

DRAS and DRAF enclosed starters

DRAS enclosed starter

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DRAF enclosed starter

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DRAS09 ... DRAS16 enclosed direct-on-line starters

4 to 7.5 kW, protected by thermal overload relays

AC or DC operated



DRAS
+ T16 to be ordered separately

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:

- IP65 compact plastic enclosure with double insulation, equipped with:
 - 1 green flush "I" ON button and 1 red protruding "O" OFF/RESET button
 - 2 quarter-turn, quick fastening screws and a base with 6 cable inlets and outlets via knockouts.
- 1 AS or ASL 3-pole contactor with holding contact
- 1 PE and 1 neutral terminal.

3 versions of control supply wiring are available: phase-to-phase, separate supply or phase-to-neutral.

T16 thermal overload relay has to be ordered separately and chosen according to motor's nominal current (see table below).

DRAS, DRASL enclosed DOL starters

IEC - AC-3				Rated control circuit voltage	Control supply wiring	Type	Order code	Weight
Rated operational power				Uc				Pkg (1 pce)
220 V	400 V	500 V	max. current	Other control voltages see AS voltage code table				
230 V			$\theta \leq 40^\circ\text{C}$					
240 V			Ue=400 V					
kW	kW	kW	A	V 50/60 Hz	V DC			kg

AC operated with AS 3-pole contactors

2.2	4	4	9	24	-	Separate supply	DRAS09-20S	1SBK104235R2000	0.650
				230	-	Phase-to-neutral	DRAS09-26N	1SBK104135R2600	0.650
				240	-	Phase-to-neutral	DRAS09-27N	1SBK104135R2700	0.650
				400	-	Phase-to-phase	DRAS09-28P	1SBK104035R2800	0.650
				415	-	Phase-to-phase	DRAS09-29P	1SBK104035R2900	0.650
3	5.5	5.5	12	24	-	Separate supply	DRAS12-20S	1SBK114235R2000	0.650
				230	-	Phase-to-neutral	DRAS12-26N	1SBK114135R2600	0.650
				240	-	Phase-to-neutral	DRAS12-27N	1SBK114135R2700	0.650
				400	-	Phase-to-phase	DRAS12-28P	1SBK114035R2800	0.650
				415	-	Phase-to-phase	DRAS12-29P	1SBK114035R2900	0.650
4	7.5	7.5	15.5	24	-	Separate supply	DRAS16-20S	1SBK124235R2000	0.650
				230	-	Phase-to-neutral	DRAS16-26N	1SBK124135R2600	0.650
				240	-	Phase-to-neutral	DRAS16-27N	1SBK124135R2700	0.650
				400	-	Phase-to-phase	DRAS16-28P	1SBK124035R2800	0.650
				415	-	Phase-to-phase	DRAS16-29P	1SBK124035R2900	0.650

DC operated with ASL 3-pole contactors

2.2	4	4	9	-	24	Separate supply	DRASL09-81S	1SBK104335R8100	0.700
				-	48		DRASL09-83S	1SBK104335R8300	0.700
3	5.5	5.5	12	-	24	Separate supply	DRASL12-81S	1SBK114335R8100	0.700
				-	48		DRASL12-83S	1SBK114335R8300	0.700
4	7.5	7.5	15.5	-	24	Separate supply	DRASL16-81S	1SBK124335R8100	0.700
				-	48		DRASL16-83S	1SBK124335R8300	0.700

