AF09-30-10-13	1SBL 137 001 R1310							
0.25	0.85	MS132-1.0	1SAM 350 000 R1005		0.63...1.00	11.5	24...60	20...60	AF09Z-30-10-21	1SBL 136 001 R2110		1					
							100...250	100...250	AF09-30-10-13	1SBL 137 001 R1310							
0.37	1.1	MS132-1.6	1SAM 350 000 R1006		1.00...1.60	18.4	24...60	20...60	AF09Z-30-10-21	1SBL 136 001 R2110		1.6					
							100...250	100...250	AF09-30-10-13	1SBL 137 001 R1310							
0.55	1.5	MS132-1.6	1SAM 350 000 R1006		1.00...1.60	18.4	24...60	20...60	AF09Z-30-10-21	1SBL 136 001 R2110		1.6					
							100...250	100...250	AF09-30-10-13	1SBL 137 001 R1310							
0.75	1.9	MS132-2.5	1SAM 350 000 R1007		1.60...2.50	28.75	24...60	20...60	AF09Z-30-10-21	1SBL 136 001 R2110		2.5					
							100...250	100...250	AF09-30-10-13	1SBL 137 001 R1310							
1.1	2.7	MS132-4.0	1SAM 350 000 R1008		2.50...4.00	50	24...60	20...60	AF09Z-30-10-21	1SBL 136 001 R2110		4					
							100...250	100...250	AF09-30-10-13	1SBL 137 001 R1310							
1.5	3.6	MS132-4.0	1SAM 350 000 R1008		2.50...4.00	50	24...60	20...60	AF09Z-30-10-21	1SBL 136 001 R2110		4					
							100...250	100...250	AF09-30-10-13	1SBL 137 001 R1310							
2.2	4.9	MS132-6.3	1SAM 350 000 R1009		4.00...6.30	78.75	24...60	20...60	AF09Z-30-10-21	1SBL 136 001 R2110		6.3					
							100...250	100...250	AF09-30-10-13	1SBL 137 001 R1310							
3	6.5	MS132-10	1SAM 350 000 R1010		6.30...10.0	150	24...60	20...60	AF09Z-30-10-21	1SBL 136 001 R2110		9					
							100...250	100...250	AF09-30-10-13	1SBL 137 001 R1310							
4	8.5	MS132-10	1SAM 350 000 R1010		6.30...10.0	150	24...60	20...60	AF09Z-30-10-21	1SBL 136 001 R2110		9					
							100...250	100...250	AF09-30-10-13	1SBL 137 001 R1310							
5.5	11.5	MS132-12	1SAM 350 000 R1012		8.00...12.0	180	24...60	20...60	AF12Z-30-10-21	1SBL 156 001 R2110		12					
							100...250	100...250	AF12-30-10-13	1SBL 157 001 R1310							
7.5	15.5	MS132-16	1SAM 350 000 R1011		10.0...16.0	240	24...60	20...60	AF16Z-30-10-21	1SBL 176 001 R2110		16					
							100...250	100...250	AF16-30-10-13	1SBL 177 001 R1310							
11	22	MS132-25	1SAM 350 000 R1014		20.0...25.0	375	24...60	20...60	AF26Z-30-00-21	1SBL 236 001 R2100		25	BEA38-4	1SBN 082 306 T2000			
							100...250	100...250	AF26-30-00-13	1SBL 237 001 R1300			+	+			
15	29	MS132-32	1SAM 350 000 R1015		25.0...32.0	480	24...60	20...60	AF30Z-30-00-21	1SBL 276 001 R2100		32	VEM4	1SBN 030 111 R1000			
							100...250	100...250	AF30-30-00-13	1SBL 277 001 R1300			2x CA4-10	1SBN 010 110 R1010			

(1) MS116 manual motor starter can be selected according to the current setting range indicated on the coordination line, up to :
 - 7.5 kW, 400 V - AC-3 at 16 kA
 - 4 kW, 400 V - AC-3 at 50 kA.

(2) For other control voltages, see "3-pole contactors - Ordering details" pages.

