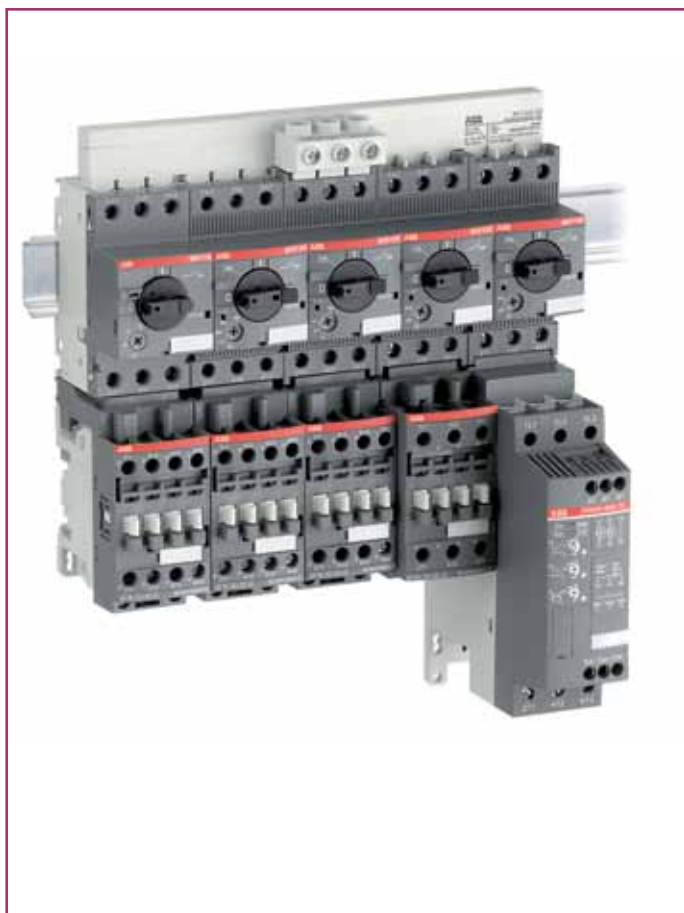
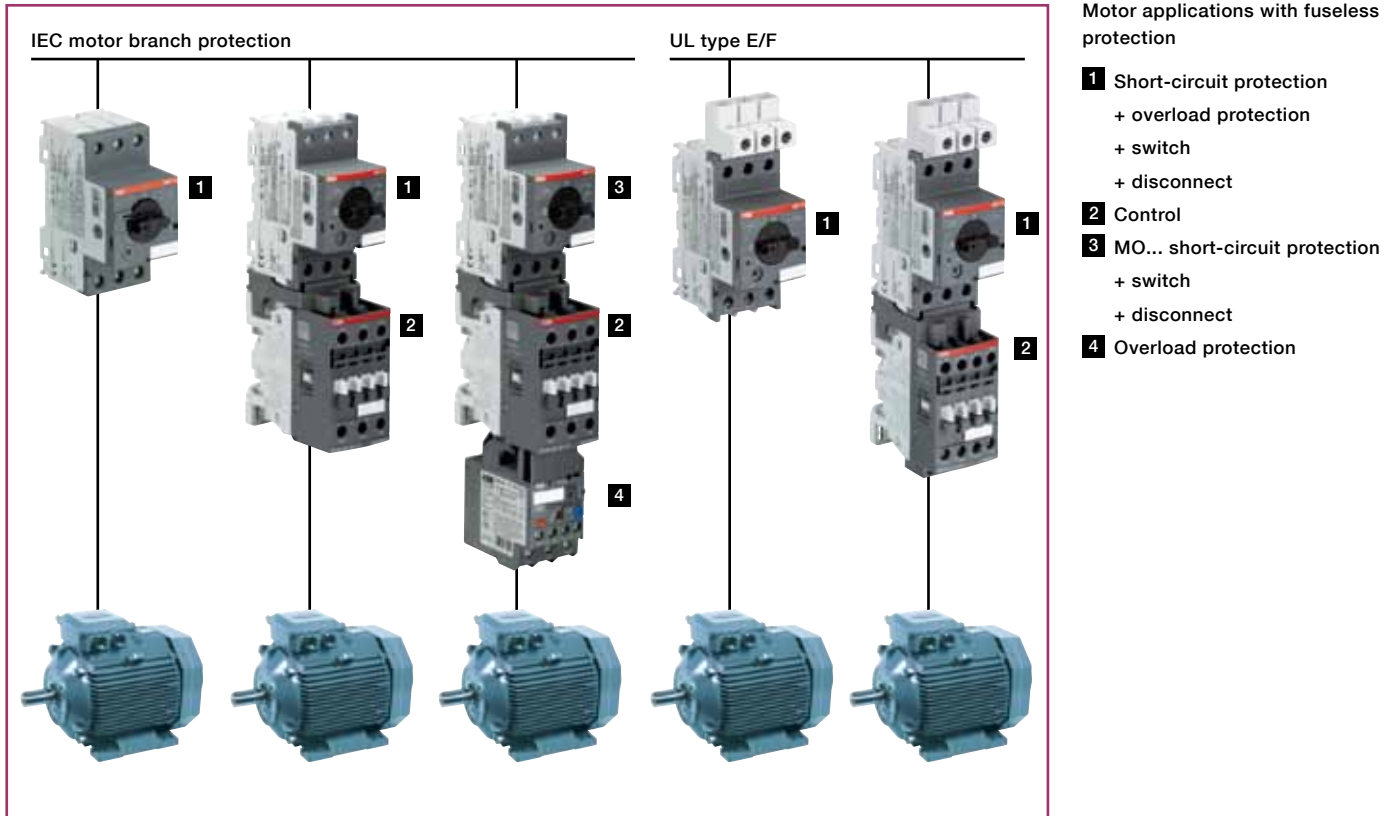