T16 thermal overload relays to be ordered separately

Setting range	Short-circuit protective device	Trip class	Type	Order code	Weight (1 pce)
A					kg
0.10...0.13	0.5 A, Fuse type T	10	T16-0.13	1SAZ711201R1005	0.100
0.13...0.17	1.0 A, Fuse type T		T16-0.17	1SAZ711201R1008	0.100
0.17...0.23			T16-0.23	1SAZ711201R1009	0.100
0.23...0.31			T16-0.31	1SAZ711201R1013	0.100
0.31...0.41	2.0 A, Fuse type gG		T16-0.41	1SAZ711201R1014	0.100
0.41...0.55			T16-0.55	1SAZ711201R1017	0.100
0.55...0.74	4.0 A, Fuse type gG		T16-0.74	1SAZ711201R1021	0.100
0.74...1.00	6.0 A, Fuse type gG		T16-1.0	1SAZ711201R1023	0.100
1.00...1.30			T16-1.3	1SAZ711201R1025	0.100
1.30...1.70	10.0 A, Fuse type gG		T16-1.7	1SAZ711201R1028	0.100
1.70...2.30			T16-2.3	1SAZ711201R1031	0.100
2.30...3.10			T16-3.1	1SAZ711201R1033	0.100
3.10...4.20	20.0 A, Fuse type gG		T16-4.2	1SAZ711201R1035	0.100
4.20...5.70			T16-5.7	1SAZ711201R1038	0.100
5.70...7.60	35.0 A, Fuse type gG		T16-7.6	1SAZ711201R1040	0.100
7.60...10.0			T16-10	1SAZ711201R1043	0.104
10.0...13.0	40.0 A, Fuse type gG		T16-13	1SAZ711201R1045	0.104
13.0...16.0			T16-16	1SAZ711201R1047	0.104

Empty enclosure with push-button

-	-	-	FR16AS-12VARS	1SBN101035R1000	0.394
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To be completed with AS or ASL contactor, T16 thermal overload relay and MCB-10B (1SFA611610R2001) contact block.



