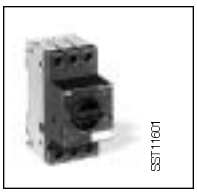
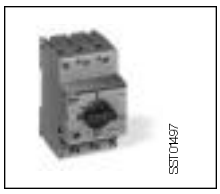
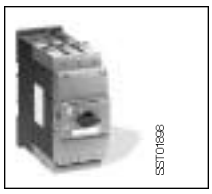
Manual Motor Starters

Type series MS

					
Manual motor starter	Type	MS 116	MS 325	MS 450	MS 495
General technical data					
Standards: The devices comply with the major international, European and national regulations IEC 60../EN 60..		947-1 947-2 947-4-1 947-5-1	947-1 947-2 947-4-1 947-5-1	947-1 947-2 947-4-1 947-5-1	947-1 947-2 947-4-1 947-5-1
Disconnector characteristics (to IEC/EN 60947-1)		yes	– yes	yes yes	yes yes yes
Mechanical service life in operations		100.000	100.000	50.000	
Permissible ambient temperature					
- open	°C	– 20... + 55/70 [1]	– 25 ... + 55 [1]	– 20 ... + 60/70 [1]	
- encapsulated (in protective housing)	°C	on request	– 25 ... + 40	– 20 ... + 35	
- Storage temperature	°C	– 50 ... + 80	– 50 ... + 80	– 50 ... + 80	
Temperature compensation		with			
Mounting position		as illustrated [6]	any		
Permissible altitude	m	3000	3000	2000	
Permissible resistance to vibrations [2] (IEC 68-2-6)		10-150 Hz Amplitude 5 g	10-150 Hz Amplitude 5 g	on request	on request
Permissible resistance to shocks sinusoidal shock (IEC 68-2-27)		25 g (11 ms)	15 g (11 ms)	on request	on request
Mounting (mounting hardware not included in scope of delivery)					
Screw fixing		see accessories	see accessories	2 x M5	2 x M5
Quick fastening on top-hat rail	to EN 50022	35 mm	35 mm	35 mm (15 mm high)	35 mm,
	to EN 50023	–	–	–	75 mm
Electrical connection of the main conductors (main circuits)					
Type		Screw terminal	Box terminal	Box terminal + bus	Box terminal
Screw		Pozidrive size 2	Pozidrive size 2	Pozidrive size 2 4 mm	Internal hexagon
	Single-core1 x mm2	1 ... 4	1 ... 10	0.75 ... 35	2.5 ... 70
	2 x mm2	1 ... 4	1 ... 4	0.75 ... 25	2.5 ... 50
	Stranded1 x mm2	1 ... 4	1 ... 10	0.75 ... 35	2.5 ... 70
	2 x mm2	1 ... 4	–	0.75 ... 25	2.5 ... 50
	Flexible1 x mm2	0.75 ... 2.5	1 ... 6	0.75 ... 25	2.5 ... 50
	2 x mm2	0.75 ... 2.5	–	0.75 ... 16	2.5 ... 35
of the auxiliary conductors (auxiliary circuits)					
Type		Screw terminal	Screw terminal [4]		Screw terminal
Screw		Pozidrive size 2	Pozidrive size 1		Pozidrive size 2
	Single-core1 x mm2	1 ... 2.5	0.5 ... 2.5		0.5 ... 2.5
	2 x mm2	1 ... 2.5 [5]	0.5 ... 2.5		0.5 ... 2.5
	Flexible1 x mm2	0.75 ... 2.5	0.5 ... 2.5		0.5 ... 1.5
	2 x mm2	0.75 ... 2.5	0.5 ... 2.5		0.5 ... 1.5

1) Operating conditions up to 70° C on request
2) G-values refer to the mounting position subject to the highest shock sensitivity
3) Also applies to auxiliary switches HKF1 and undervoltage release UA1
4) For auxiliary switch HKF.. Pozidrive 2
5) Applies to auxiliary switches HK1 and SK1
6) Other mounting posistions on request

Return to main index

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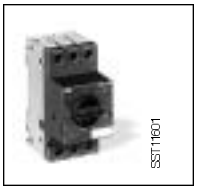