Manual motor starters Overview and benefits

ABB offers a complete standard motor-protection concept for the world market



Wiring strategies

In addition to individual wiring, ABB offers busbar systems for power distribution.

Infeed wiring via 65A/100 A busbars with 25 mm² and 35 mm² terminals

Benefits:

- Reduced system wiring complexity
- Less installation time and space required

Tools for planning, calculation, and design

The following tools support users in planning and implementing their projects:

- Coordination tables
- Cadenas for downloading CAD files
- DOC planning tool

Electrical applications and motor installations must be protected, for example against overloading, phase failures, short circuits and faults in wiring.

Manual motor starters provide fuseless protection against short-circuits and overloading and can be used without any backup in standard applications. After tripping, the line is ready to be switched on and can operate again

Customer benefit:

- Quick reaction
- High availability
- High safety

ABB offers a customer-orientated overall concept for the world market, which delivers experience and expertise in motor protection

- Efficient standard and high performance products
- Worldwide approvals and services
- Solutions for special technical applications



Protection functionalities

- Overload
- Short-circuit
- Phase loss sensitivity

Other features

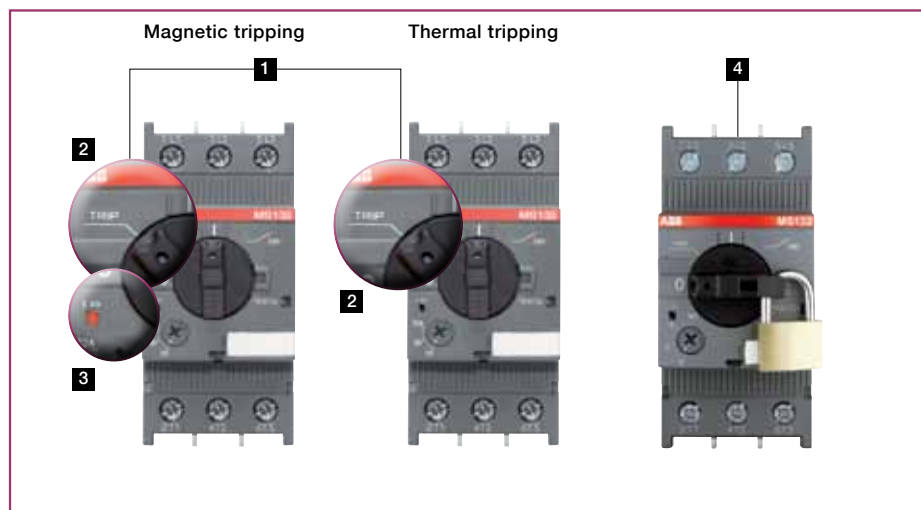
- Manual control
- Disconnect function
- Handle can be locked in the OFF position
- Remote control via undervoltage trip or shunt release
- Trip indication
- Temperature compensation
- Adjustable current setting

Products for a complete ABB offer

- Standard manual motor starters of up to 100 A, 50 kA
- High performance range of up to 100 A, 100 kA
- Magnetic-only devices (only short-circuit protection)
- Manual motor starters in modular DIN rail design
- Full range of accessories
- Systems solutions