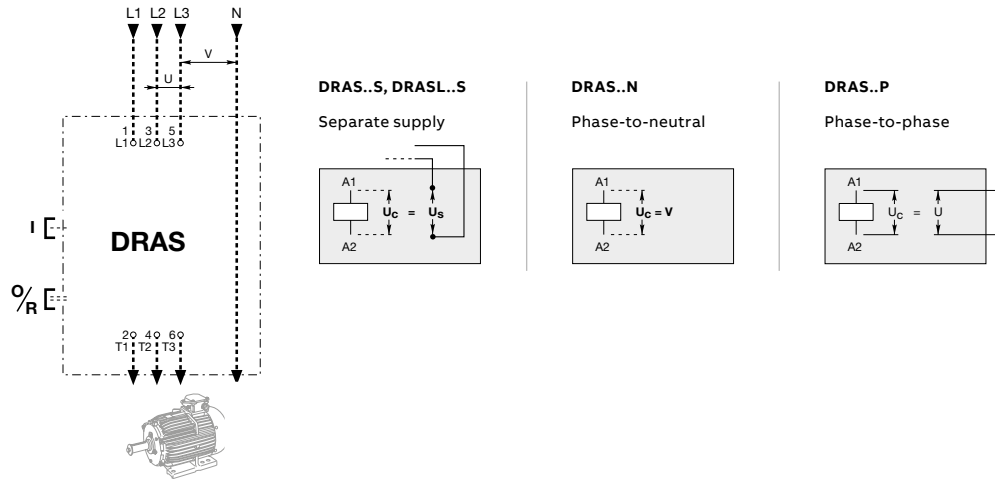
T16



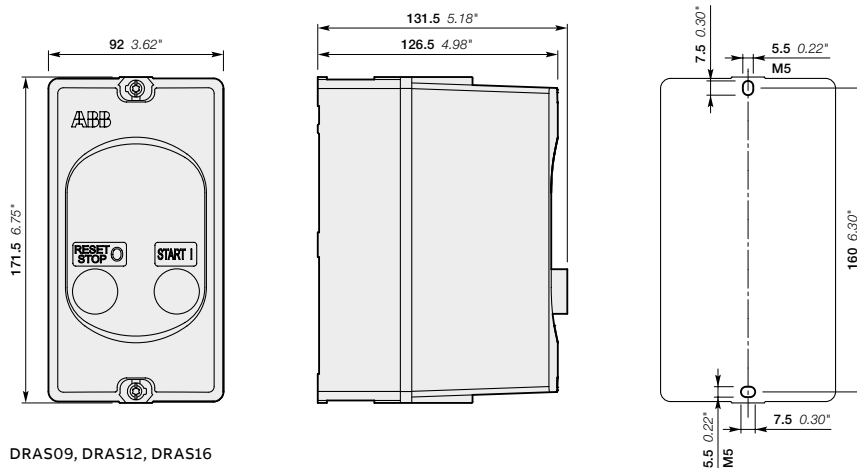
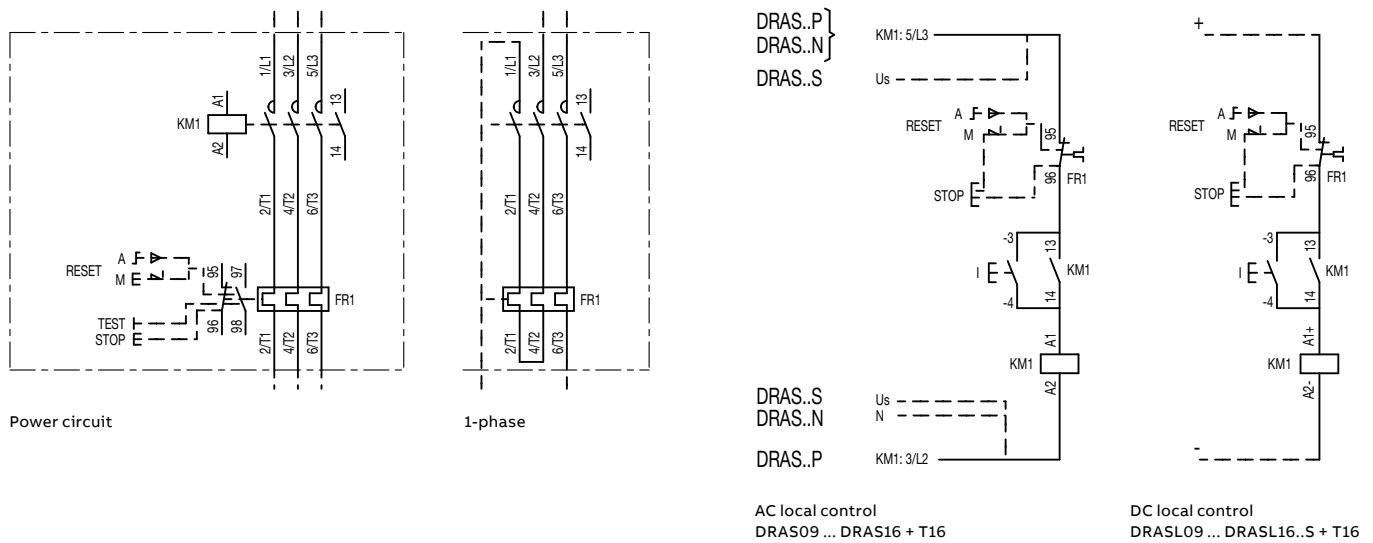
Empty enclosure
with push-button

