Accessories
for A/AF/AL & AE contactors

CAL5-11 CA5-10

Auxiliary contact blocks – Standard

Positioning	Maximum number of contact blocks	Contact Description	Catalog number	List price
Front mounting (single pole)	4 blocks: A9 – A26 AE9 – AE26 AL9 – AL26 5 blocks: A30, A40, AE30, AE40, AL30, AL40 6 blocks: A45 – A110 AE45 - AE110 AF45 - AF110	1 N.O. 1 N.C. 1 N.O. Early make 1 N.C. Late break	CA5-10 CA5-01 CC5-10 CC5-01	**$ 15**
Front mounting (4 pole)	1 block: A9 – A26-40-00 A30 – A110 AE9 – AE110	4 N.O. 3 N.O. & 1 N.C. 2 N.O. & 2 N.C. 4 N.C. 2 N.O./2 N.C.①	CA5-40E CA5-31E CA5-22E CA5-04E CA5-11/11E	**30**
	1 block: A9 – A40-30-10 AL9 – AL40-30-10	3 N.O. & 1 N.C. 2 N.O. & 2 N.C. 1 N.O. & 3 N.C. 4 N.C. 4 N.O. 2 N.O./2 N.C.①	CA5-31M CA5-22M CA5-13M CA5-04M CA5-40N CA5-11/11M	
Side mounting (2 pole)	2 blocks: A9 – A75, AE9-AE45 1 block: AE50 – AE75, AL9 – AL40	1 N.O. & 1 N.C.	CAL5-11	
	1 block: A/AE/AF95 - A/AE/AF110	1 N.O. & 1 N.C.	CAL18-11	
	2 blocks: A145 – A300, AF145-AF2050 2 blocks: A145 – A300, AF145-AF2050	1 N.O. & 1 N.C. (inside L or R) 1 N.O. & 1 N.C. (outside, L or R)	CAL18-11 CAL18-11B	

Auxiliary contact blocks – Front mounting, switching low voltage and low current

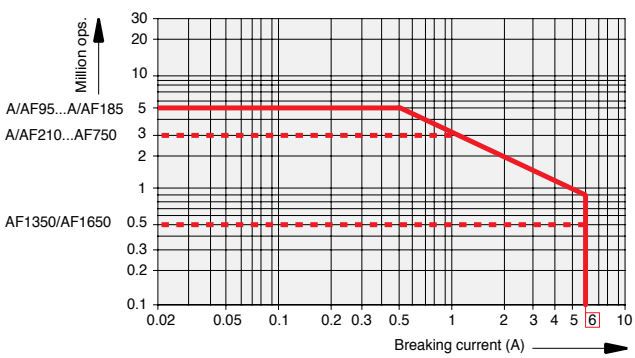
Positioning	Maximum number of contact blocks	Contact Description	Degree of protection	Catalog number	List price
Front mounting (single pole)	4 blocks: A9 – A26 AE9 – AE26 AL9 – AL26	1 N.O. 1 N.C. 1 N.O. 1 N.C.	IP40 IP40 IP40 IP40	CE5-10D0.1 CE5-01D0.1 CE5-10D2 CE5-01D2	**$ 38**
	5 blocks: A30, A40, AE30, AE40, AL30, AL40 6 blocks: A45 – A110 AE45 - AE110 AF45 - AF110	1 N.O. 1 N.C. 1 N.O. 1 N.C.	IP67 IP67 IP67 IP67	CE5-10W0.1 CE5-01W0.1 CE5-10W2 CE5-01W2	**42**

① Includes 1 N.O. & 1 N.C. overlapping

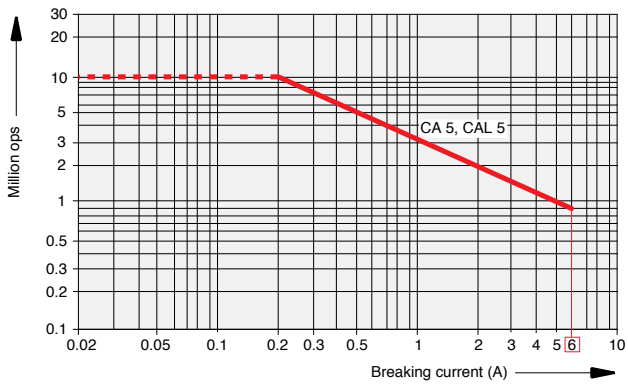
Accessories
Auxiliary contact block technical data
CA5/CAL5-11/CAL18-11/CC5

Types			1-pole CA5, 4-pole CA5 2-pole CAL5-11 and 1-pole CC5	CAL18-11 CAL18-11B
Standards			IEC 947-5-1 and EN 60947-5-1	
Rated insulation voltage U_i				
according to IEC 947-5-1		**V**	690	690
according to UL/CSA		**V**	600	690
Rated operational voltage U_e		**~ V**	24 to 690	
Conventional thermal current I_{th}		**A**	16	
Rated operational current I_e				
in AC-15 acc. to IEC 947-5-1	24 to 127 V	**A**	6	
	220 to 240 V	**A**	4	
	380 to 440 V	**A**	3	
	500 to 690 V	**A**	2	
in DC-13 acc. to IEC 947-5-1	24 V	**A**	6	
	48 V	**A**	2.8	
	72 V	**A**	1	
	125 V	**A**	0.55	
	250 V	**A**	0.3	
Connecting terminals (delivered in open position. Screws of unused terminals should be tightened).			M 3.5 (+,-) pozidriv 2 screw with cable clamp	
Connecting capacity				
• Rigid solid	**1 or 2 x mm²**		1 to 4	
• Flexible with cable end	**1 x mm²**		0.75 to 2.5	
	2 x mm²		0.75 to 2.5	
Mechanical durability		cycles	10 million, A9 - A75;	5 million, A/AF95 - A/AF185; 3 million, A/AF210 - AF750; 0.5 million, AF1350 & AF1650
Max. switching frequency		cycles/h	3600	
Electrical durability			See curve below	
Max. switching frequency		cycles/h	1200	
Rated making capacity			10 x I_e AC-15	
Rated breaking capacity			10 x I_e AC-15	
Rated short-time withstand current I_{cw}	1 s	**A**	100	
q = 40°C	0.1 s	**A**	140	
Min. switching capacity			17 V / 1 mA	24V / 50 mA
Short-circuit protection - gG (gl) fuses		**A**	10	
Power loss per pole at 6 A		**W**	0.15	
Degree of protection according to IEC 529, IEC 144, DIN 40 050 and NFC 20-010			IP 20	

CAL18



CA5, CAL5



Electrical durability

AC-15 according to IEC 947-5-1
making current: 10 x I_e where cos ϕ = 0.7 and U_e
breaking current: I_e where cos ϕ = 0.4 and U_e

The curves opposite show the electrical durability of the auxiliary contact blocks according to breaking current I_c.

These curves have been plotted for resistive and inductive loads up to 690 V, 40 to 60 Hz.