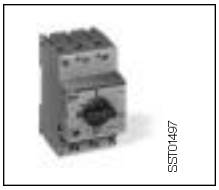

Manual motor starter	Type	MS 116	MS 325	MS 450	MS 495
General electrical data					
Rated insulation voltage Ui					
to EN 60947	V AC	690	690	690	690
to CSA / UL / NEMA	V AC	600	600	600	600
Rated operating voltage U_e up to	V	690 AC/440 DC	690 AC/440 DC	690 AC/440 DC	690 AC/440 DC
Rated impulse strength Uimp	kV	6	– / 6	6	6
Rated continuous thermal current Ith	A	16	25	50	100
Rated operating current Ie / AC 3 max.					
Rated frequency [1]	Hz		50/60		
Rated current ranges Ie (number of ranges)	A		0.1 ... 25 (14)	11 ... 50 (7)	28 ... 100 (6)
Rated service short-circuit breaking capacity Ics and max. permissible back-up fuses on request					
DC rated operating voltage					
in the case of series connection of 3 main circuits (wiring diagram on request)	DC 1, 60 V A	on request	25	50	100
	DC 3, 60 V A	on request	25	50	100
	DC 5, 60 V A	on request	25	50	100
Short circuit capacity for DC-rating				on request	

Auxiliary circuits				
Rated operating current Ie	at AC 15 to 24 V AC A	6	2.5	–
	230 V AC A	4	2	3 / 0.5 / 6
	400 V AC A	3	1	1.5 / – / 3 [1) 2)]
	at DC 13 to24 V DC A	2	2.5	– / – / –
	60 V DC A	–	2.5	– / 0.15 / –
	110 V DC A	0.5	0.6	0.22 / – / 0.5
	220 V DC A	0.25	0.25	0.1 / – / 0.25
	440 V DC A	0.1	–	– / – / 0.1
Short-circuit protection back-up fuse	gL A	on request	10	gL / gG 10 A
	aM A		6	–

1) Correction factors for other frequencies on request
2) On front side 1 changeover contact/on front side 1 NO + 1 NC / at side 1 NO + 1 NC, 2 NO, 2 NC
3) Other data on request

Return to main index

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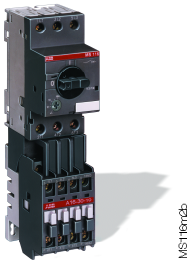
Manual Motor Starter

MS 116

MS 116

HKF 1-11

MS 116 with mini contactor B6



MS 116 with A-contactor

Open design, enclosure IP 20, resistant to changeable climates. Quick fastening on mounting rails DIN EN 50 022, 35 mm without auxiliary switch.

Setting range A...A	Weight kg	Order code
MS 116 with thermal and electromagnetic trips, short-circuit-proof up to 50 kA		
0.10....0.16	0.268	MS 116 - 0.16
0.16....0.25	0.268	MS 116 - 0.25
0.25....0.40	0.268	MS 116 - 0.4
0.40....0.63	0.268	MS 116 - 0.63
0.63....1.00	0.268	MS 116 - 1.0
1.00....1.60	0.268	MS 116 - 1.6
1.60....2.50	0.268	MS 116 - 2.5
2.50....4.00	0.268	MS 116 - 4
4.00....6.30	0.268	MS 116 - 6.3
6.30....10.00	0.268	MS 116 - 10.0
10.00....16.00	0.268	MS 116 - 16.0

Accessories

	Order code
Auxillary switches, for front-panel installation	
1 NO + 1 NC	HKF1-11
Auxiliary switches, lateral attechment at right	
1 NO + 1 NC	HK1-11
2 NO	HK1-20
2 NC	HK1-02
Signal contakt for general “tripped” signal, lateral attachment at right	
1 NO + 1 NC	SK1-11
2 NO	SK1-20
2 NC	SK1-02
Undervoltage release, lateral attachment at left	
24 V, 50 Hz	UA1-24
48 V, 50 Hz	UA1-48
60 V, 50 Hz	UA1-60
110/120 V, 50/60 Hz	UA1-110
208 V, 60 Hz	UA1-208
230 V, 50 Hz	UA1-230
400 V, 50 Hz	UA1-400
415 V, 50 Hz	UA1-415