DRAS09 ... DRAS16 and DRASL09 ... DRASL16 enclosed direct-on-line starters

Control supply wiring versions



Wiring diagram



DRAS09, DRAS12, DRAS16
DRASL09, DRASL12, DRASL16

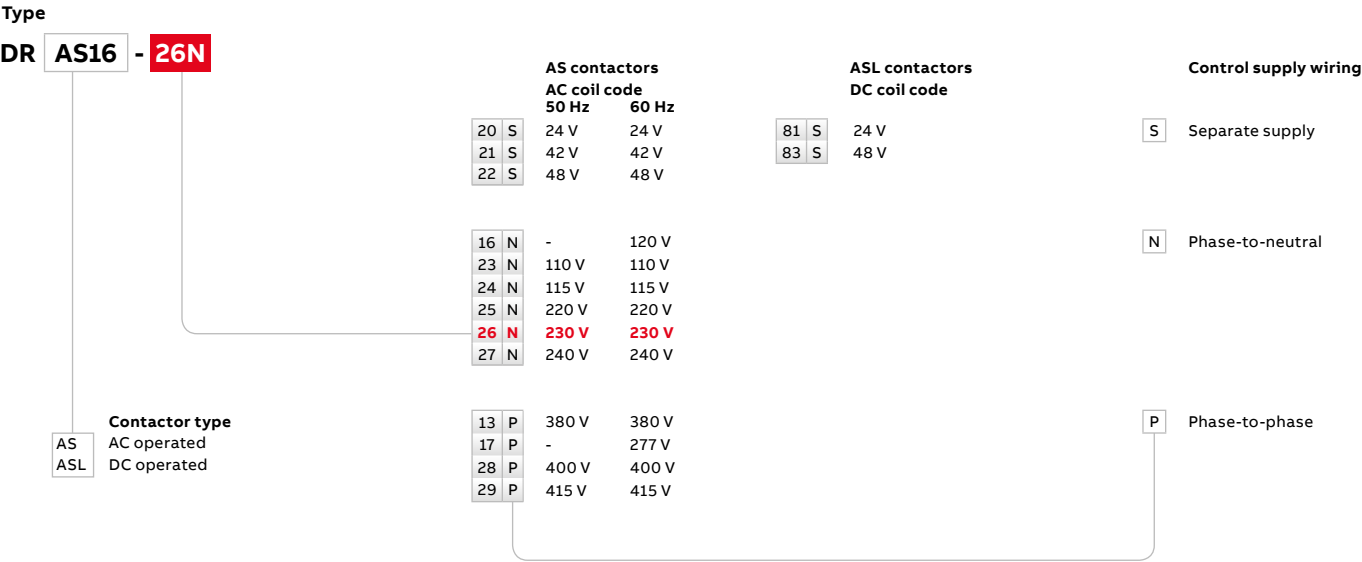
Main dimensions mm, inches

Cable inlets		Cable outlet
Enclosure top	Enclosure back	Enclosure bottom