Accessories
Auxiliary contact block technical data
CE5

Auxiliary contact blocks for switching low level voltage and current

Types			CE5-10D0.1 CE5-01D0.1 CE5-10W0.1 CE5-01W0.1 Version 100 mA	CE5-10DZ CE5-01DZ CE5-10WZ CE5-01WZ Version 2 A
Standards			IEC 947-5-1 and EN 60947-5-1	
Approvals			UL / CSA	
Rated insulation voltage U_i				
according to IEC 947-5-1		**V**	250	250
according to UL/CSA		**V**	125	250
Rated operational voltage U_e		**V**	125	250
Rated operational current I_e				
in AC-15 or AC-14 acc. to IEC 947-5-1		**A**	0.1	2
in DC-12 acc. to IEC 947-5-1	24 V	**A**	0.1	2
	60 V	**A**	0.1	0.5
	110 V	**A**	0.1	0.2
	220 V	**A**	0.1	0.1
Minimal switching			3 V / 1 mA	17 V / 1 mA
Reliability for the minimal switching			10^{-8}	
Connecting terminals			M3.5 (+,-) posidriv 2 screw with cable clamp	
Connecting capacity				
• Rigid solid			1 ou 2 (1...4) mm^2	
• Flexible with cable end			1 ou 2 (0.75... 2.5) mm^2	
Short circuit protection			100 mA	10 A
Degree of protection				
according to IEC529, IEC 144, DIN 40 050, NFC 20-010		IP 20		
Mounting			Front mounting on contactors: A, AE, TAE9...110, AL, AF, GA, N, NE	
Dimensions			Identical to those of CA5 single pole	

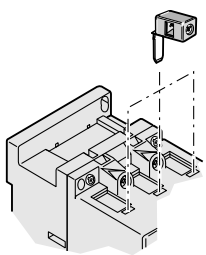
Accessories
for A/AF/AL & AE contactors

TP40DA

VE5-1

VM300H

LK75-L LK75-F LK110



Pneumatic timers

Mounting on	Timing range	Contacts N.O.	Contacts N.C.	Catalog number	List price
A9 – A75 AE9 – AE75 AL9 – AL40	On delay 0.1 – 40 s On delay 10 – 180 s Off delay 0.1 – 40 s Off delay 10 – 180 s	1 1 1 1	1 1 1 1	TP40DA TP180DA TP40IA TP180IA	**$ 108**

Interlocks for two horizontally mounted contactors – A9 - A110

Feature	Mounting on	Contacts N.O.	Contacts N.C.	Catalog number	List price
Mechanical/electrical	A/AE/AL9 – A/AE/AL40	–	2	VE5-1	**$ 45**
Mechanical/electrical	A45 – A110	–	2	VE5-2 ①	**45**
Mechanical	A/AE/AL9 – A/AE/AL40	–	–	VM5-1	**21**

Interlocks for two horizontally mounted contactors – A95 - AF1250 contactors

Feature	Left contactors	Right contactors	Catalog number	List price
Mechanical	A95 – A300	A145 – A300	VM300H	**$ 110**
Mechanical	A210 – A300	AF400 – AF460	VM300/460H	**130**
Mechanical	AF400 – AF1250	AF400 – AF1250	VM750H	**150**

Interlocks for two vertically mounted contactors – A95 - AF1250 contactors

Feature	Top contactor	Bottom Contactor	Catalog number	List price
Mechanical	A95 – A300	A145 – A300	VM300V	**$ 205**
Mechanical	A210 – A300	AF400 – AF460	VM300/460V	**250**
Mechanical	AF400 – AF1250	AF400 – AF1250	VM750V	**270**

Interlocks for two horizontally mounted contactors – AF1350 - AF2050 contactors

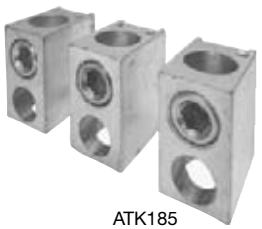
Feature	Left contactor	Right Contactor	Catalog number	List price
Mechanical	AF1350 – AF2050	AF1350 – AF2050	VM1650H	**$ 655**

Auxiliary lead terminals

Connections	Mounting on	Catalog number	List price
Connects from side	A50 – A75	LK75-L	**$ 15**
Connects from top	A50 – A75	LK75-F	**15**
Connects from side	A95 – A110	LK110	**23**

① Use type VE 5-2 for mechanical and electrical interlocking between A30/A40 and A50 - A75 contactors.

Accessories
for A/AE/AL/AF contactors


ATK185


ATK750/3


ZL75


ZL145


WB75A-04


BA5-50

Terminal lug kits (Set of 3)

Wire range	For contactor	Catalog number	List price
6 – 300 MCM	A145 – A185	ATK185	**$ 45**
4 – 400 MCM	A210 – A300	ATK300	**68**
(2) 4-500 MCM	A210 – A300	ATK300/2	**110**
(2) 2/0 – 500 MCM	AF400 – AF580	ATK580/2	**150**
(3) 2/0 – 500 MCM	AF580 – AF1250	ATK750/3	**225**
(4) 4/0 – 500 MCM	AF1350	ATK1350/4	**235**
(4) 1/0 – 750 MCM	AF1350 – AF2050	ATK1650/4	**335**
(6) 1/0 – 750 MCM	AF1350 – AF2050	ATK1650/6	**560**

Contact kits

	For contactors	Catalog number	List price
3 Pole			
	A/AE/AF50	ZL50	**$ 113**
	A/AE/AF63	ZL63	**135**
	A/AE/AF75	ZL75	**158**
	A/AE/AF95	ZL95	**225**
	A/AE/AF110	ZL110	**255**
	A/AF145	ZL145	**300**
	A/AF185	ZL185	**420**
	A/AF210	ZL210	**525**
	A/AF260	ZL260	**855**
	A/AF300	ZL300	**1,020**
	AF400	ZL400	**1,716**
	AF460	ZL460	**2,434**
	AF580	ZL580	**3,795**
	AF750	ZL750	**3,960**
	AF1250	ZL1250	**5,280**
	AF1350	ZL1350	**4,255**
	AF1650	ZL1650	**4,890**
	AF2050	ZL2050	**6,290**
4 Pole			
	A/AE45	ZLT45	**150**
	A/AE50	ZLT50	**150**
	A/AE75	ZLT75	**210**
3 Pole	UA50	ZLU50	**150**
	UA75	ZLU75	**215**
	UA95	ZLU95	**306**
	UA110	ZLU110	**347**

Mechanical latches

For contactors	Catalog number	List price
A9 - A75, AE45 - AE75, & AL9 - AL40	WB75A-Δ	**$ 84**

Δ - Coil voltage suffix. Refer to Coil Voltage Selection chart and substitute the desired coil voltage suffix for the Δ.

Coil voltage selection chart – mechanical latches for A, AE & AL contactors

50 Hz (AC/DC)	60 Hz (AC)	Voltage code
24	24 – 28	**01**
42	42 – 48	**02**
48	48 – 55	**03**
110	110 – 127	**04**

50 Hz (DC)	60 Hz (AC)	Voltage code
220 – 230	220 – 255	**06**
230 – 240	230 – 277	**05**
380 – 415	380 – 440	**07**
415 – 440	440 – 480	**08**

Range: WB75A for contactors A9 – A75, AL9 – AL40, AE45 – AE75 and control relays N and NL.

Description: WB75A block: contains a mechanical latching device with electromagnetic impulse unlatching (AC or DC) or manual unlatching. Captive screw type connecting terminals, built-in cable clamps, M 3.5 (=, -) posidrive 1 screw with screwdriver guidance, delivered untightened and protected against accidental direct contact.

Operation: After closing, the contactor continues to be held in the closed position by the latching mechanism should the supply voltage fail at the contact coil terminals.

Contactor opening can be controlled:

- Electrically by an impulse* (AC or DC) on the WB75A block coil. The coil is not designed to permanently energized.
- Manually by pressing the pushbutton on the front face of the WB75A block.

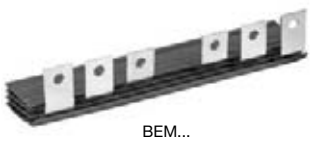
Mounting: WB75A is clipped onto the front face of the contactor.

Identification markers

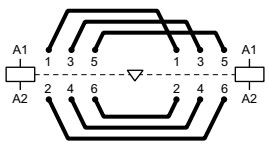
Mounting on	Coil voltage	Catalog number	List price
A/AE/AL/AF9 – A/AE/AL/AF110	Pack of 50	BA5-50	**$ 15**

Accessories
for A/AE/AL/AF contactors

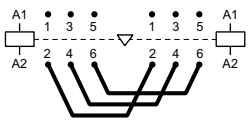
BER...



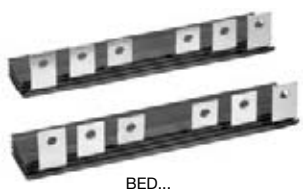
BEM...



BEM circuit diagram



BES110 connection diagram



BED...