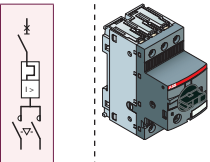
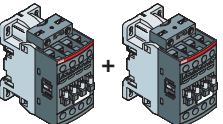
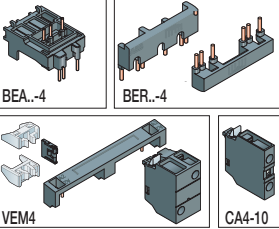
Reversing Starters Protected by MS132 Manual Motor Starters

Coordination Type 2

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Coordination Type 2, AC-3, 16 kA or 50 kA, 400 V, 50/60 Hz

Manual motor starters						Contactors				Accessories			
													
IEC AC-3, 400 V Rated power kW	Rated current A	Type (1)	Order code	Current setting range A	Magnetic tripping current A	Control voltage U _c min. ... U _c max. (2) V 50/60 Hz; V DC	Type (3)	Order code	Allowed setting current A	Type (4)	Order code		
■ I _q = 16 kA													
■ I _q = 50 kA													
0.06	0.2	MS132-0.25	1SAM 350 000 R1002	0.16...0.25	2.44	24...60 100...250	20...60 100...250	AF09Z-30-10-21 AF09-30-10-13	1SBL 136 001 R2110 1SBL 137 001 R1310	0.25	BEA16-4 + BER16-4 + VEM4	1SBN 081 306 T1000 + 1SBN 081 311 R1000 + 1SBN 030 111 R1000	
0.09	0.3	MS132-0.4	1SAM 350 000 R1003	0.25...0.40	3.9	24...60 100...250	20...60 100...250	AF09Z-30-10-21 AF09-30-10-13	1SBL 136 001 R2110 1SBL 137 001 R1310	0.4			
0.12	0.44	MS132-0.63	1SAM 350 000 R1004	0.40...0.63	6.14	24...60 100...250	20...60 100...250	AF09Z-30-10-21 AF09-30-10-13	1SBL 136 001 R2110 1SBL 137 001 R1310	0.63			
0.18	0.6	MS132-0.63	1SAM 350 000 R1004	0.40...0.63	6.14	24...60 100...250	20...60 100...250	AF09Z-30-10-21 AF09-30-10-13	1SBL 136 001 R2110 1SBL 137 001 R1310	0.63			
0.25	0.85	MS132-1.0	1SAM 350 000 R1005	0.63...1.00	11.5	24...60 100...250	20...60 100...250	AF09Z-30-10-21 AF09-30-10-13	1SBL 136 001 R2110 1SBL 137 001 R1310	1			
0.37	1.1	MS132-1.6	1SAM 350 000 R1006	1.00...1.60	18.4	24...60 100...250	20...60 100...250	AF09Z-30-10-21 AF09-30-10-13	1SBL 136 001 R2110 1SBL 137 001 R1310	1.6			
0.55	1.5	MS132-1.6	1SAM 350 000 R1006	1.00...1.60	18.4	24...60 100...250	20...60 100...250	AF09Z-30-10-21 AF09-30-10-13	1SBL 136 001 R2110 1SBL 137 001 R1310	1.6			
0.75	1.9	MS132-2.5	1SAM 350 000 R1007	1.60...2.50	28.75	24...60 100...250	20...60 100...250	AF09Z-30-10-21 AF09-30-10-13	1SBL 136 001 R2110 1SBL 137 001 R1310	2.5			
1.1	2.7	MS132-4.0	1SAM 350 000 R1008	2.50...4.00	50	24...60 100...250	20...60 100...250	AF26Z-30-00-21 AF26-30-00-13	1SBL 236 001 R2100 1SBL 237 001 R1300	4	BEA26-4 + BER38-4 + VEM4 + 2x CA4-10	1SBN 082 306 T1000 + 1SBN 082 311 R1000 + 1SBN 030 111 R1000 + 1SBN 010 110 R1010	
1.5	3.6	MS132-4.0	1SAM 350 000 R1008	2.50...4.00	50	24...60 100...250	20...60 100...250	AF26Z-30-00-21 AF26-30-00-13	1SBL 236 001 R2100 1SBL 237 001 R1300	4			
2.2	4.9	MS132-6.3	1SAM 350 000 R1009	4.00...6.30	78.75	24...60 100...250	20...60 100...250	AF26Z-30-00-21 AF26-30-00-13	1SBL 236 001 R2100 1SBL 237 001 R1300	6.3			
3	6.5	MS132-10	1SAM 350 000 R1010	6.30...10.0	150	24...60 100...250	20...60 100...250	AF26Z-30-00-21 AF26-30-00-13	1SBL 236 001 R2100 1SBL 237 001 R1300	10			
4	8.5	MS132-10	1SAM 350 000 R1010	6.30...10.0	150	24...60 100...250	20...60 100...250	AF26Z-30-00-21 AF26-30-00-13	1SBL 236 001 R2100 1SBL 237 001 R1300	10			
5.5	11.5	MS132-12	1SAM 350 000 R1012	8.00...12.0	180	24...60 100...250	20...60 100...250	AF26Z-30-00-21 AF26-30-00-13	1SBL 236 001 R2100 1SBL 237 001 R1300	12	BEA38-4 + BER38-4 + VEM4 + 2x CA4-10	1SBN 082 306 T2000 + 1SBN 082 311 R1000 + 1SBN 030 111 R1000 + 1SBN 010 110 R1010	
7.5	15.5	MS132-16	1SAM 350 000 R1011	10.0...16.0	240	24...60 100...250	20...60 100...250	AF30Z-30-00-21 AF30-30-00-13	1SBL 276 001 R2100 1SBL 277 001 R1300	16			
11	22	MS132-25	1SAM 350 000 R1014	20.0...25.0	375	24...60 100...250	20...60 100...250	AF30Z-30-00-21 AF30-30-00-13	1SBL 276 001 R2100 1SBL 277 001 R1300	25			
15	29	MS132-32	1SAM 350 000 R1015	25.0...32.0	480	24...60 100...250	20...60 100...250	AF30Z-30-00-21 AF30-30-00-13	1SBL 276 001 R2100 1SBL 277 001 R1300	32			