2 x $\varnothing$ 20.5/25.5 mm	2 x $\varnothing$ 20.5 mm	2 x $\varnothing$ 20.5/25.5 mm
2 x $\varnothing$ 0.81/1.00"	2 x $\varnothing$ 0.81"	2 x $\varnothing$ 0.81/1.00"

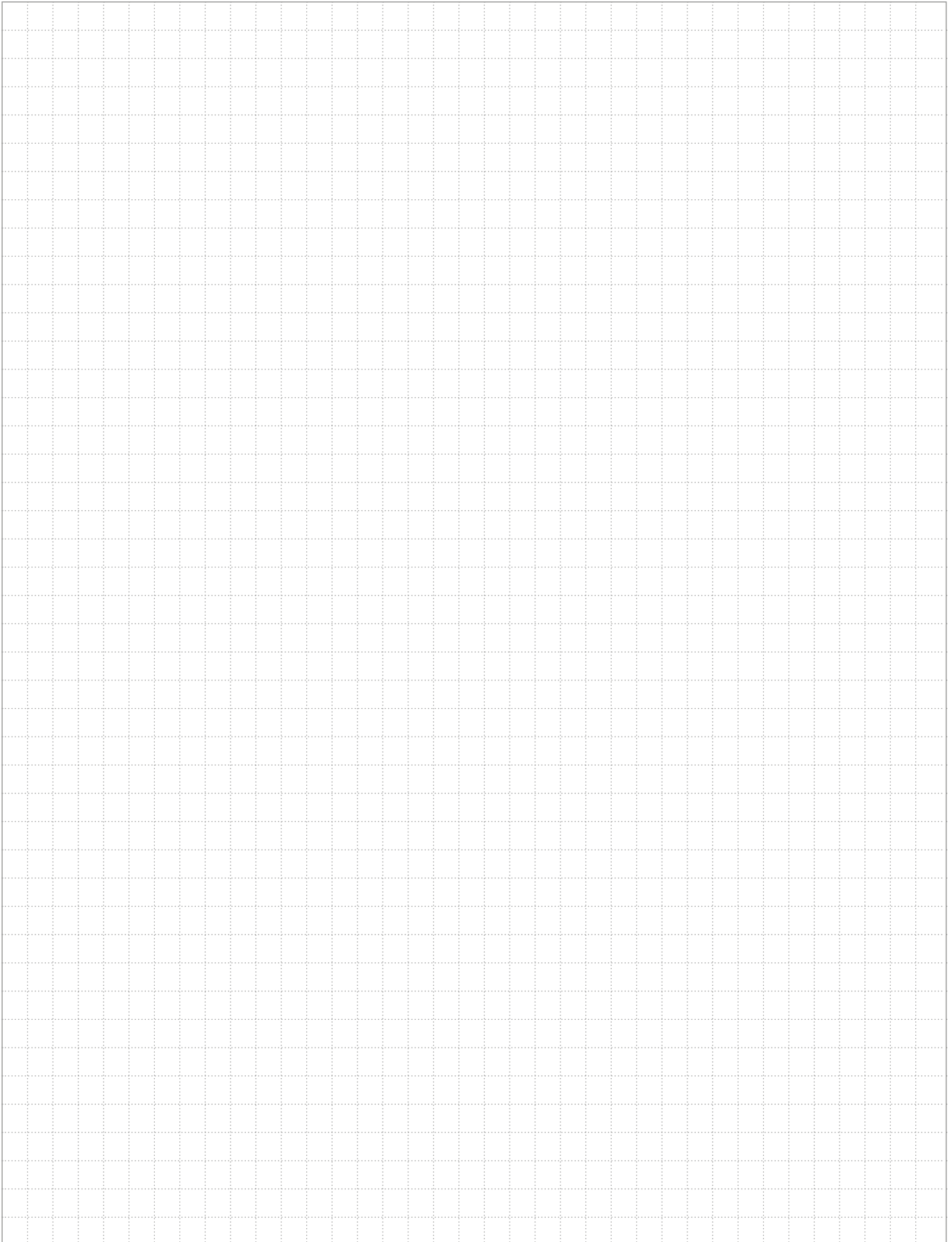
$\varnothing$ 20.5mm - $\varnothing$ 0.81" for ISO M20
 $\varnothing$ 25.5mm - $\varnothing$ 1.00" for ISO M25