BEY...

Connection kits for reversing

Mounting on 3 pole contactors	Catalog number	List price
A/AE/AL9 – A/AE/AL16	BER16V	**$ 35**
A/AE/AL26 – A/AE/AL40	BER40V	**49**
A/AE/AF50 – A/AE/AF75	BEM75-30	**165**
A/AE/AF95, A/AE/AF110	BEM110-30	**180**
A/AF145 – A/AF185	BEM185-30	**260**
A/AF210 – A/AF300	BEMA300-30	**470**
AF400 – AF460	BEM460-30	**850**
AF580 – AF750	BEM750-30	**1,200**

Application
Connections between the main poles of **two 3 pole contactors** mounted side by side so that they operate as reversing contactors.

Description
The connection kits for reversing contactors are made up of three reversing connections and three phase to phase connections.

BER16V – Molded plastic, solid copper bars
BER40V – Molded plastic, solid copper bars
BEM75 and 110-30 – Insulated, solid copper bars

Connection kits for phase to phase

Mounting on 3 pole contactors	Catalog number	List price
A/AE/AF50, A/AE/AF75	BES75-30	**$ 75**
A/AE/AF95, A/AE/AF110	BES110-30	**90**
A/AF145 – A/AF185	BES185-30	**130**
A/AF210 – A/AF300	BESA300-30	**200**
AF400 – AF460	BES460-30	**425**
AF580 – AF750	BES750-30	**650**

The connection kit for phase to phase contactors is made up of three phase to phase bus bars.

Connection kits for wye-delta starters

Mounting on contactors		Catalog number	List price
Line and delta contactor	Wye contactor		
A9	A9	BEY16V-2	**$ 46**
A12	A9		
A16	A12		
A26	A16	BEY26-2	**76**
A30	A26	BEY40-2	**76**
A40	A26		
A50	A30	BED50U	**165**
A63	A40		
A75	A50	BED75U	**180**
A95	A75	BED95U	**195**
A110	A95	BED110U	**225**
A145	A110	BED145U	**250**
A185	A145	BED185U	**290**
A210	A185	BED210U	**375**
A260/A300	A210	BED300U	**500**
AF400/AF460	A260/A300	BED400U	**850**
AF460	AF400	BED460U	**900**
AF580	AF400/AF460	BED580U	**1,250**
AF750	AF580	BED750U	**1,450**

Application
Connections between the main poles of a wye-delta starter.

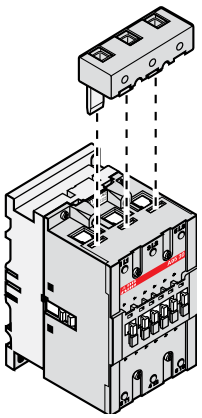
Description
The connection kits for wye-delta starters are made up of:
- Three line contactor/wye contactor connections – line side.
- Three wye contactor/delta contactor connections – load side.
- The shorting connection for the “S” contactor.

BEY16V-2, BEY26-2, BEY40-2 – Molded plastic, solid copper bars

BED50U thru BED750U – Insulated, solid copper bars.

The above connection sets allow a mechanical interlock unit to be mounted between the wye and delta contactors if required.

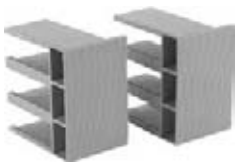
Accessories
for A/AE/AL/AF contactors


LD110


BEXT-75


LX...


LT185-AC


LT185-AL


LW...

Additional terminal blocks

Mounting on 3 pole contactors	Wire range	Catalog number	List price
A/AE/AL9 – A/AE/AL16 (set of 2)	16 – 6	LD-16	**$ 20**
A/AE/AL26 (set of 2)	14 – 6	LD-26	**22**
A/AE/AL30 – A/AE/AL40	12 – 4	LD-40	**26**
A/AE/AF50 – A/AE/AF75	10 – 2	LD-75	**28**
A/AE/AF95 – A/AE/AF110	8 – 1	LD-110	**30**

Utilization – The LD series terminal block is designed to increase the connection capacity of the contactor on which it is mounted. The LD 75 and LD110 terminal blocks are mounted in the three independent apertures located above the built-in connectors.

Terminal extensions

Mounting on contactors	Catalog number	List price
A/AE/AF50 – A/AE/AF75	BEXT-75	**$ 15**
A/AE/AF95, A/AE/AF110	LW110	**95**
A/AF145 – A/AF185	LX185	**90**
A/AF210 – A/AF300	LX300	**140**
AF400 – AF460	LX460	**195**
AF580 – AF750	LX750	**225**

Application
They are designed to increase the width of the contactor terminal pads to allow larger connectors to be mounted.

Description
Terminal extension sets contain 3 bars.

Terminal shrouds – two pieces

For contactor	Catalog number	List price
A/AF145 – A/AF185 for flush mount	LT185-AC	
A/AF145 – A/AF185 for extended mount	LT185-AL	
A/AF145 – A/AF185 for shorting bar LY... between A(F)145 / A(F)185 & TA200DU	LT185-AY	**$ 10**
A/AF210 – A/AF300 for flush mount	LT300-AC	
A/AF210 – A/AF300 for extended mount	LT300-AL	
A/AF210 – A/AF300 for shorting bar LY300	LT300-AY	
AF400 – AF460 for flush mount	LT460-AC	
AF400 – AF460 for extended mount	LT460-AL	**20**
AF580 – AF1250 for flush mount	LT750-AC	
AF580 – AF1250 for extended mount	LT750-AL	

Terminal enlargements

For contactor	Catalog number	List price
A/AF95 – A/AF110	LW110	**$ 95**
A/AF145 – A/AF185	LW185	**120**
A/AF210 – A/AF300	LW300	**130**
AF400 – AF460	LW460	**295**
AF580 – AF750	LW750	**355**
AF1250	LW1250	**375**

Arc chutes

For contactor	Catalog number	List price
A/AF145 – A/AF185	ZW185	**$ 130**
A/AF210 – A/AF300	ZW300	**180**
A/AF400 – A/AF460	ZW460	**190**
A/AF580 – A/AF750	ZW750	**230**
AF1350 – AF1650	ZW1650	**215**

Accessories
for A/AE/AF contactors


BEA185/S3/S4


BEAD185D/S3/S4


BEA185H/S4


LP185


LY...

Vertical connection bars between contactor and MCCB – three bars

MCCB	For contactor	Catalog number	List price
T1	A/AE/AF50 – A/AE/AF75	BEA75/T1	**$ 85**
T3	A/AE/AF95 – A/AE/AF110	BEA110/T3	**95**
T3	A/AF145 – A/AF185	BEA185/T3	**60**
S3, S4	A/AF145 – A/AF185	BEA185/S3/S4	**60**
T4	A/AF145 - A/AF185	BEA185/T4	**70**
T4	A/AF210 - A/AF300	BEA210/T4	**70**
T5	A/AF210 – A/AF300	BEA300/T5	**75**
T5	A/AF400 - A/AF750	BEA750/T5	**115**
S5	A/AF210 – A/AF300	BEA300/S5	**75**
S5①	AF400 – AF460	BEA400/S5	**95**
S6	AF400 – AF750	BEA750/S6	**115**

Vertical connection bars between contactor and MCCB – three bars

MCCB	For contactor	Catalog number	List price
S3, S4	A/AF145 – A/AF185	BEA185D/S3/S4	**$ 70**
S4	A/AF210 – A/AF300	BEA210D/S4	**80**
S5	A/AF210 – A/AF300	BEA300D/S5	**85**
S5	AF400 – AF460	BEA400D/S5	**105**
S6	AF400 – AF750	BEA750D/S6	**125**

To be used when power take off is needed (IP00) or with other bus bars. (EX: Reversing, IP20)