Features

- Handle in the middle position after tripping (overload and short-circuit (MS132, MO132, MS4xx, MO4xx))
- Clear and reliable indication of fault in a separate window in the event of short-circuit tripping (MS132, MO132)
- Handle can be locked directly in the OFF position via standard lock (MS132, MO132, MS4xx, MO4xx) without accessories
- Optimized match to the ABB contactors



- 1 Clear trip indication
- 2 Handle in TRIP position
- 3 Optical indication in I >> window
- 4 Easy locking

Manual motor starters



Thermal and electromagnetic release	Type	MS116	MS132	MS450	MS495	MS497
Phase loss sensitivity		Yes	Yes	Yes	Yes	
Switch position		ON/OFF	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	Yes	
Width		45 mm	45 mm	55 mm	70 mm	
Current range		0.1 ... 32 A	0.1 ... 32 A	28 ... 50 A	45 ... 100 A	22 ... 100 A
Ambient air temperature open compensated		-25 ... +55 °C	-25 ... +60 °C	-20 ... +60 °C	-20 ... +60 °C	

Table for short-circuit ratings for 400 V

	Standard range	High performance range
	MS116, MS450, MS495	MS132, MS497

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	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	100 kA	100 kA
9.0 kW	16 ... 20 A	MS116-20	15 kA	10 kA	MS132-20	100 kA	100 kA
12.5 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	22 ... 32 A	MS132-32	50 kA	25 kA	MS497-32	100 kA	50 kA
18.5 kW	28 ... 40 A	MS450-40	50 kA	25 kA	MS497-40	100 kA	50 kA
22 kW	36 ... 45 A	MS450-45	50 kA	25 kA	MS497-50	100 kA	50 kA
22 kW	40 ... 50 A	MS450-50	50 kA	25 kA	MS497-50	100 kA	50 kA
30 kW	45 ... 63 A	MS495-63	50 kA	25 kA	MS497-63	100 kA	50 kA
37 kW	57 ... 75 A	MS495-75	50 kA	25 kA	MS497-75	100 kA	50 kA
45 kW	70 ... 90 A	MS495-90	50 kA	25 kA	MS497-90	100 kA	50 kA
55 kW	80 ... 100 A	MS495-100	50 kA	25 kA	MS497-100	100 kA	50 kA

The currents given above concern standard three-phase four-pole cage motors (1500 r.p.m. at 50 Hz 1800 r.p.m. at 60 Hz).



MO132	MO450	MO495	MO496
-	-	-	-
ON/OFF/TRIP	ON/OFF/TRIP	ON/OFF/TRIP	
-	-	-	
Yes	Yes	Yes	
Yes	Yes	Yes	
45 mm	55 mm	70 mm	
0.1 ... 32 A	28 ... 50 A	45 ... 100 A	22 ... 100 A
-25 ... +60 °C	-20 ... +60 °C	-20 ... +60 °C	

Standard range	High performance range
MO132, MO450	MO495, MO496

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
MO132-0.25	100 kA	100 kA	MO132-0.25	100 kA	100 kA
MO132-0.4	100 kA	100 kA	MO132-0.4	100 kA	100 kA
MO132-0.63	100 kA	100 kA	MO132-0.63	100 kA	100 kA
MO132-1.0	100 kA	100 kA	MO132-1.0	100 kA	100 kA
MO132-1.6	100 kA	100 kA	MO132-1.6	100 kA	100 kA
MO132-2.5	100 kA	100 kA	MO132-2.5	100 kA	100 kA
MO132-4.0	100 kA	100 kA	MO132-4.0	100 kA	100 kA
MO132-6.3	100 kA	100 kA	MO132-6.3	100 kA	100 kA
MO132-10	100 kA	100 kA	MO132-10	100 kA	100 kA
MO132-12	100 kA	100 kA	MO132-12	100 kA	100 kA
MO132-16	100 kA	100 kA	MO132-16	100 kA	100 kA
MO132-20	100 kA	100 kA	MO132-20	100 kA	100 kA
MO132-25	50 kA	50 kA	MO132-25	50 kA	50 kA
MO132-32	50 kA	25 kA	MO132-32	50 kA	50 kA
MO132-32	50 kA	25 kA	MO496-32	100 kA	50 kA
MO450-40	50 kA	25 kA	MO496-40	100 kA	50 kA
MO450-45	50 kA	25 kA	MO496-50	100 kA	50 kA
MO450-50	50 kA	25 kA	MO496-50	100 kA	50 kA
MO495-63	50 kA	25 kA	MO496-63	100 kA	50 kA
MO495-75	50 kA	25 kA	MO496-75	100 kA	50 kA
MO495-90	50 kA	25 kA	MO496-90	100 kA	50 kA
MO495-100	50 kA	25 kA	MO496-100	100 kA	50 kA

For motor protection, an appropriate thermal or electronic overload relay must be used.

