

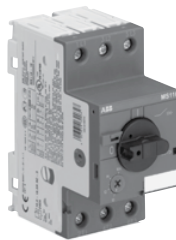
Manual motor Protectors



Manual motor protectors Types MS116, MS132, MS45x, MS49x

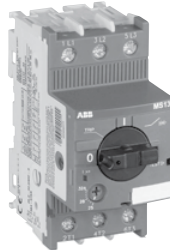
4

Manual motor protectors are electromechanical devices for motor and circuit protection. These devices offer local motor disconnect means, manual ON/OFF control, and protection against short circuit, overload, and phase loss conditions. Manual motor protection saves cost, panel space, and ensures quick and reliable short-circuit protection by reacting within milliseconds. Close coupling adaptors are available for combination with ABB contactors in various applications.



Type MS116

- Manual motor protectors suitable for use with single and three phase motors up to 25 hp
- Suitable as motor disconnect in single motor applications and group motor installations as outlined in NEC Article 430.53(C)
- 15 thermal setting ranges from 0.16 to 32 Amperes, overload Class 10A
- Phase loss sensitivity per IEC/EN 60947-4-1
- Short circuit current ratings up to 30 kA
- Motor controllers, manual (NLRV, NLRV7), UL file E137861



Type MS132

- Manual motor protectors suitable for use with single and three phase motors up to 25 hp
- Suitable as motor disconnect in single motor applications and group motor installations as outlined in NEC Article 430.53(C)
- Suitable for Tap conductor protection as outlined in NEC Article 430.53(D)(3)
- Suitable as self-protected combination motor controllers Types E and F as outlined in UL 508 and UL 60947-4-1A
- 15 thermal setting ranges from 0.16 to 32 Amperes, overload Class 10
- Phase loss sensitivity per IEC/EN 60947-4-1
- Short circuit current ratings up to 65 kA
- Motor controllers, manual (NLRV, NLRV7), UL file E137861
- Combination motor controllers (NKJH, NKJH7), UL file E345003



Type MS45x

- Manual motor protectors suitable for use with single and three phase motors up to 50 hp
- Suitable as motor disconnect in single motor applications and group motor installations as outlined in NEC Article 430.53(C)
- Suitable as self-protected combination motor controller Type E as outlined in UL 508 and UL 60947-4-1A
- Phase loss sensitivity per IEC/EN 60947-4-1
- 3 thermal setting ranges from 28 to 50 Amperes, overload Classes 10 and 20
- Short circuit current ratings up to 65 kA
- Motor controllers, manual (NLRV), UL file E167205
- Combination motor controllers (NKJH, NKJH7), UL file E195536



Type MS49x

- Manual motor protectors suitable for use with single and three phase motors up to 100 hp
- Suitable as motor disconnect in single motor applications and group motor installations as outlined in NEC Article 430.53(C)
- Suitable as self-protected combination motor controller Types E as outlined in UL 508 and UL 60947-4-1A
- Phase loss sensitivity per IEC/EN 60947-4-1
- 6 thermal setting ranges from 28 to 100 Amperes, overload Classes 10 and 20
- Short circuit current ratings up to 65 kA
- Motor controllers, manual (NLRV), UL file E167205
- Combination motor controllers (NKJH, NKJH7), UL file E195536

DRAF enclosed direct-on-line starters

Experience reliable and easy to install motor starting



Improve installation efficiency

- Easy to connect and to operate
- Pre-wired control circuit and easy to follow wiring instructions
- Coil energy consumption down by 80%.



Reliable in harsh condition

- High number of electrical and mechanical operations
- Robust IP66 and type 4X enclosure
- Double electrical insulation.

8



Continuous operation

- AF contactors manage voltage fluctuation, chattering free
- Protected motor with thermal overload relay
- Safety through coordinated product.