Horizontal connection busbars between contactor and MCCB – three bars

MCCB	For contactor	Catalog number	List price
S3, S4	A/AF145 – A/AF185	BEA185H/S4	**$ 150**
S4	A/AF210 – A/AF300	BEA210H/S4	**220**
S5	A/AF210 – A/AF300	BEA300H/S5	**220**
S5	AF400 – AF460	BEA400H/S5	**435**
S6	AF400 – AF460	BEA460H/S6	**660**
S6	AF580 – AF750	BEA750H/S6	**670**

Shorting bars, 2 pole

For contactor	Catalog number	List price
A/AF145 – A/AF185	LP185	**$ 35**
A/AF210 – A/AF300	LP300	**50**
AF400 – AF460	LP460	**50**
AF580 – AF750	LP750	**50**

Shorting bars, 3 pole

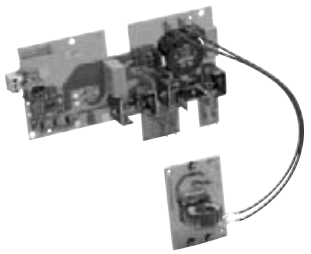
For contactor	Catalog number	List price
A/AE45 – A/AE/AF75	LF75	**$ 40**
A/AE/AF95 – A/AE/AF110	LY110	**40**
A/AE/AF145 – A/AE/AF185	LY185	**40**
A/AE/AF210 – A/AE/AF300	LYA300	**60**
AF400 – AF460	LY460	**60**
AF580 – AF750	LY750	**60**

① Not for use with flange handles.

Accessories
for A/AE/AL/AF contactors
Coils & coil voltage codes


ZA16-81


ZAF1650


ZP1650

Coils – AC operated

For contactors	Catalog number	List price
A9 – A16	ZA16-Δ	**$ 24**
A26 – A40	ZA40-Δ	**30**
A45 – A75	ZA75-Δ	**57**
A95 – A110	ZA110-Δ	**60**
A145 – A185	ZA185-Δ	**150**
A210 – A300	ZA300-Δ	**180**

Coils – DC operated

AE9 – AE16	ZAE16-Δ	**24**
AE26 – AE40	ZAE40-Δ	**30**
AE45 – AE75	ZAE75-Δ	**57**
AE95 – AE110	ZAE110-Δ	**90**
Auxiliary including an insertion contact and a varistor for DC operated contactors		
AE95 – AE110	CCL18-01	**45**

Coils – AC/DC operated (coil and printed circuit board except ZAF1650)

AF45 – AF75	ZAF75-Δ	**120**
AF95, AF110	ZAF110-Δ	**165**
AF145 – AF185	ZAF185-Δ	**200**
AF210 – AF300	ZAF300-Δ	**240**
AF400, AF460	ZAF460-Δ	**450**
AF580, AF750, AF1250	ZAF750-Δ	**525**
AF1350, AF2050 (Set of 2 coils only)	ZAF1650-Δ	**920**

Printed circuit board – AC/DC operated

AF1350 – AF2050	ZP1650	**1,620**

Δ – Coil voltage suffix. Refer to Coil Voltage Selection charts below and substitute the desired coil voltage code for the Δ.

Coil voltage selection – AC operated for A9 – A300; UA26 – UA110

VAC (50Hz)	VAC (60Hz)	Voltage Code
24	24	**81**
26	28	**16**
28	32	**17**
42	42	**82**
48	48	**83**
60	60	**73**
100	100 – 110	**74** ②
110	110 – 120	**84**
110 – 115	115 – 127	**89** ③
120	140	**29**
125 – 127	150	**30**
175	208	**34**
190	220	**36**
200	200 – 220	**75** ②
220 – 230	230 – 240	**80**
230 – 240	240 – 260	**88**
230 – 240	277	**42**
230/400	–	**62** ①
–	230/400	**63** ①
380 – 400	400 – 415	**85**
400 – 415	415 – 440	**86**
–	480	**51**
440	500	**53**
500	600	**55**
550	–	**56**
660 – 690	–	**58**

Coil voltage selection – DC operated for AE contactors

VDC	Voltage code AE contactors
12	**80**
24	**81**
42	**82**
48	**83**
50	**21**
60	**84**
75	**85**
110	**86**
125	**87**
220	**88**
240	**89**
250	**38**

Coil voltage selection – AC/DC operated for AF50 – AF2050

VAC & VDC 40-60 Hz	Suffix Code
24 – 60 VDC	**68** ④
20 – 60 VDC	**72** ⑤
48 – 130 VAC/VDC	**69**
100 – 250 VAC/VDC	**70** ⑦
250 – 500 VAC/DC	**71** ⑥

① Only for A9 – A16.
② Not for A145 – A300
③ A145 – A300 at 60 Hz, 115V only
④ AF400 – AF1250, DC only
⑤ AF45 – AF300
⑥ AF400 - AF750 only
⑦ Only option for AF2050 - AF1650

Accessories
for EK contactors
Coils & coil voltage codes

Coils – AC & DC operated

Contactor size	AC Coils		DC Coils	
	Catalog number	List price	Catalog number	List price
EK110, EK150	KH210-Δ	**$ 200**	KH210-Δ	**$ 200**
EK175, EK210	KH300-Δ	**240**	KH300-Δ	**240**
EK370, EK550	KH800-Δ	**580**	KH800-Δ	**580**

Δ – Coil voltage suffix. Refer to the Coil Voltage Selection chart and substitute the desired coil voltage suffix for the Δ. AC and DC operated contactors DO NOT have the same magnet structure. Therefore, DC coils will not fit on an AC magnet structure and vice versa.

Coil voltage selection – AC operated
for EK110 – EK550

VAC (50Hz)	VAC (60Hz)	Voltage Code
–	24	**F**
24	–	**N**
–	48	**G**
110	120	**1**
–	208	**B**
–	240	**2**
220 – 230	–	**J**
–	380	**Z**
380 – 400	440	**3**
400 – 415	–	**M**
–	480	**4**
500	–	**5**
–	600	**6**

Consult factory if other voltages are required.

Coil voltage selection – DC operated
for EK110 – EK550

VDC	Voltage Code
24	**Y**
48	**W**
110	**P**
125	**Q**
220	**R**
440	**T**

Consult factory if other voltages are required.

Accessories
Surge suppressors for A/AE/AL/EK contactors

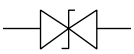
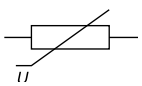
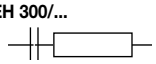
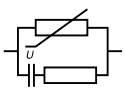

RV 5/50


RC 5-1/150

Surge suppression device

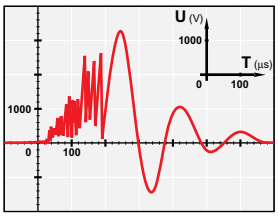
Mounting on	Voltage range	Catalog number	List price
AE9 to AE110 AL9 to AL40	12 – 32 VDC 25 – 65 VDC 50 – 90 VDC 77 – 150 VDC 150 – 264 VDC	RT5/32 RT5/65 RT5/90 RT5/150 RT5/264	
A9 to A110; AE9 to AE110 AL9 to AL40	24 – 50 VAC/VDC 50 – 133 VAC/VDC 110 – 250 VAC/VDC 250 – 440 VAC/VDC	RV5/50 RV5/133 RV5/250 RV5/440	**$ 30**
A9 to A40	24 – 50 VAC 50 – 133 VAC 110 – 250 VAC 250 – 440 VAC	RC5-1/50 RC5-1/133 RC5-1/250 RC5-1/440	
A45 to A300	24 – 50 VAC 50 – 133 VAC 110 – 250 VAC 250 – 440 VAC	RC5-2/50 RC5-2/133 RC5-2/250 RC5-2/440	
EK110 to EK210	24 – 48 VAC 110 – 415 VAC	RC-EH250/48 RC-EH250/415	
EK370 to EK550	48 – 110VAC	RC-EH800/110	**52**
EK110 to EK550	24 – 125VDC	RC-EH800/110	
EK370 to EK550	220 – 600VAC	RC-EH800/600	