(1) MS116 manual motor starter can be selected according to the current setting range indicated on the coordination line, up to:

- 7.5 kW, 400 V - AC-3 at 16 kA
- 4 kW, 400 V - AC-3 at 50 kA.

(2) For other control voltages, see "3-pole contactors - Ordering details" pages.

(3) AF26... 3-pole contactor can be selected for coordination type 2, 16 kA, 7.5 kW, 400 V - AC-3.

(4) BEA38-4 cannot be selected with MS116 manual motor starters

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Technical drawing of the EMIEG 60715 terminal block, showing front and side views with dimensions in inches and millimeters.

Front View Dimensions:

- Overall Height: 188 7.40"
- Top Section Height: 75 2.95"
- Bottom Section Height: 45 1.77"
- Overall Width: 45 1.77"

Side View Dimensions:

- Overall Width: 80.1 3.15"
- Top Flange Width: 70 2.76"
- Top Flange Thickness: 5 0.20"
- Mounting Flange Height: 45 1.77"
- Mounting Flange Thickness: 5.5 0.22"
- Terminal Block Height: 10 0.39"
- Terminal Block Width: 5.5 0.22"
- Terminal Block Depth: 77 3.03"

Labels:

- EMIEG 60715
- 35 mm

Technical drawing of the ENIEC 60715 terminal block, showing front and side views with dimensions in inches and millimeters.

Front View Dimensions:

- Overall Height: 188 7/60"
- Top Section Height: 75 1/2"
- Top Section Width: 80.1 3.15"
- Top Section Width (Internal): 70 2.76"
- Bottom Section Width: 45 1.77"
- Bottom Section Height: 5.5 0.22"

Side View Dimensions:

- Overall Width: 86 3.39"
- Top Section Width: 45 1.77"
- Top Section Height: 5.5 0.22"
- Bottom Section Height: 5.5 0.22"
- Bottom Section Width: 86 3.39"