System solutions

High short-circuit protection and full selectivity for motor groups with self-resetting S800-SCL-SR limiter

In industries with high short-circuit ratings, it is necessary to use special backup fuses or limiters in addition to each motor branch. This requires more space and an upstream selective breaker.

ABB now offers a self-resetting limiter, S800-SCL-SR, which can protect the entire motor group with full selectivity for each branch.

In the event of a short-circuit in one of the downstream motor branches, only the manual motor starter breaks the defective circuit without forcing the upstream S800-SCL-SR / S803W-SCL-SR to trip. Maximum system availability is thus provided.

Customer benefits

Maximum system availability, maintenance free

- Backup for high short-circuit levels, 100 kA at 440 V, 50 kA at 690 V, 65 kA at 480/600 V
- Full selectivity for any downstream motors, no discrimination tables needed

Cost saving

- Short-circuit calculation is easy, or even not required at all
- Space saving motor group protection. A single device can protect a large number of motor branches, in total up to 100 A.

High safety

- All the advantages of fuseless protection
- Low energy let through values
- Limited current peak
- High personal safety

Business segments:

- MCC installation
- Shipbuilding
- Mining
- Oil & gas
- Power generation
- Wind power

Smisline TP busbar system with a current-carrying capacity of up to 200 A for use with pluggable modules

Pluggable devices, such as MCBs or motor starter modules, can be added and changed quickly and safely.

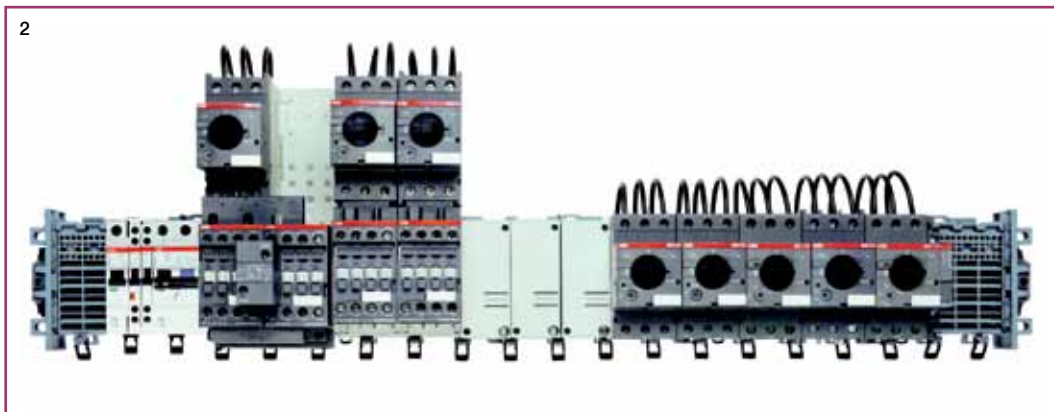
- Time and space saving installation
- Input wiring is already integrated into the SMISLINE plug-in socket system
- Total length up to 1.979 mm. Busbars available for 3 main poles, 1 neutral, 2 busbars for control voltage
- Free allocation of the phases
- Vertical or horizontal mounting