Technical data

Type		Control circuit	Opening time growth factor	Residual overvoltage or clipping voltage	Remarks	
RT 5 /... transil diode					Advantages	• Good energy absorption • Unpolarized system • Simple, reliable system
	32	DC		50 V		
	65	DC		100 V		
	90	DC	2.5 to 3	150 V	Drawback	• A certain delay on drop out which does not however reduce contactor breaking capacity.
	150	DC		210 V		
	264	DC		390 V		
Varistor	**RV 5/...**				Advantages	• High energy absorption; good damping • Unpolarized system
	50	AC/DC		132 V		
	133	AC/DC	1.1 to 1.5	270 V		
	250	AC/DC		480 V	Drawback	• Clipping as from U_{vdr}, thus voltage front up to this point
	440	AC/DC		825 V		
RC 5-1/... or RC 5-2/... **RC-EH 300/...**	see table above	AC	1.2 to 3	2 to 3 x Uc	Advantages	• Very fast clipping • Attenuation of steep fronts and thus of high frequencies • No operating delays
						
Varistor + RC	**RC-EH ...**				Advantages	• High energy absorption: good damping • Unpolarized system • The RC system damps the voltage front under the Uvdr* threshold.
	800/110	AC/DC	1.1 to 1.5	205 V		
	800/600	AC		1100 V		

*Uvdr = Varistor operating voltage (voltage dependent resistor), tolerance ± 10%

Accessories
Surge suppressors for A/AE/AL/EK contactors
General information



General

The operation of inductive circuits causes overvoltages, in particular on opening of the contactor coil.

The electromagnetic energy stored by the coil during contactor closing is restored on opening in the form of surges, the slope and amplitude of which may rise to several kilovolts. A number of drawbacks are observed ranging from interference on the electronic devices to breakdown of insulators and even destruction of certain sensitive components.

The graph opposite reproduces the oscillogram showing voltage discharges at the terminals of a 42V/50Hz coil without peak clipping. The coil was switched by 8 series-connected poles of a contactor relay.

Following a burst of discharges with a very steep slope a damped oscillation emerges with a peak value of 3500V.

Overvoltage factor

The overvoltage factor k is defined as the ratio of the maximum overvoltage peak value $\hat{U}_s$ to the peak value $\hat{U}_c$ of the coil rated control voltage U_c:

$$k = \frac{\hat{U}_s \text{ max.}}{\hat{U}_c}$$ in DC: $$k = \frac{\hat{U}_s \text{ max.}}{U_c}$$ or in AC: $$k = \frac{\hat{U}_s \text{ max.}}{U_c\sqrt{2}}$$

For example the following is obtained for the above graph: $$k = \frac{3500}{42\sqrt{2}} \approx 60$$

Surge suppressors

To guard against the harmful effects of these overvoltages, ABB has developed a range of surge suppressors designed to reduce the k factor defined above and to limit or even completely eliminate the high pre-damping voltage frequencies.

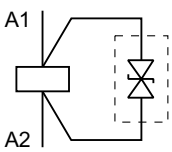
Each case is different, but the technical data tolerances and the generous sizing of parts have enabled us to reduce the number of variants.

We have chosen the following solutions: transil diodes, varistors and RC blocks.

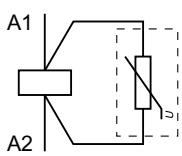
Note: A varistor is a resistor whose value increases to a very large extent when a certain voltage is applied at its terminals.

Wiring diagrams

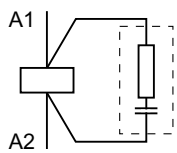
Transil diode



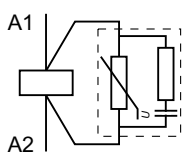
Varistor (only)



RC type



Varistor + RC



General technical data

The housings and impregnation resins of the surge suppressors are made of flame-resistant materials in accordance with the UL 94 standard.

These systems are not polarized, i.e. d.c. operated devices do not have to be connected in a specific direction.

- Operating temperature: -20 to +70 °C
- Connection to the coil terminals (parallel mounting)
  - For **RT 5**, **RV 5**, **RC 5-1** and **RC 5-2**: clip-on for both fixing and connection.
- Mounting:
  - **RT 5**, **RV 5** and **RC 5**: clipped onto the top part of the contactor base. This mounting method prevents any projections and change in contactor dimensions.
  - **RC-EH**: glued to the top part of the contactor base.

Accessories
Interface relays for A contactors

A30-30-10 + RA 5

RA 5

Interface relays

Mounting on contactor types	Control voltage U_c	Coil voltages	Catalog number	List price
N, A9 – A110	24 VDC	24 – 250V, 50, 60 Hz	RA5-1	**$ 75**

NOTE: The interface relays provided for the A contactors can also b e used for UA, UA..., RA and GA types.

Application

RA 5-1 interface relays are designed to receive 24 VDC signals delivered by PLC's or other sources with a low output power and restore them with sufficient power to operate the coils of the relevant A9 - A110 contactors or the N control relays.

• IEC only

Description

RA5 interface relays are made up of a miniature electromechanical relay equipped with a N.O. contact and with a low consumption 24 VDC coil.

The interface relay coil is controlled by the PLC while the N.O. contact ensures switching of the power contactor.

Coil switching gives rise to overvoltages which have adverse effects on the electronic devices, insulators and, more generally, on component lifetime. The RA 5-1 is equipped with surge suppressors:

- on the 24 VDC relay coil via a diode
- on the power contactor coil via a varistor.

Furthermore, the RA 5-1 are protected against relay pole reversal by a diode inserted between the E1 and E2 input terminals.

Connection

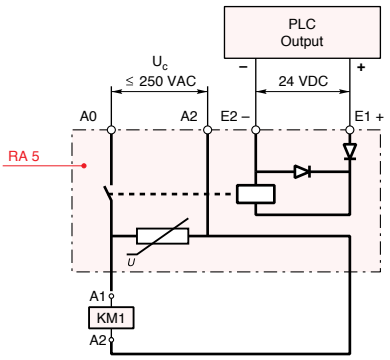
The “E1+” and “E2–” input terminals must be connected, according to their polarity, to the PLC output.

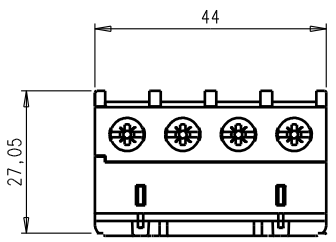
The RA 5 is equipped with two terminal pads for connection to the A1 and A2 terminals of the contactor coil. This coil is supplied between the A0 and A2 terminals of the RA 5.

Mounting

• RA5: terminal pads clamped inside the contactor coil terminals.

RA 5-1 interface relay for the A 9 – A 110 contactors and N control relays





General technical data

Compliance with standards		IEC 60255-5
Rated insulation voltage U_i according to IEC 60947-4-1	**V a.c.**	250
Permissible ambient temperature:		
– for free air operation:		
– at U_c = 24 V d.c. (between E1 and E2)	**°C**	-25 ... +70
– from 0.85 to 1.1 U_c	**°C**	-25 ... +55
– for storage	**°C**	-40 ... +70
Climatic withstand		Complies with that of associated contactors
Operating altitude	**m**	≤ 3000
Mounting position		No limitation
Fixing		Using the contactor A1 and A2 terminal connecting parts
Connecting terminals (delivered in open position)		M3.5 (+,-) pozidriv 2 screws with cable clamp
Connecting capacity (min. ... max.)		
– rigid solid	2 x **mm²**	1 ... 4
– flexible with cable end	2 x **mm²**	0.75 ... 2.5
Tightening torque		
– recommended	**Nm**	1.00
– max.	**Nm**	1.20
Degree of protection according to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529		Protection against direct contact in acc. with EN 50274 RA5-1 wired and mounted on the associated contactor

Working data

Surge suppression:		
– for contactor coil		Varistor
– for interface relay coil		Diode
Protection against polarity reversal between terminals E1 and E2		Diode
Interface relay operating time	**ms**	Closing and drop-out ≤ 10
Total operating time, interface relay + contactor:		
– between energization and:		
N.O. contact closing	**ms**	20 ... 37
N.C. contact opening	**ms**	17 ... 32
– between de-energization and:		
N.O. contact opening	**ms**	17 ... 25
N.C. contact closing	**ms**	20 ... 28