Voltage code table

DRAS09 ... DRAS16 and
DRASL09 ... DRASL16 enclosed DOL starters



Notes

A large rectangular area filled with a grid of small, light gray dotted lines, intended for handwritten notes.

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.



Continuous operation

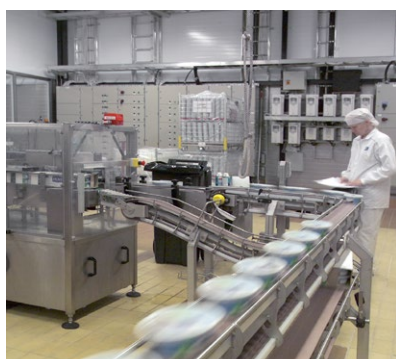
- AF contactors manage voltage fluctuation, chattering free
- Protected motor with thermal overload relay
- Safety through coordinated product.



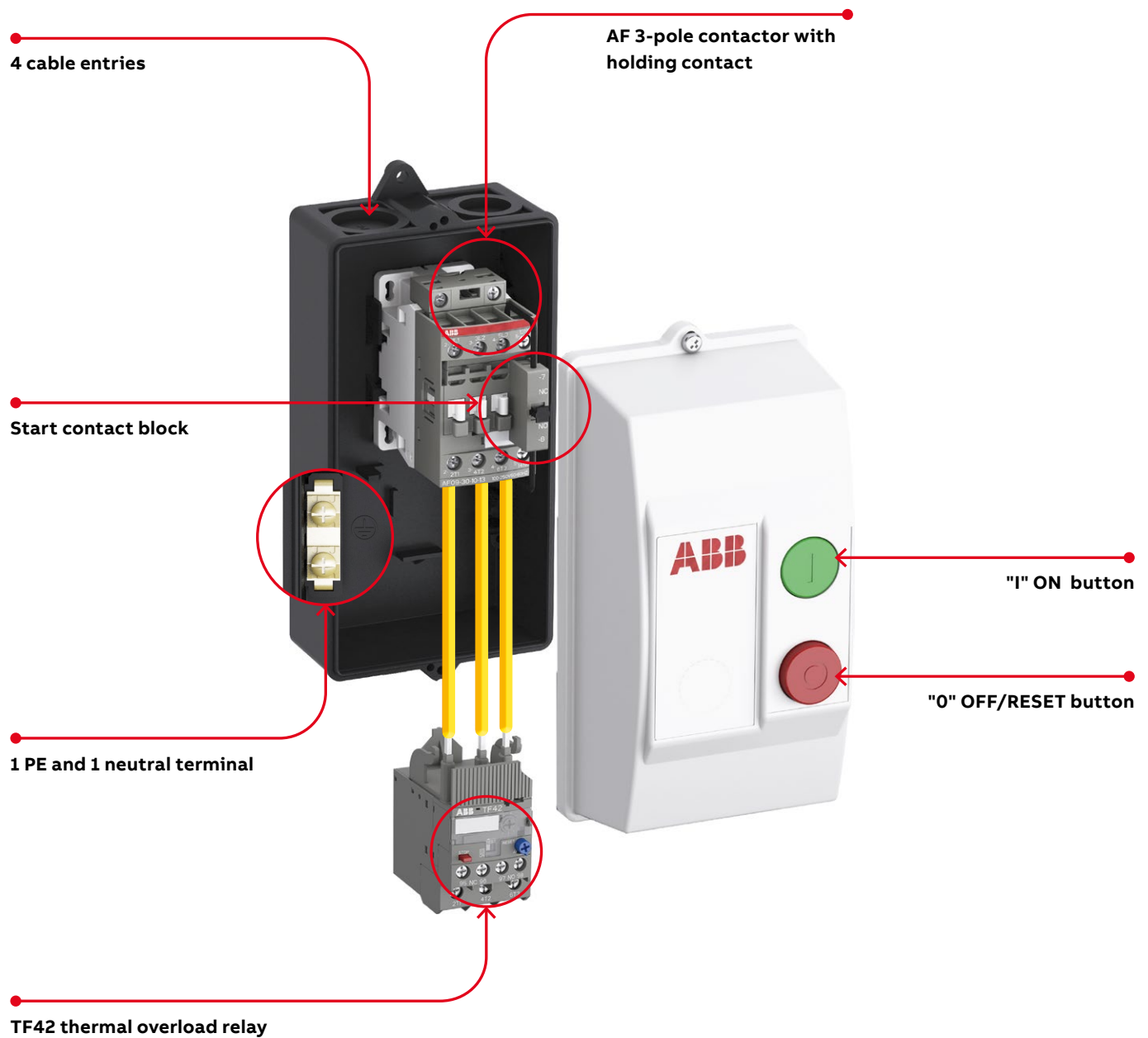
For machine or wall mounting

Main applications

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



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

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				max. current $\theta \leq 40^\circ\text{C}$ Ue=400 V					
220 V	380 V	500 V	690 V						
230 V	400 V								
240 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
					Phase-to-phase	250...500	DRAF09-14P	1SBK134037R1400	0.820
3	5.5	7.5	7.5	12	Separate supply	24...60	DRAF12-11S	1SBK154237R1100	0.820
					Phase-to-neutral	100...250	DRAF12-13N	1SBK154137R1300	0.820
					Phase-to-phase	250...500	DRAF12-14P	1SBK154037R1400	0.820
4	7.5	9	9	18	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				
		208 V	240 V	480 V	600 V				
hp	hp	hp	hp	hp	hp	V 50/60 Hz			

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

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

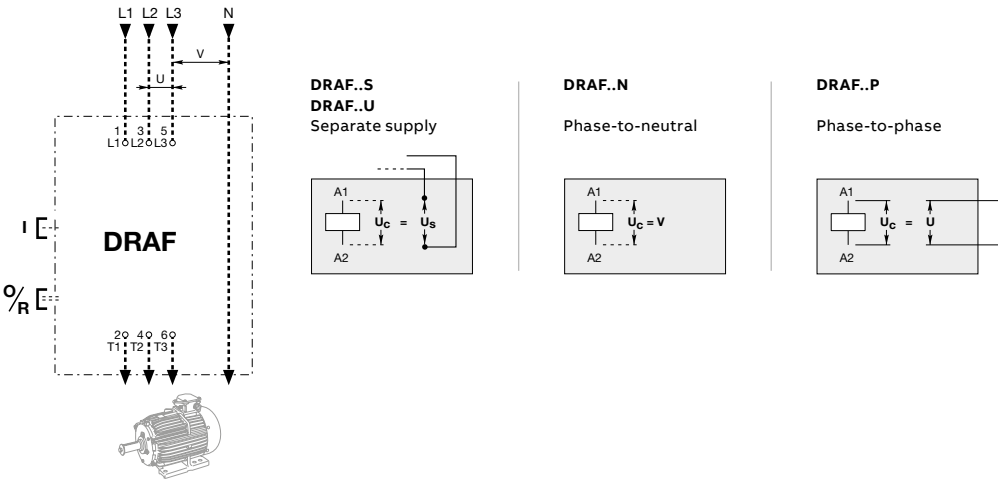
Empty enclosure with push-button

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.