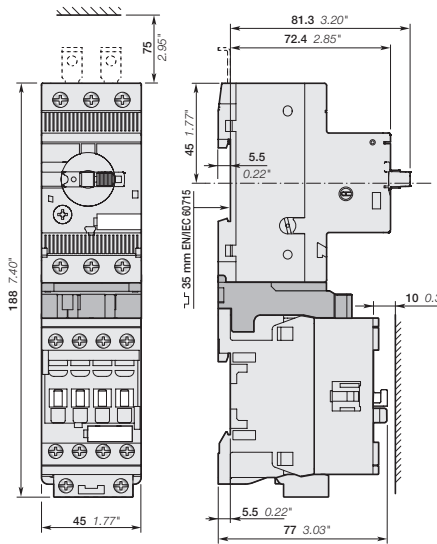
Other Labels:

- ENIEC 60715
- 35 mm ENIEC 60715
- 10 0

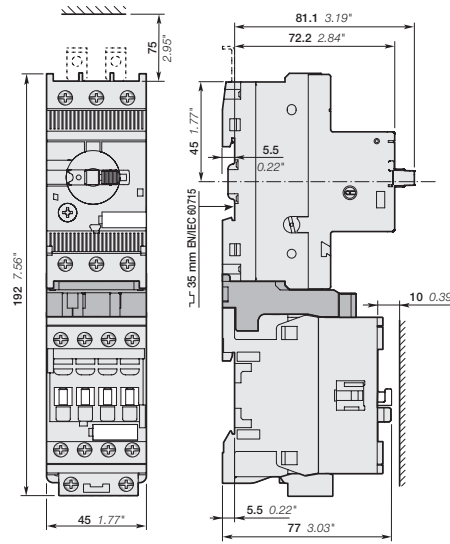
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DOL Starters Protected by MS132 Manual Motor Starters With AF Contactors - Open Type Version in Kit Form

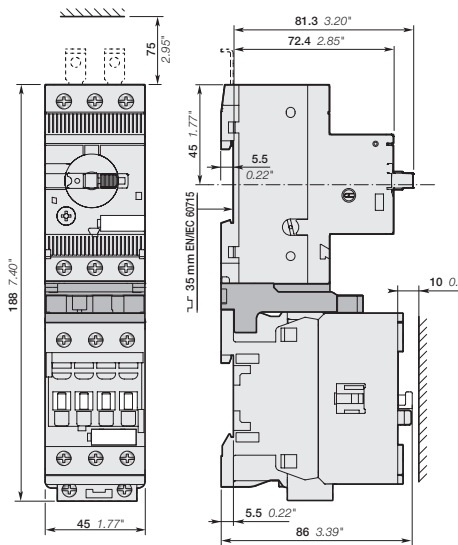
Catalogue Page 1SBC 101 125 S0201



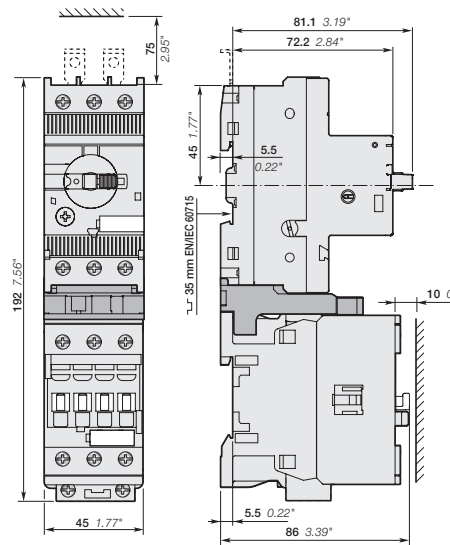
MS132-0.16 ... MS132-10
+ BEA16-4
+ AF09, AF12, AF16



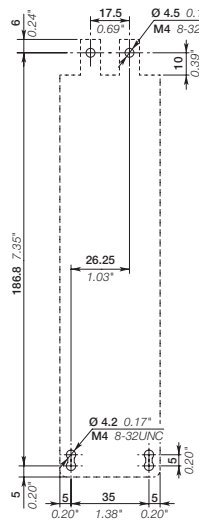
MS132-12 ... MS132-25
+ BEA16-4
+ AF09, AF12, AF16