Electrical input data

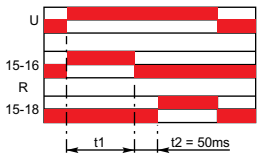
Control voltage (E1and E2 terminals) U_c		
– rated value	**V d.c.**	24
– max. range at ambient temperature 20 °C	**V d.c.**	19 ... 30
Max. consumption for U_c = 24 V d.c., θ = 20 °C	**W**	0.3
"0" status (relay open) for U_c	**V d.c.**	≤ 2.4
or I_c	**mA**	< 1
"1" status (relay closed) for U_c	**V d.c.**	≥ 19
Max. short supply interruption immunity time	**ms**	2

Electrical output data

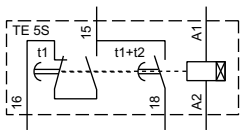
Switching voltage (A0 and A2 terminals)	**V a.c.**	≤ 250
Electrical durability	**million of operating cycles**	2 (600 cycles/h) on A 9 ... A 75 contactors or N... contactor relay 0.5 (600 cycles/h) on A 95 and A 110 contactors

Accessories
for A contactors
TE5S electronic timer for wye-delta starters

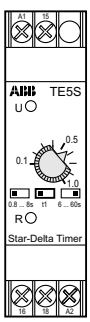
TE5S-*



Chart



Equivalent diagram



Front face

Electronic timer

For contactors	Rated control voltage U_c V	Packing piece	Unit weight kg	Catalog number	List price
A9 – AF750	24 AC/DC 110 – 120 AC 220 – 240 AC 380 – 440 AC	1 1 1 1	0.080 0.080 0.080 0.080	TE5S-24 TE5S-120 TE5S-240 TE5S-440	**$ 120**

Application

Utilization

When used in wye-delta starters, the **TE5S** lags the wye connection and provides a lapse of 50 ms before the switchover to the delta connection.

Description

According to the type of device chosen, the electronic circuit has a 24 VAC/VDC, 110 – 120 VAC or 220 – 230 VAC supply. An output relay with reversing contact ensures high current switching. A two-position switch allows selection of one of the two time delay ranges: 0.8 to 8 s or 6 to 60 s. The 0.1 to 1.0 adjustable knob allows an initial setting without steps within the previously selected range which can then be adjusted using a stopwatch.

Note: We recommend that you allow for temperature drift for the final adjustment of the time delay setting. Drift: – 0.2% per °C. For example, a setting made at 20 °C will yield a time delay shorter by 7% at 55 °C in an enclosure. (– 0.2% per °C i.e. – 0.2 x 35 = – 7%).

The TE5S, which is not affected by these settings, establishes a fixed “lapse” of 50 ms between the opening of contact 15 – 16 and the closing of contact 15 – 18. It is this time delay that prevents from arc short-circuit during wye to delta switching.

Operation

On energization, the green U indicator light (voltage applied) comes on. Contact 15 – 16 then immediately moves to the closed position.

Count-down of the programmed time immediately commences.

When the time delay has elapsed, contact 15 – 16 opens and at the same time the 50 ms lapse, t2, begins after which contact 15 – 18 moves to the closed position. The yellow R indicator light comes on.

On de-energization, the U and R indicator lights go out and, after the 250 ms resetting time, the device is ready for a new cycle.

Mounting

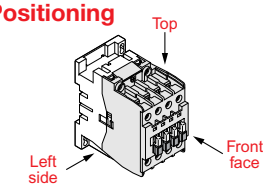
Mounts on 35mm DIN rail.

Technical Data

Types			TE5S-24	TE5S-120	TE5S-240	TE5S-440
Compliance with standards			IEC 60947-5-1, EN 60947-5-1			
Rated insulation voltage U_i according to IEC 60947-5-1		V	440			
Rated operational voltage U_e		V d.c.	24			–
according to IEC 60947-5-1		V a.c.	24 ... 240			440
Conventional free air thermal current I_{th}		A	10			
Rated operational current I_e acc. to IEC 60947-5-1						
AC-15	24-120 V a.c.	A	5			–
	220-240 V a.c.	A	4			–
	380-440 V a.c.	A	–			3
DC-13	24 V d.c.	A	4			–
Short-circuit protection - gG type fuses		A	10			
Rated supply voltage U_c		V d.c.	24	–	–	–
		V a.c.	24	110 ... 120	220 ... 240	380 ... 440
– Rated frequency limits		Hz	48 ... 63			
– Supply voltage range			0.85 ... 1.1 U_c			
– Overvoltage protection			Built-in varistor			
– Load factor		%	100			
– Average consumption	– in d.c.	W	0.7	–	–	–
	– in a.c.	VA	1.5	3.5	6.5	12.5
Time delay range (t_1) selected by switch		s	0.8 ... 8 and 6 ... 60			
– Temperature drift		% per °C	-0.2			
– Mechanical setting accuracy			±15 % of the setting range			
– On-load reiteration accuracy under constant conditions			±2 % after 1 million operating cycles			
Minimum time lapse (t_2)		ms	50			
Min. time lapse after 1 million operating cycles		ms	40			
Resetting time (maximum)		ms	250			
Front panel display: – green indicator light			Energization			
– yellow indicator light					Output relay activated	
Permissible air temperature						
– for operation		°C	-25 ... +60			
– for storage		°C	-40 ... +85			
Vibration withstand acc. to IEC 60068-2-6, EN 60068-2-6			3 g from 10 to 300 Hz in the 3 directions			
Shock withstand acc. to IEC 60068-2-27, EN 60068-2-27			20 g / 11 ms in directions A and C 15 g / 11 ms in direction B			
Electrical durability	in millions of op. cycles		1			
Mechanical durability	in millions of op. cycles		5			
On-load maximum switching frequency		cycles/h	720			600
Fixing on mounting rail acc. to IEC/EN 60715			35 x 7.5 or 35 x 15			
Connecting terminals			(+,-) pozidriv 1 screw			
Connecting capacity						
– rigid solid		1 or 2 x mm^2	1 ... 2.5			
– flexible with cable end		1 or 2 x mm^2	0.75 ... 2.5			
Tightening torque		Nm	0.6 ... 0.8 max.			
Degree of protection according to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529		Terminals	IP 20			

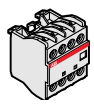
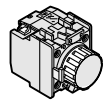
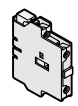
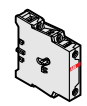
Accessories
Possible accessory combinations for A contactors

Positioning



Accessories – Front face mounting			Accessories – Side mounting		
Auxiliary contacts 1 – pole	Auxiliary contacts 4 – pole	Pneumatic timers	Auxiliary contacts	Electrical or mechanical interlock①	
CA5-10 or CA5-01	CA5-40 or CA5-22 or CA5-31	TP – D or TP – I	CAL 5-11 CAL18-11 CAL18-11B	VE5-1 or VM 5-1	VE 5-2 VM300H VM300/460H VM750H

Configurations of accessories are different depending on whether front or side mounted.