Return to main index

Manual Motor Starter

MS116

Accessories

Description	Order code
Phase buses for cross wiring MS 116, 63 A, 690 V	
for 2 devices without auxiliary switches	PS1-2-0
for 3 devices without auxiliary switches	PS1-3-0
for 4 devices without auxiliary switches	PS1-4-0
for 5 devices without auxiliary switches	PS1-5-0
for 2 devices with 1 auxiliary switch	PS1-2-1
for 3 devices with 1 auxiliary switch	PS1-3-1
for 4 devices with 1 auxiliary switch	PS1-4-1
for 5 devices with 1 auxiliary switch	PS1-5-1
for 2 devices with 2 auxiliary switches	PS1-2-2
for 3 devices with 2 auxiliary switches	PS1-3-2
for 4 devices with 2 auxiliary switches	PS1-4-2
for 5 devices with 2 auxiliary switches	PS1-5-2
Busbar cover	BSI-3

Power infeed blocks, 63 A, 690 V, stranded 25 mm2, flexible 16 mm^2	
flat	S1-M1
high	S1-M2

Mounted enclosure IP 65, triple lockable in Off position, with N- und PE-terminal, metric cable gland	
Grey enclosure with black handle	IB 116-G
Yellow enclosure with red handle	IB 116-Y

Switch cubicle mounting kit IP 65, with axial extension triple lockable in Off position, locked in On position	
Twist knob black	OHB2AJM
Twist knob red/yellow	OHY2AJM
axis 85 mm	OXS5X85
axis 105 mm	OXS5X105
axis 130 mm	OXS5X130
axis 180 mm	OXS5X180
driver [1]	MSMN
driver spindle 32 mm [2]	MSOX

Locking device	
lock adapter	SA1
locking device assy =(adaptor sai + padlock + 3 keys)	SA3

For connecting links between MMS + contactor (see page x/xx)

1) For accommodating spindle and attachment to manual motor starter
2) Is screwed directly onto the manual motor starter

Return to main index

Manual Motor Starter

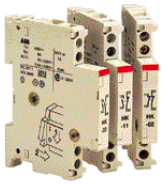
MS 325

Selection

Open design, enclosure IP 20, resistant to changeable climates. Quick fastening on mounting rails DIN EN 50 022, 35.

Setting range A...A	Weight kg	Order code
MS 325 with thermal and electromagnetic trips, short-circuit-proof up to 100 kA, resp.50 kA [1) 2)]		
0.10....0.16	0.347	MS 325 – 0.16
0.16....0.25	0.347	MS 325 – 0.25
0.25....0.40	0.347	MS 325 – 0.4
0.40....0.63	0.347	MS 325 – 0.63
0.63....1.00	0.347	MS 325 – 1
1.00....1.60	0.347	MS 325 – 1.6
1.60....2.50	0.347	MS 325 – 2.5
2.50....4.00	0.347	MS 325 – 4
4.00....6.30	0.347	MS 325 – 6.3
6.30....9.00	0.347	MS 325 – 9
9.00 ....12.50	0.347	MS 325 – 12.5
12.50....16.00	0.347	MS 325 – 16
16.00....20.00	0.347	MS 325 – 20
20.00....25.00	0.347	MS 325 – 25

Magnetic only versions on application



Accessories

Setting range	Weight kg	Order code
Auxiliary switches, lateral attachment at left, max. 2 pieces attachable		
1 NO + 1 NC	0.031	HK-11
2 NO	0.031	HK-20
2 NC	0.031	HK-02
Signal contact for general “tripped” signal, lateral attachment at the left max. 1 piece attachable		
1 NO + 1 NC	0.031	SK-11
Locking device		
lock adapter	0.004	SA1
locking device assy. (Adapter SA1 + padlock + 3 keys)	0.050	SA3

For other accessories please consult us.
For connecting links beween MMS and contactor see page ??

Return to main index

Manual Motor Starters

MS 4xx

Open design. enclosure IP 20, resistant to changeable climates. Quick fastening on mounting rails DIN EN 50 022, 35 mm without auxiliary switch

Setting range A . . . A	Weight kg	Order code
MS 450 with thermal and electromagnetic trips, tripping class 10, short-circuit-proof up to 50 kA		
11....16	0.96	MS 450 – 16
14....20	0.96	MS 450 – 20
18....25	0.96	MS 450 – 25
22....32	0.96	MS 450 – 32
28....40	0.96	MS 450 – 40
36....45	0.96	MS 450 – 45
40....50	0.96	MS 450 – 50
MS 495 with thermal and electromagnetic trips, tripping class 10, short-circuit-proof up to 50 kA		
28....40	2.1	MS 495 – 40
36....50	2.1	MS 495 – 50
45....63	2.1	MS 495 – 63
57....75	2.1	MS 495 – 75
70....90	2.1	MS 495 – 90
80....100 [2)]	2.1	MS 495 – 100

Magnetic only and heavy duty starving versions on application

Retrofittable accessories

These parts may be procured in addition to the MS 4xx.
They must be mounted by the user.