MS132-0.16 ... MS132-10
+ BEA26-4
+ AF26, AF30, AF38



MS132-12 ... MS132-32
+ BEA38-4
+ AF26, AF30, AF38



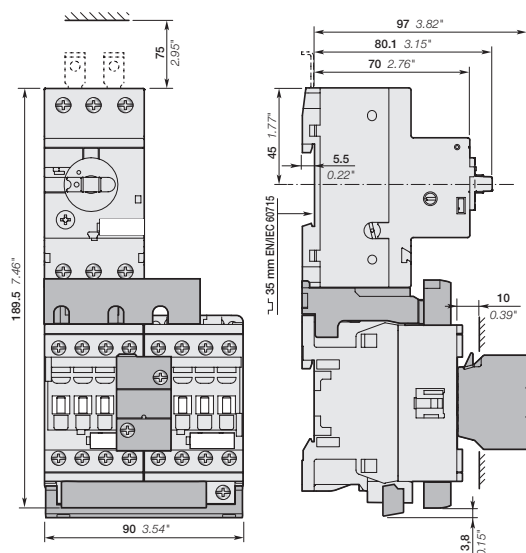
Note: contactor lateral distance to grounded component 2 mm 0.08" min.

Reversing Starters Protected by MS116 Manual Motor Starters With AF Contactors - Open Type Version in Kit Form

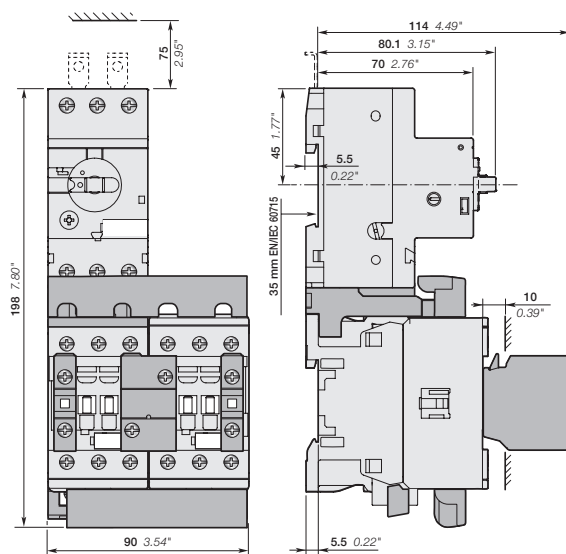
Catalogue Page 1SBC 101 126 S0201



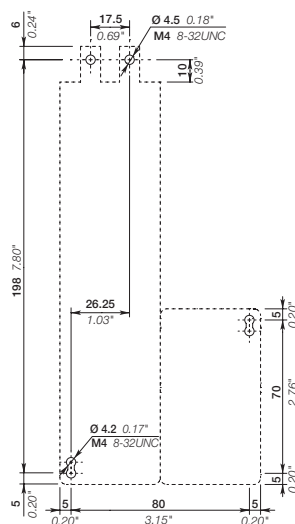
Dimensions mm, inches



MS116
+ BEA16-4, BER16-4, VEM4
+ AF09, AF12, AF16



MS116
+ BEA26-4, BER38-4, VEM4, CA4-10
+ AF26, AF30, AF38



Note: contactor lateral distance to grounded component 2 mm 0.08" min.

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Technical drawing of the ENVIRO 60715 terminal block, showing front, side, and top views with dimensions in mm and inches.

Front View Dimensions:

- Overall Height: 183.5 mm (7.22")
- Top Section Height: 75 mm (2.95")
- Bottom Section Height: 90 mm (3.54")

Side View Dimensions:

- Overall Width: 97 mm (3.82")
- Top Section Width: 81.1 mm (3.19")
- Bottom Section Width: 72.2 mm (2.84")
- Mounting Flange Thickness: 4.5 mm (0.177")
- Flange Width: 5.5 mm (0.22")
- Terminal Block Height: 10 mm (0.39")
- Bottom Section Height: 3.8 mm (0.15")

Top View Dimensions:

- Overall Width: 90 mm (3.54")

Material: UL 95 mm ENVIRO 60715

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