N Contactor relays A and AE Contactors		Accessories – Front mounting				Accessories – Side mounting	
		Auxiliary contact blocks 1-pole CA5-		4-pole CA5-	TP - A Pneumatic timer block	Auxiliary contact Blocks 2-pole CAL5-11, CAL18-11	Interlock units
Type	Main poles / Built-in auxiliary contacts						
A9 – A26	**– 3 0 – 1 0**	1 to 4 **CA5-** 1-pole blocks	OR	1 **CA5-** 4-pole block	OR 1 **TP - A** block	+ 1 to 2 **CAL5-11** blocks	OR 1 **VM/E 5-1** block + 1 **CAL5-11** block
A9 – A26	**– 3 0 – 0 1** ①						
A9 – A26	**– 4 0 – 0 0**						
A9 – A26	**– 2 2 – 0 0** ①						
AE9 – AE26	**– 3 0 – 0 0**						
AL9 – AL26	**– 3 0 – 1 0**	1 to 4 **CA5-** 1-pole blocks	OR	1 **CA5-** 4-pole block	OR –	OR 1 **CAL5-11** block	OR 1 **VM/E 5-1** block + 1 **CAL5-11** block
AL9 – AL26	**– 3 0 – 0 1**						
AL9 - AL16	**– 4 0 – 0 0**	1 to 4 **CA5-** 1-pole blocks	OR	1 **CA5-** 4-pole block	OR –	OR 1 **CAL5-11** block	OR 1 **VM/E 5-1** block + 1 **CAL5-11** block
AL9 - AL16	**– 2 2 – 0 0**						
AL26	**– 4 0 – 0 0**						
AL26	**– 2 2 – 0 0**						
A9 – A16	**– 3 0 – 2 2**	–		–	–	+ 1 to 2 **CAL5-11** blocks	OR 1 **VM/E 5-1** block + 1 **CAL5-11** block
A9 – A26	**– 3 0 – 3 2**						
A30, A40	**– 3 0 – 1 0**	1 to 5 **CA5-** 1-pole blocks	OR	1 **CA5-** 4-pole block + 1 **CA5-** 1-pole block	OR 1 **TP - A** block + 1 **CA5-** 1-pole block	+ 1 to 2 **CAL5-11** blocks	OR 1 **VM/E 5-1** block + 1 **CAL5-11** block
A30, A40	**– 3 0 – 0 1**						
AE30, AE40	**– 3 0 – 1 0**						
AE30, AE40	**– 3 0 – 0 1**						
AE30, AE40	**– 3 0 – 1 0**	1 to 5 **CA5-** 1-pole blocks	OR	1 **CA5-** 4-pole block + 1 **CA5-** 1-pole block	OR –	OR 1 **CAL5-11** block	OR 1 **VM/E 5-1** block + 1 **CAL5-11** block
AE30, AE40	**– 3 0 – 0 1**						
A30, A40	**– 3 0 – 3 2**	1 **CA5-** 1-pole block		–	–	+ 1 to 2 **CAL5-11** blocks	OR 1 **VM/E 5-1** block + 1 **CAL5-11** block
A50 – A75	**– 3 0 – 0 0**	1 to 6 **CA5-** 1-pole blocks	OR	1 **CA5-** 4-pole block + 2 **CA5-** 1-pole blocks	OR 1 **TP - A** block + 2 **CA5-** 1-pole blocks –	+ 1 to 2 **CAL5-11** blocks 2 **CAL18-11** blocks	OR 1 **VE5-2** block + 1 **CAL5-11** block 1 **VE5-2** + **CAL5-11**
A45 – A75	**– 4 0 – 0 0**						
A45, A75	**– 2 2 – 0 0** ②						
A95, A110	**– 3 0 – 0 0**						
A50 – A75	**– 3 0 – 2 2**	2 **CA5-** 1-pole blocks		–	–	+ 1 to 2 **CAL5-11** blocks	OR 1 **VE5-2** block + 1 **CAL5-11** block
A95, A110	**– 3 0 – 2 2**						
AE50 – AE75	**– 3 0 – 0 0**	1 to 6 **CA5-** 1-pole blocks	OR	1 **CA5-** 4-pole block + 2 **CA5-** 1-pole blocks	OR 1 **TP - A** block + 2 **CA5-** 1-pole blocks –	+ 1 **CAL5-11** block 1 **CAL5-11** block 1 **CAL5-11** block 1 **CAL18-11** block	OR 1 **VE5-2** block
AE45 – AE75	**– 4 0 – 0 0**						
AE45, AE75	**– 2 2 – 0 0** ②						
AE95, AE110	**– 3 0 – 0 0**						
A50 – A75	**– 3 0 – 1 1**	1 to 6 **CA5-** 1-pole blocks	OR	1 **CA5-** 4-pole block + 2 **CA5-** 1-pole blocks	OR 1 **TP - A** block + 2 **CA5-** 1-pole blocks –	+ 1 **CAL5-11** block – 1 **CAL18-11** block –	OR 1 **VE5-2** block – 1 **VE5-2** block –
AE50, AE75	**– 3 0 – 1 1**						
A95, A110	**– 3 0 – 1 1**						
AE95, AE110	**– 3 0 – 1 1**						
A145 – AF2050	**– 3 0 – 0 0**	–		–	–	1 to 2 **CAL18-11** blocks + 1 to 2 **CAL18-11B** blocks	OR 1 **CAL18-11** block + 1 **CAL18-11B** block + **VM300H** or **VM300/460H** or **VM750H** interlock

Contactor mounting configurations (standard from factory)

Auxiliary contacts are mounted on the contactor in the following order:

Left – 1st
Right – 2nd
Top – 3rd (L to R)

① In mounting position 5 (see page 1.36), there should be no more than 2 "N.C." front-mounted auxiliary contacts – The **CAL 5-11** side-mounted blocks offer additional "N.C." contacts.
② Whatever the mounting position (see page 1.36), there should be no more than 2 "N.C." front-mounted auxiliary contacts – The **CAL 5-11** side-mounted blocks offer additional "N.C." contacts.

Accessories
Terminal markings
CA/CC/CAL/CCL auxiliary contacts

One pole auxiliary contacts (top mounted)

CA5-01

CA5-10

CE5-01

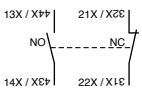
CE5-10

CC5-01 (EM/LB)

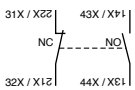
CC5-10 (EM/LB)

Legend
L.H.S. = Left hand side mounted
R.H.S. = Right hand side mounted
EM/LB = Early make / Late break

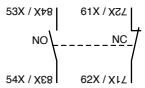
Two pole auxiliary contacts



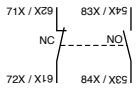
CAL5-11 (L. h. s. mounted)



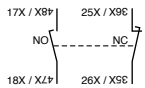
CAL5-11 (R. h. s. mounted)



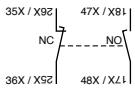
CAL5-11B (L. h. s. mounted)



CAL5-11B (R. h. s. mounted)



CCL5-11 (L. h. s. mounted) **(EM/LB)**



CCL5-11 (R. h. s. mounted) **(EM/LB)**

CAL16-11 A (L. h. s. mounted)

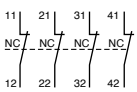
CAL16-11 B (R. h. s. mounted)

CAL16-11 C (L. h. s. mounted)

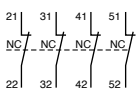
CAL16-11 D (R. h. s. mounted)

CAL16-11E (L & R. h. s. mounted) **(EM/LB)**

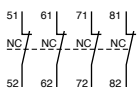
Four pole auxiliary contacts (Top mounted)



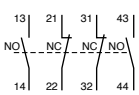
CA5-04 E



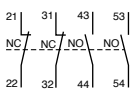
CA5-04 M



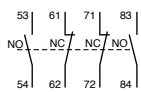
CA5-04 N



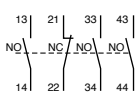
CA5-22 E



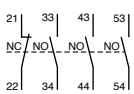
CA5-22 M



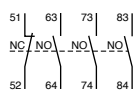
CA5-22 N



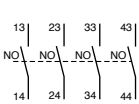
CA5-31 E



CA5-31 M

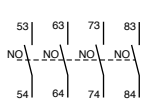


CA5-31 N

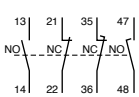


CA5-40 E

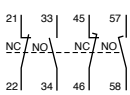
—



CA5-40 N



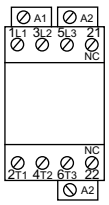
CA5-11/11 E



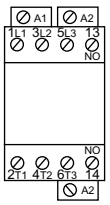
CA5-11/11 M

Accessories
Terminal markings & positioning for A/UA contactors

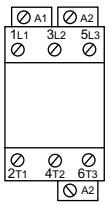
Standard devices without addition of auxiliary contacts