Type	Weight kg	Order code
Auxiliary switches, for front panel installation		
1 NO + 1NC	0.02	HK4-11
1 Changeover	0.02	HK4-W
Auxiliary switches, for lateral attachment at left, max. 1 mountable		
1 NO + 1 NC	0.03	HKS4-11
2 NO	0.03	HKS4-20
2 NC	0.03	HKS4-02
Pilot switch, for separate signalling of short-circuit and general tripping, lateral attachment at left, max. 1 mountable, also together with auxiliary switch		
for any signal 1 NO + 1 NC	0.07	SK4-11

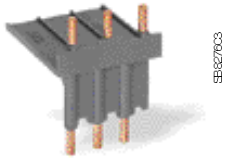
For other accessories please consult us.
For connecting links beween MMS and contactor see page ??

Return to main index

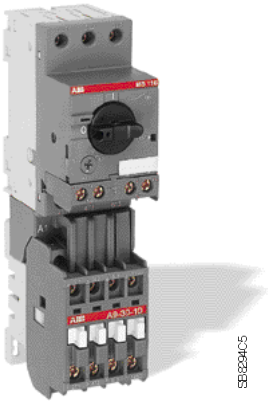
BEA 7 ... BEA 110

Connecting Links for Contactors and Manual Motor Starters

BEA 16/116



BEA 40/450



A 9-30-10 + BEA 16/116 + MS 116
DOL Starter Combination

Application

The BEA... connecting link is used for direct linking between a contactor and the associated manual motor starter which are used together as DOL Starter Combination in type 1 or type 2 co-ordination, complying with IEC 60947-4-1 and EN 60947-4-1.

☞ Database of co-ordination tables on the ABB Website:
www.abb.com/lowvoltage + left menu: "Low Voltage On-Line" + select: "Support Tools".

Description

The BEA... insulated 3-pole connecting link (touch safe) ensures the electrical linking between the contactor and the corresponding manual motor starter.
The BEA... connecting links can be used with the A... series contactors (including AF..., AE... versions) and the MS... manual motor starter as indicated in the table below.

For contactors & fixing	Screws not supplied	For MMS &	fixing Screws / rail not supplied	I_e max. AC-3 400 V A	Weight kg	Order code
B6, VB6A	-	MS116	15 x 35 mm	8	0.013	BEA7/116
B7, VB7A	-	MS116		11	0.013	BEA7/116
B6, VB6A	-	MS325		8	0.021	BEA7/325
B7, VB7A	-	MS325		11	0.021	BEA7/325
A 9	–	MS 116	15 x 35 mm	9	0.020	BEA 16/116
A 12	–	MS 116		12	0.020	BEA 16/116
A 16	–	MS 116		16	0.020	BEA 16/116
A 26	2 x M4	MS 116		25	0.024	BEA 26/116
A 9	–	MS 325	15 x 35 mm	9	0.031	BEA 16/325
A 12	–	MS 325		12	0.031	BEA 16/325
A 16	–	MS 325		16	0.031	BEA 16/325
A 26	2 x M4	MS 325		25	0.031	BEA 26/325
A 30	2 x M4	MS 450	2 x M5	32	0.061	BEA 40/450
A 40	2 x M4	MS 450	2 x M5	37	0.061	BEA 40/450
A 50	2 x M4	MS 450	2 x M5	50	0.062	BEA 50/450
A 50	2 x M6	MS 495	2 x M5	50	0.120	BEA 75/495
A 63	2 x M6	MS 495	2 x M5	63	0.120	BEA 75/495
A 75	2 x M6	MS 495	2 x M5	75	0.120	BEA 75/495
A 90	2 x M6	MS 495	2 x M5	90	0.124	BEA 110/495
A 110	2 x M6	MS 495	2 x M5	100	0.124	BEA 110/495

Return to main index