Power distribution for pluggable starters via SMISLINE, max. current load: 200 A

Customer benefits

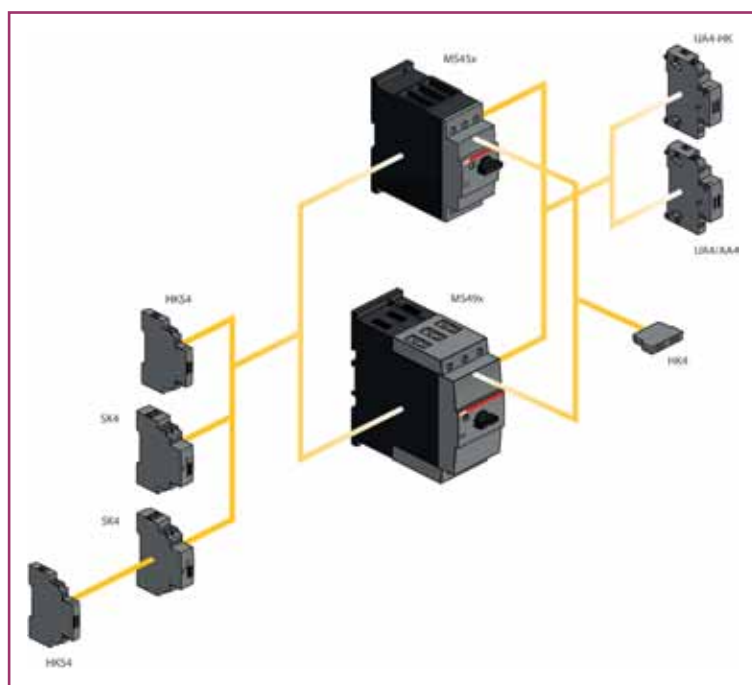
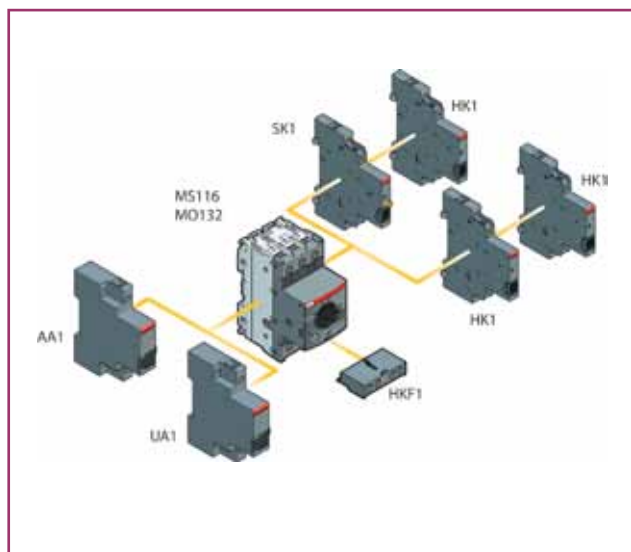
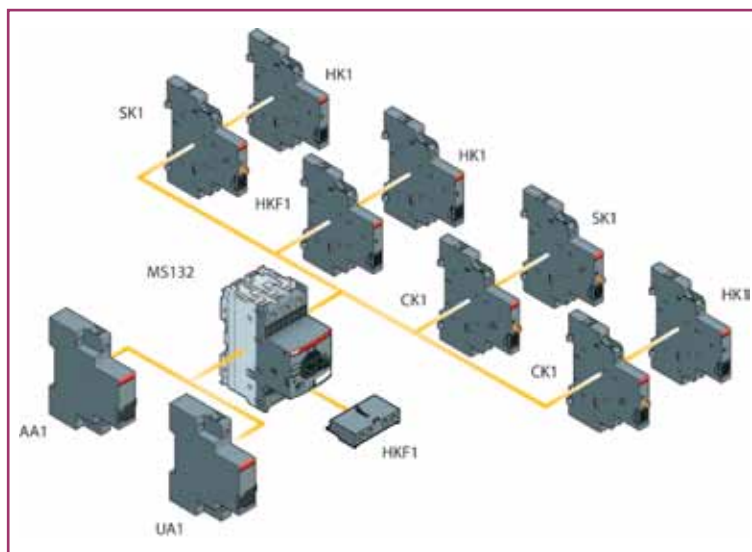
- Reduced system wiring complexity
- Optimized installation time and space
- Faster service and high flexibility
- High safety and possible resources for future expansion

1 Motor starter group with S800-SCL-SR limiter | 2 SMISLINE bus bar system with pluggable modules | 3 Pluggable starter combination



Accessories and wiring utilities

ABB offers a complete set of accessories as various busbars in different lengths and load capacity up to 65 A/100 A. The busbar system fits to type ranges MS116, MS132, and MO132. All accessories for MS116 can also be used for MS132 and MO132. This saves inventory costs and stock holding and gives customers the best flexibility.



Accessories for panel application and enclosures for indoor/outdoor mounting



Rotary handle for
MS116, MS/MO132,
MS/MO325
MS/MO45x, MS/MO49x



Door mounting kit IP65 for
MS116, MS/MO132, MS/MO325



Enclosures with water and dust
protection IP65 for
MS116, MS/MO132, MS/MO325

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<http://www.abb.com/contacts> -> Low-voltage products

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