For machine or wall mounting

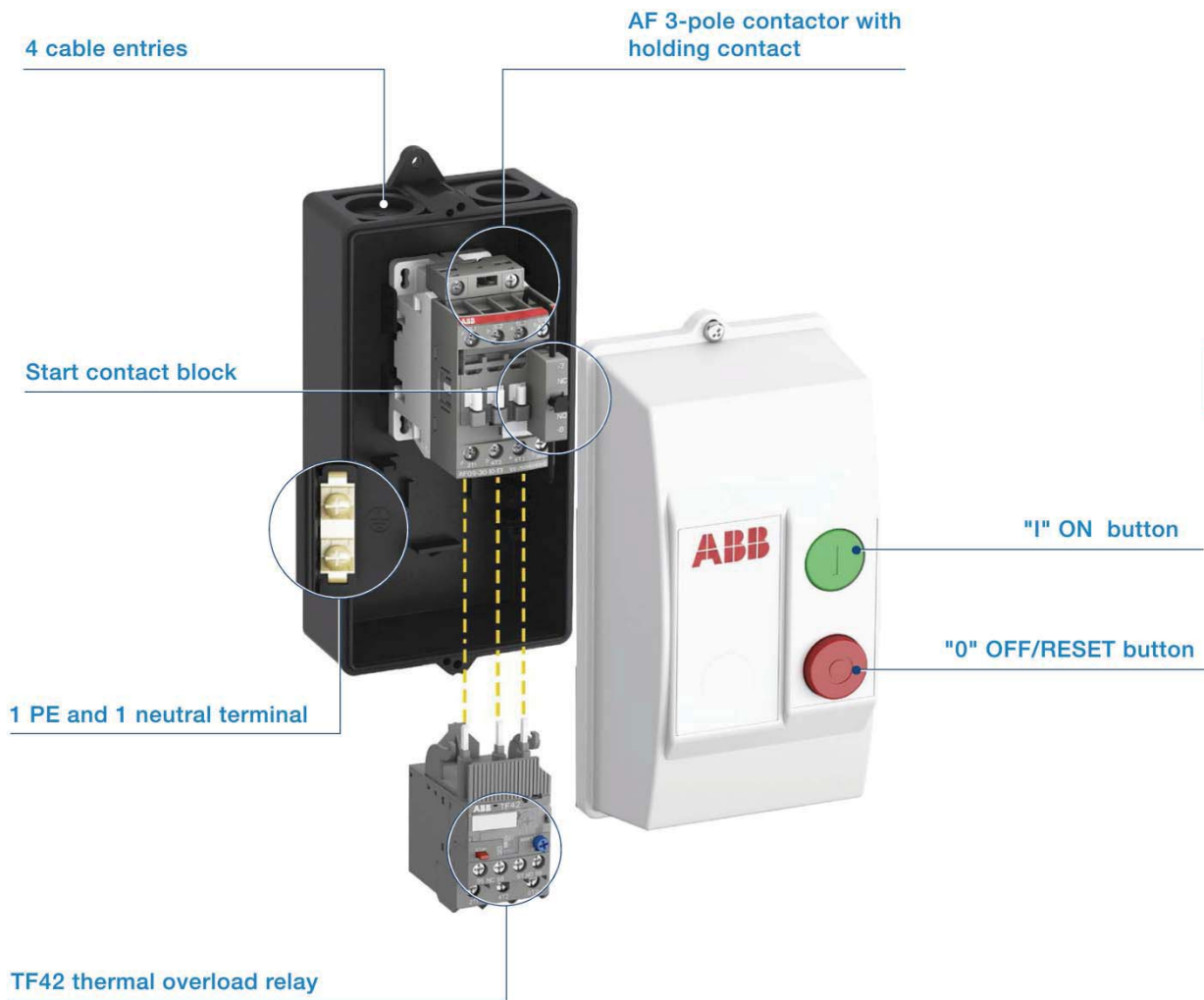
Main applications

Control of stand alone motors like for heat pumps, air conditioning units, small machine tools, compressors, pumping, irrigation...



1SBC133007S0201

Motor starting solutions up to 7.5 kW and 10 hp



DRAF09 ... DRAF16 enclosed direct-on-line starters

Up to 7.5 kW and 10 hp, protected by thermal overload relays

AC operated



DRAF
+ TF42 to be ordered separately

Description

Enclosed direct-on-line (DOL) starters are used for controlling 3-phase asynchronous motors up to 690 V AC.

Each starter is delivered assembled and wired. It contains:

- IP66 and type 4X plastic enclosure with double insulation, equipped with:
 - 1 green flush "I" ON button and 1 red protruding "O" OFF/RESET button
 - 4 cable inlets and outlets via knockouts.
- 1 AF 3-pole contactor with holding contact
- 1 CB5-10 start contact block
- 1 PE and 1 neutral terminal.

Control supply wiring:

IEC starters type: phase-to-phase, separate supply or phase-to-neutral.

UL starters type: separate supply.

TF42 thermal overload relay to be ordered separately and chosen according to motor's nominal current (see table in the next page).

DRAF enclosed DOL starters

IEC - AC-3					Control supply wiring	Rated control circuit voltage Uc min ... Uc max (1)	Type	Order code	Weight Pkg (1 pce) kg
Rated operational power 220 V 230 V 240 V	380 V 400 V	500 V	690 V	max. current $\theta \leq 40^\circ\text{C}$ Ue=400 V					
kW	kW	kW	kW	A	V 50/60 Hz				
IEC starters type									
2.2	4	5.5	5.5	9	Separate supply	24...60	DRAF09-11S	1SBK134237R1100	0.820
					Phase-to-neutral	100...250	DRAF09-13N	1SBK134137R1300	0.820
3	5.5	7.5	7.5	12	Phase-to-phase	250...500	DRAF09-14P	1SBK134037R1400	0.820
					Separate supply	24...60	DRAF12-11S	1SBK154237R1100	0.820
4	7.5	9	9	18	Phase-to-neutral	100...250	DRAF12-13N	1SBK154137R1300	0.820
					Phase-to-phase	250...500	DRAF12-14P	1SBK154037R1400	0.820
					Separate supply	24...60	DRAF16-11S	1SBK174237R1100	0.820
					Phase-to-neutral	100...250	DRAF16-13N	1SBK174137R1300	0.820
					Phase-to-phase	250...500	DRAF16-14P	1SBK174037R1400	0.820

(1) Select DRAF..S with separate supply for 24...60 V DC control circuit voltage (change A2 - Us wire to blue color acc. to IEC 60947-4-1).