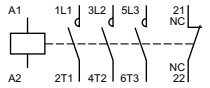
A9 – A40-30-01



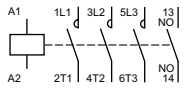
A9 – A40-30-10



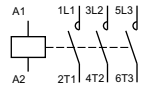
A50 – A110-30-00
UA50 – UA110-30-00



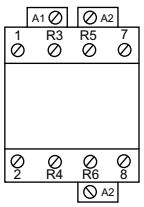
A9 – A40-30-01



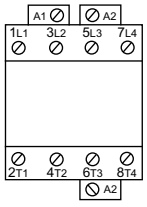
A9 – A40-30-10



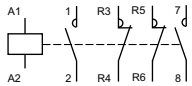
A50 – A110-30-00
UA50 – UA110-30-00



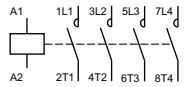
A9 – A26-22-00
A45 – A75-22-00



A9 ... A26-40-00
A45 ... A75-40-00

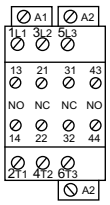


A9 – A26-22-00
A45 – A75-22-00

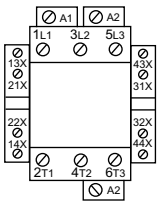


A9 – A26-40-00
A45 – A75-40-00

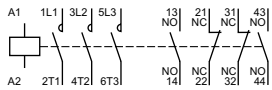
Standard 3 pole devices with factory mounted auxiliary contacts



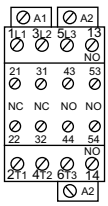
A9 – A16-30-22



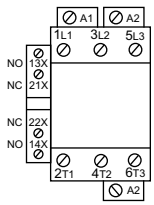
Combination 22



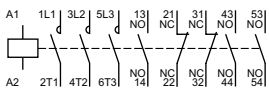
A9 – A16-30-22
A50 – A110-30-22



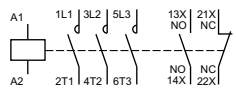
A9 – A40-30-32



A50 ... A110-30-11
UA50 ... UA110-30-11

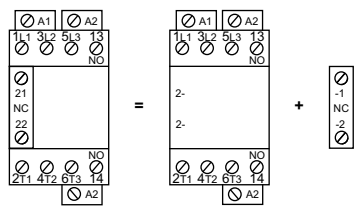


A9 – A40-30-32

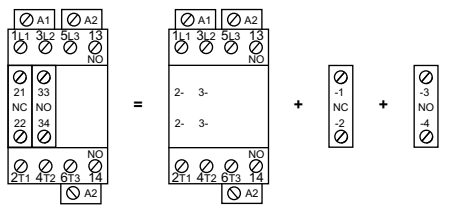


A50 – A110-30-11
UA50 – UA110-30-11

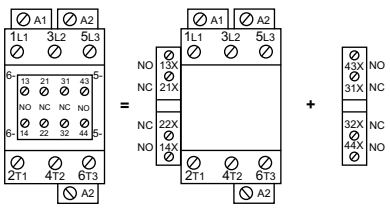
Other possible contact combinations with auxiliary contacts added by the user



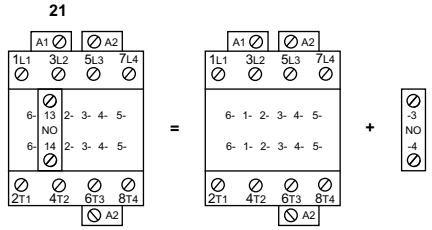
Combination 11 = A9 – A40-30-10 + CA5-01



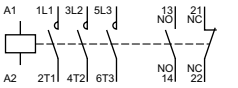
Combination 21 = A9 – A40-30-10 + CA5-01 + CA5-10



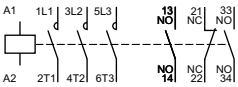
A50 – A110-30-22 = A50 – A75-30-11 + CAL5-11



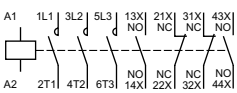
Combination 10 = A45 – A75-40-00 + CA5-10



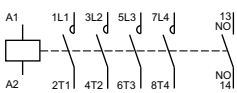
Combination 11



Combination 21



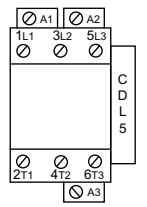
Combination 22



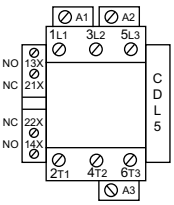
Combination 10

Accessories
Terminal marking and positioning for AE/AL contactors

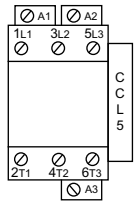
AE Contactors – D.C. operated



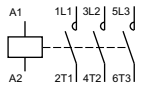
AE50 – AE75-30-00



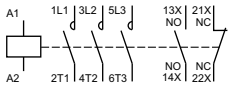
AE50 – AE75-30-11



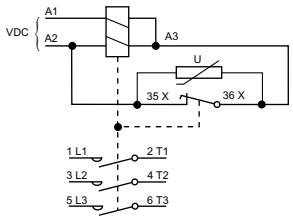
AE95 – AE110-30-00



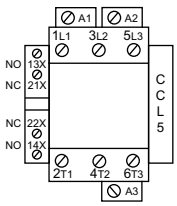
AE50 – AE110-30-00



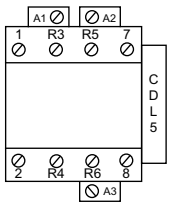
AE50 – AE110-30-11



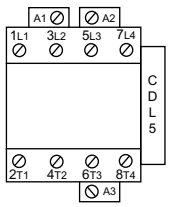
Coil wiring



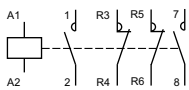
AE95 – AE110-30-11



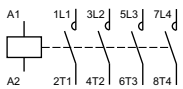
AE45 – AE75-22-00



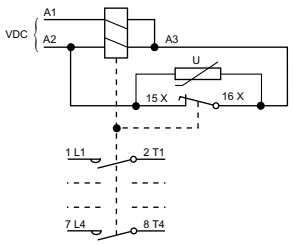
AE45 – AE75-40-00



AE45 – AE75-22-00

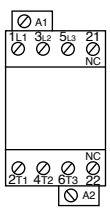


AE45 – AE75-40-00

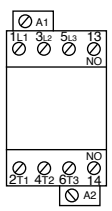


Coil wiring

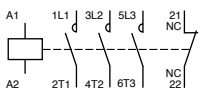
AL Contactors – D.C. operated
Standard devices without addition of auxiliary contacts



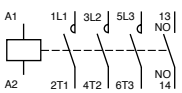
AL9 – AL40-30-01



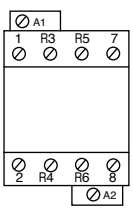
AL9 – AL40-30-10



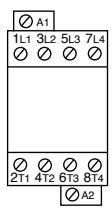
AL9 – AL40-30-01



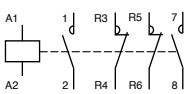
AL9 – AL40-30-10



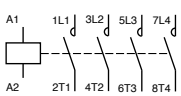
AL9 – AL26-22-00



AL9 – AL26-40-00

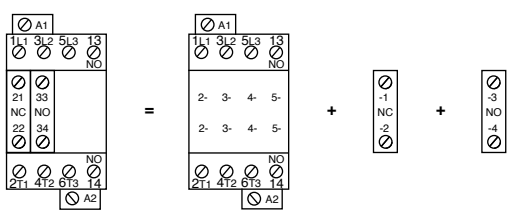


AL9 – AL26-22-00



AL9 – AL26-40-00

Other possible contact combinations with auxiliary contacts added by the user



Combination 21 = AL9 – AL40-30-10 + CA5-01 + CA5-10

Combination 21