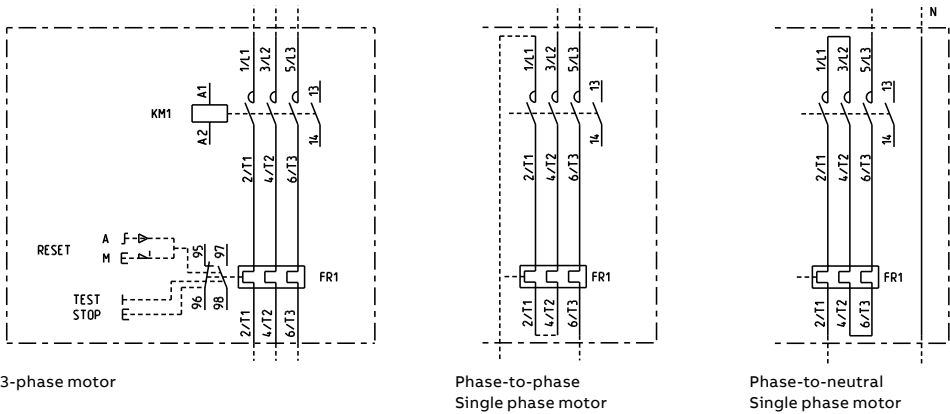
DRAF09 ... DRAF16 enclosed direct-on-line starters

Control supply wiring versions



Wiring diagram

Power circuit

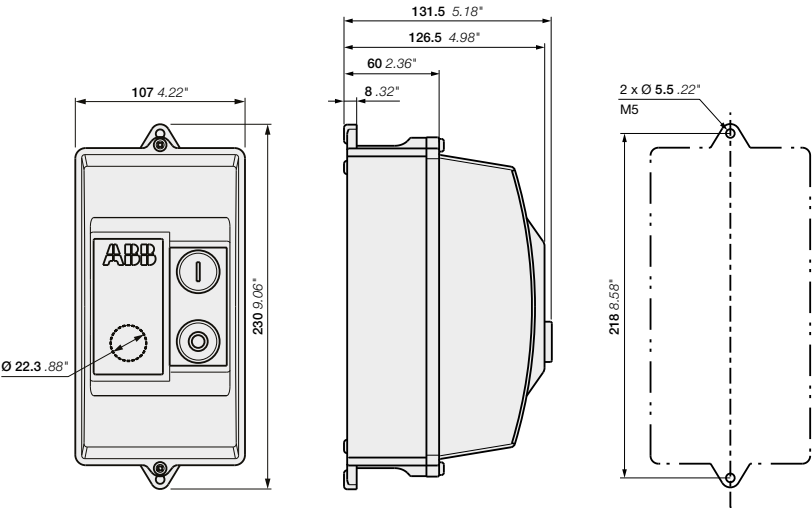
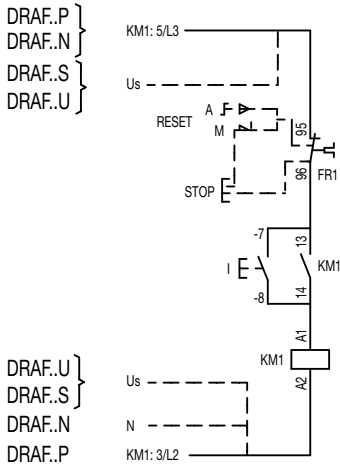


3-phase motor

Phase-to-phase
Single phase motor

Phase-to-neutral
Single phase motor

AC local control



DRAF09, DRAF12, DRAF16
Main dimensions mm, inches

IEC starter types - ISO M20

Cable inlet	Cable outlet
Enclosure top	Enclosure bottom
2 x Ø 20 mm	2 x Ø 20 mm
2 x Ø 0.79"	2 x Ø 0.79"

UL starter types - NPT

Cable inlet	Cable outlet
Enclosure top	Enclosure bottom
1 x 3/4"	1 x 3/4"
1 x 1/2"	1 x 1/2"

Notes