UL starter type with separate control supply wiring

UL / CSA						Rated control circuit voltage Uc min ... Uc max	Type	Order code	Weight Pkg (1 pce) kg
Horse power ratings Single phase motor		Three phase motor							
120 V	240 V	200 V	220 V	440 V	550 V	V 50/60 Hz			
hp	hp	208 V	240 V	480 V	600 V				
UL starters type									
0.75	1.5	2	2	5	7.5	24...60	DRAF09-11U	1SBK134238R1100	0.820
						100...250	DRAF09-13U	1SBK134238R1300	0.820
						250...500	DRAF09-14U	1SBK134238R1400	0.820
1	2	3	3	7.5	10	24...60	DRAF12-11U	1SBK154238R1100	0.820
						100...250	DRAF12-13U	1SBK154238R1300	0.820
						250...500	DRAF12-14U	1SBK154238R1400	0.820
1.5	3	5	5	10	15	24...60	DRAF16-11U	1SBK174238R1100	0.820
						100...250	DRAF16-13U	1SBK174238R1300	0.820
						250...500	DRAF16-14U	1SBK174238R1400	0.820

1SBK133006RS0201

DRAF09 ... DRAF16 enclosed direct-on-line starters

Up to 7.5 kW and 10 hp, protected by thermal overload relays
AC operated



TF42



Empty enclosure
with push-button

TF42 thermal overload relays to be ordered separately

Setting range	Short-circuit protective device	Trip class	Type	Order code	Weight (1 pce) kg
A					
0.10 ... 0.13	0.5 A, Fuse type T	10	TF42-0.13	1SAZ721201R1005	0.130
0.13 ... 0.17	1.0 A, Fuse type T	10	TF42-0.17	1SAZ721201R1008	0.130
0.17 ... 0.23	1.0 A, Fuse type T	10	TF42-0.23	1SAZ721201R1009	0.130
0.23 ... 0.31	1.0 A, Fuse type T	10	TF42-0.31	1SAZ721201R1013	0.130
0.31 ... 0.41	2.0 A, Fuse type gG	10	TF42-0.41	1SAZ721201R1014	0.130
0.41 ... 0.55	2.0 A, Fuse type gG	10	TF42-0.55	1SAZ721201R1017	0.130
0.55 ... 0.74	4.0 A, Fuse type gG	10	TF42-0.74	1SAZ721201R1021	0.130
0.74 ... 1.00	6.0 A, Fuse type gG	10	TF42-1.0	1SAZ721201R1023	0.130
1.00 ... 1.30	6.0 A, Fuse type gG	10	TF42-1.3	1SAZ721201R1025	0.130
1.30 ... 1.70	10.0 A, Fuse type gG	10	TF42-1.7	1SAZ721201R1028	0.130
1.70 ... 2.30	10.0 A, Fuse type gG	10	TF42-2.3	1SAZ721201R1031	0.130
2.30 ... 3.10	10.0 A, Fuse type gG	10	TF42-3.1	1SAZ721201R1033	0.130
3.10 ... 4.20	20.0 A, Fuse type gG	10	TF42-4.2	1SAZ721201R1035	0.130
4.20 ... 5.70	20.0 A, Fuse type gG	10	TF42-5.7	1SAZ721201R1038	0.130
5.70 ... 7.60	35.0 A, Fuse type gG	10	TF42-7.6	1SAZ721201R1040	0.130
7.60 ... 10.0	35.0 A, Fuse type gG	10	TF42-10	1SAZ721201R1043	0.130
10.0 ... 13.0	40.0 A, Fuse type gG	10	TF42-13	1SAZ721201R1045	0.130
13.0 ... 16.0	40.0 A, Fuse type gG	10	TF42-16	1SAZ721201R1047	0.130
16.0 ... 20.0	63.0 A, Fuse type gG	10	TF42-20	1SAZ721201R1049	0.145

Empty enclosure with push-button

mm cable inlet/outlet suitable for IEC starter types	–	FR16AF-12	1SBN101337R1000	0.53
Inch cable inlet/outlet suitable for UL starter types	–	FR16AF-12U	1SBN101338R1000	0.53

To be completed with AF contactor, TF42 thermal overload relay and CB5-10 (1SBN10013R1010) start contact block.